

SECTION 00001  
TITLE PAGE

City of Sausalito  
420 Litho St  
Sausalito, CA 94965

**PROJECT MANUAL  
INCLUDING SPECIFICATIONS  
OF THE**

SAUSALITO PUBLIC RESTROOMS  
768 Bridgeway  
Sausalito, CA 94965

APN# 065-073-02

Bid Date: June 12, 2012

ARCHITECTS

**Werner Associates Architects**

30 Libertyship Way, Suite 3250  
Sausalito, CA 94965-3325

(415) 332-9300  
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February 27, 2012  
Revised April 13, 2012

ISSUED FOR BIDDING MAY 9, 2012

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SECTION 00100  
ADVERTISEMENT TO BID

**NOTICE IS HEREBY GIVEN** that the City of Sausalito ("City"), California, acting through its City Council, hereinafter referred to as the City or City of Sausalito, will accept sealed bids for the award of the contract for the following public work:

Sausalito Downtown Public Restroom Construction Project  
Sausalito, Marin County, California

Each bid must conform to and be responsive to the contract documents and be submitted on a form furnished by the City of Sausalito. The project scope is **New Construction** of restrooms and Bus Shelter in downtown Sausalito, California. Work shall include demolition of existing concrete pad, steel frame construction, new plumbing and electrical work and bus stop with new seating. Bidding documents contain the full description of the Work.

**Bids due:** Sealed Bids will be received by the City of Sausalito at its office located at 420 Litho St, Sausalito, CA 94965 **no later than:**

2:00 p.m. local time, on Tuesday June 12th, 2012.

The primary contact for this project is Loren Umbertis, telephone 415-289-4113, and email: [lumbertis@ci.sausalito.ca.us](mailto:lumbertis@ci.sausalito.ca.us)

**Procurement of bidding documents:** With the exception of its website, the City of Sausalito will not be a distribution point for plans. Plans will be released as full sets only, no partial sets will be provided.

**A Mandatory Pre-Bid Conference will be held at** the City Hall of Sausalito located at 420 Litho St., Sausalito, CA 94965 in the Conference Room adjacent to the City Council Chambers on Wednesday, May 16<sup>th</sup>, 2012 at 9:00 a.m

Bidders shall read and review the bid documents carefully, and shall familiarize themselves thoroughly with all requirements. Bid documents will be available for review at the pre-bid conference and job walk.

A bid bond or certified check in the amount of 10% of the bid is required. Within ten (10) days after issuance of the Notice to Proceed, the successful bidder shall furnish a Labor and Materials Payment Bond and Performance Bond, in an amount equal to 100% of the Contract amount. Bids shall not expire for a period of sixty (60) days from the bid date. Wage rates and restrictions on working days and times shall meet all requirements of the Labor Code of the State of California for public contract. The bidder may contact the Director of the Department of Industrial Relations, phone number (415) 703-4774, to obtain a schedule of the general prevailing wages applicable to the location and work to be done. The contractor and the contractor's subcontractor are responsible for compliance with the requirements of Section 1777.5 and 1777.6 of the Labor Code of the State of California regarding employment of apprentices.

The City of Sausalito will make a bid selection based on lowest responsible bidder meeting the minimum qualifications. If only one bid is received, the City of Sausalito reserves the right to negotiate with the responding contractor. If no bids are received, the City of Sausalito reserves the right to identify interested contractor(s) and negotiate directly without re-bidding.

The City of Sausalito is an equal opportunity employer.

**Published:** May 9<sup>th</sup>, 2012

END OF SECTION

## SECTION 00200

## INSTRUCTIONS TO BIDDERS

Bids are requested for a general construction contract, or work described in general, as follows:

Public Restroom Construction Project

**RECEIPT OF BIDS.** Sealed Bids will be received by the City of Sausalito at their office (see paragraph 2 below) by 2:00 p.m. local time, on Tuesday June 12th, 2012. **All Bids will be time stamped to reflect their submittal time.**

2. CONTACT INFORMATION:

Mailing address:  
City of Sausalito  
Office of the City Clerk  
c/o Debbie Pagliaro  
420 Litho St  
Sausalito, CA 94965

Contact for Project Information:  
Loren Umbertis, Division Manager, Public Works  
lumbertis@ci.sausalito.ca.us

Telephone:  
(415) 289-4113

3. **BID SUBMISSION.** Bidder should mark its Bid envelopes as "BID FOR THE CITY OF SAUSALITO PUBLIC RESTROOM CONSTRUCTION PROJECT." Bids shall be deemed to include the written responses of the Bidder to any questions or requests for information of City of Sausalito made as part of Bid prior to submission of Bid. Bidder's failure to submit all required documents strictly as required entitles City of Sausalito to reject the Bid as non-responsive.

4. **CONTENTS OF ENVELOPE A – BID PRICE:** Envelope A shall include the following:  
SECTION 00400 (Bid Form) completed in accordance with paragraph 6 of this Section 00200.

5. **CONTENTS OF ENVELOPE B – BIDDER QUALIFICATIONS.** Envelope "B" shall include:  
SECTION 00200 Bid security supplied and completed in accordance with paragraph 7 of this Section 00200.  
SECTION 00430 (Subcontractors List) in accordance with paragraph 8 of this Section 00200 and Section 00430 (Subcontractors List).  
SECTION 00460 (Schedule of Major Equipment and Material Suppliers). Bidder must complete this form as indicated.  
SECTION 00481 (Non-collusion Affidavit).  
SECTION 00485 (Key Personnel)

6. **REQUIRED BID FORMS.** All Bidders must submit Bids using, where applicable, documents supplied in this Project Manual, including without limitation

- Section 00400 (Bid Form)



- Section 00430 (Subcontractors List)
- Section 00460 (Schedule of Major Equipment and Material Suppliers)
- Section 00481 (Non-collusion Affidavit)
- Section 00485 (Key Personnel)

The City of Sausalito will reject as non-responsive any Bid not submitted on the required forms. Bids must be full and complete. Bidders must complete all Bid items and supply all information required by Bidding Sections. City of Sausalito reserves the right in its sole discretion to reject any Bid as non-responsive as a result of any error or omission in the Bid. Bidders may not modify the Bid Form or qualify their Bids. Bidders must submit clearly and distinctly written Bids. Bidders must clearly make any changes in their Bids by crossing out original entries, entering new entries, and initialing new entries. City of Sausalito reserves the right to reject any Bid not clearly written.

**7. REQUIRED BID SECURITY.** Bidders must submit with their Bids either cash, a cashier's check, or certified check from a responsible bank in the United States, or corporate surety bond furnished by a surety authorized to do business in the State of California, of not less than ten percent of amount of Bid, payable to City of Sausalito. All Bidders choosing to submit a surety bond must submit it on the required form, Section 00411 (Bond Accompanying Bid). City of Sausalito will reject as non-responsive any Bid submitted without the necessary Bid security.

The City of Sausalito may retain Bid securities and Bid bonds of other than the Apparent Low Bidder for a period of 90 Days after award or full execution of the Contract, whichever first occurs. Upon full execution of the Contract, and upon request by Bidder, City of Sausalito will return to the respective unsuccessful Bidders their Bid securities and Bid bonds.

**8. REQUIRED SUBCONTRACTORS LIST.** All Bidders must submit with their Bids the required information on all Subcontractors in Section 00430 (Subcontractors List) for those Subcontractors who will perform any portion of the Work, including labor, rendering of service, or specially fabricating and installing a portion of the Work or improvement according to detailed drawings confined in the plans and specifications, in excess of one half of one percent of total Bid. Violation of this requirement may result in Bid being deemed non-responsive and not being considered.

**9. MANDATORY PRE-BID SITE VISIT.** City of Sausalito will conduct a Mandatory Pre-Bid Site Visit in the Conference Room adjacent to the City Council Chambers on Wednesday, May 16<sup>th</sup>, 2012 at 9:00 a.m. Bidders are encouraged to submit written questions in connection with the Site Visit. The City of Sausalito will transmit to all parties recorded as having received Bidding documents such Addenda as City of Sausalito in its discretion considers necessary in response to written questions. Bidders shall not rely on oral statements. Oral statements will not be binding or legally effective. Other Pre-Bid Site visits may be scheduled at City of Sausalito's sole discretion, depending on staff availability.

**10. OTHER REQUIREMENTS PRIOR TO BIDDING.** Submission of Bid signifies Bidder's careful examination of Bidding Documents and complete understanding of the nature, extent, and location of Work to be performed. As a condition to Bidding, Bidder must complete tasks listed in Section 00520 (Agreement), Article 5. Submission of Bid shall constitute Bidder's express representation to the City of Sausalito that Bidder has fully completed these tasks.

**11. EXISTING DRAWINGS AND GEOTECHNICAL DATA.** Bidders may examine any available existing conditions information (e.g., record documents, specifications, studies, drawings of previous work) by giving City of Sausalito reasonable advance notice, as well as applicable environmental assessment information (if any) regarding the Project. Section 00320 (Geotechnical Data, Existing Conditions and Hazardous Materials Surveys) applies to all supplied existing conditions information and geotechnical reports and all other information supplied regarding existing conditions either above ground or below ground. Documents available for onsite review at the City of Sausalito, 420 Litho Street, Sausalito, CA and the City's website, [www.ci.sausalito.ca.us](http://www.ci.sausalito.ca.us).

**12. ADDENDA.** Bidders must direct all questions about the meaning or intent of Bidding Documents to City of Sausalito Representative in writing. Interpretations or clarifications considered necessary by City of Sausalito in

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response to such questions will be issued by Addenda mailed, faxed, or delivered to all parties recorded by City of Sausalito as having received Bidding Documents. Addenda will be written and will be issued to each bid to the address or fax number supplied City of Sausalito by Bidder. City of Sausalito may not answer questions received less than ten days prior to the date for opening Bids. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Addenda may also be issued to modify the Bidding Documents as deemed advisable by City of Sausalito. Addenda shall be acknowledged by number with signature in Section 00400 (Bid Form) and shall be part of the Contract Documents. A complete listing of Addenda may be secured from City of Sausalito.

**13. SUBSTITUTIONS.** Bidders must base Bids on products and systems specified in Contract Documents or listed by name in Addenda. Except as provided below, City of Sausalito will consider substitution requests on for “or equal items.” Bidders wanting to use “or equal” item(s) may submit Section 00660 (Substitution Request Forms) items no later than 15 days before the due date for City of Sausalito receiving Bids. After that date, the City of Sausalito may accept “or equal” substitution requests from the contractor awarded the project. To assess “or equal” acceptability of product or system, submittals of substitutions shall contain the information required in Section 00660 (Substitution Request Forms) and set forth in Section 01600 (Product Requirements). Insufficient information will be grounds for rejection of substitution. City of Sausalito shall, within a reasonable period of time after having received a request for substitution, issue in writing its decision as to whether the proposed substitute item is an “or equal” item. City of Sausalito’s decision shall be conclusive on all Bidders.

Approved substitutions shall be listed in Addenda and become part of contract Documents. Substitutions may be requested after submitting Bids and Award of contract only in accordance with requirements specified in Section 01600 (Product Requirements).

**14. WAGE RATES.** Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the contract, as determined by Director of the State of California Department of Industrial Relations, are available through the Dept. of Industrial Relations and are deemed included in the Bidding Documents. Upon request, City of Sausalito will make available copies to any interested party. Also, Contractor shall post the applicable prevailing wage rates at the site.

**15. EQUAL EMPLOYMENT OPPORTUNITY.** Contractor shall comply with all applicable federal, state, and local laws, rules, and regulations in regard to nondiscrimination in employment because of race, color, ancestry, national origin, religion, sex, marital status, age, medical conditions, disability, or any other reason.

**16. BID OPENING.** City of Sausalito will open all Bidders’ Envelopes “A” immediately following bid, initially evaluate them for responsiveness, and determine an Apparent Low Bidder as specified herein. City of Sausalito will not open Envelopes “B” publicly, and except for the Apparent Low Bidder’s Envelope “B” (or as otherwise provided in this Section 00200), they will be returned to the bidder unopened.

**17. DETERMINATION OF APPARENT LOW BIDDER (Envelope “A”).** Apparent Low Bid will be based solely on the total amount of all Bid items (including any alternates as designated by the City of Sausalito) based on assumptions contained in Section 00400 (Bid Form). All Bidders are required to submit Bids on all Bid items (including any alternates as designated by the City of Sausalito).

**18. SECTION DELETED**

**19. BID EVALUATION.** City of Sausalito may reject any or all Bids and waive any informalities or minor irregularities in the Bids. City of Sausalito also reserves the right, in its discretion, to reject any or all Bids and to re-bid the Project. City of Sausalito reserves the right to reject any or all nonconforming, non-responsive, unbalanced, or conditional Bids, and to reject the Bid of any Bidder if City of Sausalito believes that it would not be in the best interest of Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by City of Sausalito. For purposes of this paragraph, an “unbalanced Bid” is one having nominal prices for some work items and enhanced prices for other work items. In evaluating Bids, City of Sausalito will consider Bidders’

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qualifications, whether or not the Bids comply with the prescribed requirements, omit prices and other data, as may be requested in Section 00400 (Bid Forms) or prior to the Notice of Award.

The City of Sausalito may conduct reasonable investigations and reference checks of Bidder, proposed Subcontractors, suppliers and other persons and organizations as City of Sausalito deems necessary to assist in the evaluation of any Bid; ability qualifications, financial ability proposed Subcontractors, suppliers, and to establish Bidder's responsibility, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to City of Sausalito's satisfaction within the prescribed time. Submission of a Bid constitutes Bidder's consent to the foregoing. City of Sausalito shall have the right to consider information provided by sources other than Bidder. City of Sausalito shall also have the right to communicate directly with Bidder's surety regarding Bidder's bonds.

Discrepancies between the multiplication of units of Work and limit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between written words and figures will be resolved in favor of the words.

Quantities stated in the Bidding Documents are approximate only and are subject to correction upon final measurement of the Work, and are subject further to the rights reserved by the City of Sausalito to increase or diminish the amount of work under any classification as advantages to design or construction needs require. City of Sausalito may determine whether a Bidder is qualified in its sole discretionary judgment.

**20. AWARD.** If the contract is to be awarded, it will be awarded to the lowest responsible responsive Bidder. Following completion of all required City of Sausalito procedures and receipt of all City of Sausalito approvals, City of Sausalito will issue Section 00510 (Notice of Award) to successful Bidder.

**21. BID PROTEST.** Any Bid protest must be submitted in writing to the City of Sausalito's offices, before 5:00 p.m. of the fifth calendar day following opening of Bidder's Envelopes.

The initial protest document must contain a complete statement of the basis for the protest. The protest must refer to the specific portion of the document that forms the basis for the protest. The protest must include the name, address, and telephone number of the person representing the protesting party.

Only Bidders who the City of Sausalito otherwise determines are responsive and responsible are eligible to protest a Bid; protests from any other Bidder will not be considered. In order to determine whether a protesting Bidder is responsive and responsible, City of Sausalito may open and evaluate information contained in any protesting Bidder's Envelope "B" and conduct the same investigation and evaluation as City of Sausalito is entitled to take regarding an of Apparent Low Bidder. Any such opened Envelope "B" shall also be subject to all provisions of paragraph 19 above.

The party filing the protest must concurrently transmit a copy of the initial protest document and any attached documentation to all other parties with a direct financial interest that may be adversely affected by the outcome of the protest. Such parties shall include all other Bidders who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.

The procedure and time limits set forth in this paragraph are mandatory and are Bidder's sole and exclusive remedy in the event of Bid protest. Bidder's failure to comply with these procedures shall constitute a waiver of any right to further pursue the Bid protest, including filing a Government Code Claim or legal proceedings. A Bidder may not rely on a protest submitted by another Bidder, but must timely pursue its own protest.

**22. POST-NOTICE OF AWARD REQUIREMENTS.** After Notice of Award, the successful Bidder must execute and submit the following documents as indicated below. Submit the following documents to City of Sausalito by 4:00 p.m. of the 10th day following Notice of Award. Execution of Contract by City of Sausalito depends upon approval of these documents: Section 00520 (Agreement): To be executed by successful Bidder. Submit four

originals, each bearing an original signature. Section 00610 (Construction Performance Bond): To be executed by successful Bidder and surety, in the amount set forth in Section 00610 (Construction Performance Bond). Submit one original. Section 00620 (Construction Labor and Material Payment Bond): To be executed by successful Bidder and surety, in the amount set forth in Section 00620 (Construction Labor and Material Payment Bond). Submit one original. Insurance certificates and endorsements required by Section 00700 (General Conditions) Article 4. Submit one original set. The Guaranty in the form set forth in Section 00630 (Guaranty). Submit four originals, each bearing an original signature.

City of Sausalito shall have the right to communicate directly with Apparent Low Bidder's proposed performance bond surety, to confirm the performance bond. City of Sausalito may elect to extend the time to receive performance and labor and material payment bonds. Successful Bidder's failure to submit the documents required herein, in a proper and timely manner, entitles City of Sausalito to rescind its award, and to cause Bidder's Bid security to be forfeited as provided herein.

**23. FAILURE TO EXECUTE AND DELIVER DOCUMENTS.** If Bidder to whom contact is awarded shall, within the period described in paragraph 24a of this Section 00200, fail or neglect to execute and deliver all required Contract Documents and file all required bonds, insurance certificates, and other documents, City of Sausalito may, in its sole discretion, foreclose on Bidder's deposit surety bond, or deposit Bidder's cashier's check or certified check for collection, and retain the proceeds thereof as liquidated damages for Bidder's failure to enter into the Contract Documents. Bidder agrees that calculating the damages City of Sausalito may suffer as a result of Bidder's failure to execute and deliver all required Contract Documents would be extremely difficult and impractical and that the amount of Bidder's required Bid security shall be the agreed and presumed amount of City of Sausalito's damages. In addition, upon such failure City of Sausalito may determine the next Apparent Low Bidder and proceed accordingly.

**24. MODIFICATION OF COMMENCEMENT OF WORK.** City of Sausalito expressly reserves the right to modify the date for the Commencement of Work under the Contract and to independently perform and complete work related to the Project.

**25. WITHDRAWAL OF BIDS.** Bidders may withdraw their Bids at any time prior to the Bid opening time fixed in this Section 00200, only by written request for the withdrawal of Bid filed with the City of Sausalito's representative. Bidder or its duly authorized representative shall execute request to withdraw Bid. The submission of a Bid does not commit the City of Sausalito to award a contract for the Project, to pay costs incurred in the preparation of a Bid, or to procure or contract for any goods or services.

**26. PUBLIC RECORDS ACT REQUESTS.** In conformance with the Public Records Act, the City of Sausalito will make available to the public Bidder's SOQ (if Bidder's Envelope "B" is opened), all correspondence and written questions submitted during the Bid period, all Bid submissions opened in accordance with the procedures of this Section 00200, and all subsequent Bid evaluation information. All submissions not opened will remain sealed and eventually be returned to the submitter. Except as otherwise required by law, City of Sausalito will not disclose trade secrets or proprietary financial information submitted that has been designated confidential by Bidder (including but not listed to the SOQ). Any such trade secrets or proprietary financial information that a Bidder believes should be exempted from disclosure shall be specifically identified and identified as such. Blanket-type identification by designating whole makes or section shall not be permitted and shall be invalid. The specific information must be clearly identified as such.

Upon a request for records regarding this Bid, City of Sausalito shall notify Bidder involved within ten days from receipt of the request of a specific date when the records will be made available for inspection. If the Bidder timely identifies any impropriety, trade secret, or confidential commercial or financial information that Bidder determines is not subject to public disclosure and requests City of Sausalito to refuse to comply with the records request, Bidder shall take all appropriate legal action and defend City of Sausalito's refusal to produce the information in all forums; otherwise, City of Sausalito will make such information available to the extent required by applicable law, without restriction.

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Information disclosed in the SOQ (if Envelope "B" is opened) and the attendant submissions are the property of City of Sausalito unless Bidder makes specific reference to data that is considered proprietary. Subject to the requirements in the Public Records Act, reasonable efforts will be made to prevent the disclosure of information except on a need-to-know basis during the evaluation process.

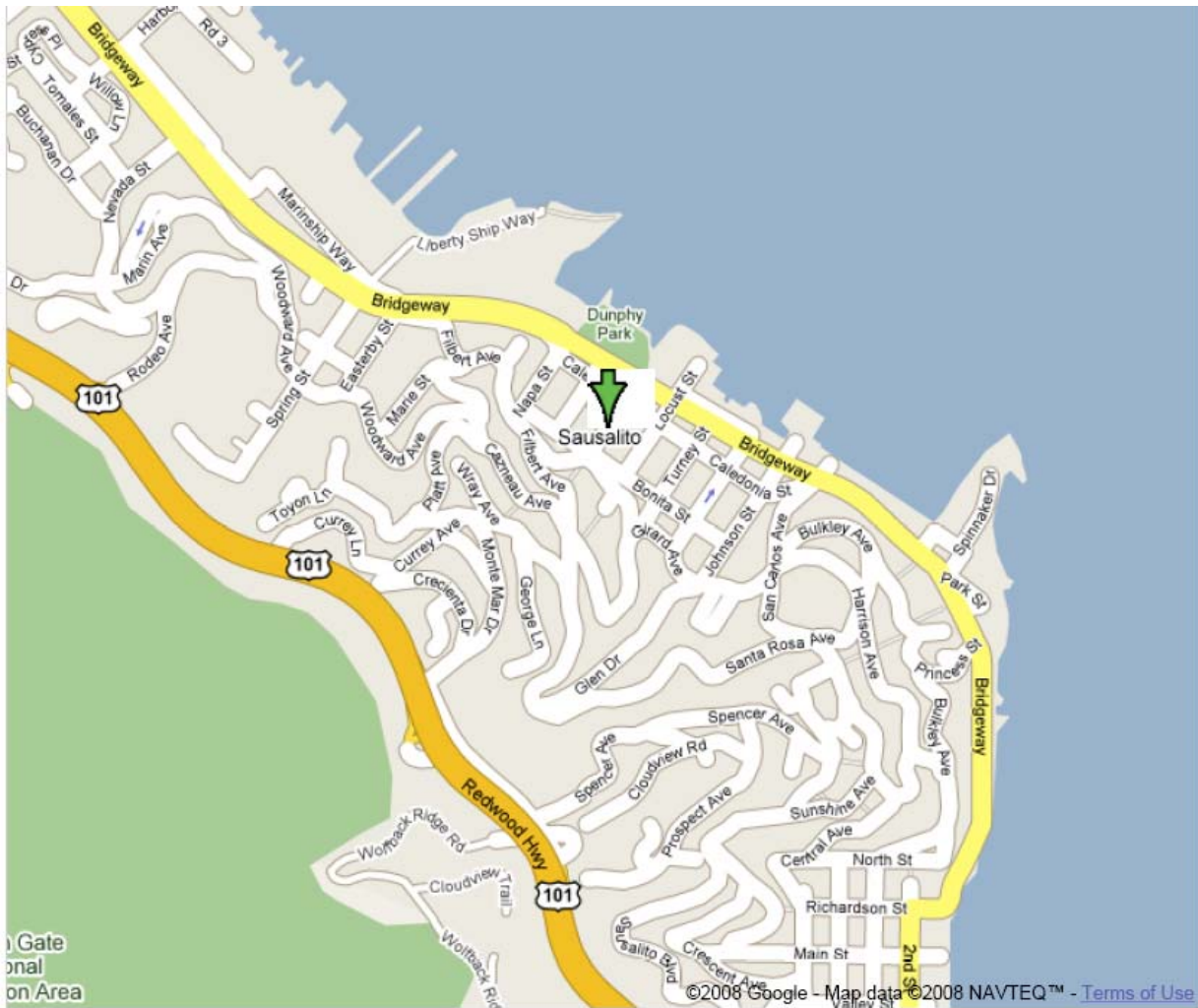
**27. CONFORMED CONSTRUCTION DOCUMENTS.** Following Award of Contract, City of Sausalito will prepare a conformed set of Contract Documents reflecting Addenda issued during bidding, which will, failing objection, constitute the approved set of Contract Documents.

**28. DEFINITIONS.** All abbreviations and definitions of terms used in this Section 00200 are set forth in Section 01420 (References and Definitions).

END OF SECTION

ARTICLE I. SECTION 00201  
ARTICLE II. BID SUBMITTAL VICINITY MAP

Sausalito City Hall  
Office of the City Clerk  
420 Litho St  
Sausalito, CA 94965  
Attn: Debbie Pagliaro



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SECTION 00320  
REPORTS, SURVEYS AND EXISTING CONDITIONS

1. SUMMARY

This Section 00320 sets forth the terms and conditions under which Bidder may review, study, use, or rely upon existing geotechnical data at or contiguous to the Site, hazardous materials surveys and existing conditions information concerning existing conditions at or contiguous to the Site, as required in 00520.

2. REPORTS AND INFORMATION

A. Bidders may inspect geotechnical reports, hazardous materials surveys and other information regarding existing conditions available at the City of Sausalito's office, and may obtain copies at cost or reproduction and handling upon Bidder's payment or in costs. These reports, documents and other information, are not part of the Contract Documents. Nevertheless, by submitting a Bid, Bidder accepts full responsibility for reviewing, knowing and understanding the contents of all of these materials.

The City of Sausalito, and its consultants have prepared documents providing a general description of the Site and locations of hazardous materials subject to the Work. These documents consist of surveys included in or with this Project Manual, or made available for review and copying. The surveys are the following:

(i) Geotechnical Reports

3. USE OF INFORMATION ON EXISTING CONDITIONS

A. Above Ground Existing Conditions. Under no circumstances shall City of Sausalito be deemed to make a warranty or representation of existing aboveground conditions, as-built conditions, or other aboveground actual conditions verifiable by reasonable independent investigation. These conditions are verifiable by Bidder by the performance of its own independent investigation that Bidder must perform prior to bidding and Bidder must not rely on the information supplied by City of Sausalito regarding existing conditions. Bidder represents and agrees that in submitting its Bid, it is not relying on any information regarding existing conditions supplied by City of Sausalito.

LIMITED RELIANCE PERMITTED ON CERTAIN INFORMATION

A. Asbestos and Lead Based Paint Data. Except as expressly set forth in this Section 00320, the City of Sausalito does not warrant, and makes no representation regarding, the accuracy or thoroughness of any asbestos and lead based paint data. Bidder represents and agrees that in submitting its Bid, it is not relying on any such data supplied by City of Sausalito, except as specifically set forth herein.

B. Bidder may rely upon the general accuracy of the "technical data" contained in the report(s) and drawings identified above, but only insofar as it relates to the specific material samples tested. Bidder shall conduct at its sole cost and expense any independent investigation(s) required of it or warranted in its judgment prior to demolition or generation of waste materials, or work that could result in worker or community exposure to lead based paint, and identify to the City any discrepancies. The term "technical data" in the referenced reports and drawings shall be limited as follows:

1. The term "technical data" shall include actual reported sample locations, and reported concentrations of asbestos or lead.

2. The term "technical data" does not include, and Bidder may not rely upon, any other data, interpretations, opinions or information shown or indicated in such drawings or reports that otherwise relate to the work.

3. The term "technical data" shall not include the location of Underground Facilities.

4. Bidder may not rely on the completeness of reports and drawings for the purposes of bidding or construction. Bidder may rely upon the general accuracy of the "technical data" contained in such reports or drawings.

5. Bidder is solely responsible for any interpretation or conclusion drawn from any "technical data" or any other data, interpretations, opinions, or information contained in supplied information.

END OF SECTION



SECTION 00400  
BID FORM

To be submitted as part of bid by the time and date specified in Section 00200 (Instructions to Bidders), paragraph 1.

TO THE CITY COUNCIL OF THE CITY OF SAUSALITO

THIS BID IS SUBMITTED BY:

\_\_\_\_\_  
(Firm/Company Name)

RE: PUBLIC RESTROOM CONSTRUCTION PROJECT

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with the City of Sausalito ("City of Sausalito") in the form included in the Contract Documents, Section 00520 (Agreement), to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Sum and within the Contract Time indicated in this Bid and in accordance with all other terms and conditions of the Contract Documents.

2. Bidder accepts all of the terms and conditions of the Contract Documents, Section 00100 (Advertisement for Bids), and Section 00200 (Instructions to Bidders), including, without limitation, those dealing with the disposition of Bid Security. This Bid will remain subject to acceptance for 60 Days after the day of Bid opening.

3. In submitting this Bid, Bidder represents:

(a) Bidder has examined all of the Contract Documents and the following Addenda (receipt of all of which is hereby acknowledged).

Addendum No.	Addendum Date	Signature of Bidder

(b) Bidder has visited the Site and performed tasks, reviews, examinations, and analysis and given notices, regarding the Project and the Site, as set forth in Section 00520 (Agreement), Article 5.

Bidder has given City of Sausalito prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and as-built drawings and actual conditions and the written resolution thereof through Addenda issued by City of Sausalito is acceptable to Contractor.

4. Based on the foregoing, Bidder proposes and agrees to fully perform the Work within the time stated and in strict accordance with the Contract Documents for the following sums of money listed in the following Schedule of Bid Prices:

SCHEDULE OF BID PRICES

All Bid items must be filled in completely. Section 01110 (Summary of Work) describes the scope of work to be performed under this contract. Quote in figures only, unless words are specifically requested.

ITEM	DESCRIPTION	BID PRICE
1	All Work	\$
		\$

Total Bid Price: \_\_\_\_\_  
(Words)

5. The low bidder will be determined by the sum of base bid.
6. The undersigned Bidder understands that City of Sausalito reserves the right to reject this Bid.
7. If written notice of the acceptance of this Bid, hereinafter referred to as Notice of Award, is mailed or delivered to the undersigned Bidder within the time described in paragraph 2 of this Section 00400 or at any other time thereafter before it is withdrawn, the undersigned Bidder will execute and deliver the documents required by Section 00200 (Instructions to Bidders) within the times specified therein. These documents include, but are not limited to, Section 00520 (Agreement), Section 00610 (Construction Performance Bond), and Section 00620 (Construction Labor and Material Payment Bond).
8. Notice of Award or request for additional information may be addressed to the undersigned Bidder at the address set forth below.
9. The undersigned Bidder herewith encloses cash, a cashier's check, or certified check of or on a responsible bank in the United States, or a corporate surety bond furnished by a surety authorized to do a surety business in the State of California, in form specified in Section 00200 (Instructions to Bidders), in the amount of ten percent (10%) of the total of Bid and made payable to "City of Sausalito".
10. The undersigned Bidder agrees to commence Work under the Contract Documents on the date established in Section 00700 (General Conditions) and to complete all work within the time specified in Section 00520 (Agreement). The undersigned Bidder acknowledges that City of Sausalito has reserved the right to delay or modify the commencement date. The undersigned Bidder further acknowledges City of Sausalito has reserved the right to perform independent work at the Site, the extent of such work may not be determined until after the opening of the Bids, and that the undersigned Bidder will be required to cooperate with such other work in accordance with the requirements of the Contract Documents.

11. The undersigned Bidder agrees that, in accordance with Section 00700 (General Conditions), liquidated damages for failure to complete all Work in the Contract within the time specified shall be as set forth in Section 00520 (Agreement).

12. The names of all persons interested in the foregoing Bid as principals are: (IMPORTANT NOTICE: If Bidder or other interested person is a corporation, give the legal name of corporation, state where incorporated, and names of president and secretary thereof; if a partnership, give name of the firm and names of all individual co-partners composing the firm; if Bidder or other interested person is an individual, give first and last names in full).

NAME OF BIDDER: \_\_\_\_\_  
licensed in accordance with the act for the registration of Contractors, and with  
License Number: \_\_\_\_\_  
Expiration: \_\_\_\_\_

Where incorporated  
(if applicable): \_\_\_\_\_

Principals \_\_\_\_\_

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

Signature of Bidder: \_\_\_\_\_

NOTE: If Bidder is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If Bidder is a partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.

Business Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Officers authorized to sign contracts: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone Number(s): \_\_\_\_\_

Fax Number(s): \_\_\_\_\_  
\_\_\_\_\_

E-Mail address: \_\_\_\_\_

Federal ID Number:

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Date of Bid:

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END OF SECTION

SECTION 00411  
BOND ACCOMPANYING BID

KNOW ALL BY THESE PRESENTS:

That the undersigned [ ] as Principal and the undersigned as Surety are held and firmly bound unto the THE CITY OF SAUSALITO ("City of Sausalito"), as obligee, in the penal sum of [ ] Dollars [(\$ )] lawful money of the United States of America being at least ten percent (10%) of the aggregate amount of said Principal [ ]'s base Bid plus accepted Alternates, for the payment of which, well and truly to be made, we bind ourselves, our successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said Principal is submitting a Bid for City of Sausalito PUBLIC RESTROOM CONSTRUCTION PROJECT.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the Bid submitted by the said Principal be accepted and the Contract be awarded to said Principal and said Principal shall within the required periods enter into the Contract so awarded and provide the required Construction Performance Bond, Construction Labor and Material Payment Bond, insurance certificates, and all other endorsements, forms, and documents required under Section 00200 (Instructions to Bidders), then this obligation for the Bid Bond shall be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument this [ ] day of [ ], 2012.

(Corporate Seal)

By

Principal

Surety

(Corporate Seal)

By

Attorney in Fact

END OF SECTION

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SECTION 00460  
SCHEDULE OF MAJOR EQUIPMENT AND MATERIAL SUPPLIERS

The undersigned Bidder represents that, if awarded the Contract, the items of major equipment and materials specified below will be supplied by the manufacturers or suppliers specified below. By so indicating, bidder warrants that the equipment and materials manufacturer and/or supplied by the named manufacturer or supplier will be provided on the Project.

Pursuant to Section 3400 of the Public Contract Code the following materials, products, equipment, or systems are now in use on the particular public improvement described as City of Sausalito. At each instance in these specifications that said designated materials, products, equipment or systems are designated by the brand name(s), listed below, they are so designated to match the existing finishes or maintain compatibility and continuity in functionality, controls and / or replacement parts that are in place at the City of Sausalito. The Contractor will furnish and apply only these brands of designated materials, products, equipment or systems, and no substitutions shall be deemed to be "or equal" or allowed.

Item	Manufacturer or Supplier
1. [ ]	_____
2. [ ]	_____
[ ]	_____
[ ]	_____
[ ]	_____
[ ]	_____
[ ]	_____
[ ]	_____
[ ]	_____
[ ]	_____
[ ]	_____

Add additional lines if necessary.

Bidder: \_\_\_\_\_

SIGNATURE

DATE

END OF SECTION



SECTION 00505  
NOTICE OF INTENT TO AWARD FOR CONSTRUCTION

DATE POSTED: \_\_\_\_\_

PROJECT TITLE: SAUSALITO DOWNTOWN PUBLIC RESTROOM CONSTRUCTION PROJECT

The Director of Public Works of the City of Sausalito, intends to recommend to the **City Council of the City of Sausalito** on [Enter Date], the award of the above-referenced project to [Company Name] for the Construction of the Downtown Public Restrooms for an amount of \$XXX,XXX.xx

If approved, a formal Notice of Award will be issued.

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_

Jonathon Goldman  
[Name]

Director of Public Works  
[Title]

City of Sausalito

END OF SECTION



SECTION 00510  
Notice of Award

Dated: [Enter Date]

TO: Company Name \_\_\_\_\_  
ADDRESS: Company Address \_\_\_\_\_  
CONTRACT NO.: \_  
CONTRACT FOR:

THE SAUSALITO PUBLIC RESTROOM CONSTRUCTION PROJECT

The Contract Sum of your contract is [write down construction value] Dollars and no/100 (\$\_xxx,xxx.xx\_).

- 1) Five copies of each of the proposed Contract Documents (except Specifications and Drawings) accompany this Notice of Award. Three sets of Specifications and Drawings will be delivered separately or otherwise made available to you immediately.
- 2) You must comply with the following conditions by 3:00 p.m. on **[Enter date]**,
  - a) Deliver to City of Sausalito two fully executed counterparts of Section 00520 (Agreement). Each of the Contract Documents must bear your signature on the cover page.
  - b) Deliver to City of Sausalito one original Section 00610 (Construction Performance Bond), executed by you and your surety.
  - c) Deliver to City of Sausalito one original Section 00620 (Construction Labor and Material Payment Bond), executed by you and your surety.
  - d) Deliver to City of Sausalito one original set of the insurance certificates with endorsements required under Section 00700 (General Conditions).
  - e) Deliver to City of Sausalito two original copies of Section 00630 (Guaranty), each executed by you.
- 3) Failure to comply with these conditions within the time specified will entitle City of Sausalito to consider your Bid abandoned, to annul this Notice of Award, and to declare your Bid security forfeited.
- 4) Within 10 Days after you comply with the conditions in paragraph 2 of this Section 00510, City of Sausalito will return to you one fully signed counterpart of Section 00520 (Agreement) with the Contract Documents.
- 5) Upon commencement of the Work, you and each of your Subcontractors shall certify and make available for inspection payroll records on forms provided by the Division of Labor Standards Enforcement, in accordance with Section 1776 of the California Labor Code.
- 6) Send all of the required above listed items to The City of Sausalito, 420 Litho St, Sausalito, CA 94965, to the attention of Jonathon Goldman.

CITY OF SAUSALITO ("City of Sausalito")

BY: \_\_\_\_\_  
Jonathon Goldman  
Director of Public Works

END OF SECTION

SECTION 00520  
AGREEMENT

THIS AGREEMENT, dated this \_\_\_\_ day of \_\_\_\_\_, 2012, by and between **[Name of Contractor]** whose place of business is located at \_\_\_\_\_, \_\_\_\_\_ **[Address of Contractor]** ("Contractor"), and the CITY OF SAUSALITO ("City of Sausalito") acting under and by virtue of the authority vested in the City of Sausalito by the laws of the State of California.

WHEREAS, City of Sausalito, by its Resolution No. \_\_\_\_\_ adopted on the \_\_\_\_ day of \_\_\_\_\_ awarded to Contractor the following contract:

THE SAUSALITO PUBLIC RESTROOM CONSTRUCTION PROJECT

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, Contractor and City of Sausalito agree as follows:

Article 1. Work

Contractor shall complete all Work specified in the Contract Documents, in accordance with the Specifications, Drawings, and all other terms and conditions of the Contract Documents.

Article 2. City of Sausalito's Representative, **Architect/Engineer and Project Manager**

All notices or demands to City of Sausalito under the Contract Documents shall be submitted to the City of Sausalito's Representative in writing at:

Jonathon Goldman  
Director of Public Works  
City of Sausalito  
420 Litho St.  
Sausalito, CA 94965-1933

or to such other person(s) and address(es) as City of Sausalito shall provide to Contractor.

Article 3. Contract Time and Liquidated Damages

3.1 Contract Time.

Contractor shall commence Work at the Site on the date established in the Notice to Proceed. City of Sausalito reserves the right to modify or alter the Commencement Date of the Work.

Contractor shall achieve Substantial Completion of the entire Work within **180 calendar** days from the date when the Contract Time commences to run as provided in Section 00700 (General Conditions). Contractor shall achieve Final Completion of the entire Work and be ready for Final Payment in accordance with Section 01770 (Closeout Procedures) within **30** calendar days from the date of acceptance of Substantial Completion to run as provided in Section 00700 (General Conditions).

3.2 Liquidated Damages.

City of Sausalito and Contractor recognize that time is of the essence of this Agreement and that City of Sausalito will suffer financial loss if all or any part of the Work is not completed including consequential loss of use and disruption of normal operations within the times specified above, plus any extensions thereof allowed in accordance with the Contract Documents. Consistent with Article 15 of Section 00700 (General Conditions), Contractor and City of Sausalito agree that because of the nature of the Project, it would be impractical or

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extremely difficult to fix the amount of actual damages incurred by City of Sausalito because of a delay in completion of all or any part of the Work. Accordingly, City of Sausalito and Contractor agree that as liquidated damages for delay Contractor shall pay City of Sausalito:

**\$500.00** for each Day that expires after the time specified herein for Contractor to achieve Substantial Completion of the entire Work, until achieved.

These measures of liquidated damages shall apply cumulatively and except as provided below, shall be presumed to be the damages suffered by City of Sausalito resulting from delay in completion of the Work.

Liquidated damages for delay shall only cover administrative, overhead, interest on bonds, and general loss of public use damages suffered by City of Sausalito as a result of delay or costs of substitute facilities. Liquidated damages shall not cover the cost of completion of the Work, damages resulting from defective Work, lost revenues or damages suffered by others who then seek to recover their damages from City of Sausalito (for example, delay claims of other contractors, subcontractors, tenants, or other third-parties), and defense costs thereof.

#### Article 4. Contract Sum

City of Sausalito shall pay Contractor the Contract Sum for completion of Work in accordance with Contract

Documents as follows:

\$XXX,XXX,XXX.XX

#### Article 5. Contractor's Representations

In order to induce City of Sausalito to enter into this Agreement, Contractor makes the following representations and warranties:

5.1 Contractor has visited the Site and has examined thoroughly and understood the nature and extent of the Contract Documents, Work, Site, locality, actual conditions, as-built conditions, and all local conditions, and federal, state and local laws and regulations that in any manner may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Contractor and safety precautions and programs incident thereto.

5.2 Contractor has given City of Sausalito prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and the written resolution thereof through Addenda issued by City of Sausalito is acceptable to Contractor.

Contractor is duly organized, existing and in good standing under applicable state law, and is duly qualified to conduct business in the State of California.

Contractor has duly authorized the execution, delivery and performance of this Agreement, the other Contract Documents and the Work to be performed herein.

Contractor has listed the following Subcontractors pursuant to the Subcontractor Listing Law, California Public Contracting Code §4100 *et seq.* in Section 00430

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## Article 6. Contract Documents

Contract Documents consist of the following documents, including all changes, addenda, and modifications thereto:

The entirety of Division 00, including:

- Document 00510 Notice of Award
- Document 00520 Agreement
- Document 00550 Notice to Proceed
- Document 00610 Construction Performance Bond
- Document 00620 Construction Labor and Material Payment Bond
- Document 00630 Guaranty
- Document 00650 Agreement and Release of Any and All Claims
- Document 00660 Substitution Request Form
- Document 00700 General Conditions
- Document 00800 Supplementary Conditions
- Document 00805 Supplementary Conditions – Hazardous Materials
- Document 00821 Insurance
- Document 00822 Apprenticeship Program
- Document 00910 Addenda

The entirety of Specification Division 01, including:

Drawings and Specifications as attached and referred

6.2 The Contract Documents may only be amended, modified or supplemented as provided in Section 00700

(General Conditions).

## Article 7. Miscellaneous

7.1 Terms used in this Agreement are defined in Section 00700 (General Conditions) and Section 01420 (References and Definitions) and will have the meaning indicated therein.

It is understood and agreed that in no instance are the persons signing this Agreement for or on behalf of City of Sausalito or acting as an employee, agent, or representative of City of Sausalito, liable on this Agreement or any of the Contract Documents, or upon any warranty of authority, or otherwise, and it is further understood and agreed that liability of the City of Sausalito is limited and confined to such liability as authorized or imposed by the Contract Documents or applicable law.

Contractor shall not assign any portion of the Contract Documents, and may subcontract portions of the Contract Documents only in compliance with the Subcontractor Listing Law, California Public Contracting Code §4100 *et seq.*

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

Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are deemed included in the Contract Documents by reference and on file at City of Sausalito's office, and shall be made available to any interested party on request. Pursuant to Section 1861 of the Labor Code, Contractor

represents that it is aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor shall comply with such provisions before commencing the performance of the Work of the Contract Documents.

Contractor and each of Contractor's subcontractors agrees to complete and verify construction reports on a form prescribed by the Division of the State Architect and to file the reports no less than quarterly during construction as required by Title 24; at the completion of the Work; at the suspension of work for a period of more than one month; whenever the services of Contractor or any of Contractor's subcontractors are terminated for any reason; and at any time a special verified report is required by the Division of the State Architect.

Should any part, term or provision of this Agreement or any of the Contract Documents, or any document required herein or therein to be executed or delivered, be declared invalid, void or unenforceable, all remaining parts, terms and provisions shall remain in full force and effect and shall in no way be invalidated, impaired or affected thereby. If the provisions of any law causing such invalidity, illegality or unenforceability may be waived, they are hereby waived to the end that this Agreement and the Contract Documents may be deemed valid and binding agreements, enforceable in accordance with their terms to the greatest extent permitted by applicable law. In the event any provision not otherwise included in the Contract Documents is required to be included by any applicable law, that provision is deemed included herein by this reference (or, if such provision is required to be included in any particular portion of the Contract Documents, that provision is deemed included in that portion).

This Agreement and the Contract Documents shall be deemed to have been entered into in the County of Marin, State of California, and governed in all respects by California law (excluding choice of law rules). The exclusive venue for all disputes or litigation hereunder shall be in Marin County. Both parties hereby waive their rights under California Code of Civil Procedure Section 394 to file a motion to transfer any action or proceeding arising out of the Contract Documents to another venue. Contractor accepts the Claims Procedure in Section 00700, Article 12, established under the California Government Code, Title 1, Division 3.6, Part 3, Chapter 5.

IN WITNESS WHEREOF the parties have executed this Agreement in quadruplicate the day and year first above written.

CITY OF SAUSALITO:  
CITY OF SAUSALITO

CONTRACTOR:  
[Contractor's name]

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

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

END OF SECTION

SECTION 00550  
NOTICE TO PROCEED

Dated: \_\_\_\_\_, 2012

To: \_\_\_\_\_  
(Contractor)

Address: \_\_\_\_\_

CONTRACT FOR:  
THE SAUSALITO PUBLIC RESTROOM CONSTRUCTION PROJECT

You are notified that the Contract Time under the above Contract will commence to start on \_\_\_\_\_ 2012. Contractor shall achieve Substantial Completion of the entire Work within **180 Calendar** days from the date when the Contract Time commences. Contractor shall achieve Final Completion within **30** calendar days from the date of acceptance of Substantial Completion.

**BEFORE YOU MAY START ANY WORK AT THE SITE, YOU MUST:**

- Submit certified Safety Program and related information, and comply with all requests of/by, the City of Sausalito's safety officer or designated Representative.
- Submit copies of applicable permits.
- Attend preconstruction conference. The preconstruction conference shall be arranged by the City of Sausalito's Representative.

City of Sausalito

By : \_\_\_\_\_  
Jonathon Goldman  
Director of Public Works

END OF SECTION

SECTION 00610  
CONSTRUCTION PERFORMANCE BOND

THIS CONSTRUCTION PERFORMANCE BOND ("Bond") is dated \_\_\_\_\_, is in the penal sum of \_\_\_\_\_ [which is one hundred percent of the Contract Price], and is entered into by and between the parties listed below to ensure the faithful performance of the Construction Contract listed below. This Bond consists of this page and the Bond Terms and Conditions, paragraphs 1 through 12, attached to this page. Any singular reference to \_\_\_\_\_ ("Contractor"), \_\_\_\_\_ ("Surety"), City of Sausalito ("City of Sausalito") or other party shall be considered plural where applicable.

CONTRACTOR:

SURETY:

Name

Name

Address

Principal Place of Business

City/State/Zip

City/State/Zip

CONSTRUCTION CONTRACT:

THE SAUSALITO PUBLIC RESTROOM CONSTRUCTION PROJECT

at Sausalito, California.

DATED \_\_\_\_\_, 2012 in the Amount of \$\_\_\_\_\_ (the "Penal Sum")

CONTRACTOR AS PRINCIPAL  
Company: (Corp. Seal)

SURETY  
Company: (Corp. Seal)

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Name and Title: \_\_\_\_\_ Name and Title: \_\_\_\_\_

BOND TERMS AND CONDITIONS

5. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to City of Sausalito for the complete and proper performance of the Construction Contract, which is incorporated herein by reference.

6. If Contractor completely and properly performs all of its obligations under the Construction Contract, Surety and Contractor shall have no obligation under this Bond.

7. If there is no City of Sausalito Default, Surety's obligation under this Bond shall arise after:

3.1 City of Sausalito has declared a Contractor Default under the Construction Contract pursuant to the terms of the Construction Contract; and

3.2 City of Sausalito has agreed to pay the Balance of the Contract Sum:

- 
- 3.2.1 To Surety in accordance with the terms of this Bond and the Construction Contract; or
- 3.2.2 To a contractor selected to perform the Construction Contract in accordance with the terms of this Bond and the Construction Contract.
8. When City of Sausalito has satisfied the conditions of paragraph 3, Surety shall promptly (within 30 days) and at Surety's expense elect to take one of the following actions:
- 4.1 Arrange for Contractor, with consent of City of Sausalito, to perform and complete the Construction Contract (but City of Sausalito may withhold consent, in which case the Surety must elect an option described in paragraphs 4.2, 4.3 or 4.4, below); or
- 4.2 Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; provided, that Surety may not select Contractor as its agent or independent contractor without City of Sausalito's consent; or
- 4.3 Undertake to perform and complete the Construction Contract by obtaining bids from qualified contractors acceptable to City of Sausalito for a contract for performance and completion of the Construction Contract, and, upon determination by City of Sausalito of the lowest responsible bidder, arrange for a contract to be prepared for execution by City of Sausalito and the contractor selected with City of Sausalito's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract; and, if Surety's obligations defined in paragraph 6, below, exceed the Balance of the Contract Sum, then Surety shall pay to City of Sausalito the amount of such excess; or
- 4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances, and, after investigation and consultation with City of Sausalito, determine in good faith its monetary obligation to City of Sausalito under paragraph 6, below, for the performance and completion of the Construction Contract and, as soon as practicable after the amount is determined, tender payment therefore to City of Sausalito with full explanation of the payment's calculation. If City of Sausalito accepts Surety's tender under this paragraph 4.4, City of Sausalito may still hold Surety liable for future damages then unknown or unliquidated resulting from the Contractor Default. If City of Sausalito disputes the amount of Surety's tender under this paragraph 4.4, City of Sausalito may exercise all remedies available to it at law to enforce Surety's liability under paragraph 6, below.
9. If Surety does not proceed as provided in paragraph 4, above, then Surety shall be deemed to be in default on this Bond ten days after receipt of an additional written notice from City of Sausalito to Surety demanding that Surety perform its obligations under this Bond. At all times City of Sausalito shall be entitled to enforce any remedy available to City of Sausalito at law or under the Construction Contract including, without limitation, and by way of example only, rights to perform work, protect work, mitigate damages, advance critical work to mitigate schedule delay, or coordinate work with other consultants or contractors.
10. Surety's monetary obligation under this Bond is limited by the Amount of this Bond identified herein as the Penal Sum. This monetary obligation shall augment the Balance of the Contract Sum. Subject to these limits, Surety's obligations under this Bond are commensurate with the obligations of Contractor under the Construction Contract. Surety's obligations shall include, but are not limited to:
- 6.1 The responsibilities of Contractor under the Construction Contract for completion of the Construction Contract and correction of defective work;
- 6.2 The responsibilities of Contractor under the Construction Contract to pay liquidated damages, and for damages for which no liquidated damages are specified in the Construction Contract, actual damages caused by non-performance of the Construction Contract including, but not limited to, all valid and proper back charges, offsets, payments, indemnities, or other damages;



6.3 Additional legal, design professional and delay costs resulting from Contractor Default or resulting from the actions or failure to act of the Surety under paragraph 4, above (but excluding attorney's fees incurred to enforce this Bond).

11. No right of action shall accrue on this Bond to any person or entity other than City of Sausalito or its successors or assigns.

12. Surety hereby waives notice of any change, alteration or addition to the Construction Contract or to related subcontracts, purchase orders and other obligations, including changes of time. Surety consents to all terms of the Construction Contract, including provisions on changes to the Contract. No extension of time, change, alteration, modification, deletion, or addition to the Contract Documents, or of the work required there under, shall release or exonerate Surety on this Bond or in any way affect the obligations of Surety on this Bond.

13. Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction where a proceeding is pending between City of Sausalito and Contractor regarding the Construction Contract, or in the courts of the County of Marin or in a court of competent jurisdiction in the location in which the work is located. Communications from City of Sausalito to Surety under paragraph 3.1 of this Bond shall be deemed to include the necessary agreements under paragraph 3.2 of this Bond unless expressly stated otherwise.

14. All notices to Surety or Contractor shall be mailed or delivered (at the address set forth on the signature page of this Bond), and all notices to City of Sausalito shall be mailed or delivered as provided in Section 00520 (Agreement). Actual receipt of notice by Surety, City of Sausalito or Contractor, however accomplished, shall be sufficient compliance as of the date received at the foregoing addresses.

15. Any provision in this Bond conflicting with any statutory or regulatory requirement shall be deemed deleted here from and provisions conforming to such statutory requirement shall be deemed incorporated herein.

16. Definitions.

12.1 Balance of the Contract Sum: The total amount payable by City of Sausalito to Contractor pursuant to the terms of the Construction Contract after all proper adjustments have been made under the Construction Contract, for example, deductions for progress payments made, and increases/decreases for approved modifications to the Construction Contract.

12.2 Construction Contract: The agreement between City of Sausalito and Contractor identified on the signature page of this Bond, including all Contract Documents and changes thereto.

12.3 Contractor Default: Material failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract including, but not limited to, "default" or any other condition allowing a termination for cause as provided in Section 00700 (General Conditions).

12.4 City of Sausalito Default: Material failure of City of Sausalito, which has neither been remedied nor waived, to pay Contractor progress payments due under the Construction Contract or to perform other material terms of the Construction Contract, if such failure is the cause of the asserted Contractor Default and is sufficient to justify Contractor termination of the Construction Contract.

END OF SECTION

SECTION 00620  
CONSTRUCTION LABOR AND MATERIAL PAYMENT BOND

THIS CONSTRUCTION LABOR AND MATERIAL PAYMENT BOND ("Bond") is dated \_\_\_\_\_, is in the \_\_\_\_\_ penal \_\_\_\_\_ sum \_\_\_\_\_ of

\_\_\_\_\_ [one hundred percent of the Contract Price], and is entered into by and between the parties listed below to ensure the payment of claimants under the Construction Contract listed below. This Bond consists of this page and the Bond Terms and Conditions, paragraphs 1 through 13, attached to this page. Any singular reference to \_\_\_\_\_ ("Contractor"), \_\_\_\_\_ ("Surety"), the City of Sausalito ("City of Sausalito") or other party shall be considered plural where applicable.

CONTRACTOR:

SURETY:

Name

Name

Address

Principal Place of Business

City/State/Zip

City/State/Zip

CONSTRUCTION CONTRACT:

THE SAUSALITO PUBLIC RESTROOM CONSTRUCTION PROJECT

at Sausalito, California.

DATED \_\_\_\_\_, 2012 in the Amount of \$\_\_\_\_\_ (the "Penal Sum")

CONTRACTOR AS PRINCIPAL  
Company: (Corp. Seal)

SURETY  
Company: (Corp. Seal)

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Name and Title: \_\_\_\_\_

Name and Title: \_\_\_\_\_

BOND TERMS AND CONDITIONS

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to City of Sausalito and to Claimants, to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference.

2. With respect to City of Sausalito, this obligation shall be null and void if Contractor:

2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants; and

2.2 Defends, indemnifies and holds harmless City of Sausalito from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Construction Contract, provided City of Sausalito has promptly notified Contractor and Surety (at the address set forth on the signature page of this Bond) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to Contractor and Surety, and provided there is no City of Sausalito Default.

- 
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly through its Subcontractors, for all sums due Claimants. If Contractor or its Subcontractors, however, fail to pay any of the persons named in Section 3181 of the California Civil Code, 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 Contractor or Subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such Work and labor, then Surety shall pay for the same, and also, in case suit is brought upon this Bond, a reasonable attorney's fee, to be fixed by the court.
  4. Consistent with the California Mechanic's Lien Law, Civil Code §3082, *et seq.*, Surety shall have no obligation to Claimants under this Bond unless the Claimant has satisfied all applicable notice requirements.
  5. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety under this Bond.
  6. Amounts due Contractor under the Construction Contract shall be applied first to satisfy claims, if any, under any Construction Performance Bond and second, to satisfy obligations of Contractor and Surety under this Bond.
  7. City of Sausalito shall not be liable for payment of any costs, expenses, or attorney's fees of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
  8. Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations. Surety further hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Construction Contract, or to the Work to be performed there under, or materials or equipment to be furnished there under or the Specifications accompanying the same, shall in any way affect its obligations under this Bond, and it does hereby waive any requirement of notice or any such change, extension of time, alteration or addition to the terms of the Construction Contract or to the Work or to the Specifications or any other changes.
  9. Suit against Surety on this Bond may be brought by any Claimant, or its assigns, at any time after the Claimant has furnished the last of the labor or materials, or both, but, per Civil Code §3249, must be commenced before the expiration of six months after the period in which stop notices may be filed as provided in Civil Code §3184.
  10. All notices to Surety or Contractor shall be mailed or delivered (at the address set forth on the signature page of this Bond), and all notices to City of Sausalito shall be mailed or delivered as provided in Section 00520 (Agreement). Actual receipt of notice by Surety, City of Sausalito or Contractor, however accomplished, shall be sufficient compliance as of the date received at the foregoing addresses.
  11. This Bond has been furnished to comply with the California Mechanic's Lien Law including, but not limited to, Civil Code §§3247, 3248, *et seq.* Any provision in this Bond conflicting with said statutory requirements shall be deemed deleted here from and provisions conforming to such statutory or other legal requirements shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
  12. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

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13. Definitions.

13.1 Claimant: An individual or entity having a direct contract with Contractor or with a Subcontractor of Contractor to furnish labor, materials or equipment for use in the performance of the Contract, as further defined in California Civil Code §3181. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a stop notice might be asserted. The term Claimant shall also include the Unemployment Development Department as referred to in Civil Code §3248(b).

13.2 Construction Contract: The agreement between City of Sausalito and Contractor identified on the signature page of this Bond, including all Contract Documents and changes thereto.

13.3 City of Sausalito Default: Material failure of City of Sausalito, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract, provided that failure is the cause of the failure of Contractor to pay the Claimants and is sufficient to justify termination of the Construction Contract.

END OF SECTION

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SECTION 00630  
GUARANTY

TO THE CITY OF SAUSALITO for construction of

THE SAUSALITO PUBLIC RESTROOM CONSTRUCTION PROJECT

SAUSALITO, CALIFORNIA.

The undersigned guarantees all construction performed on this Project and also guarantees all material and equipment incorporated therein.

Contractor hereby grants to City of Sausalito for a period of one year following the date of Notice of Completion, or such longer period specified in the Contract Documents, its unconditional warranty of the quality and adequacy of all of the Work including, without limitation, all labor, materials and equipment provided by Contractor and its Subcontractors of all tiers in connection with the Work.

Neither final payment nor use or occupancy of the Work performed by the Contractor shall constitute an acceptance of Work not done in accordance with this Guaranty or relieve Contractor of liability in respect to any express warranties or responsibilities for faulty materials or workmanship. Contractor shall remedy any defects in the Work and pay for any damage resulting therefrom, which shall appear within one year, or longer if specified, from the date of Final Completion.

If within one year after the date of Final Completion, or such longer period of time as may be prescribed by laws or regulations, or by the terms of Contract Documents, any Work is found to be defective, Contractor shall promptly, without cost to City of Sausalito and in accordance with City of Sausalito's written instructions, correct such defective Work. Contractor shall remove any defective Work rejected by City of Sausalito and replace it with Work that is not defective, and satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If Contractor fails to promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, City of Sausalito may have the defective Work corrected or the rejected Work removed and replaced. Contractor shall pay for all claims, costs, losses and damages caused by or resulting from such removal and replacement. Where Contractor fails to correct defective Work, or defects are discovered outside the correction period, City of Sausalito shall have all rights and remedies granted by law.

Inspection of the Work shall not relieve Contractor of any of its obligations under the Contract Documents. Even though equipment, materials, or Work required to be provided under the Contract Documents have been inspected, accepted, and estimated for payment, Contractor shall, at its own expense, replace or repair any such equipment, material, or Work found to be defective or otherwise not to comply with the requirements of the Contract Documents up to the end of the guaranty period.

All abbreviations and definitions of terms used in this Agreement shall have the meanings set forth in the Contract Documents, including, without means of limitation, Section 01420 (References and Definitions).

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The foregoing Guaranty is in addition to any other warranties of Contractor contained in the Contract Documents, and not in lieu of, any and all other liability imposed on Contractor under the Contract Documents and at law with respect to Contractor's duties, obligations, and performance under the Contract Documents. In the event of any conflict or inconsistency between the terms of this Guaranty and any warranty or obligation of the Contractor under the Contract Documents or at law, such inconsistency or conflict shall be resolved in favor of the higher level of obligation of the Contractor.

\_\_\_\_\_  
Firm/Company

\_\_\_\_\_  
Address

\_\_\_\_\_  
Signature

\_\_\_\_\_  
City/State/Zip

\_\_\_\_\_  
Name and Title

\_\_\_\_\_  
Date

END OF SECTION

SECTION 00650  
AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS

THIS AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS ("Agreement and Release"), made and entered into this [ ] day of [ ], 2012, by and between the CITY OF SAUSALITO ("City of Sausalito"), and \_\_\_\_\_("Contractor"), whose place of business is at \_\_\_\_\_.

RECITALS

City of Sausalito and Contractor entered into Contract Number [ ] (the "Contract").

B. The Work under the Contract has been completed.

Now, therefore, it is mutually agreed between City of Sausalito and Contractor as follows:

AGREEMENT

1. Contractor will not be assessed liquidated damages except as detailed below:

Original Contract Sum	\$ _____
Modified Contract Sum	\$ _____
Payment to Date	\$ _____
Liquidated Damages	\$ _____
Payment Due Contractor	\$ _____

2. Subject to the provisions of this Agreement and Release, City of Sausalito will forthwith pay to Contractor the sum of \$ \_\_\_\_\_ Dollars and \_\_\_\_\_ Cents (\$ \_\_\_\_\_) under the Contract, less any amounts withheld under the Contract or represented by any Notice to Withhold Funds on file with City of Sausalito as of the date of such payment.

3. Contractor acknowledges and hereby agrees that there are no unresolved or outstanding claims in dispute against City of Sausalito arising from the Contract, except for the claims described in paragraph 4 of this SECTION 00650. It is the intention of the parties in executing this Agreement and Release that this Agreement and Release shall be effective as a full, final and general release of all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities of Contractor against City of Sausalito, and all if its agents, employees, consultants (including without limitation Consulting Engineer), inspectors, representatives, assignees and transferees except for the Disputed Claims set forth in paragraph 4 of this Section 00650. Nothing in this Agreement and Release shall limit or modify Contractor's continuing obligations described in paragraph 6 of this Section 00650.

4. The following claims are disputed (hereinafter, the “Disputed Claims”) and are specifically excluded from the operation of this Agreement and Release:

Claim No.	Date Submitted	Description of Claim	Amount of Claim
[Insert information, including attachment if necessary]			

5. Consistent with California Public Contract Code Section 7100, Contractor hereby agrees that, in consideration of the payment set forth in paragraph 2 of this Section 00650, Contractor hereby releases and forever discharges City of Sausalito, and all of its agents, employees, consultants, inspectors, assignees and transferees from any and all liability, claims, demands, actions or causes of action of whatever kind or nature arising out of or in any way concerned with the Work under the Contract

6. Guarantees and warranties for the Work, and any other continuing obligation of Contractor, shall remain in full force and effect as specified in the Contract Documents.

7. Contractor shall immediately defend, indemnify and hold harmless the City of Sausalito, any of its Representatives, Architects/Engineers, and all of their agents, employees, consultants, inspectors, assignees and transferees, from any and all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities that may be asserted against them by any of Contractor’s suppliers and/or Subcontractors of any tier and/or any suppliers to them for any and all labor, materials, supplies and equipment used, or contemplated to be used in the performance of the Contract, except for the Disputed Claims set forth in paragraph 4 of this Section 00650.

8. Contractor hereby waives the provisions of California Civil Code Section 1542, which provides as follows:

A general release does not extend to claims which the creditor does not know or suspect to exist in his favor at the time of executing the release, which if known by him, must have materially affected his settlement with the debtor.

9. The provisions of this Agreement and Release are contractual in nature and not mere recitals and shall be considered independent and severable, and if any such provision or any part thereof shall be at any time held invalid in whole or in part under any federal, state, county, municipal or other law, ruling, or regulation, then such provision, or part thereof shall remain in force and effect only to the extent permitted by law, and the remaining provisions of this Agreement and Release shall also remain in full force and effect, and shall be enforceable.

10. Contractor represents and warrants that it is the true and lawful owner of all claims and other matters released pursuant to this Agreement and Release, and that it has full right, title and authority to enter into this instrument. Each party represents and warrants that it has been represented by counsel of its own choosing in connection with this Agreement and Release.

11. All rights of City of Sausalito shall survive completion of the Work or termination of the Contract, and execution of this Agreement and Release.



\* \* \* CAUTION: THIS IS A RELEASE - READ BEFORE EXECUTING \* \* \*

CITY OF SAUSALITO

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

Its: \_\_\_\_\_

[CONTRACTOR]

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

Name: \_\_\_\_\_

Its: \_\_\_\_\_

END OF SECTION

SECTION 00660  
SUBSTITUTION REQUEST FORM

To: City of Sausalito

Project: Public Restroom Construction Project

Contractor: \_\_\_\_\_

Subcontractor/Supplier: \_\_

Drawing Sheet Reference/Detail No: \_\_\_\_\_

The undersigned Bidder submits for consideration the following equipment instead of the specified item for the above project:

Section	Paragraph	Specified Item
---------	-----------	----------------

Proposed Substitution: \_\_\_\_\_

The undersigned encloses the information required herein. If this Section 00660 is being submitted by a Bidder wishing to use "or equal" item(s) as provided in Section 00200 (Instructions to Bidders), the undersigned Bidder must also enclose the technical information (other than cost) otherwise required for a post-Award of Contract Request for Substitution ("RFS") under Section 01600 (Product Requirements). However, If this Section 00660 is being submitted under provisions of Contract Documents after Award of Contract, the undersigned Contractor must include all information required under Section 1600 (Product Requirements).

The undersigned has (a) attached manufacturer's literature, including complete technical data and laboratory test results, if applicable, (b) attached an explanation of why proposed substitution is a true equivalent to specified item, (c) included complete information on changes to Drawings and Specifications that the proposed substitution will require for its proper installation, and (d) filled in the blanks below:

- A. Does the substitution affect dimensions shown on Drawings?
  
- B. Are the manufacturer's guarantees and warranties on the proposed substitution items identical to those on the specified items? If there are differences, please specify each and every difference in detail.
  
- C. What effect does the substitution have on other contractors, trades, or suppliers?

D. What are the differences between the proposed substitution and the specified item? If proposed substitution has a color or pattern, provide a color board showing proposed substitution in relation to the other adjacent colors and patterns.

E. Will granting the requested substitution cause any schedule delay? (If yes, please explain)

The undersigned Bidder certifies that the function, appearance, and quality of the proposed substitution are equivalent or superior to those of the specified item. The contractor shall be responsible for all engineering, permitting, coordination, construction, and costs to all subcontractors associated with the acceptance of the substitution regardless of when those additional costs are identified.

Submitted by:

Bidder/Contractor  
[note applicable]

For Use by City of Sausalito:

\_\_\_\_\_ Accepted \_\_\_\_\_ Accepted as Noted

\_\_\_\_\_ Not Accepted \_\_\_\_\_ Received Too Late

Signature

Name

By: \_\_\_\_\_  
City of Sausalito's Representative

Date: \_\_\_\_\_

Address

Remarks:

City/State/Zip

Telephone: \_\_\_\_\_

Date: \_\_\_\_\_

END OF SECTION

SECTION 00700  
GENERAL CONDITIONS

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**GENERAL CONDITIONS****ARTICLE I. GENERAL****1. DOCUMENTS**

- (i) Contract Documents are complementary; what is called for by one is as binding as if called for by all. Contract Documents shall not be construed to create a contractual relationship of any kind between (1) Architect/Engineer or City of Sausalito's Representative and Contractor; (2) City of Sausalito and/or its representatives and (except as provided in paragraph 13.9 below) a Subcontractor, sub-Subcontractor, or supplier of any Project labor, materials, or equipment; or (3) between any persons or entities other than City of Sausalito and Contractor. City of Sausalito shall be deemed to be an intended third-party beneficiary of each agreement referenced in clause (2) above, and each such agreement shall so provide. Contractor is fully responsible for Contractor's own acts and omissions. Contractor is responsible for all acts and omissions of its Subcontractors, suppliers, and other persons and organizations performing or furnishing any of the Work, labor, materials, or equipment under a direct or indirect contract with Contractor.

**2. EXERCISE OF CONTRACT RESPONSIBILITIES**

- (i) In exercising its responsibilities and authorities under the Contract Documents, City of Sausalito does not assume any duties or responsibilities to any Subcontractor or supplier and does not assume any duty of care to Contractor, Contractor's Subcontractors or suppliers. Except as expressly set forth in the Contract Documents, in exercising their respective responsibilities and authorities under the Contract Documents, neither Architect/Engineer nor any of the City of Sausalito's Representatives assume any duties or responsibilities to any Subcontractor, sub-Subcontractor or supplier nor assume any duty of care to Contractor or any Subcontractor, sub-Subcontractor or suppliers.

**3. DEFINED TERMS**

- (i) All abbreviations and definitions of terms used and not otherwise defined in this Section 00700 are set forth in Section 01420 (References and Definitions). This Section 00700 subdivides at first level into Articles, and then into paragraphs.

**ARTICLE II. BIDDING****1. INVESTIGATION PRIOR TO BIDDING**

- (i) Prior to bidding, Bidders shall perform the review and analysis required by Article 5 of Section 00520 (Agreement). Under the Contract Documents, Contractor is charged with all information and knowledge that a reasonable Bidder would ascertain from having performed the required review and analysis.
- (ii) Conditions Shown on Contract Documents: Information as to underground conditions, as-built conditions, or other conditions or obstructions indicated in the Contract Documents, *e.g.*, on Drawings or in Specifications, has been obtained with reasonable care, and has been recorded in good faith. City of Sausalito warrants, and Contractor may rely on, the accuracy of only limited types of information as discussed below.
  - 1) Aboveground and visible as-built conditions: There is no express or implied warranty and no express or implied representation that any information as to aboveground conditions or visible as-built conditions indicated in the Contract Documents is correctly shown, or indicated, or complete. See Comments on 00520
  - 2) Subsurface conditions: Contractor may rely upon the general accuracy of actual reported depths, actual reported character of materials, actual reported soil types, actual reported water conditions, or actual obstructions shown or indicated in the Contract Documents. City of Sausalito is not responsible for Contractor's conclusions or opinions drawn from any subsurface condition information.
  - 3) Conditions Shown in Reports and Drawings Supplied for Informational Purposes: Reference is made to Section 00320 (Geotechnical Data and Existing Conditions) for identification of geotechnical reports, "as built" information, and other drawings or other documents describing physical conditions in or relating to existing surface or subsurface conditions or structures at or contiguous to the Site.

**2. SUBCONTRACTORS**

- (i) Consistent with Public Contract Code Sections 4101 *et seq.*, Contractor shall not substitute any other person or firm in place of any Subcontractor listed in the Bid without approval by the City of Sausalito. Contractor shall

comply with Public Contract Code Sections cited above in requesting approval of a subcontractor substitution. Subcontractors shall not assign or transfer their subcontracts or permit them to be performed by any other contractor without City of Sausalito's written approval. At City of Sausalito's request, Contractor shall provide City of Sausalito with a complete copy of all executed subcontracts or final commercial agreements with Subcontractors and/or suppliers.

- (ii) Subcontract agreements shall preserve and protect the rights of City of Sausalito under the Contract Documents so that subcontracting will not prejudice such rights. To the extent of the Work to be performed by a Subcontractor, Contractor shall require the Subcontractor's written agreement (1) to be bound to the terms of Contract Documents and (2) to assume vis-à-vis Contractor all the obligations and responsibilities that Contractor assumes toward City of Sausalito under the Contract Documents. (These agreements include for example, and not by way of limitation, all warranties, claims procedures and rules governing submittals of all types to which Contractor is subject under the Contract Documents.)
- (iii) Contractor shall provide for the assignment to City of Sausalito of all rights any Subcontractor may have against any manufacturer, supplier, or distributor for breach of warranties and guarantees relating to the Work performed by the Subcontractor under the Contract Documents.

### ARTICLE III. **CONTRACT AWARD AND COMMENCEMENT OF THE WORK**

#### 1. AWARD OF CONTRACT

City of Sausalito will make the Award of Contract by issuing a Notice of Award. As a condition to City of Sausalito signing Section 00520 (Agreement), however, Contractor shall deliver to City of Sausalito the executed agreements, forms, bonds and insurance documents required by Section 00200 (Instructions to Bidders) in the required quantities and within the required times.

#### 2. COMMENCEMENT OF WORK

The Contract Time will commence upon issuance of a Notice to Proceed, on the date indicated in the Notice to Proceed. See also paragraph Article XV(ii) of this Section 00700. Contractor shall not do any Work at the Site prior to Contract commencement.

### ARTICLE IV. **BONDS AND INSURANCE**

#### 1. BONDS

- (i) At or before the date indicated in Section 00200 (Instructions to Bidders), Contractor shall file with City of Sausalito the following bonds:
  - 1) Corporate surety bond, in the form of Section 00610 (Construction Performance Bond), in the penal sum of 100% of the Contract Sum as accepted, to guarantee faithful performance of the Work; and
  - 2) Corporate surety bond, in the form of Section 00620 (Construction Labor and Material Payment Bond), in the penal sum of 100% of the Contract Sum as accepted, to guarantee payment of wages for services engaged and of bills contracted for materials, supplies, and equipment used in performance of Contract Documents.
- (ii) Sureties shall be satisfactory to City of Sausalito. Corporate sureties on these bonds and on bonds accompanying Bids shall be duly licensed to do business in the State of California and shall have an A.M. Best Company financial rating of **[A]** or better.

#### 2. INSURANCE

- (i) See Section 00821 (Insurance), incorporated herein by this reference.

### ARTICLE V. **DRAWINGS AND SPECIFICATIONS**

#### 1. INTENT

- (i) Drawings and Specifications are intended to describe a functionally complete and operable Project (and all parts thereof) to be constructed in accordance with the requirements of Contract Documents. Contractor shall perform any work, provide services and furnish any materials or equipment that may reasonably be inferred from the requirements of Contract Documents or from prevailing custom or trade usage as being required to produce this



intended result. Contractor shall interpret words or phrases used to describe work (including services), materials or equipment that have well-known technical or construction industry or trade meaning in accordance with that meaning. Drawings' intent specifically includes the intent to depict construction that complies with all applicable laws, codes and standards, including without limitation Title 24 of the California Code of Regulations. The Division and Sections of the Specifications and the identification on any Drawings shall not control the Contractor in dividing the Work among Subcontractors or suppliers or delineating the Work to be performed by any specific trade.

- (ii) As part of the "Work," Contractor shall provide all labor, materials, equipment, machinery, tools, facilities, services, employee training and testing, hoisting facilities, shop drawings, storage, testing, security, transportation, disposal, the securing of all necessary or required field dimensions, the cutting or patching of existing materials, notices, permits, documents, reports, agreements and any other items or services required or necessary to timely and fully complete Work described and the results intended by Contract Documents and, in particular, Drawings and Specifications. Divisions and Specification Sections and the identification on any Drawings shall not control Contractor in dividing Work among Subcontractors or suppliers or delineating the Work to be performed by any specific trade.

## 2. DRAWING DETAILS

- (i) A typical or representative detail on Drawings shall constitute the standard for workmanship and material throughout corresponding parts of Work. Where necessary, and where reasonably inferable from Drawings, Contractor shall adapt such representative detail for application to such corresponding parts of Work. The details of such adaptation shall be subject to prior approval by the Architect or the City of Sausalito. Repetitive features shown in outline on Drawings shall be in exact accordance with corresponding features completely shown.

## 3. INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

- (i) Should any discrepancy appear or any misunderstanding arise as to the import of anything contained in the Drawings and Specifications prepared by the Architect/Engineer, the matter shall be referred to the Architect/Engineer in writing, with a copy to the Inspector and Project Manager. Architect/Engineer shall issue with reasonable promptness such written clarifications or interpretations of the requirements of the Drawings and Specifications as Architect/Engineer may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Drawings and Specifications. Such written clarifications and interpretations will be binding upon the Contractor. The Contractor shall not carry on Work except with the knowledge of Inspector. If the Contractor believes that a written clarification or interpretation justifies an adjustment in the Contract Sum or Contract Times then Contractor shall give the Architect or the Representative of the City of Sausalito prompt written notice as provided in Section 01250 (Modification Procedures). If the parties are unable to agree to the amount or extent of the adjustment, if any, then Contractor shall perform the Work in conformance with Architect's response, clarification, or interpretation and may make a written claim for the adjustment as provided in Article Article XII of this Section 00700.

## 4. CHECKING OF DRAWINGS

- (i) Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. Figures shown on Drawings shall be followed; Contractor shall not scale measurements. As early as possible and not less than seven calendar days prior to the start of a work activity Contractor shall submit an RFI to the Project Manager detailing any conflict, error, ambiguity or discrepancy which the Contractor may discover. Contractor shall obtain a written interpretation or clarification from Project Manager before proceeding with any Work affected thereby. Failure of the Contractor to report any such conflict, error, ambiguity or discrepancy within the stated time frame may waive Contractor's rights to a modification of the Contract Sum or Contract time.

## 5. STANDARDS TO APPLY WHERE SPECIFICATIONS ARE NOT FURNISHED

- (i) Contractor shall furnish materials or manufactured articles or shall do Work for which no detailed specifications are set forth by supplying materials or manufactured articles of the best grade, in quality and workmanship, obtainable in the market from firms of established good reputation. If not ordinarily carried in stock, the

materials or manufactured articles shall conform to industry standards for first-class materials or articles of the kind required, with due consideration of the use to which they are to be put. Work shall conform to the usual standards or codes, such as those cited in Section 01420 (References and Definitions), for first-class work of the kind required. The Contractor shall specify in writing to Architect the materials to be used or Work to be performed under this paragraph 5 no later than ten (10) work days prior to furnishing such materials or performance of such Work.

#### 6. DEVIATION FROM SPECIFICATIONS AND DRAWINGS

- (i) No modification or deviation from the Drawings and Specifications will be permitted without express approval of Project Architect and City of Sausalito. Contractor must perform Work in strict accordance with Drawings and Specifications. No order for any alteration, modification or extra which shall increase or decrease the cost of Work shall be valid unless the resulting increase or decrease in price shall have been agreed upon in writing, and the order signed by the Contractor, and certified by the authorized officer representing City of Sausalito. As appropriate, Change Orders changing the approved Drawings and technical specifications are subject to approval by the Architect And the City of Sausalito. Deviations from Drawings and from the dimensions therein given, or from the Specifications, whether or not error is believed to exist, shall be made only when approved in writing by the Architect or the Project Manager.
- (ii) Architect/Engineer may order that locations, lines and grades for Work vary from those shown on Drawings. Changes may be made in location, lines or grades for Work under any item of Contract. In lump sum contracts where Work is affected by variations of locations, lines or grades, all changes in the Contract Documents will be made in accordance with Article Article XIV of this Section 00700.

#### 7. PRECEDENCE OF DOCUMENTS

- (i) In the case of discrepancy or ambiguity in the Contract Documents, the following order of precedence shall prevail:
  - 1) Modifications in inverse chronological order (i.e., most recent first), and in the same order as specific portions they are modifying;
  - 2) Section 00520 (Agreement), and terms and conditions referenced therein;
  - 3) Section 00800 (Supplementary Conditions);
  - 4) Section 00700 (General Conditions);
  - 5) Division 1 Specifications;
  - 6) Division 2 through 16 Specifications;
  - 7) Drawings;
  - 8) Written numbers over figures, unless obviously incorrect;
  - 9) Figured dimensions over scaled dimensions;
  - 10) Large-scale drawings over small-scale drawings.
- (ii) Any conflict between Drawings and Division 2 through 16 Specifications will be resolved in favor of the document of the latest date (i.e., the most recent document), and if the dates are the same or not determinable, then in favor of Specifications.
- (iii) Any conflict between a bill or list of materials shown in the Contract Documents and the actual quantities required to complete Work required by Contract Documents, will be resolved in favor of the actual quantities.
- (iv) In the event the Specifications include divisions above Division 16 (e.g., Division 17 and above), then such divisions shall be included within the Contract Documents unless identified otherwise.

#### 8. OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND CONTRACT DOCUMENTS

- (i) Drawings, Specifications and other Contract Documents were prepared for use on the Work only. No part of Contract Documents shall be used for any other construction or for any other purpose except with the written consent of the Architect or the City of Sausalito. Any unauthorized use of Contract Documents is prohibited and at the sole liability of the user.

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**ARTICLE VI. CONSTRUCTION BY CITY OF SAUSALITO OR BY SEPARATE CONTRACTORS****1. CITY OF SAUSALITO'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS**

- (i) City of Sausalito may perform with its own forces, construction or operations related to the Project. City of Sausalito may also award separate contracts in connection with other portions of the Project or other construction or operations, on the Site or areas contiguous to the Site, under conditions similar to these Contract Documents, or may have utility owners perform other work. When separate contracts are awarded for different portions of the Project or other construction or operations on the Site, the term "Contractor" in these Contract Documents shall mean the Contractor herein.

**2. MUTUAL RESPONSIBILITY**

- (i) Contractor shall afford all other contractors, utility owners and City of Sausalito (if City of Sausalito is performing work with its own forces), proper and safe access to the Site, and reasonable opportunity for the installation and storage of their materials. Contractor shall ensure that the execution of its Work as described in Section 01100 properly connects and coordinates with others' work, and shall cooperate with them to facilitate the progress of the Work.
- (ii) Contractor shall coordinate its Work with the work of other separate contractors, City of Sausalito, and utility owners. Contractor shall attend coordination meetings with other contractors, City of Sausalito and its representatives, and utility owners as required by Section 01310 (Project Management and Coordination).
- (iii) Unless otherwise provided in the Contract Documents, Contractor shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. Contractor shall not endanger any work of other separate contractors, City of Sausalito or utility owners by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of City of Sausalito and the others whose work will be affected.
- (iv) Contractor's duties and responsibilities under paragraph of this Section 00700 are for the benefit of City of Sausalito and also for the benefit of such other contractors and utility owners working at the Site to the extent that there are comparable provisions for the benefit of Contractor in the direct contracts between City of Sausalito and such other contractors and utility owners.
- (v) To the extent that any part of Contractor's Work is to interface with work performed or installed by other contractors or utility owners, Contractor shall inspect and measure the in-place work. Contractor shall promptly report to City of Sausalito in writing any defect in in-place work that will impede or increase the cost of Contractor's interface unless corrected. City of Sausalito will require the Contractor responsible for the Defective Work to make corrections so as to conform to its contract requirements, or, if the defect is the result of an error or omission in the Contract Documents, issue a Change Order. If Contractor fails to measure, inspect and/or report to City of Sausalito in writing defects that are reasonably discoverable, Contractor shall bear all costs of accomplishing the interface acceptable to City of Sausalito. This provision shall be included in any and all other contracts or subcontracts for Work to be performed where such a conflict could exist.

**3. CITY OF SAUSALITO AUTHORITY OVER COORDINATION**

- (i) City of Sausalito shall have authority over coordination of the activities of multiple contractors in cases where City of Sausalito performs work with its own forces or contracts with others for the performance of other work on the Project, or utilities work on the Site. City of Sausalito may at any time and in its sole discretion, designate a person or entity other than City of Sausalito to have authority over the coordination of the activities among the various contractors. City of Sausalito's authority with respect to coordination of the activities of multiple contractors and utility owners shall not relieve Contractor of its obligation to other contractors and utility owners to coordinate its Work with other contractors and utility owners as specified in paragraph 6.2 of this Section 00700. Contractor shall promptly notify City of Sausalito in writing when another contractor on the Project fails to coordinate its work with the Work of Contract Documents.
- (ii) Contractor shall suspend any part of the Work or carry on the same in such manner as directed by City of Sausalito when such suspension or prosecution is necessary to facilitate the work of other contractors or workers. No damages or claims by Contractor will be allowed if the suspension or Work change is due in whole or in part Contractor's failure to perform its obligation with other contractors and utility owners. Damages or claims will be allowed only to the extent of fault by City of Sausalito if the suspension or Work change is due in whole or in part

to another contractor's failure to coordinate its work with Contractor, other contractors, and utility owners. City of Sausalito reserves the right to back charge Contractor for any damages or claims incurred by other contractors as a result of Contractor's failure to perform its obligations to coordinate with other contractors and utility owners. City of Sausalito may deposit the funds retained with a Court of competent jurisdiction pursuant to applicable interpleaded procedures and Contractor releases City of Sausalito of further liability regarding such funds.

#### ARTICLE VII. CITY OF SAUSALITO AND PAYMENT

##### 1. CITY OF SAUSALITO'S REPRESENTATIVE(S)

City of Sausalito's Representative(s) will have limited authority to act on behalf of City of Sausalito as set forth in the Contract Documents. Except as otherwise provided in these Contract Documents or subsequently identified in writing by City of Sausalito, City of Sausalito will issue all communications to Contractor through City of Sausalito's Representative, and Contractor shall issue all communications to City of Sausalito through City of Sausalito's Representative in a written document. Should any direct communications between Contractor and City of Sausalito's consultants, architects or engineers not identified in Article 2 of Section 00520 (Agreement) occur during field visits or by telephone, Contractor shall immediately confirm them in a written document copied to the City of Sausalito's Representative.

##### 2. MEANS AND METHODS OF CONSTRUCTION

Subject to those rights specifically reserved in the Contract Documents, City of Sausalito will not supervise, or direct, or have control over, or be responsible for, Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or Contractor's failure to comply with laws and regulations applicable to the furnishing or performance of Work. City of Sausalito will not be responsible for Contractor's failure to perform or furnish the Work in accordance with Contract Documents.

##### 3. RECEIPT AND PROCESSING OF APPLICATIONS FOR PAYMENT

As required by Section 01200 (Measurement and Payment), Contractor shall prepare the schedules, submit Applications for Payment and warrant title to all Work covered by each Application for Payment. City of Sausalito, City of Sausalito's Representative and the Architect will review Contractor's Applications for Payment and make payment thereon, and Contractor shall make payments to Subcontractors, suppliers and others, as required by Section 01200 (Measurement and Payment).

#### ARTICLE VIII. CONTROL OF THE WORK

##### 1. SUPERVISION OF WORK BY CONTRACTOR

- (i) Contractor shall supervise, inspect, and direct Work competently and efficiently, devoting the attention and applying such personal skills and expertise as may be required and necessary to perform Work in accordance with Contract Documents. Contractor shall be responsible to see that the completed Work complies accurately with Contract Documents.
- (ii) Contractor shall keep on the Site at all times during Work progress a competent resident Superintendent, who shall not be replaced without City of Sausalito's express written consent. The Superintendent shall be Contractor's representative at the Site and shall have complete authority for the work of the Contractor. All communications to and from the Superintendent shall be as binding as if given to or by Contractor.

##### 2. OBSERVATION OF WORK BY CITY OF SAUSALITO'S REPRESENTATIVE AND ARCHITECT/ENGINEER

- (i) Work shall be performed under City of Sausalito's Representative's general observation and administration. Contractor shall comply with City of Sausalito's Representative's directions and instructions in accordance with the terms of Contract Documents, but nothing contained in these General Conditions shall be taken to relieve Contractor of any obligations or liabilities under the Contract Documents. City of Sausalito's Representative's failure to review or, upon review, failure to object to any aspect of Work reviewed, shall not be deemed a waiver or approval of any non-conforming aspect of Work.

- (ii) City of Sausalito's Representative will provide administration of Contract and observation of the Work as hereinafter described.
- (iii) City of Sausalito's Representative will advise and consult with Architect/Engineer and consult with City of Sausalito. City of Sausalito's Representative will have authority to act on behalf of City of Sausalito only to extent provided in the Contract Documents or as set forth in writing by City of Sausalito.
- (iv) City of Sausalito's Representative will visit the Site at intervals appropriate to stage of construction to become familiar generally with the progress and quality of Work and to determine in general if Work is proceeding in accordance with Contract Documents. However, neither the City of Sausalito's Representative nor Architect/Engineer will be required to make exhaustive or continuous on-site inspections to check quality or quantity of Work. On the basis of on-site observations, the City of Sausalito's Representative and the Architect/Engineer will be informed of progress of Work, and will keep City of Sausalito informed of the Work's progress.
- (v) Neither the City of Sausalito's Representative nor Architect/Engineer will be responsible for nor have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work.
- (vi) Neither the City of Sausalito's Representative nor Architect/Engineer will be responsible for or have control over the acts or omissions of Contractor, Subcontractors or their agents or employees, or any other persons performing Work.
- (vii) Architect/Engineer will review Contractor's submittals, such as Shop Drawings, Product Data, and Samples, but only for conformance with design concept of Work and with information given in the Contract Documents as set forth in this Section 00700. Such action will be taken within fourteen (14) calendar days.
- (viii) The City of Sausalito's Representative and the Architect/Engineer will conduct inspections to recommend to City of Sausalito the dates that Contractor has achieved Substantial Completion and Final Completion, and will receive and forward to City of Sausalito for review written warranties and related documents required by Contract Documents and assembled by Contractor.
- (ix) Architect/Engineer will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings and Specifications or otherwise) as Architect/Engineer may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents.
- (x) Based on its observations, Architect/Engineer may recommend to City of Sausalito that it disapprove or reject Work that Architect/Engineer believes to be defective or will not produce a complete Project that conforms to Contract Documents or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. City of Sausalito will also have authority to require special inspection or testing of Work, whether or not the Work is fabricated, installed or completed.

### 3. ACCESS TO WORK

- (i) During performance of Work, City of Sausalito and its agents, consultants, and employees may at any time enter upon Work, shops or studios where any part of the Work may be in preparation, or factories where any materials for use in Work are being or are to be manufactured, and Contractor shall provide proper and safe facilities for this purpose, and shall make arrangements with manufacturers to facilitate inspection of their processes and products to such extent as City of Sausalito's interests may require. Other contractors performing work for City of Sausalito may also enter upon Work for all purposes required by their respective contracts. Subject to the rights reserved in the Contract Documents, Contractor shall have sole care, custody, and control of the Site and its Work areas.

### 4. EXISTING UTILITIES

- (i) Drawings may indicate above and below grade structures, drainage lines, storm drains, sewers, water, gas, electrical, chemical, hot water, and other similar items and utilities, and additional information may be on file at the regional notification center, "Underground Service Alert" ("USA"). Contractor shall locate these known existing installations, including contacting USA, and follow all procedures under Government Code 4215 before proceeding with trenching or other operations that may cause damage, shall maintain them in service where appropriate, and shall repair any damage to them caused by the Work, at no increase in Contract Sum. Additional utilities whose locations are unknown to City of Sausalito are suspected to exist. Contractor shall be alert to their

existence; if they are encountered, Contractor shall immediately report to City of Sausalito for disposition of the same. In addition to reporting if any utility is damaged, Contractor shall take appropriate action as provided in this Section 00700. Additional compensation or extension of time on account of utilities not shown or otherwise brought to Contractor's attention, including reasonable action taken to protect or repair damage, shall be determined as provided in this Section 00700.

- (ii) At no additional cost to City of Sausalito, Contractor shall incorporate into the Work main or trunk line utilities identified in the Contract Documents and other utilities or underground structures known or reasonably discernible and that will remain in service, including reasonable adjustments to the design location (including minor relocations) of the existing or new installations. Contractor shall take immediate action to restore any in service installations damaged by Contractor's operations. Should City of Sausalito determine that Contractor has not responded in a timely manner or not diligently pursued completion of the Work, City of Sausalito may restore service and deduct the costs of such action by City of Sausalito from the amounts due under the Contract.
- (iii) Consistent with Government Code Section 4215, as between City of Sausalito and Contractor, City of Sausalito will be responsible for the timely removal, relocation, or protection of existing main or trunk line utility facilities located on the Site only if such utilities are not identified in the Contract Documents or Section 00320 (Geotechnical Data and Existing Conditions). City of Sausalito will compensate for the cost of locating and repairing damage not due to Contractor's failure to exercise reasonable care, removing and relocating such main or trunk line utility facilities not indicated in the Contract Documents or Section 00230 (Existing Conditions) with reasonable accuracy, and equipment on the Project necessarily idled during such work.
- (iv) Prior to performing Work at the Site, Contractor shall lay out the locations of known underground utilities that are to remain in service and other significant known underground installations. At no additional cost to City of Sausalito, prior to commencing other Work in proximity to such known underground utilities or installations that can be readily inferred from adjacent surface improvements, Contractor shall further locate, by carefully excavating with small equipment, potholing and principally by hand, such utilities or installations that are to remain and that are subject to damage. This obligation applies to all utilities (including, but not limited to, those referenced in paragraph 8.4.C of this Section 00700).
- (v) Nothing in this Section 00700 shall be deemed to require City of Sausalito to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the Site can be inferred by Contractor from the presence of an underground transmission main or other visible facilities, such as buildings, new asphalt, meters and junction boxes, on or adjacent to the Site. Contractor shall immediately secure all available information and notify City of Sausalito and utility, in writing, of its discovery, while performing Work under the Contract Documents, of any utility facilities not identified in the Drawings and Specifications.

## 5. UNDERGROUND FACILITIES

- (i) Before commencing work of digging trenches or excavation, Contractor shall review all information available regarding subsurface conditions, including but not limited to information supplied in Section 00320 (Geotechnical Data and Existing Conditions), and subject to the terms and conditions of these documents, Contractor shall also comply with Government Code Sections 4216 to 4216.9, and in particular Section 4216.2 which provides, in part: Every person planning to conduct any excavation shall contact Underground Service Alert ("USA") <http://www.usanorth.org/> 8\*1\*1 or 800-227-2600 at least two working days, but no more than 14 calendar days, prior to commencing that excavation. In an emergency, advise USA that an emergency excavation is being performed.
- (ii) Contractor shall contact USA, and schedule the Work to allow ample time for the center to notify its members and, if necessary, for any member to field locate and mark its facilities. Contractor is charged with knowledge of all subsurface conditions reflected in USA records. Prior to commencing excavation or trenching work, Contractor shall provide City of Sausalito with copies of all USA records secured by Contractor. Contractor shall advise City of Sausalito of any conflict between information provided in Section 00320 (Geotechnical Data and Existing Conditions), the Drawings and that provided by USA records. Contractor's excavation shall be subject to and comply with the Contract Documents, including without limitation Paragraphs 2.1 and 8.4 of this Section 00700.
- (iii) The cost of all of the following will be included in the Contract Sum and Contractor shall have full responsibility for
  - (a) reviewing and checking all available information and data including, but not limited to, Section 00320 (Geotechnical Data and Existing Conditions) and information on file at USA; (b) locating all Underground Facilities shown or indicated in the Contract Documents, available information, or indicated by visual observation including,

- but not limited to, and by way of example only, engaging qualified locating services and all necessary back hoeing and potholing; (c) coordination of the Work with the owners of such Underground Facilities during construction; and (d) the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.
- (iv) If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated in the materials supplied by City of Sausalito or in information on file at USA or is otherwise reasonably available to Contractor, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby (and in no event later than seven Days), and prior to performing any Work in connection therewith (except in an emergency as required by Article XVI of this Section 00700), identify the owner of such Underground Facility and give written notice to that owner and to City of Sausalito. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
  - (v) Contractor shall be allowed an increase in the Contract Sum or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any Underground Facility that is owned and was built by City of Sausalito only where the Underground Facility:
    - 1) Was not shown or indicated in the Contract Documents or in the information supplied pursuant to Section 00320 (Geotechnical Data and Existing Conditions) or in information on file at USA; and
    - 2) Contractor did not know of it; and
    - 3) Contractor could not reasonably have been expected to be aware of it or to have anticipated it from the information available. (For example, if surface conditions such as pavement repairs, valve covers, or other markings, indicate the presence of an Underground Facility, then an increase in the Contract Price or an extension of the Contract Time will not be due, even if the Underground Facility was not indicated in the Contract Documents, in the information supplied to Contractor pursuant to Section 00320 [Geotechnical Data and Existing Conditions], in information on file at USA, or otherwise reasonably available to Contractor.)
  - (vi) Underground Facilities are inherent in construction involving digging of trenches or other excavations and Contractor is to apply its skill and industry to verify the information available.

#### ARTICLE IX. **WARRANTY, GUARANTY, AND INSPECTION OF WORK**

##### 1. WARRANTY AND GUARANTY

- (i) General Representations and Warranties: Contractor represents and warrants that it is and will be at all times fully qualified and capable of performing every portion of the Work and to complete Work in accordance with the terms of Contract Documents. Contractor warrants that all construction services shall be performed in accordance with generally accepted professional standards of good and sound construction practices and all requirements of Contract Documents. Contractor warrants that Work, including but not limited to each item of materials and equipment incorporated therein, shall be new, of suitable grade of its respective kind for its intended use, and free from defects in design, engineering, materials, construction and workmanship. Contractor warrants that Work shall conform in all respects with all applicable requirements of federal, state and local laws, applicable construction codes and standards, licenses, and permits, Drawings and Specifications and all descriptions set forth therein, and all other requirements of Contract Documents. Contractor shall not be responsible, however, for the negligence of others in the specification of specific equipment, materials, design parameters and means or methods of construction where that is specifically shown and expressly required by Contract Documents.
- (ii) Extended Guaranties: Any guaranty exceeding one year provided by the supplier or manufacturer of any equipment or materials used in the Project shall be extended for such term. Contractor expressly agrees to act as co-guarantor of such equipment and materials and shall supply City of Sausalito with all warranty and guaranty documents relative to equipment and materials incorporated in the Project and guaranteed by their suppliers or manufacturers.
- (iii) Environmental and Toxics Warranty: The covenants, warranties and representations contained in this paragraph are effective continuously during Contractor's Work on the Project and following cessation of labor for any reason including, but not limited to, Project completion, or termination of the Agreement. Contractor covenants, warrants and represents to City of Sausalito that:

- 1) To Contractor's knowledge after due inquiry, no lead or asbestos-containing materials were installed or discovered in the Project at any time during Contractor's construction thereof. If any lead or asbestos-containing materials were discovered, Contractor made immediate written disclosure to City of Sausalito.
- 2) To Contractor's knowledge after due inquiry, no electrical transformers, light fixtures with ballasts or other equipment containing PCBs are or were located on the Project at any time during Contractor's construction thereof.
- 3) To Contractor's knowledge after due inquiry, no storage tanks for gasoline or any other toxic substance are or were located on the Project at any time during Contractor's construction thereof. If any such materials were discovered, Contractor made immediate written disclosure to City of Sausalito.
- 4) Contractor's operations concerning the Project are not in violation of any applicable environmental federal, state, or local statute, law or regulation dealing with hazardous materials substances or toxic substances and no notice from any governmental body has been served upon Contractor claiming any violation of any such law, ordinance, code or regulation, or requiring or calling attention to the need for any work, repairs, construction, alteration, or installation on or in connection with the Project in order to comply with any such laws, ordinances, codes, or regulations, with which Contractor has not complied. If there are any such notices with which Contractor has complied, Contractor shall provide City of Sausalito with copies thereof.

## 2. INSPECTION OF WORK

- (i) All materials, equipment, and workmanship used in Work shall be subject to inspection and testing at all times during construction and/or manufacture in accordance with the terms of Contract Documents. Work and materials, and manufacture and preparation of materials, from beginning of construction until final completion and acceptance of Work, shall be subject to inspection and rejection by City of Sausalito, its agents, representatives or independent contractors retained by City of Sausalito to perform inspection services, or governmental agencies with jurisdictional interests. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and program so that they may comply therewith as applicable. Upon request or where specified, City of Sausalito shall be afforded access for inspection at the source of supply, manufacture or assembly of any item of material or equipment, with reasonable accommodations supplied for making such inspections.
- (ii) Contractor shall give City of Sausalito minimum 2 work days notice of readiness of Work for all required inspections, tests or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- (iii) If applicable laws or regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, and furnish City of Sausalito with the required certificates of inspection, or approval. City of Sausalito will pay the cost of initial testing and Contractor shall pay all costs in connection with any follow-up or additional testing. Contractor shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for the acceptance of materials or equipment to be incorporated in the Work, or of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.
- (iv) If Contractor covers any Work, or the work of others, prior to any required inspection, test or approval without written approval of City of Sausalito, Contractor shall uncover the Work at City of Sausalito's request. Contractor shall bear the expense of uncovering Work and replacing Work.
- (v) In any case where Contractor covers Work contrary to City of Sausalito's request, Contractor shall uncover Work for City of Sausalito's observation or inspection at City of Sausalito's request. Contractor shall bear the cost of uncovering Work.
- (vi) Whenever required by City of Sausalito, Contractor shall furnish tools, labor and materials necessary to make examination of Work that may be completed or in progress, even to extent of uncovering or taking down portions of finished Work. Should Work be found unsatisfactory, cost of making examination and of reconstruction shall be borne by Contractor. If Work is found to be satisfactory, City of Sausalito, in manner herein prescribed for paying for alterations, modifications, and extra Work, except as otherwise herein specified, will pay for examination.



- (vii) City of Sausalito shall select testing agencies approved by the Architect to conduct required tests and inspections for the project. A list of required structural tests and inspections prepared by the Architect/Engineer and approved by the Architect shall be provided to the designated testing agency and Project Inspector prior to the start of construction.
- (viii) The testing agency shall forward the test results to the Architect, the Architect/Engineer, the Contractor, City of Sausalito and the Project Inspector within 14 calendar days of the date of the test. The testing agency shall forward to the Architect a verified report covering all the tests required to be made by that agency during the progress of the Project.
- (ix) Inspection of the Work by or on behalf of City of Sausalito, or City of Sausalito's failure to do so, shall not under any circumstances be deemed a waiver or approval of any non-conforming aspect of the Work. Contractor shall have an absolute duty, in the absence of a written Change Order signed by City of Sausalito, to perform Work in conformance with the Contract Documents and correct defective work promptly upon knowledge thereof.
- (x) Any inspection, evaluation, or test performed by or on behalf of City of Sausalito relating to the Work is solely for the benefit of City of Sausalito, and shall not be relied upon by Contractor. Contractor shall not be relieved of the obligation to perform Work in accordance with the Contract Documents, nor relieved of any guaranty, warranty, or other obligation, as a result of any inspections, evaluations, or tests performed by City of Sausalito, whether or not such inspections, evaluations, or tests are permitted or required under the Contract Documents. Contractor shall be solely responsible for testing and inspecting Work already performed to determine whether such Work is in proper condition to receive later Work.

### 3. CORRECTION OF DEFECTIVE WORK

- (i) Contractor shall correct defective Work promptly upon knowledge of it. If Contractor fails to supply sufficient skilled workers, suitable materials or equipment, or to furnish or perform the Work in such a way that the completed Work will conform to Contract Documents, City of Sausalito may order Contractor to replace any Defective Work, or stop any portion of Work to permit City of Sausalito (at Contractor's expense) to replace such Defective Work. These City of Sausalito rights are entirely discretionary on the part of the City of Sausalito, and shall not give rise to any duty on the part of City of Sausalito to exercise the rights for the benefit of Contractor or any other party.
- (ii) City of Sausalito may direct Contractor to correct any Defective Work or remove it from the Site and replace it with Work that is not defective and satisfactorily correct or remove and replace any damage to other Work or the work of others resulting from the correction or removal. Contractor shall be responsible for any and all claims, costs, losses and damages caused by or resulting from such correction or removal.
- (iii) Correction Period: If within one year after the date of Final Completion, or such longer period of time as may be prescribed by laws or regulations, or by the terms of Contract Documents, any Work is found to be defective, Contractor shall promptly, without cost to City of Sausalito and in accordance with City of Sausalito's written instructions, correct such Defective Work. Contractor shall remove any Defective Work rejected by City of Sausalito and replace it with Work that is not defective and satisfactorily correct or remove and replace any damage to other Work or the work of others resulting there from. If Contractor fails to promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, City of Sausalito may have the Defective Work corrected or the rejected Work removed and replaced. Contractor shall pay for all claims, costs, losses and damages caused by or resulting from such removal and replacement. Where Contractor fails to correct Defective Work, or defects are discovered outside the correction period, City of Sausalito shall have all rights and remedies granted by law.
- (iv) In special circumstances where a part of the Work is occupied or a particular item of equipment is placed in continuous service before Final Completion of all the Work, the correction period for that part of Work or that item may start to run from an earlier date if so provided by Change Order.
- (v) Where Defective Work or rejected Work (and damage to other Work resulting there from) has been corrected, removed, or replaced under this provision after the commencement of the correction period, the correction period hereunder with respect to such Work shall be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

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#### 4. ACCEPTANCE AND CORRECTION OF DEFECTIVE WORK BY CITY OF SAUSALITO

- (i) City of Sausalito, in its sole discretion, may accept Defective Work. Contractor shall pay all claims, costs, losses and damages attributable to City of Sausalito's evaluation of and determination to accept such Defective Work. If City of Sausalito accepts any Defective Work prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work and the Contract Sum. If the parties are unable to agree to the amount of an appropriate decrease in the Contract Sum, City of Sausalito may deduct from moneys due Contractor, all claims, costs, losses, damages, expenses and liabilities attributable to the Defective Work. If Contractor disagrees with City of Sausalito's calculations, Contractor may make a claim as provided in Article XII of this Section 00700. If City of Sausalito accepts any Defective Work after final payment, Contractor shall pay to City of Sausalito, an appropriate amount as determined by City of Sausalito.
- (ii) City of Sausalito may correct and remedy deficiency if, after five workdays' written notice to Contractor, Contractor fails to correct Defective Work or to remove and replace rejected Work in accordance with this Section 00700; or provide a plan for correction of Defective Work acceptable to City of Sausalito; or perform Work in accordance with Contract Documents. In connection with such corrective and remedial action, City of Sausalito may exclude Contractor from all or part of the Site; take possession of all or part of Work and suspend Contractor's Work related thereto; take possession of all or part of Contractor's tools, appliances, construction equipment and machinery at the Site; and incorporate in Work any materials and equipment stored at the Site or for which City of Sausalito has paid Contractor but which are stored elsewhere. Contractor shall allow City of Sausalito, its representatives, agents, employees, and other contractors and Architect/Engineer's consultants' access to the Site to enable City of Sausalito to exercise the rights and remedies under this paragraph. Contractor shall be responsible for all claims, costs, losses, damages, expenses and liabilities incurred or sustained by City of Sausalito in exercising such rights and remedies. A Change Order for back charges will be issued incorporating the necessary revisions in the Contract Documents with respect to Work and the Contract Sum. If the parties are unable to agree to the amount of an appropriate decrease in the Contract Sum, City of Sausalito may deduct from moneys due Contractor, all claims, costs, losses and damages caused by or resulting from the correction or removal. If Contractor disagrees with City of Sausalito's calculations, Contractor may make a claim as provided in Article XII of this Section 00700.

#### 5. RIGHTS UPON INSPECTION OR CORRECTION

- (iii) Contractor shall not be allowed an extension of Contract Time because of any delay in the performance of Work attributable to the exercise by City of Sausalito of its rights and remedies. Where City of Sausalito exercises its rights, it retains all other rights it has by law or under the Contract Documents including, but not limited to, the right to terminate Contractor's right to proceed with the Work for cause under the Contract Documents and/or make a claim or back charge where a Change Order cannot be agreed upon.
- (iv) Inspection by City of Sausalito shall not relieve Contractor of its obligation to have furnished material and workmanship in accordance with Contract Documents. Payment for Work completed through periodic progress payments or otherwise shall not operate to waive City of Sausalito's right to require full compliance with Contract Documents and shall in no way be deemed as acceptance of the Work paid therefore. Contractor's obligation to complete the Work in accordance with Contract Documents shall be absolute, unless City of Sausalito agrees otherwise in writing.

#### 6. SAMPLES AND TESTS OF MATERIALS AND WORK

- (i) Contractor shall furnish, in such quantities and sizes as may be required for proper examination and tests, samples or test specimens of all materials to be used or offered for use in connection with Work. Contractor shall prepare samples or test specimens at its expense and furnish them to City of Sausalito. Contractor shall submit all samples in ample time to enable City of Sausalito to make any necessary tests, examinations, or analyses before the time it is needed to incorporate the material into the Work.
- (ii) Test samples or specimens of material for testing shall be taken by the Architect/Engineer, his or her representative, Project inspector or representative of the testing agency. In no case shall the Contractor or vendor select the sample. Proof Of Compliance with Contract Provisions

In order that City of Sausalito may determine whether Contractor has complied or is complying with requirements of Contract Documents not readily enforceable through inspection and tests of Work and materials, Contractor

shall at any time, when requested, submit to City of Sausalito properly authenticated documents or other satisfactory proofs of compliance with all applicable requirements.

7. ACCEPTANCE

Inspection by City of Sausalito or its authorized agents or representatives, any order or certificate for the payment of money, any payment, acceptance of the whole or any part of Work by City of Sausalito, any extension of time, any verbal statements on behalf of City of Sausalito or its authorized agents or representatives shall not operate as a waiver or modification of any provision of the Contract Documents, or of any power reserved to City of Sausalito herein or therein or any right to damages provided in the Contract Documents. Any waiver of any breach of the Contract Documents shall not be held to be a waiver of any other subsequent breach.

ARTICLE X. **CONTRACTOR'S ORGANIZATION AND EQUIPMENT**

1. CONTRACTOR'S LEGAL ADDRESS

Address and facsimile number given in Contractor's Bid are hereby designated as Contractor's legal address and facsimile number. Contractor may change its legal address and facsimile number by notice in writing, delivered to City of Sausalito, which in conspicuous language advises City of Sausalito of a change in legal address or facsimile number, and which City of Sausalito accepts in writing. Delivery to Contractor's legal address or depositing in any post office or post office box regularly maintained by the United States Postal Service, in a wrapper with postage affixed, directed to Contractor at legal address or of any drawings, notice, letter or other communication, shall be deemed legal and sufficient service thereof upon Contractor. Facsimile to Contractor's designated facsimile number of any letter, memorandum, or other communication on standard or legal sized paper, with proof of facsimile transmission, shall be deemed legal and sufficient service thereof upon Contractor.

2. CONTRACTOR'S OFFICE AT THE WORK SITE

Contractor shall maintain an office at the Site, which office shall be headquarters of a Contractor representative authorized to transmit to and receive from City of Sausalito, communications, instructions or Drawings. Communications, instructions, or Drawings given to Contractor's representative or delivered at the Site office in representative's absence shall be deemed to have been given to Contractor.

3. CONTRACTOR'S SUPERINTENDENTS OR FOREPERSONS

Contractor shall at all times be represented on Site by one or more superintendents or forepersons authorized and competent to receive and carry out any instructions that City of Sausalito may give, and shall be liable for faithful observance of instructions delivered to Contractor or to authorized representative or representatives on Site.

4. PROFICIENCY IN ENGLISH

Supervisors, security guards, safety personnel and employees of Contractor, Subcontractors, vendors or suppliers who have unescorted access to the Site shall possess proficiency in the English language in order to understand, receive and carry out oral and written communications or instructions relating to their job functions, including safety and security requirements.

5. CONTRACTOR'S AND SUBCONTRACTORS' EMPLOYEES

Contractor shall employ, and shall permit its Subcontractors to employ, only competent and skillful personnel to do Work. If City of Sausalito notifies Contractor that any of its employees, or any of its Subcontractors' employees on Work is incompetent, unfaithful, disorderly, disruptive or profane, or fails to observe customary standards of conduct or refuses to carry out any provision of the Contract Documents, or uses threatening or abusive language to any person on Work representing City of Sausalito, or violates sanitary rules, or is otherwise unsatisfactory, and if City of Sausalito requests that such person be discharged from Work, then Contractor or its Subcontractor shall immediately discharge such person from Work and the discharged person shall not be re-employed on the Work except with consent of City of Sausalito.

**6. CONTRACTOR TO SUPPLY SUFFICIENT WORKERS AND MATERIALS**

- (i) Unless otherwise required by City of Sausalito under the terms of Contract Documents, Contractor shall at all times keep on the Site materials and employ qualified workers sufficient to prosecute Work at a rate and in a sequence and manner necessary to complete Work within the Contract Time. This obligation shall remain in full force and effect notwithstanding disputes or claims of any type.
- (ii) At any time during progress of Work should Contractor directly or indirectly (through Subcontractors) refuse, neglect, or be unable to supply sufficient materials or employ qualified workers to prosecute the Work as required, then City of Sausalito may require Contractor to accelerate the Work and/or furnish additional qualified workers or materials as City of Sausalito may consider necessary, at no cost to City of Sausalito. If Contractor does not comply with the notice within three (3) Days of date of service thereof, City of Sausalito shall have the right (but not a duty) to provide materials and qualified workers to finish the Work or any affected portion of Work, as City of Sausalito may elect. City of Sausalito may, at its discretion, exclude Contractor from the Site, or portions of the Site or separate work elements during the time period that City of Sausalito exercises this right. City of Sausalito will deduct from moneys due or which may thereafter become due under the Contract Documents, the sums necessary to meet expenses thereby incurred and paid to persons supplying materials and doing Work. City of Sausalito will deduct from funds or appropriations set aside for purposes of Contract Documents the amount of such payments and charge them to Contractor as if paid to Contractor. Contractor shall remain liable for resulting delay, including liquidated damages and indemnification of City of Sausalito from claims of others.
- (iii) Exercise by City of Sausalito of the rights conferred upon City of Sausalito in paragraph (ii) of this Document 00700, is entirely discretionary on the part of City of Sausalito. City of Sausalito shall have no duty or obligation to exercise the rights referred to in paragraph (ii) of this Section 00700 and its failure to exercise such rights shall not be deemed an approval of existing Work progress or a waiver or limitation of City of Sausalito's right to exercise such rights in other concurrent or future similar circumstances. The rights conferred upon City of Sausalito under paragraph (ii) of this Section 00700 are cumulative to City of Sausalito's other rights under any provision of the Contract Documents.

**7. CONTRACTOR TO LIST TRADES WORKING**

Contractor shall list the trades and number of trades-people working on the Site and their scheduled activities on a daily basis, and provide a copy of that list to the City of Sausalito's Representative.

**8. CONTRACTOR'S USE OF THE SITE**

Contractor shall not make any arrangements with any person to permit occupancy or use of any land, structure or building within the limits of the Work, for any purpose whatsoever, either with or without compensation, in conflict with any agreement between City of Sausalito and any owner, former owner or tenant of such land, structure or buildings. Contractor may not occupy City of Sausalito-owned property outside the limit of the Work as indicated on the Drawings unless it obtains prior approval from City of Sausalito.

**ARTICLE XI. PROSECUTION AND PROGRESS OF THE WORK****1. SCHEDULES AND EXAMINATIONS OF CONTRACT DOCUMENTS**

- (i) Contractor shall submit schedules and reports, Shop Drawings and Submittals in the quantity prescribed and within the required time, arrange conferences and meetings and proceed with the Work in accordance with Contract Documents, including Sections 01300 (Administrative Requirements) and 01310 (Project Management and Coordination),.
- (ii) Contractor shall submit to City of Sausalito for review and discussion at the Preconstruction Conference described in Section 01300 (Administrative Requirements)
  - 1) Project Management and Coordination as required by Sections 01300 (Administrative Requirements) and 01310 (Project Management and Coordination). Contractor shall utilize a CPM Progress Schedule in planning, scheduling, coordinating, performing and controlling Work (including all activities of Subcontractors, assigned contractors, equipment vendors and suppliers). Contractor shall update the CPM Progress Schedule on a monthly basis to depict accurately the actual progress of Work and for evaluating and preparing Contractor's monthly progress payments. Contractor's failure to submit and maintain an acceptable progress schedule may,

- in City of Sausalito's discretion, and without limiting the materiality of Contractor's other obligations under the Contract Documents, constitute grounds to declare Contractor in material breach of the Contract Documents
- 2) Within 10 Workdays after the Notice to Proceed, a preliminary schedule of Shop Drawing and Sample submittals that shall list each required submittal and the times for submitting, reviewing and processing such submittal, as required by Section 01300 (Administrative Requirements). If no such schedule is agreed upon, then all Shop Drawings, Samples and product data submittals shall be completed and submitted within 21 Workdays after receipt of Notice to Proceed from City of Sausalito.
  - 3) Within 10 Workdays after the Notice to Proceed, a preliminary Schedule of Values for all the Work which shall include quantities and prices of items aggregating the Contract Sum and shall subdivide each Schedule of Values into component activities in sufficient detail to serve as the basis for progress payments during construction. Such Schedule of Values shall include an appropriate amount of overhead and profit applicable to each item of Work, a line item for Project Record Documents, and a line item for Project scheduling, and shall conform to Section 01200 (Measurement and Payment).
- (iii) Unless otherwise provided in the Contract Documents, at least ten (10) Workdays following Notice to Proceed and before submission of the first application for payment, a conference attended by Contractor, City of Sausalito's Representative, the Architect and others as appropriate, will be held to review for acceptability the schedules submitted in accordance with this Section 00700 and first reviewed at the Preconstruction Conference. Contractor shall have an additional three (3) Workdays to make corrections and adjustments and to complete and resubmit the schedules. Schedules shall be updated and completed as required by Sections 01200 (Measurement and Payment), 01310 (Project Management and Coordination) and 01300 (Administrative Requirements). No progress payment shall be due or owing to Contractor until the schedules are submitted to and acceptable to City of Sausalito's Representative and/or Architect/Engineer as meeting the requirements of the Contract Documents, including Sections 01200 (Measurement and Payment), 01310 (Project Management and Coordination) and 01300 (Administrative Requirements). City of Sausalito's acceptance of Contractor's schedules will not create any duty of care or impose on City of Sausalito any responsibility for the sequencing, scheduling or progress of Work nor will it interfere with or relieve Contractor from Contractor's full responsibility therefore.
- (iv) Before commencing any portion of Work, Contractor shall inform City of Sausalito's Representative in writing as to time and place at which Contractor wishes to commence Work, and nature of Work to be done, in order that proper provision for inspection of Work may occur, and to assure measurements necessary for record and payment. Information shall be given to City of Sausalito's Representative a reasonable time in advance of time at which Contractor proposes to begin Work, so that City of Sausalito may complete necessary preliminary work without inconvenience or delay to Contractor.
- (v) Contractor shall submit submittals and Shop Drawings to City of Sausalito's Representative (or Architect/Engineer if City of Sausalito so designates) for review in strict accordance with Section 01300 (Administrative Requirements). Submission of a Shop Drawing shall constitute Contractor's representation that all requirements of Section 01300 (Administrative Requirements) have been complied with. All submittals will be identified as City of Sausalito may require and in the number of copies specified in Section 01300 (Administrative Requirements).
- (vi) Contractor shall not perform Work that requires submission of a Shop Drawing or Sample or other submittal prior to submission and favorable review of the Shop Drawing or Sample or submittal. Where a Shop Drawing or Sample or other submittal is required by Contract Documents or the final Schedule of Shop Drawing and Sample Submittals accepted by City of Sausalito, any related Work performed prior to City of Sausalito's approval of the pertinent submittal shall be at the sole expense, responsibility and risk of Contractor.

## 2. PROJECT RECORDS

- (i) Contractor shall maintain full and correct information as to the number of workers employed in connection with each subdivision of Work, the classification and rate of pay of each worker in form of certified payrolls, the cost to Contractor of each class of materials, tools, equipment and appliances used by Contractor in Work, and the amount of each class of materials used in each subdivision of Work. Contractor shall provide City of Sausalito with monthly summaries of this information.
- (ii) Contractor shall maintain daily job reports recording all significant activity on the job, including the number of workers on Site, Work activities, problems encountered and delays. Contractor shall provide City of Sausalito with copies for each Day Contractor works on the Project, to be delivered to City of Sausalito either the same Day or the following morning before starting work at the Site. Contractor shall take monthly progress photographs of all

areas of the Work. Contractor shall maintain copies of all correspondence with Subcontractors and records of meetings with Subcontractors.

- (iii) City of Sausalito shall have the right to audit and copy Contractor's books and records of any type, nature or description relating to the Project (including but not limited to financial records reflecting in any way costs claimed on the Project), and to inspect the Site, including Contractor's trailer, or other job Site office, and this requirement shall be contained in the subcontracts of Subcontractors working on Site. By way of example, City of Sausalito shall have the right to inspect and obtain copies of all Contract Documents, planning and design documents, Bid proposal and negotiation documents cost records and job cost variance reports, design modification proposals, value engineering or other cost reduction proposals, revisions made to the original design, job progress reports, photographs, and as-built drawings maintained by Contractor. City of Sausalito and any other applicable governmental entity shall have the right to inspect all information and documents maintained under this paragraph 2 at any time during the Project and for a period of five years following Substantial Completion. This right of inspection shall not relieve Contractor of its duties and obligations under the Contract Documents. This right of inspection shall be specifically enforceable in a court of law, either independently or in conjunction with enforcement of any other rights in the Contract Documents.
- (iv) Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Contract Modifications, Change Orders, Work Directives, Force Account orders, and written interpretations and clarifications in good order and annotated to show all changes made during construction. These Project Record Documents, together with all approved Samples and a counterpart of all approved Shop Drawings, shall be maintained on a daily basis and available to City of Sausalito for review on a monthly basis. Upon completion of the Work, Contractor shall deliver to City of Sausalito, the Project Record Documents, Samples and Shop Drawings and as-built drawings.

## ARTICLE XII. CLAIMS BY CONTRACTOR

### 1. GENERAL

- (i) Contract Interpretation Disputes: Should it appear to Contractor that Work to be performed or any of the matters relative to Contract Documents (including without limitation Drawings or Specifications) are not satisfactorily detailed or explained therein, or should any questions arise as to the meaning or intent of Contract Documents (including without limitation Drawings or Specifications), Contractor shall immediately give written notice to City of Sausalito. Contractor shall bear all costs incurred in giving notice. City of Sausalito through its Representative will render a determination regarding the issue, which shall be final. If Contractor disagrees with City of Sausalito's decision, or if Contractor contends that City of Sausalito failed to provide a decision, Contractor's sole and exclusive remedy is to file a claim in accordance with this Article Article XII. Contractor shall diligently prosecute the Disputed Work (as defined below) to Final Completion pending resolution of any claim.
- (ii) Work Disputes: Contractor shall give written notice to City of Sausalito of any dispute arising under the Contract Documents respecting the true value of any Work performed, the implementation of Work required by Contract Documents, any Work omitted, any extra Work that Contractor may be required to perform or time extensions, respecting the size of any payment to Contractor during the performance of the Work, or of compliance with Contract Documents procedures. City of Sausalito will render a determination regarding the issue, which shall be final. If Contractor disagrees with City of Sausalito's decision, or if Contractor contends that City of Sausalito failed to provide a decision, Contractor's sole and exclusive remedy is to file a claim in accordance with this Article Article XII. Pending the resolution of any claim, Contractor shall diligently prosecute the Disputed Work to Final Completion.
- (iii) The claim notice and documentation procedure described in this Article Article XII applies to all claims and disputes arising under the Contract Documents, including without limitation any claim or dispute by any Subcontractor or material supplier. All Subcontractor and supplier claims of any type shall be brought only through Contractor as provided in this Article Article XII. Under no circumstances shall any Subcontractor or supplier make any direct claim against City of Sausalito.
- (iv) "Claim" means a written demand or written assertion by Contractor seeking, as a matter of right, the payment of money, the adjustment or interpretation of Contract Documents terms, or other relief arising under or relating to Contract Documents. In order to qualify as a "claim," the written demand must state that it is a claim submitted under this Article Article XII.

- (v) The provisions of this Article Article XII constitute a claim procedure by agreement under the California Government Code, Title 1, Division 3.6, Part 3, Chapter 5, and survive termination, breach or completion of the Contract Documents. Contractor shall bear all costs incurred in the preparation and submission of a claim.

## 2. PROCEDURE

- (vi) Should any clarification, determination, action or inaction by City of Sausalito or Architect/Engineer, Work, or any other event, in the opinion of Contractor, exceed the requirements of or not comply with Contract Documents, or otherwise result in Contractor seeking additional compensation in time or money or damages for any reason (collectively "Disputed Work"), then Contractor and City of Sausalito will make good faith attempts to resolve informally any and all such issues, claims and/or disputes. Before commencing the Disputed Work, or within seven (7) Calendar Days after Contractor's first knowledge of the Disputed Work, whichever is earlier, Contractor shall file a written notice and cost proposal for the Disputed Work with City of Sausalito stating clearly and in detail its objection and reasons for contending the Work or interpretation is outside the requirements of Contract Documents. If a written notice and cost proposal for Disputed Work is not issued within this time period, or if Contractor proceeds with the Disputed Work without first having given the notice required by this paragraph 12.2.A, Contractor shall waive its rights to further claim on the specific issue.
- (vii) City of Sausalito will review Contractor's timely notice and cost proposal for Disputed Work and provide a decision. If, after receiving the decision, Contractor disagrees with it or still considers the Work required of it to be outside of the requirements of Contract Documents, it shall so notify City of Sausalito, in writing, within seven (7) Calendar Days after receiving the decision, by submitting a notice of potential claim, stating that a formal claim will be issued. Within thirty (30) Calendar Days of receiving the decision, Contractor shall submit its claim in the form specified herein and all arguments, justification, cost or estimates, schedule analysis, and detailed documentation supporting its position. Contractor's failure to furnish notification within seven (7) Calendar Days and all justifying documentation within thirty (30) Calendar Days will result in Contractor waiving its right to the subject claim. If Disputed Work persists longer than thirty (30) Calendar Days, then Contractor shall, every thirty (30) Calendar Days until the Disputed Work ceases, submit to City of Sausalito a document titled "Claim Update" that shall update and quantify all elements of the claim as completely as possible. Claims or Claim Updates stating that damages, total damages (direct and indirect), schedule input and/or any time extension will be determined at a later date shall not comply with this paragraph 12.2.B . All disputed work shall be tracked on a time and material basis (T & M), approved daily by the Project Inspector, totaled with complete costs and submitted weekly to the City of Sausalito's Representative.
- (viii) Claims shall be calculated in the same manner as Change Orders per Section 01250 (Modification Procedures). Except where provided by law or elsewhere in these contract documents (if applicable), City of Sausalito shall not be liable for special or consequential damages, and contractor shall not include them in its claims. Contractor shall be limited in its recovery on claims to the change order calculations set forth in Section 01250 (Modification Procedures).

## 3. CLAIM FORMAT

Contractor shall submit the claim justification in the following format:

- 1) Cover letter and certification under penalty of perjury regarding the amount of the claim in accordance with Section 12650 of the Government Code;
- 2) Summary of claim, including underlying facts, entitlement, CPM schedule analysis, quantum calculations, contract provisions supporting relief;
- 3) List of documents relating to claim including Specifications, Drawings, clarifications/requests for information, schedules, notices of delay, cost records(including invoices, subcontractor Quotations and change orders) and any other necessary documents;
- 4) Chronology of events and correspondence;
- 5) Analysis of claim merit;
- 6) Analysis of claim cost; and
- 7) Attach supporting documents referenced in Article XII, paragraph 3, section 3) above.
- 8) Time and Material Records.
- 9) Time Impact Evaluations

#### 4. EXCLUSIVE REMEDY

Contractor's performance of its duties and obligations specified in this Article and submission of a claim as provided in this Article is Contractor's sole and exclusive remedy for disputes of all types pertaining to the payment of money, extension of time, the adjustment or interpretation of Contract Documents terms or other contractual or tort relief arising from Contract Documents. This exclusive remedy and the limitation of liability (expressed herein and elsewhere throughout Contract Documents) apply notwithstanding the completion, termination, suspension, cancellation, breach or rescission of the Work or Contract Documents, negligence or strict liability by City of Sausalito, its representatives, consultants or agents, or the transfer of Work or the Project to City of Sausalito for any reason whatsoever. Contractor waives all claims of waiver, estoppels, release, bar, or any other type of excuse for non-compliance with the claim submission requirements. Compliance with the notice and claim submission procedures described in this Article is a condition precedent to the right to commence litigation, file a Government Code Claim, or commence any other legal action. If Contractor fails to raise any claim(s) or issue(s) in a timely protest and timely claim submitted under this Article, then Contractor may not thereafter assert such claim(s) or issue(s) in any Government Code Claim, subsequent litigation, or legal action. City of Sausalito shall not have deemed to waive any provision under this Article, if at City of Sausalito's sole discretion; a claim is accepted in a manner not in accord with this Article.

#### 5. MEDIATION

All Contractor claims shall, as a condition precedent to litigation thereon, first be mediated. Mediation shall be non-binding and utilize the services of a mediator mutually acceptable to the parties and, if the parties cannot agree, a mediator selected by the American Arbitration Association or Judicial Arbitration and Mediation Services from its panel of approved mediators trained in construction industry mediation. All statutes of limitation shall be tolled from the date of the demand for mediation until a date two weeks following the mediation's conclusion. All unresolved Contractor claims shall be submitted to the same mediator. The cost of mediation shall be equally shared.

#### 6. SUBCONTRACTOR CLAIMS

7. Contractor shall present as its claims all subcontractor, sub-subcontractor and supplier claims of any type, certify the claims in accordance with Government Code 12650, and prove them under the terms of the contract documents. City of Sausalito shall not be directly liable to any subcontractor, any supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages or extra costs of any type arising out of or resulting from the project.

### ARTICLE XIII. **LEGAL AND MISCELLANEOUS**

#### 1. LAWS AND REGULATIONS

- (i) Contractor shall keep fully informed of and shall comply with all laws, ordinances, regulations and orders of any properly constituted authority affecting the Contract Documents, Work and persons connected with Work, and shall protect and indemnify City of Sausalito and its officers, employees, consultants and agents against any claim or liability, including attorney's fees, arising from or based on violation of law, ordinance, regulation or order, whether by Contractor or by Subcontractors, employees or agents. Authorized persons may at any time enter upon any part of Work to ascertain compliance of all applicable laws, ordinances, regulations and orders.
- (ii) Contractor shall comply with applicable portions of Title 19 and Title 24, California Code of Regulations, as defined in Contract Documents, Public Contract Code and all applicable codes, laws and regulations. Whenever Drawings and Specifications require larger sizes or higher standards than are required by any applicable law, ordinance, regulation or order, Drawings and Specifications shall govern. Whenever Drawings and Specifications require something that will violate such laws, ordinances, regulations or orders, then such laws, ordinances, regulations or orders shall govern.
- (iii) Contractor shall maintain in the Project Office a current copy of Title 19 and 24 of the California Code of Regulations at all times during construction.



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## 2. PERMITS AND TAXES

- (i) Contractor shall procure all permits and licenses applicable to the Work (including environmental matters to the extent applicable), pay all charges and fees, including fees for street opening permits, comply with, implement and acknowledge effectiveness of all permits, initiate and cooperate in securing all required notifications or approvals therefore, and give all notices necessary and incident to due and lawful prosecution of Work, unless otherwise provided herein. City of Sausalito will pay applicable building permits, school, sanitation and water fees, except as otherwise provided in the Contract Documents. If, under federal excise tax law, any transaction hereunder constitutes a sale on which a federal excise tax is imposed, and the sale is exempt from such excise tax because it is a sale to a state or local government for its exclusive use, the City of Sausalito, upon request, will execute a certificate of exemption which will certify (1) that the City of Sausalito is a political subdivision of the state for the purpose of such exemption, and (2) that the sale is for the exclusive use of the City of Sausalito. No excise tax for such materials shall be included in any bid price. Contractor shall pay all sales and/or use taxes levied on materials, supplies, or equipment purchased and used on or incorporated into Work, and all other taxes properly assessed against equipment or other property used in connection with Work, without any increase in the Contract Sum. Contractor shall make necessary arrangements with proper authorities having jurisdiction over roads, streets, pipelines, navigable waterways, railroads, and other works in advance of operations, even where City of Sausalito may have already obtained permits for the Work.

## 3. RESPONSIBILITY OF CONTRACTOR AND INDEMNIFICATION

- (i) City of Sausalito and each of its officers, employees, consultants and agents including, but not limited to the Board, Architect/Engineer and each City of Sausalito's Representative, shall not be liable or accountable in any manner for loss or damage that may happen to any part of the Work; loss or damage to materials or other things used or employed in performing the Work; injury, sickness, disease, or death of any person; or damage to property resulting from any cause whatsoever except their sole negligence, willful misconduct or active negligence, attributable to performance or character of the Work, and Contractor releases all of the foregoing persons and entities from any and all such claims.
- (ii) To the furthest extent permitted by law (including without limitation California Civil Code Section 2782), Contractor shall assume defense of, and indemnify and hold harmless, City of Sausalito and each of its officers, employees, consultants (including without limitation Architect/Engineer) and agents, including but not limited to the City Council, Architect/Engineer and each City of Sausalito's Representative, from claims, suits, actions, losses and liability of every kind, nature and description, including but not limited to claims and fines of regulatory agencies and attorney's fees and consultant's fees, directly or indirectly arising out of, connected with or resulting from performance of the Work, failure to perform the Work, or condition of the Work which is caused in whole or part by any act or omission of Contractor, Subcontractors, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether it is caused in part by the negligence of City of Sausalito or by any person or entity required to be indemnified hereunder.
- (iii) With respect to third-party claims against Contractor, Contractor waives any and all rights to any type of express or implied indemnity against City of Sausalito and each of its officers, employees, consultants and agents including, but not limited to City of Sausalito, Architect/Engineer and each City of Sausalito's Representative.
- (iv) Approval or purchase of any insurance contracts or policies shall in no way relieve from liability nor limit the liability of Contractor, its Subcontractors of any tier, or the officers or agents of any of them.
- (v) To the furthest extent permitted by law (including, without limitation, Civil Code Section 2782), the indemnities, releases of liability and limitations of liability, claims procedures, and limitations of remedy expressed throughout Contract Documents shall apply even in the event of breach of contract, negligence (active or passive), fault or strict liability of the party(ies) indemnified, released, or limited in liability, and shall survive the termination, rescission, breach, abandonment, or completion of the Work or the terms of the Contract Documents. If Contractor fails to perform any of these defense or indemnity obligations, City of Sausalito may in its discretion back charge Contractor for City of Sausalito's costs and damages resulting there from and withhold such sums from progress payments or other contract moneys which may become due.

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#### 4. CONCEALED OR UNKNOWN CONDITIONS

- (i) If either of the following conditions is encountered at Site when digging trenches or other excavations below the surface, Contractor shall give a written Notice of Differing Site Conditions to City of Sausalito promptly before conditions are disturbed, except in an emergency as required by paragraph 4 of this Section 00700, and in no event later than 24 hours after first observance of:
  - 1) Subsurface or Latent physical conditions which differ materially from those indicated in the Contract Documents; or
  - 2) Unknown physical conditions of an unusual nature or which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.
- (ii) In response to Contractor's Notice of Differing Site Conditions under this paragraph, City of Sausalito, or Architect/Engineer will investigate the identified conditions, and if they differ materially and cause increase or decrease in Contractor's cost of, or time required for, performance of any part of the Work, City of Sausalito will issue either a Request for Proposal or a Construction Change Directive under the procedures described in the Contract Documents, including without limitation Section 01250 (Modification Procedures). If City of Sausalito determines that physical conditions at the Site are not Latent or are not materially different from those indicated in Contract Documents or that no change in terms of the Contract Documents is justified, City of Sausalito will so notify Contractor in writing, stating reasons
- (iii) Contractor shall not be entitled to any adjustment in the Contract Sum or Contract Time regarding claimed Latent or materially different Site conditions (whether above or below grade) if:
  - 1) Contractor knew of the existence of such conditions at the time Contractor submitted its Bid; or
  - 2) Contractor should have known of the existence of such conditions as a result of having complied with the requirements of Contract Documents, including without limitation paragraphs 2i and 8.4 of this Section 00700; or
  - 3) The information or conditions claimed by Contractor to be Latent or materially different consist of information, conclusions, opinions or deductions of the kind that paragraph 2.1 of this Section 00700 precludes reliance upon; or
  - 4) Contractor was required to give written Notice of Differing Site Conditions and failed to do so within the time required.
- (iv) If City of Sausalito and Contractor are unable to agree on entitlement to or as to the amount or length of any adjustment in the Contract Sum or Contract Time required under this paragraph 13.4, Contractor shall proceed with the Work as directed by City of Sausalito and may make a claim as provided in Article XII of this Section 00700.

#### 5. NOTICE OF HAZARDOUS WASTE OR MATERIALS CONDITIONS

- (i) Contractor shall give a written Notice of Hazardous Materials Condition to City of Sausalito promptly, before any of the following conditions are disturbed (except in an emergency as required by paragraph 4 of this Section 00700), and in no event later than 24 hours after first observance of any:
  - 1) Material that Contractor believes may be hazardous waste or hazardous material, as defined in Section 25117 of the Health and Safety Code (including, without limitation, asbestos, lead, PCBs, petroleum and related hydrocarbons, and radioactive material) that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law ("hazardous material"); or
  - 2) Other material that may present an imminent substantial danger to persons or property exposed thereto in connection with Work at the Site ("other materials").
- (ii) Except as otherwise provided in the Contract Documents or as provided by applicable law, Contractor shall not be required to give any notice for the disturbance or observation of any such hazardous materials or other materials where such matter is disturbed or observed as part of the scope of Work under the Contract Documents (such as hazardous waste or hazardous material investigation, remediation or disposal activities which are identified as the subject of Work under the Contract Documents), where Contractor complies with all requirements in the Contract Documents and applicable law respecting such materials.
- (iii) Contractor's Notice of Hazardous Materials Condition shall indicate whether the hazardous materials or other materials were shown or indicated in the Contract Documents to be within the scope of Work, and whether the

hazardous materials or other materials were brought to the Site by Contractor, its Subcontractors, suppliers, or anyone else for whom Contractor is responsible.

- (iv) Contractor shall not be entitled to any adjustment in the Contract Sum or Contract Time regarding claimed hazardous waste or materials if:
  - 1) Contractor knew of the existence of such hazardous materials or other materials at the time Contractor submitted its Bid; or
  - 2) Contractor should have known of the existence of such hazardous material or other materials as a result of its having the responsibility to obtain additional or supplementary examinations, investigation, explorations, tests, studies, and data concerning the conditions at or contiguous to the Site prior to submitting its Bid; or
  - 3) Contractor failed to give the written notice within the time required by paragraph (i) of this Section 00700.
- (v) If City of Sausalito determines that conditions involve hazardous materials or other materials and that a change in Contract Document terms is justified, City of Sausalito will issue either a Request for Proposal or Construction Change Directive under the procedures described in the Contract Documents, including without limitation Section 01250 (Modification Procedures). If City of Sausalito determines that conditions do not involve hazardous materials or other materials or that no change in Contract Document terms is justified, City of Sausalito will notify Contractor in writing, stating the reasons for its determination
- (vi) If City of Sausalito and Contractor are unable to agree on entitlement to or as to the amount or length of any adjustment in the Contract Sum or Contract Time required under this paragraph 13.5, Contractor shall proceed with the Work as directed by City of Sausalito and may make a claim as provided in Article Article XII of this Section 00700.
- (vii) In addition to the parties' other rights under paragraph (v) of this Section 00700, if Contractor does not agree to resume Work based on a reasonable belief that it is unsafe, or does not agree to resume Work under special conditions, City of Sausalito may order the disputed portion of Work deleted from the Work, or performed by others, or City of Sausalito may invoke its right to terminate Contractor's right to proceed under the Contract Documents in whole or in part, for convenience or for cause as the facts may warrant. If Contractor does not agree with City of Sausalito's determination of any adjustment in the Contract Sum or Contract Time as a result, Contractor may make a claim as provided in Article Article XII of this Section 00700.

#### 6. SUSPENSION OF WORK

- (i) City of Sausalito may, without cause, order Contractor in writing to suspend, delay or interrupt Work in whole or in part for such period of time as City of Sausalito may determine. An adjustment shall be made for increases in cost of performance of Work of the Contract Documents caused by any such suspension, delay or interruption, calculated using the measures set forth in Section 01250 (Modification Procedures). No adjustment shall be made to extent that:
  - 1) Performance is, was or would have been so suspended, delayed or interrupted by another cause for which Contractor is responsible; or
  - 2) An equitable adjustment is made or denied under any other provision of Contract Documents; or
  - 3) The suspension of Work was the direct or indirect result of Contractor's failure to perform any of its obligations hereunder. Adjustments made in cost of performance may have a mutually agreed fixed or percentage fee; if the parties cannot agree, Contractor may file a claim under Article XII of this Section 00700.

#### 7. TERMINATION OF CONTRACT FOR CAUSE

- (i) City of Sausalito may declare Contractor in default of Contract Documents and City of Sausalito may terminate Contractor's right to proceed under the Contract Documents for cause:
  - 1) Should Contractor make an assignment for the benefit of creditors; admit in writing its inability to pay its debts as they become due; file a voluntary petition in bankruptcy; be adjudged a bankrupt or insolvent; be the subject of an involuntary petition in bankruptcy which is not dismissed within sixty (60) Calendar Days; file a petition or answer seeking for itself any reorganization, arrangement, composition, readjustment, liquidation, dissolution, or similar relief under any present or future statute, law, or regulation; file any answer admitting or not contesting the material allegations of a petition filed against Contractor in any such proceeding; or seek, consent to, or acquiesce in, the appointment of any trustee, receiver, custodian or liquidator of Contractor or of all or any substantial part of its properties or if Contractor, its directors or shareholders, take action to dissolve or liquidate Contractor; or

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- 2) Should Contractor commit a material breach of the Contract Documents. If City of Sausalito declares Contractor in default due to material breach, however, City of Sausalito must allow Contractor an opportunity to cure such breach within ten (10) Workdays of the date of notice from City of Sausalito to Contractor providing notice of the default; or, if such breach is curable but not curable within such ten-Day period, within such period of time as is reasonably necessary to accomplish such cure. (In order for Contractor to avail itself of a time period in excess of ten (10) Workdays, Contractor must provide City of Sausalito within the ten-Day period with a written plan acceptable to City of Sausalito to cure said breach which includes, for example, evidence of necessary resources, Subcontractor commitments, schedules and recovery schedules meeting Contract Document requirements and showing a realistic and achievable plan to cure the breach. Contractor must then diligently commence and continue such cure according to the written plan); or
  - 3) Should Contractor violate or allow (by a Subcontractor or other person or entity for which Contractor is responsible) a violation of any valid law, statute, regulation, rule, ordinance, permit, license or order of any governmental agency applicable to the Project or Work and does not cure (or cause to be cured) such violation within ten (10) Workdays of the date of the notice from City of Sausalito to Contractor demanding such cure; or, if such violation is curable but not curable within such ten-Day period, within such period of time as is reasonably necessary to accomplish such cure. (In order for Contractor to avail itself of a time period in excess of ten (10) Workdays, Contractor shall provide City of Sausalito within the ten-Day period with a written plan to cure said violation acceptable to City of Sausalito, and then diligently commence and continue performance of such cure according to the written plan.)
- (ii) If City of Sausalito at any time reasonably believes that Contractor is or may be in default under the Contract Documents as provided in paragraph 13.7.A of this Section 00700, City of Sausalito may in its sole discretion notify Contractor of this fact and request written assurances from Contractor of performance of Contract Documents and a written plan from Contractor to remedy any default under the terms of Contract Documents which City of Sausalito may advise Contractor of in writing. Contractor shall, within ten (10) Workdays of City of Sausalito's request, deliver a written cure plan which meets the requirements of the written plan deliverable under paragraph 13.7.A.2 of this Section 00700. Failure of Contractor to provide such written assurances of performance and the required written plan, within ten (10) Workdays of request, will constitute a material breach of Contract Documents sufficient to justify termination for cause.
  - (iii) In event of termination for cause, City of Sausalito will immediately serve written notice thereof upon Surety and Contractor. Surety shall have the rights and obligations set forth in Section 00610 (Construction Performance Bond). Subject to the Surety's rights under the Performance Bond (which rights are waived upon a default there under), City of Sausalito may take over the Work and prosecute it to completion by contract or by any other methods it may deem advisable.
  - (iv) In the event of termination by City of Sausalito as provided in paragraph (i) of this Section 00700 for cause:
    - 1) City of Sausalito will compensate Contractor for the value of the Work delivered to City of Sausalito upon termination as determined in accordance with the Contract Documents, subject to all rights of offset and back charges, and provided that Contractor provides City of Sausalito with updated as-built drawings and Project Record Documents showing the Work performed up to the date of termination. However, City of Sausalito will not compensate Contractor for its costs in terminating the Work or any cancellation charges owed to third parties.
    - 2) Contractor shall deliver to City of Sausalito possession of the Work in its then condition including, but not limited to, all designs, engineering, Project records, Project Record Documents, cost data of all types, Drawings and Specifications and contracts with vendors and Subcontractors, all other documentation associated with the Project, and all construction supplies and aids dedicated solely to performing the Work which, in the normal course of construction, would be consumed or only have salvage value at the end of the construction period. Contractor shall remain fully liable for the failure of any Work completed and materials and equipment provided through the date of such termination to comply with the provisions of the Contract Documents. The provisions of this paragraph 13.7.D shall not be interpreted to diminish any right which City of Sausalito may have to claim and recover damages for any breach of Contract Documents or otherwise, but rather, Contractor shall compensate City of Sausalito for all loss, cost, damage, expense, and/or liability suffered by City of Sausalito as a result of such termination and failure to comply with Contract Documents.

- 3) City of Sausalito's rights under paragraph 13.7.D.2 shall be specifically enforceable to the greatest extent permitted by law. City of Sausalito shall, to the extent applicable, have all other rights and remedies set forth in any Bidding Document.
- (v) City of Sausalito may terminate portions or parts of the Work for cause, provided these portions or parts (1) have separate geographic areas from parts or portions of the Work not terminated or (2) are limited to the work of one or more specific trades or Subcontractors. In such case, Contractor shall cooperate with a completing contractor as required under Article 6 of this Section 00700.
- (vi) In the event a termination for cause is later determined to have been made wrongfully or without cause, then the termination shall be treated as a termination for convenience, and Contractor shall only have the recovery rights specified in paragraph 13.8. Any Contractor claim arising out of a termination for cause, however, shall be made in accordance with Article 12 of this Section 00700. No other loss cost, damage, expense or liability may be claimed, requested or recovered by Contractor.

#### 8. TERMINATION OF CONTRACT FOR CONVENIENCE

- (i) City of Sausalito may terminate performance of the Work under the Contract Documents in accordance with this Article 13.8 in whole, or from time to time in part, whenever City of Sausalito shall determine that termination is in City of Sausalito's best interest and after giving Contractor at least 5 Workdays written notice. Termination shall be effected by City of Sausalito delivering to Contractor notice of termination specifying the extent to which performance of the Work under the Contract Documents is terminated and the effective date of the termination.
- (ii) After receiving a notice of termination under paragraph (i) of this Section 00700, and except as otherwise directed by City of Sausalito, Contractor shall:
  - 1) Stop Work under the Contract Documents on date and to extent specified in notice of termination;
  - 2) Place no further orders or subcontracts for materials, services, or facilities except as necessary to complete portion of Work under the Contract Documents which is not terminated;
  - 3) Terminate all orders and subcontracts to extent that they relate to performance of Work terminated by the notice of termination;
  - 4) Assign to City of Sausalito in manner, at times, and to extent directed by City of Sausalito, all right, title, and interest of Contractor under orders and subcontracts so terminated. City of Sausalito shall have the right, in its sole discretion, to settle or pay any or all claims arising out of termination of orders and subcontracts;
  - 5) Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with approval or ratification of City of Sausalito to extent City of Sausalito may require. City of Sausalito's approval or ratification shall be final for purposes of this paragraph;
  - 6) Transfer title to City of Sausalito, and deliver in the manner, at the times, and to the extent, if any, directed by City of Sausalito, all fabricated or unfabricated parts, Work in process, completed Work, supplies, and all other material produced as part of, or acquired in connection with performance of, Work terminated by the notice of termination, and completed or partially completed drawings, drawings, specifications, information, and other property which, if the Project had been completed, would have been required to be furnished to City of Sausalito;
  - 7) Use its best efforts to sell, in manner, at times, to extent, and at price or prices that City of Sausalito directs or authorizes, any property of types referred to in paragraph Article XIII(ii)6) of this Section 00700, but Contractor shall not be required to extend credit to any purchaser, and may acquire any such property under conditions prescribed and at price or prices approved by City of Sausalito. Proceeds of transfer or disposition shall be applied to reduce payments to be made by City of Sausalito to Contractor under the Contract Documents or shall otherwise be credited to the price or cost of Work covered by Contract Documents or paid in such other manner as City of Sausalito may direct;
  - 8) Complete performance of the part of the Work which was not terminated by the notice of termination; and
  - 9) Take such action as may be necessary, or as City of Sausalito may direct, to protect and preserve all property related to Contract Documents which is in Contractor's possession and in which City of Sausalito has or may acquire interest.
- (iii) After receipt of a notice of termination under paragraph 13.8A of this Section 00700, Contractor shall submit to City of Sausalito its termination claim, in form and with all certifications required by Article XII of this Section 00700. Contractor's termination claim shall be submitted promptly, but in no event later than thirty (30) Calendar Days from effective date of the termination. Contractor and City of Sausalito may agree upon the whole or part of

the amount or amounts to be paid to Contractor because of a total or partial termination of Work under this paragraph 8. If Contractor and City of Sausalito fail to agree on the whole amount to be paid to Contractor because of the termination of the Work under this paragraph 8, City of Sausalito's total liability to Contractor by reason of the termination shall not exceed the total (without duplication of any items) of:

- 1) The reasonable cost to Contractor for all Work performed prior to the effective date of the termination, including Work done to secure the Project for termination. Reasonable cost may not exceed the applicable percentage completion values of the contract sum as derived from the progress schedule and the schedule of values. Deductions shall be made for cost of materials to be retained by Contractor, cost of Work defectively performed, amounts realized by sale of materials, payments made, and for other appropriate credits against cost of Work. Reasonable cost will include reasonable allowance for Project overhead and general administrative overhead not to exceed a total of ten percent of direct costs of such Work. When, in City of Sausalito's, its Representative or the Architect/Engineer's opinion, the cost of any item of Work is excessively high due to costs incurred to remedy or replace defective or rejected Work, reasonable cost to be allowed will be the estimated reasonable cost of performing the Work in compliance with requirements of Contract Documents and excessive actual cost shall be disallowed.
  - 2) A reasonable allowance for profit on cost of Work performed as determined under paragraph Article XIII(iii)1 of this Section 00700, provided that Contractor establishes to City of Sausalito's satisfaction that Contractor would have made a profit had the Project been completed, and provided further that the profit allowed shall not exceed 5 percent of cost.
  - 3) Reasonable costs to Contractor of handling material returned to vendors, delivered to City of Sausalito or otherwise disposed of as directed by City of Sausalito.
  - 4) Except as provided in this paragraph 13.8.C of this Section 00700, City of Sausalito shall not be liable for costs incurred by Contractor or Subcontractors after receipt of a notice of termination. Such non-recoverable costs include, but are not limited to, anticipated profits on Work not performed as of the date of termination, post-termination employee salaries, post-termination general administrative expenses, post-termination overhead or unabsorbed overhead, costs of preparing and submitting Contractor's Bid, attorney's fees of any type, and any costs relating to prosecution of claim or lawsuit.
  - 5) City of Sausalito shall have no obligation to pay Contractor under this paragraph 8 unless and until Contractor provides City of Sausalito with updated and acceptable as-builts and Project Record Documents for Work completed prior to termination.
- (iv) In arriving at the amount due Contractor under this clause, there shall be deducted in whole (or in the appropriate part(s) if the termination is partial):
- 1) All unliquidated advances or other payments on account previously made to Contractor, including without limitation all payments applicable to the terminated portion of Contract Documents;
  - 2) Any claim which City of Sausalito may have against Contractor in connection with Contract Documents including but not limited to liquidated damages; and
  - 3) The agreed price for, or proceeds of sale of, any materials, supplies, or other things kept by Contractor or sold under provisions of this paragraph 8, and not otherwise recovered by or credited to City of Sausalito.

#### 9. CONTINGENT ASSIGNMENT OF SUBCONTRACTS

- (i) Contractor hereby assigns to City of Sausalito each Subcontract for a portion of the Work, provided that:
- 1) The assignment is effective only after City of Sausalito's termination of Contractor's right to proceed under the Contract Documents (or portion thereof relating to that Subcontract) pursuant to paragraphs 7 or 8 of this Section 00700.
  - 2) The Assignment is effective only for the Subcontracts which City of Sausalito expressly accepts by notifying the Subcontractor in writing;
  - 3) The assignment is subject to the prior rights, if any, of the Surety, obligated by Section 00610 (Construction Performance Bond) provided under the Contract Documents, where the Surety exercises its rights to complete the Contract;
  - 4) After the effectiveness of an assignment, Contractor shall, at its sole cost and expense (except as otherwise provided in paragraphs 7 or 8 of this Section 00700), sign all instruments and take all actions reasonably requested by City of Sausalito to evidence and confirm the effectiveness of the assignment in City of Sausalito; and

- 5) Nothing in this paragraph 9 shall modify or limit any of Contractor's obligations to City of Sausalito arising from acts or omissions occurring before the effectiveness of any Subcontract assignment, including but not limited to all defense, indemnity and hold-harmless obligations arising from or related to the assigned Subcontract.

#### 10. REMEDIES AND CONTRACT INTEGRATION

- (i) Subject to Contract Documents provisions regarding Contractor claims, claim review, and claim resolution, and subject to the limitations therein, the exclusive jurisdiction and venue for resolving all claims, counter-claims, disputes and other matters in question between City of Sausalito and Contractor arising out of or relating to Contract Documents, any breach thereof or the Project shall be the applicable court of competent jurisdiction located in the State of California, County of Marin. All City of Sausalito remedies provided in the Contract Documents shall be taken and construed as cumulative and not exclusive; that is, in addition to each and every other remedy herein provided; and in all instances City of Sausalito shall have any and all other equitable and legal rights and remedies which it would have according to law.
- (ii) The Contract Documents, any Contract Modifications and Change Orders shall represent the entire and integrated agreement between City of Sausalito and Contractor regarding the subject matters hereof and thereof and shall constitute the exclusive statement of the terms of the parties' agreement. The Contract Documents, and any Contract Modifications and Change Orders, shall supersede any and all prior negotiations, representations or agreements, written or oral, express or implied, that relate in any way to the subject matter of the Contract Documents or written modifications. City of Sausalito and Contractor represent and agree that, except as otherwise expressly provided in the Contract Documents, they are entering into the Contract Documents and any subsequent written modification in sole reliance upon the information set forth or referenced in the Contract Documents or Contract Modifications and the parties are not and will not rely on any other information.
- (iii) In any proceeding to enforce the Contract Documents, Contractor and City of Sausalito agree that the finder of fact shall receive detailed instructions on the meaning and operation of the Contract Documents, including their conditions, limitations of liability and remedies clauses, claims procedures and any other provisions impacting major defenses and theories of liability of the parties. Detailed findings of fact shall be requested, to verify Contract enforcement.
- (iv) Either party's waiver of any breach or failure to enforce any of the terms, covenants, conditions or other provisions of the Contract Documents at any time shall not in any way affect, limit, modify or waive that party's right thereafter to enforce or compel strict compliance with every term, covenant, condition or other provision hereof, any course of dealing or custom of the trade or oral representations notwithstanding.

#### 11. PATENTS

Fees or claims for any patented invention, article or arrangement that may be used upon or in any manner connected with performance of the Work or any part thereof shall be included in the Bid price for doing the Work. Contractor shall defend, indemnify and hold harmless City of Sausalito and each of its officers, employees, consultants (including without limitation Consulting Architect/Engineer) and agents, including, but not limited to, the Board and each City of Sausalito's Representative, from all damages, claims for damages, costs or expenses in law or equity, including attorney's fees, arising from or relating to any claim that any article supplied or to be supplied under the Contract Documents infringes on the patent rights, copyright, trade name, trademark, service mark, trade secret or other intellectual property right of any person or persons or that the person or entity supplying the article does not have a lawful right to sell the same. Such costs or expenses for which Contractor agrees to indemnify and hold harmless the above indemnities include but are not limited to any and all license fees, whether such fees are agreed by any indemnity or ordered by a court or administrative body of any competent jurisdiction.

#### 12. SUBSTITUTION FOR PATENTED AND SPECIFIED ARTICLES

Except as noted specifically in Specifications, whenever in Specifications, material or process is designated by patent or proprietary name or by name of manufacturer, such designation shall be deemed to be used for purpose of facilitating description of material and process desired, and shall be deemed to be followed by the words "or equal" and Contractor may offer any substitute material or process that Contractor considers equal in every respect to that so designated and if material or process offered by Contractor is, in opinion of City of Sausalito, equal in every respect to that so designated, its use will be approved. However, Contractor may utilize this right only by timely

submitting Section 00660 (Substitution Request Form) as provided in Section 00200 (Instructions to Bidders). A substitution will be approved only if it is a true "equal" item in every aspect of its design and quality, including but not limited to its dimensions, weights, service requirements, durability, functioning, impact on contiguous construction elements, overall schedule and design.

#### 13. INTEREST OF PUBLIC OFFICERS

No representative, officer, or employee of City of Sausalito, no member of the governing body of the locality in which the Project is situated, no member of the locality in which City of Sausalito was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the Project, during the tenure of the official or for one year thereafter, shall, as principal, agent, attorney or otherwise, be directly or indirectly interested, in the Contract Documents or the proceeds thereof.

#### 14. LIMIT OF LIABILITY

City of Sausalito, and each of its officers, board members, employees, consultants and agents including, but not limited to, architect/engineer each other City of Sausalito representative shall have no liability to contractor for special, consequential, or incidental damages, except to the limited extent that these contract documents or applicable public contracting statutes may specify their recovery.

#### 15. SEVERABILITY

Any provisions or portions thereof of Contract Documents that are prohibited by, unlawful or unenforceable under any applicable law of any jurisdiction shall as to such jurisdiction be ineffective without affecting other provisions or portions thereof in the Contract Documents.

### ARTICLE XIV. **MODIFICATIONS OF CONTRACT DOCUMENTS**

#### 1. ALTERATIONS, MODIFICATIONS AND FORCE ACCOUNT WORK

- (i) City of Sausalito may, without notice to the sureties, make alterations, deviations, additions to, or deletions from Contract Documents; increase or decrease the quantity of any item or portion of the Work; expand, contract or otherwise change the Contract Time; delete any item or portion of the Work; and require extra Work. Contractor shall perform such Work under applicable provisions of the Contract Documents, unless specifically provided otherwise at the time the change is ordered. In the case of any ordered extra Work, Owner reserves the right to furnish all or portions of associated labor, material, and equipment, which Contractor shall accept and use without payment for costs, markup, profit, or otherwise for such City of Sausalito-furnished labor, materials, and equipment.
- (ii) Changes affecting the Contract Time or Contract Sum of the Work shall be set forth in a written Change Order that shall specify:
  - 1) The Work performed in connection with the change to be made;
  - 2) The amount of the adjustment of the Contract Sum, if any, and the basis for compensation for the Work ordered; and
  - 3) The extent of the adjustment in the Contract Time, if any.
- (iii) A Change Order will become effective when signed by the Architect and the City of Sausalito. If City of Sausalito exercises its right to decide disputed issues pertaining to changed Work as set forth in Articles 12 and 14 of this Section 00700, then the resulting Change Order shall be effective when signed by the Architect and the City of Sausalito, notwithstanding that Contractor has not signed it.
- (iv) Changes not affecting the Contract Time or Contract Sum of the Work, in City of Sausalito's discretion, may be set forth in a written RFI-Reply executed by Architect/Engineer. Execution of such an RFI-Reply constitutes Contractor's agreement to make the specified change without change to the Contract Sum or the Contract Time.
- (v) Changes or deviations from Contract Documents affecting the Contract Time or Contract Sum of the Work shall not be made without the authority of an effective Change Order or Construction Change Directive as provided in Section 01250 (Modification Procedures), except in cases of emergency discussed in Article 16 of this Section 00700.
- (vi) If changes ordered in design, workmanship or materials are of such a nature as to increase or decrease the cost of any part of the Work, the price fixed in the Contract Documents shall be increased or decreased by the amount



that Contractor, The Architect and the City of Sausalito may agree upon as a reasonable and proper allowance for the cost increase or decrease. If an agreement cannot be reached, then Architect will reach a determination, which shall be final, subject to Contractor's rights under Article Article XII of this Section 00700. In all cases Contractor shall perform the changed Work as directed by the Architect and the City of Sausalito subject to Contractor's rights under Article Article XII of this Section 00700.

- (vii) Contractor shall, upon City of Sausalito's request, permit inspection of the original unaltered Bid estimate, subcontract agreements, purchase orders relating to the change, and documents substantiating all costs associated with its cost proposal or claims arising from changes in the Work.
- (viii) Changes in the Work made pursuant to this Article 14 and extensions of Contract Time necessary by reason thereof shall not in any way release the guaranties and warranties given by Contractor pursuant to provisions of the Contract Documents, nor shall such changes in the Work relieve or release the Sureties of bonds executed pursuant to said provisions. The Sureties, in executing such bonds, shall be deemed to have expressly agreed to any such change in the Work and to any extension of time made by reason thereof.
- (ix) Procedures for Modifications of Contract Documents and for calculating the cost of extra Work are given in Section 01250 (Modification Procedures). Regarding delay and impact costs of any nature, Contractor may not seek delay compensation for on-Site or off-Site costs based on formulas, e.g., "Eichlay" or other formula. Rather, Contractor shall prove actual costs resulting from such delays. If Contractor requests compensation for delay to the construction, then Contractor shall prove and document actual costs plus markup per the cost categories and procedures in Section 01250 (Modification Procedures) in order to request, claim or prove compensation for delay.
- (x) Change Orders in excess of City of Sausalito's approved limit must be approved by the City of Sausalito's City Council and a performance bond rider covering the changed Work executed before proceeding with the changed Work. Contractor is charged with knowledge of City of Sausalito's approved Change Order limits and procedures in effect at the applicable time.

#### ARTICLE XV. **TIME ALLOWANCES**

##### 1. TIME ALLOWANCES FOR PERFORMANCE OF CONTRACT DOCUMENTS

- (i) When Contractor and City of Sausalito have signed the Contract Documents, City of Sausalito will serve a Notice to Proceed upon Contractor to that effect, either by depositing notice in a post office or post office box regularly maintained by United States Postal Service in a pre-paid wrapper directed to Contractor at legal address or (at City of Sausalito's option) by delivery by other means at legal address
- (ii) The start date for Contract Time shall be on the date indicated in the applicable Notice to Proceed. The total number of Calendar Days for completion of the Work under the Contract Documents shall be as provided in Section 00520 (Agreement).

##### 2. ENTITLEMENT TO CHANGE OF CONTRACT TIME

- (i) The Contract Time may only be changed by Change Order or by Contract Modification, and all time limits stated in the Contract Documents are of the essence of Contract Documents.
- (ii) The Contract Time will be adjusted in an amount equal to the time lost due to:
  - 1) Changes in the Work ordered by City of Sausalito and/or the Architect/Engineer;
  - 2) Acts or neglect by City of Sausalito, Architect/Engineer, any City of Sausalito's Representative, utility owners or other contractors performing other work, provided that Contractor has fully and completely performed its responsibilities under the Contract Documents, including but not limited to giving notice of the claimed delay in accordance with the Contract Documents; or
  - 3) Fires, floods, epidemics, abnormal weather conditions beyond the parameters otherwise set forth in this paragraph, earthquakes, civil or labor disturbances, strikes or acts of God, provided damages resulting there from are not the result of Contractor's failure to protect the Work as required by Contract Documents.
- (iii) The Contract Time shall not be extended for any cause identified above, however, unless:
  - a) Contractor actually has been prevented from completing any part of the Work within the Contract Time due to delay that is beyond Contractor's control and due to reasons for which Contractor is not responsible (delays attributable to and within the control of a Subcontractor, or its subcontractors, or supplier shall be deemed to be delays within the control of Contractor);
  - b) A claim for delay is made as provided herein; and

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- c) Contractor submits a Time Impact Evaluation as required under Section 01300 (Administrative Requirements that demonstrates actual delay to critical Work activities that actually delay the progress of the Work in the amount of time requested.
  - (iv) Where Contractor is prevented from completing any part of the Work within the Contract Time due to delay beyond the control of both City of Sausalito and Contractor (including, but not limited to, adverse weather of all types and acts of other contractors or utilities), an extension of Contract Time, in an amount equal to the time lost due to such delay (without compensation), shall be Contractor's sole and exclusive remedy for such delay.
  - (v) Delays due to abnormal or adverse weather conditions will not be allowed for weather conditions that fall within the parameters listed in this paragraph. Adverse weather delays may be allowed only if the number of workdays of adverse weather exceeds these parameters on a monthly basis and Contractor proves that adverse weather actually caused delays. Contractor shall give written notice of intent to claim an adverse weather day within one Day of the adverse weather day occurring. Rain parameters are as follows, pro-rated in the individual month Contractor starts and finishes Work:
    - January, [8]; February, [5]; March, [6]; April, [3]; May, [1]; June, [0]; July, [0]; August, [0]; September, [0]; October, [2]; November, [5]; and December, [6].
  - (vi) In order to qualify as an adverse weather delay with respect to the foregoing parameters, daily rainfall must exceed 0.5 of an inch or more at the Marin County, California station, as measured by the National Oceanic & Atmospheric Administration, and Contractor shall prove that the rain actually caused delay as set forth in this Section 00700.
  - (vii) Contractor shall include the foregoing rain parameters as a monthly activity in its progress schedule. As Work on the critical path is affected by rain, Contractor shall notify City of Sausalito and request that the days be moved to the affected activities. Any adverse weather days remaining shall be considered Project float.
  - (viii) Adverse weather delay for rain shall be recognized for the actual period of time Contractor proves it was delayed by rain exceeding the specified parameters. For example, and not by way of limitation, if rain exceeding the specified parameters does not in fact delay Contractor's progress on the critical path, then no time extension shall be recognized; and conversely, if Contractor proves that rain exceeding the specified parameters causes delay to Contractor for a period longer than the number of rain days incurred (e.g., if it rains during grading work), then Contractor shall be entitled to a time extension equal to the actual period of such delay.
  - (ix) Contractor shall take reasonable steps to mitigate potential weather delays, such as dewatering the Site, and covering Work and material that could be affected adversely by weather. Failure to do so shall be cause for City of Sausalito to not grant a time extension due to adverse weather, where Contractor could have avoided or mitigated the potential delay by exercising reasonable care.

### 3. NOTICE OF DELAY

Within seven (7) Calendar Days of the beginning of any delay, Contractor shall notify City of Sausalito in writing, by submitting a notice of potential claim, of all anticipated delays resulting from the delay event in question. Any request for extension of time shall be accompanied by Contractor's written statement that the adjustment claimed is the entire adjustment to which the claimant is entitled as a result of the occurrence of said event, and shall include a written schedule document that demonstrates delay to the critical path using a Time Impact Evaluation as specified in Section 01300 (Administrative Requirements). City of Sausalito will determine all claims and adjustments in the Contract Time. No claim for an adjustment in the Contract Time will be valid and such claim will be waived if not submitted in accordance with the requirements of this paragraph and other provisions of the Contract Documents..

### 4. TIME EXTENSIONS AND/OR DAMAGES ENTITLEMENTS FOR DELAYS

- (i) Contractor may receive a time extension and be compensated for delays caused directly and solely by City of Sausalito.
- (ii) Contractor may receive a time extension without compensation for delays resulting in whole or in part from causes beyond the reasonable control of Contractor and City of Sausalito, e.g. adverse weather conditions exceeding Contract Documents parameters, earthquakes, Acts of God and epidemics. In such cases, a time extension without compensation shall constitute Contractor's sole and exclusive remedy for such delays.

- (iii) Contractor shall not be entitled to any time extension or compensation including, but not limited to, extended field or home office overhead, field supervision, costs of capital, interest, escalation charges, acceleration costs or other impacts for any delays caused in whole or in part by Contractor's failure to perform its obligations under the Contract Documents, or during periods of delay concurrently caused by Contractor and either City of Sausalito or others.
- (iv) Contractor shall not be entitled to damages for delay to the Work caused by the following reasons:
  - 1) City of Sausalito's right to sequence the Work in a manner which would avoid disruption to City of Sausalito's tenants and their contractors or other prime contractors and their respective subcontractors, exercised as a result of Contractor's failure to perform its cooperation and coordination responsibilities required by Contract Documents; City of Sausalito's enforcement of any government act or regulation; or the provisions of the Contract Documents;
  - 2) Extensive requests for clarifications to Contract Documents or Contract Modifications thereto, provided such clarifications or Contract Modifications are processed by Architect/Engineer and the City of Sausalito or its consultants in a reasonable time commensurate with Contract Documents requirements.

#### 5. LIQUIDATED DAMAGES

- (i) Time is of the essence. Execution of Contract Documents by Contractor shall constitute acknowledgement by Contractor that Contractor understands, has ascertained and agrees that City of Sausalito will actually sustain damages in the amount fixed in the Contract Documents for each and every Calendar Day during which completion of Work required is delayed beyond expiration of time fixed for completion or extensions of time allowed pursuant to provisions hereof. Contractor and City of Sausalito agree that specified measures of liquidated damages shall be presumed to be the damages actually sustained by City of Sausalito as defined below, and that because of the nature of the Project, it would be impracticable or extremely difficult to fix the actual damages.
- (ii) Liquidated damages shall be considered not as a penalty but as monetary damage sustained by City of Sausalito for increased Project administration expenses, including extra inspection, construction management and architectural and engineering expenses related to the Project and Contract Documents because Contractor failed to perform and complete Work within time fixed for completion or extensions of time allowed pursuant to provisions hereof. Liquidated damages shall not be deemed to include within their scope additional damages or administrative costs arising from Defective Work, interest expenses, cost of completion of the Work, claims and fines of regulatory agencies, damages suffered by others or other forms of liability claimed against City of Sausalito as a result of delay (e.g., delay or delay related claims of other contractors, subcontractors or tenants), and defense costs thereof. Contractor shall be fully responsible for the actual amount of any such damages it causes, in addition to the liquidated damages otherwise due City of Sausalito.
- (iii) City of Sausalito may deduct from any money due or to become due to Contractor subsequent to time for completion of entire Work and extensions of time allowed pursuant to provisions hereof, a sum representing then-accrued liquidated damages. Should Contractor fall behind the approved Progress Schedule, City of Sausalito may deduct liquidated damages based on its estimated period of late completion. City of Sausalito need not wait until Final Completion to withhold liquidated damages from Contractor's progress payments. Should money due or to become due to Contractor be insufficient to cover aggregate liquidated damages due, then Contractor forthwith shall pay the remainder of the assessed liquidated damages to City of Sausalito.

#### ARTICLE XVI. WORKING CONDITIONS AND PREVAILING WAGES

##### 1. USE OF SITE/SANITARY RULES

- (i) All portions of the Work shall be maintained at all times in neat, clean and sanitary condition.
- (ii) Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Site and land areas identified in and permitted by Contract Documents and other land and areas permitted by applicable laws and regulations, rights of way, permits and easements or as designated by City of Sausalito, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, any improvement located thereon, or to the owner or occupant thereof resulting from the performance of Work.

- (iii) During the progress of the Work, Contractor shall keep the Site and the Project free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work, Contractor shall remove all waste materials, rubbish and debris from and about the Site as well as all tools, appliances, construction equipment and machinery and surplus materials. Contractor shall leave the premises clean and ready for occupancy by City of Sausalito at Substantial Completion of Work. Contractor shall restore to original condition all property not designated for alteration by Contract Documents.
- (iv) Contractor shall not load nor permit any part of any structure or pavement to be loaded in any manner that will endanger the structure or pavement, nor shall Contractor subject any part of Work or adjacent property to stresses or pressures that will endanger it. Contractor shall conduct all necessary existing conditions investigation regarding structural, mechanical, electrical or any other system existing, shall perform Work consistent with such existing conditions, and shall have full responsibility for insufficiencies or damage resulting from insufficiencies of existing systems, equipment or structures to accommodate performing the Work.

## 2. PROTECTION OF WORK, PERSONS, PROPERTY AND OPERATIONS

- (i) Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with Work. Contractor shall comply with all safety requirements specified in any safety program established by City of Sausalito, or required by state, federal or local laws and ordinances. Contractor shall be responsible for all damage to Work, property or structures, all injuries to persons, and all damage and interruptions to City of Sausalito's operations, arising from the performance of Work of the Contract Documents. Except as otherwise expressly approved by City of Sausalito in writing, Contractor shall at all times perform all Work in a manner which does not interrupt, damage or otherwise adversely impact any existing City of Sausalito facilities or operations.
- (ii) Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property.
- (iii) Contractor shall remedy all damage, injury, loss or interruption to any property or operations referred to in this Section 00700, caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, supplier, or any other person or organization directly or indirectly employed by any of them to perform or furnish any Work or anyone for whose acts any of them may be liable. Contractor's duties and responsibility for safety and for protection of Work shall continue until such time as all the Work is completed and Final Acceptance of the Work. City of Sausalito and its agents do not assume any responsibility for collecting any indemnity from any person or persons causing damage to Contractor's Work. This requirement shall include the protection of stored materials from damages caused by weather, excessive moisture, pests, insects and other detriments that may be reasonably prevented and mitigated.
- (iv) Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.
- (v) City of Sausalito may, at its option, retain such moneys due under the Contract Documents as City of Sausalito deems necessary until any and all suits or claims against Contractor for injury to persons, property or operations shall be settled and City of Sausalito receives satisfactory evidence to that effect.

## 3. RESPONSIBILITY FOR SAFETY AND HEALTH

- (i) Contractor shall ensure that its and each tier of Subcontractors' employees, agents and invitees comply with applicable health and safety laws while at the Site. These laws include the Occupational Safety and Health Act of 1970 and rules and regulations issued pursuant thereto, and City of Sausalito's safety regulations as amended from time to time. Contractor shall comply with all City of Sausalito directions regarding protective clothing and gear.
- (ii) Contractor shall be fully responsible for the safety of its and its Subcontractors' employees, agents and invitees on the Site. Contractor shall notify City of Sausalito, in writing, of the existence of hazardous conditions, property or equipment at the Site that are not under Contractor's control. Contractor shall be responsible for taking all the

necessary precautions against injury to persons or damage to the property of Contractor, Subcontractors or persons from recognized hazards until the responsible party corrects the hazard.

- (iii) Contractor shall confine all persons acting on its or its Subcontractors' behalf to that portion of the Site where Work under the Contract Documents is to be performed: City of Sausalito designated routes for ingress and egress thereto and any other City of Sausalito designated area. Except those routes for ingress and egress over which Contractor has no right of control, within such areas, Contractor shall provide safe means of access to all places at which persons may at any time have occasion to be present.

#### 4. EMERGENCIES

- (i) In emergencies affecting the safety or protection of persons or Work or property at the Site or adjacent thereto, Contractor, without special instruction or authorization from City of Sausalito, is obligated to act to prevent threat and damage, injury or loss, until directed otherwise by City of Sausalito. Contractor shall give City of Sausalito prompt written notice if Contractor believes that any significant changes in Work or variations from Contract Documents have been caused thereby. If City of Sausalito determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Change Order or Construction Change Directive will be issued to document the consequences of such action. Emergency contact names & phone numbers are to be provided to the City of Sausalito, within 10 days after issuance of a Notice to Proceed.

#### 5. USE OF ROADWAYS AND WALKWAYS

- (i) Contractor shall not unnecessarily interfere with use of any roadway, walkway or other facility for vehicular or pedestrian traffic. Before beginning any interference and only with City of Sausalito's prior concurrence, Contractor may provide detour or temporary bridge for traffic to pass around or over the interference, which Contractor shall maintain in satisfactory condition as long as interference continues. Unless otherwise provided in the Contract Documents, Contractor shall bear the cost of these temporary facilities.

#### 6. NONDISCRIMINATION

- (i) No person or entity shall discriminate in the employment of persons upon public works because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sexual preference, or gender of such persons, except as provided in Section 12940 of the Government Code. Every contractor for public works violating the provisions of Section 1735 of the Labor Code is subject to all the penalties imposed for a violation of Chapter 1, Part 7, Division 2 of the Labor Code.

#### 7. PREVAILING WAGES

- (i) Contractor shall pay to persons performing labor in and about Work provided for in the Contract Documents an amount equal to or more than the general prevailing rate of per diem wages for (1) work of a similar character in the locality in which the Work is performed and (2) legal holiday and overtime work in said locality. The per diem wages shall be an amount equal to or more than the stipulated rates contained in a schedule that has been ascertained and determined by the Director of the State Department of Industrial Relations and City of Sausalito to be the general prevailing rate of per diem wages for each craft or type of workman or mechanic needed to execute this Contract. Contractor shall also cause a copy of this determination of the prevailing rate of per diem wages to be posted at each Site.
- (ii) Contractor shall be assessed penalties and monies will be withheld from contract payments commensurate with the severity of the violations, for each laborer, workman, or mechanic employed in performing labor in and about the Work provided for in the Contract Documents for each Day, or portion thereof, that such laborer, workman or mechanic is paid less than the said stipulated rates for any work done under the Contract Documents by him or her or by any Subcontractor under him or her, in violation of Articles 1 and 2 of Chapter 1 of Part 7 of Division II of the California Labor Code. The sums and amounts which shall be forfeited pursuant to this paragraph and the terms of the Labor Code shall be withheld and retained from payments due to Contractor under the Contract Documents, pursuant to this Section 00700 and the Labor Code. The Labor Commissioner pursuant to Labor Code Section 1775 shall determine the final amount of forfeiture.
- (iii) Contractor shall insert in every subcontract or other arrangement which Contractor may make for performance of work or labor on Work provided for in the Contract, provision that Subcontractor shall pay persons performing

labor or rendering service under subcontract or other arrangement not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the Work is performed, and not less than the general prevailing rate of per diem wages for holiday and overtime work fixed in the Labor Code.

- (iv) Contractor stipulates that it shall comply with all applicable wage and hour laws, including without limitation Labor Code Section 1813.

#### 8. ENVIRONMENTAL CONTROLS

- (i) Contractor shall comply with all rules, regulations, ordinances, and statutes that apply to any work performed under the Contract Documents including, without limitation, any toxic, water and soil pollution controls and air pollution controls specified in Government Code, Section 11017 and as required by Bay Area Air Quality Management District water quality (Best Management practices) and other applicable requirements. Contractor shall be responsible for insuring that Contractor's employees, Subcontractors and the public are protected from exposure to airborne hazards or contaminated water, soil or other toxic materials used during or generated by activities on the Site or associated with the Project.

#### 9. SHORING SAFETY PLAN

- (i) At least five (5) Workdays in advance of excavating any trench five feet or more in depth, Contractor shall submit to Architect/Engineer and City of Sausalito a detailed plan showing the shoring, bracing and sloping design and other provisions to be made for worker protection from the hazard of caving ground during the excavation, as required by Labor Code Section 6705. A civil or structural engineer registered in California shall prepare and sign any plan that varies from the shoring system standards established by the State Construction Safety Orders.
- (ii) During the course of Work, Contractor shall be responsible for determining where sloping, shoring, and/or bracing is necessary and the adequacy of the design, installation, and maintenance of all shoring and bracing for all excavation, including any excavation less than five feet in depth. Contractor will be solely responsible for any damage or injuries that may result from excavating or trenching. Architect/Engineer's or City of Sausalito's review of any drawings showing the shoring or bracing design or work schedule shall not relieve Contractor of its responsibilities under this paragraph.

END OF SECTION

SECTION 00800  
SUPPLEMENTARY CONDITIONS

1. SUMMARY

This document includes requirements that supplement the paragraphs of Section 00700 (General Conditions).

2. SUPPLEMENTS (NOT USED)

END OF SECTION

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SECTION 00805  
SUPPLEMENTARY CONDITIONS - HAZARDOUS MATERIALS

1. SUMMARY

- (i) This Section 00805 includes requirements that supplement the paragraphs of Section 00700 (General Conditions) and Section 01100 (Summary of Work) as they apply to location, removal, remediation, disposal, and abatement of hazardous materials and hazardous waste.

2. SUPPLEMENTS

- (i) Supplement to paragraph 2.1, Investigation Prior to Bidding

- 1) Add to the end of paragraph 2.1.B a new paragraph that reads:
- 2) 4. Matters Shown in Hazardous Materials Surveys for Informational Purposes: Reference is made to Section 00335 (Hazardous Materials Surveys) for hazardous material surveys included with the Contract Documents and use of data therein. These materials are not Contract Documents and, except for any "technical data" regarding the location of hazardous materials, as limited in Section 00335 (Hazardous Materials Surveys), Contractor shall not in any manner rely on the information in these materials. Subject to the foregoing, Contractor shall make its own independent investigation of all conditions affecting the Work and shall not rely on information provided by City of Sausalito or its consultants.

- (ii) Supplement to paragraph 5.7, Precedence of Documents

- 1) Add to the end of paragraph 5.7 a new paragraph that reads:
  - a) 5.7.E Should any provision or requirement of any Contract Document conflict with another provision or requirement in the Contract Documents on subject matters of hazardous waste abatement, clean up, disposal, or required safety standards or methods, then the most stringent provision or requirement shall control.

- (iii) Supplement to paragraph 7.2, Means and Methods of Construction

- 1) Number the current paragraph 7.2.A and add to the end of paragraph 7.2 a new paragraph that reads:
  - a) 7.2.B Nothing contained in these Contract Documents or inferable there from shall be deemed or construed to:
    - i) Make Contractor the agent, servant, or employee of City of Sausalito; or
    - ii) Create any partnership, joint venture, or other association between City of Sausalito and Contractor.

- (iv) Supplement to paragraph 8, Control of the Work

- 1) Add to the end of paragraph 8.2 new paragraphs that read:
- 2) 8.2.F City of Sausalito shall exercise administration on Contract Documents. City of Sausalito has employed a consultant to assist in the preparation of the hazardous materials abatement contract specifications. City of Sausalito reserves the right to assign or delegate to this consultant, or any other consultant ("Consultant") any or all Architect/Engineer's responsibilities under Contract Documents or alternatively to act as City of Sausalito's representative. Contractor will be notified in writing of any such delegation.
- 3) 8.2.G Cooperate with Consultant as directed by City of Sausalito. Consultant's duties may include observing Contractor's health and safety program and practices, observing the abatement construction activities, observing the extent of material removed from each job site, reviewing payment requests, reviewing reports required by governmental or quasi-governmental agencies or Contract Documents, and providing clearance tests after abatement is completed. No action, omission to act, approval, or failure to advise Contractor as to any matter by Consultant shall in any way relieve Contractor from its responsibility for the performance of Work in accordance with Contract Documents and applicable law. Unless directed otherwise in writing by City of Sausalito, do not communicate directly with Consultant and shall direct all communications to City of Sausalito.

- (v) Supplement to paragraph 9, Warranty, Guaranty, and Inspection of Work

- 1) Add to the end of paragraph 9.1 a new paragraph that reads:
- 2) 9.1.D Additional Warranties and Representations:
  - i) Contractor represents and warrants that it, its employees and its Subcontractors and their employees, shall at all times have the required levels of familiarity with the Site and the Work, training and ability to comply fully with all applicable law and Contract Documents requirements for safe and expeditious performance of



- the Work, including whatever training is or may be required regarding the activities to be performed (including, but not limited to, all training required to adequately address the actual or potential dangers of Contract performance).
- ii) Contractor represents and warrants that it, its employees and its subcontractors and their employees, shall at all times have and maintain in good standing any and all certifications and licenses required by applicable federal, state, and other governmental and quasi-governmental requirements applicable to the Work.
  - iii) Contractor represents and warrants that it has studied carefully all requirements of the Contract Documents regarding procedures for demolition, hazardous waste abatement, or safety practices, specified in the Contract Documents, and prior to submitting its Bid, has either:
    - a. Verified to its satisfaction that the specified procedures are adequate and sufficient to achieve the results intended by Contract Documents; or
    - b. By way of approved "or equal" request or request for clarification and written Addenda, secured changes to the specified procedures sufficient to achieve the results intended by Contract Documents.
  - iv) Contractor accepts the risk that any specified procedure will result in a completed Project in full compliance with all Contract Documents requirements.
- 3) Number the current paragraph 9.6.A and add to the end of paragraph 9.6 a new paragraph that reads:
- i) 9.6.B City of Sausalito reserves the right, in its sole discretion, to conduct air monitoring, earth monitoring, work monitoring, and any other tests (in addition to testing required under Section 00520 [Agreement] or applicable Law), to monitor Contract requirements of safe and statutory compliant work methods and (where applicable) safe re-entry level air standards under state and federal Law upon completion of the Work, and compliance of the Work with periodic and final inspection of public and quasi-public entities having jurisdiction.
  - ii) Contractor acknowledges that City of Sausalito also has the right to perform, or cause to be performed, various activities and tests including, but not limited to, pre-abatement, during abatement and post-abatement air monitoring, provided that City of Sausalito shall have no obligation to perform said activities and tests, and that a portion of said activities and tests may take place prior to the completion of Work by Contractor. In the event City of Sausalito elects to perform these activities and tests, afford City of Sausalito ample access to the Site and all areas of the Work as may be necessary for the performance of these activities and tests. Include the potential impact of these activities for tests by City of Sausalito in the Contract Sum and the scheduled completion date.
  - iii) Notwithstanding City of Sausalito's rights granted by this paragraph 9, Contractor may be required to retain its own industrial hygiene consultant and shall have primary responsibility for collecting samples and performing all applicable, relevant, or appropriate activities and tests including, but not limited to, pre-abatement, during abatement, and post-abatement air monitoring, required by Contract Documents, applicable Law, or both, and City of Sausalito reserves the right to request documentation of all such activities and tests performed by Contractor relating to Work.
- (vi) Supplement to paragraph 11.2, Cost Data
- 1) Add to the end of paragraph 11.2 new paragraphs that read:
  - 2) 11.2.E Obtain and maintain and shall furnish to City of Sausalito on completion of Work or at any other time requested by City of Sausalito, all necessary, permits, licenses, approvals, authorizations, notifications, training certificates, respirator certificates, reports, correspondence, tests results, air monitoring certificates, forms, medical records, medical certificates, notes and photographs of Work conditions, approved shipping and disposal facility receipts, manifests, and all other documentation required by Contract Documents or applicable Law, or both.
  - 3) 11.2.F Provide City of Sausalito with copies of each such document as it is generated and shall, as a condition to final payment, provide City of Sausalito with a complete set of such documents (bound, organized, and indexed) at the conclusion of Work. Keep and maintain in retrievable files true and correct copies of all such documents for a period of not less than 30 years after Final Completion of the Work. City of Sausalito shall have the right to inspect or photocopy these records and, if Contractor should cease business operations, then it shall furnish these records to City of Sausalito.
  - 4)
- (vii) Supplement to paragraph 13, Legal and Miscellaneous
- 1) Add to the end of paragraph 13.1 new paragraphs that read:

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- 2) 13.1.C Compliance with Laws. Contractor represents that it is familiar with and shall comply with all Laws applicable to the Work or completed Work including, but not limited to all Laws relating to:
    - i) Protection of the public health, welfare, and environment;
    - ii) Generation, processing, treatment, handling, storage, transport, disposal, destruction, or other management of asbestos, PCB, lead, petroleum-based products, or other hazardous materials of any kind; or
    - iii) Protection of environmentally sensitive areas such as wetlands.
  - 3) 13.1.D Disposal. Contractor has the sole responsibility for determining current waste storage, handling, and transportation and disposal regulations for the Site and for each waste disposal facility. Contractor shall comply fully at Contractor's sole cost and expense with these regulations and any applicable Law. City of Sausalito may, but is not obligated to, require submittals with this information for it to review consistent with Contract Documents.
  - 4) 13.1.E Tracking. Contractor shall develop and implement a system acceptable to City of Sausalito to track hazardous waste from the Site to disposal, including appropriate "Hazardous Waste Manifests" on the applicable EPA form, so that City of Sausalito may track the volume of waste Contractor puts in each landfill and receive from each landfill a certificate of receipt. Manifests are to be signed by the Contractor, and originals submitted to the Project Manager.
  - 5) 13.1.F Facilities. Contractor shall provide City of Sausalito with the name and address of each waste disposal facility prior to any disposal, and City of Sausalito shall have the express right to reject any proposed disposal facility. Contractor may not use any disposal facility to which City of Sausalito has objected. Contractor shall document actual disposal or destruction of waste at a designated facility by completing a disposal certificate or certificate of destruction and forwarding the original to the Contractor (with a copy to City of Sausalito).
  - 6) Number the text of current paragraph 13.2 paragraph 13.2.A and add to the end of paragraph 13.2 new paragraphs that read:
  - 7) 13.2.B Before performing any of the Work, and at such other times as may be required by applicable Law, deliver all requisite notices and obtain the approval of all governmental and quasi-governmental authorities having jurisdiction over the Work. Submit evidence satisfactory to City of Sausalito that Contractor and any disposal facility (a) have obtained all required permits, approvals and the like in a timely manner both prior to commencement of the Work and thereafter as and when required by applicable Law, and (b) are in compliance with all such permits, approvals and the like. For example, before commencing any work in connection with the Work involving asbestos-containing materials or PCB subject to regulation, Contractor shall provide the required notice of intent to renovate or demolish to the appropriate state or federal agency having jurisdiction, by certified mail, return receipt required, or by some other method of transmittal for which a return receipt is obtained, and to send a copy of that notice to City of Sausalito. Contractor shall not conduct any Work involving asbestos-containing materials or PCB unless Contractor has first confirmed that the appropriate agency having jurisdiction is in receipt of the required notification. All permits, licenses, and bonds required by governmental or quasi-governmental authorities, fees, deposits, tap fees, offsite easements, and asbestos and PCB disposal facilities necessary for the prosecution of the Work shall be procured and paid for by Contractor. Contractor shall give all notices and comply with the Law bearing on the conduct of the Work as drawn and specified. If Contractor observes or reasonably should have observed that Drawings and Specifications and other Contract Documents are at variance therewith, it shall be responsible for promptly notifying City of Sausalito in writing of such fact. If Contractor performs any Work contrary to Law without such notice to City of Sausalito, Contractor shall bear all costs arising there from.
  - 8) In the case of any permits or notices held in City of Sausalito's name or of necessity to be made in City of Sausalito's name, City of Sausalito will cooperate with Contractor in securing the permit or giving the notice, but Contractor shall prepare for City of Sausalito's review and execution upon approval, all necessary applications, notices, and other materials.
  - 9) Add to the end of paragraph 13.3 a new paragraph that reads:
  - 10) 13.3.G To the greatest extent permitted by Law, the indemnities and limitation of liability expressed throughout the Contract Documents apply with equal force and effect to any claims or liabilities imposed or existing by virtue of the removal, abatement, and disposal of hazardous waste. This includes liabilities connected to the selection and use of a waste disposal facility, personal injury, property damage, loss of use of

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property, damage to the environment or natural resources, or “disposal” and “release” of materials associated with the Work (as defined in 42 U.S.C. Section 9601 *et seq*).

- 11) Add to the end of paragraph 13.7 a new paragraph that reads:
  - 12) 13.7.G Notwithstanding anything in paragraph 13.7 to the contrary, City of Sausalito shall have an absolute right to terminate for default immediately without notice and without an opportunity to cure should Contractor knowingly or recklessly commit a material breach of the terms of the Contract Documents or the Law on any matter involving the exposure of persons or property to hazardous waste. If the breach exposing persons or property to hazardous waste is due solely to an ordinary, unintentional and non-reckless failure to exercise reasonable care, then the procedures in paragraph 13.7 for termination for default shall apply without modification.
- (viii) Supplement to paragraph 16.2, Protection of Work, Persons, and Property
- 1) Add to the end of paragraph 16.2 a new paragraph that reads:
  - 2) 16.2.F Perform safe, expeditious, and orderly work in accordance with the best practices and the highest standards in the hazardous waste abatement, removal, and disposal industry, the Law (as herein defined), and the Contract Documents including, but not limited to, all responsibilities relating to the preparation and return of waste shipment records, all requirements of the Law, delivering of all requisite notices, and obtaining all necessary governmental and quasi-governmental approvals.

END OF SECTION

**SECTION 00821  
INSURANCE**

1. AT OR BEFORE THE DATE SPECIFIED IN DOCUMENT 00200 (INSTRUCTIONS TO BIDDERS), CONTRACTOR SHALL FURNISH TO CITY OF SAUSALITO SATISFACTORY PROOF THAT CONTRACTOR HAS TAKEN OUT FOR THE ENTIRE PERIOD COVERED BY THE CONTRACT THE FOLLOWING CLASSES OF INSURANCE IN THE FORM AND WITH LIMITS AND DEDUCTIBLES SPECIFIED BELOW:
- 1) Comprehensive General Liability Insurance covering claims for personal injury, bodily injury and property damage arising out of the Work and in a form providing coverage not less than that of a standard Commercial General Liability Insurance policy ("Occurrence Form"). Such insurance shall provide for all operations and include independent contractors, products liability, completed operations for one year after Final Completion of the last Phase to be completed and acceptance of the final payment for the Work, contractual liability, and coverage for explosion, collapse and underground hazards. The limits of such insurance shall be not less than **[\$1,000,000]** each occurrence, **[\$1,000,000]** general aggregate limit, and **[\$1,000,000]** aggregate for products and completed operations. The policies shall be endorsed to provide Broad Form Property Damage Coverage.
  - 2) Comprehensive Automobile Liability Insurance covering all owned, non-owned, and hired vehicles. Such insurance shall provide coverage not less than the standard Comprehensive Automobile Liability policy with limits not less than **[\$1,000,000]** each person Bodily Injury, **[\$1,000,000]** each occurrence Bodily Injury, and **[\$1,000,000]** each occurrence Property Damage.
  - 3) All-Risk Course of Construction Insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, damage to adjacent buildings, partial or total collapse of structure(s), debris removal, demolition occasioned by enforcement of Laws, water damage, and damage caused by frost and freezing, in the amount of 100 percent of the completed value of the Work to be performed under this Contract. Each loss shall be borne by Contractor.
  - 4) Workers' Compensation Insurance for all persons whom the Contractor may employ in carrying out Work contemplated under Contract Documents, in accordance with the Act of Legislature of State of California, known as "Workers' Compensation Insurance and Safety Act," approved May 26, 1913, and all acts amendatory or supplemental thereto, in the statutory amount. Employers Liability Limit shall be not less than **[\$1,000,000]**.
- (ix) All policies of insurance shall be placed with insurers acceptable to City of Sausalito. The insurance underwriter(s) must have an A. M. Best Company rating of **[A-IX]** or better. Required minimum amounts of insurance may be increased should conditions of Work, in opinion of City of Sausalito, warrant such increase. Contractor shall increase required insurance amounts upon direction by City of Sausalito.
  - (x) Required Endorsements: The policies required under paragraphs A.1), A.(viii)2) and A.3 of this Document 00700 shall be endorsed as follows:
    - (xi) Name City of Sausalito, its City Council, and its employees, representatives, consultants, agents, volunteers, and Architect/Engineer as additional insured, but only with respect to liability arising out of the activities of the Named Insured.
    - (xii) Each such policy shall apply separately to each insured against which claim is made or suit is brought, except with respect to the limit of the insurance company's liability required under paragraphs A.1), A.(viii)2) and A.3 of this Document 00821.
    - (xiii) Insurance shall be primary and no other insurance or self-insured retention carried or held by City of Sausalito shall be called upon to contribute to a loss covered by insurance for the named insured.
    - (xiv) Insurance shall contain a provision requiring the insurance carriers to waive their rights of subrogation against City of Sausalito and all additional insured, as well as other insurance carriers for the Work
    - (xv) Insurance certificates shall be addressed to: City of Sausalito, 420 Litho St., Sausalito, CA 94965.
    - (xvi) Certificates of insurance and endorsements shall have clearly typed thereon City of Sausalito Bid Number and title of Contract Documents. Written notice of cancellation, non-renewal, or reduction in coverage

of any policy shall be mailed to City of Sausalito (Attention: Project Manager) at the address listed in Document 00520 (Agreement), 60 Days in advance of the effective date of the cancellation, non-renewal, or reduction in coverage. Contractor shall maintain insurance in full force and effect during entire period of performance of Contract Documents. Contractor shall keep insurance in force during warranty and guarantee periods, except that Contractor may discontinue All-Risk Course of Construction Insurance after Final Payment. At time of making application for extension of time, and during all periods exceeding the Contract Time resulting from any cause, Contractor shall submit evidence that insurance policies will be in effect during requested additional period of time. Upon City of Sausalito's request, Contractor shall submit to City of Sausalito, within 30 Days, copies of the actual insurance policies or renewals or replacements.

- (xvii) Contractor shall pay all insurance premiums, including any charges for required waivers of subrogation or the endorsement of additional insured. If Contractor fails to maintain insurance, City of Sausalito may take out comparable insurance, and deduct and retain amount of premium from any sums due Contractor under Contract Documents.
- (xviii) If injury occurs to any employee of Contractor, Subcontractor or sub-subcontractor for which the employee, or the employee's dependents in the event of employee's death, is entitled to compensation from City of Sausalito under provisions of the Workers' Compensation Insurance and Safety Act, as amended, or for which compensation is claimed from City of Sausalito, City of Sausalito may retain out of sums due Contractor under Contract Documents, amount sufficient to cover such compensation, as fixed by the Act, as amended, until such compensation is paid, or until it is determined that no compensation is due. If City of Sausalito is compelled to pay compensation, City of Sausalito may, in its discretion, either deduct and retain from the Contract Sum the amount so paid, or require Contractor to reimburse City of Sausalito.
- (xix) Nothing in this Document 00821 shall be construed as limiting in any way the extent to which Contractor or any Subcontractor may be held responsible for payment of damages resulting from their operations.
- (xx) All Subcontractors shall maintain the same insurance required to be maintained by Contractor with respect to their portions of the Work, and Contractor shall cause the Subcontractors to furnish proof thereof to City of Sausalito within ten Days of City of Sausalito's request.
- (xxi) The following provisions apply to any licensed professional engaged by Contractor to perform portions of the Work ("Professional").  
Each Professional shall maintain the following insurance at its sole cost and expense:
  - a) Provided such insurance is customarily required by City of Sausalito when professionals engaged in the profession practiced by Professional directly contract with City of Sausalito, Professional Liability Insurance, insuring against professional errors and omissions arising from Professional's work on the Project, with a limit of not less than **[\$1,000,000]** for each claim. If Professional cannot provide an occurrence policy, Professional shall provide insurance covering claims made as a result of performance of Work on this Project and shall maintain such insurance in effect for not less than two years following Final Completion of the Project.
  - b) All insurance required by paragraphs A.1, A.2 and A.4 of this Document 00821. Professional shall satisfy all other provisions of paragraphs A, B, C, D, E and F of this Document 00821 relating to that insurance, including without limitation providing required insurance certificates (containing the required endorsements) before commencing its Work on the Project.
- (xxii) If required by City of Sausalito, Contractor shall obtain and maintain Contractor's Pollution Legal Liability Insurance in a form, with limits, and from an insuring entity reasonably satisfactory to City of Sausalito.

END OF SECTION

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SECTION 00822  
Apprenticeship Program

Contractor and Subcontractors shall comply with the requirements of California Labor Code Sections 1776, 1777.5, and 1777.6 concerning the employment of apprentices by Contractor or Subcontractors. Willful failure to comply may result in penalties, including loss of the right to Bid on or receive public works contracts.

Section 1777.5, as amended, requires a Contractor or Subcontractor employing tradespersons in any apprenticeable occupation to apply to the joint apprenticeship committee nearest the site of a public works project and which administers the apprenticeship program in that trade for a certification of approval. The certificate shall also fix the ratio of apprentices to journeypersons that will be used in performance of the Contract. The ratio of work performed by apprentices to journeypersons in such cases shall not be less than one hour of apprentices work for every five hours of labor performed by journeypersons (the minimum ratio for the land surveyor classification shall not be less than one apprentice for each five journeypersons), except:

- A. When unemployment for the previous three-month period in the area exceeds an average of 15 percent;
- B. When the number of apprentices in training in the area exceeds a ratio of one to five;
- C. When a trade can show that it is replacing at least 1/30 of its membership through apprenticeship training on an annual basis state-wide or locally; or
- D. Assignment of an apprentice to any work performed under a public works contract would create a condition which would jeopardize his or her life or the life, safety, or property of fellow employees or the public at large or if the specific task to which the apprentice is to be assigned is of such a nature that training cannot be provided by a journeyperson.

Contractor is required to make contributions to funds established for administration of apprenticeship programs if Contractor employs registered apprentices or journeypersons in any apprenticeable trade on such contracts and if other contractors on the public works site are making such contributions.

Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of the California Department of Industrial Relations, or from the Division of Apprenticeship Standards and its branch offices.

END OF SECTION

PROJECT MANUAL  
INCLUDING SPECIFICATIONS  
FOR  
CONSTRUCTION  
OF THE  
**SAUSALITO PUBLIC RESTROOMS**

**768 BRIDGEWAY  
SAUSALITO, CA 94965**

**APN # 065-073-02**

ARCHITECTS

**Werner Associates Architects**

30 Liberty Ship Way, Suite 3250  
Sausalito, CA 94965-3325

(415) 332-9300  
FAX (415) 332-9311

February 27, 2012  
Revised April 13, 2012  
Issued for Bidding May 7, 2012

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**DOCUMENT 00010**

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By the City of Sausalito

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Not used.

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Not used.

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Not used.

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Not used.

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**END OF DOCUMENT**

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**SECTION 01110****SUMMARY OF WORK**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Project consists of construction of the Sausalito Public Restrooms, 768 Bridgeway, Sausalito, California 94965, including related bus stop shelter and site work, as indicated in Contract Documents.
  - 1. Items noted "NIC" (Not In Contract) will be furnished and installed by Owner or under separate contract.
    - a. Hazardous Materials Removal: Known hazardous materials will be removed under separate contract (NIC); inform Owner immediately where materials suspected of being hazardous are encountered.
- B. Division 1: Where provisions of General Conditions relate to Project administration or work-related requirements of the Contract, those paragraphs are expanded in Division 1 - General Requirements.
  - 1. General Conditions, Supplementary Conditions and Division 1 - General Requirements contain information necessary for completion of every part of Project.
  - 2. Where items of Work are done under subcontracts, each item shall be subject to these conditions.
- B. Sausalito Planning Commission Resolution DR/TRP 12-004: Contractor shall obtain copy of Planning Commission Resolution DR/TRP 12-004, 700 Block of Bridgeway, Attachment 2: Conditions of Approval.
  - 1. Comply with requirements therein related to construction means and methods.

## 1.2 REQUIREMENTS INCLUDED

- A. This section includes administrative provisions:
  - 1. Work sequence.
  - 2. Contractor use of premises.
  - 3. Field engineering.
  - 4. Regulatory requirements and reference standards.
  - 5. Special definitions.

## 1.3 WORK SEQUENCE

- A. Coordinate construction schedule and operations with Owner and Architect.

**1.4 CONTRACTOR USE OF PREMISES**

- A. Limit use of premises for Work and construction operations and to allow for work by other contractors.
- B. Coordinate use of premises and access to site under direction of Owner and Architect.

**1.5 FIELD ENGINEERING**

- A. Provide field engineering services; establish lines and levels by use of recognized engineering survey practices.
- B. Locate and protect control and reference points.

**1.6 REGULATORY REQUIREMENTS AND REFERENCE STANDARDS**

- A. Regulatory Requirements:
  - 1. Architect has contacted governing authorities and reviewed design requirements of local, state and federal agencies for applicability to Project.
  - 2. Contractor shall be responsible for contacting governing authorities directly for necessary information and decisions bearing upon performance of Work.
- B. Reference Standards:
  - 1. For Products specified by association or trade standards, comply with requirements of referenced standard, except when more rigid requirements are specified or are required by applicable codes.
  - 2. Applicable date of each standard is that in effect as of date on proposal or date on Contract where no proposal is available, except when a specific date is specified.

**1.7 SPECIAL DEFINITIONS**

- A. Approved: Approved, directed, selected, required, ordered, designated, accepted, acceptable, and satisfactory shall require written action by Architect.
- B. Equal, or Approved Equal: Equal and approved equal shall require requests for substitutions for products or manufacturers not specified.
  - 1. Requests for substitutions shall be in accordance with requirements of Section 01630 - Substitutions.
- C. Furnish: Furnish means supply and deliver to Project, unless otherwise defined in greater detail.
- D. Install: Install is used to describe operations at Project, from inspecting and unloading, to completion in place, ready for intended use.
- E. Provide: Provide means furnish and install, complete and ready for intended use, unless otherwise defined in greater detail.

**END OF SECTION**

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**SECTION 01200****MEASUREMENT & PAYMENT**

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**PART 1 GENERAL**

## 1.1 SUMMARY

Section includes description of all "payment to complete" requirements and procedures for determining amount of Work performed and for obtaining payment for Work performed.

## 1.2 REFERENCES

- A. California Public Contract Code
- B. Code of Civil Procedures
- C. Government Code
- D. Specification 01320

## 1.3 SCOPE OF WORK

**WORK UNDER CONTRACT DOCUMENTS, OR UNDER ANY BID ITEM, ALLOWANCE, OR ALTERNATE, SHALL INCLUDE ALL LABOR, MATERIALS, TAXES, TRANSPORT, HANDLING, STORAGE, SUPERVISION, ADMINISTRATION, AND ALL OTHER ITEMS NECESSARY FOR THE SATISFACTORY COMPLETION OF WORK, WHETHER OR NOT EXPRESSLY SPECIFIED OR INDICATED.**

## 1.4 DETERMINATION OF QUANTITIES

Quantity of work to be paid for under any item for which a unit price is fixed in Contract Documents shall be number, as determined by District, of units of work satisfactorily completed in accordance with Contract Documents or as directed by District. Unless otherwise provided, determination of number of units of work so completed will be based, so far as practicable, on actual measurement or count within prescribed or ordered limits, and no payment will be made for work done outside of limits. Measurements and computations will be made by methods set forth in Contract Documents, including without limitation this Section 01200. If methods are not so set forth, measurements shall be made in any manner which District considers appropriate for class of Work measured (e.g., pre-assigned values, percentage completion, units completed or incremental milestones). Contractor must immediately inform District of any disputes regarding quantity measurements and shall immediately supply District with any documentation supporting the disputed measurements.

## 1.5 SCOPE OF PAYMENT

- A. Except as otherwise expressly stated in Section 01100 (Summary of Work), payment to Contractor at the lump sum price fixed in the Contract Documents for performing all Work required under Contract Documents may be adjusted pursuant to any approved Change Order or Construction change directive, shall be full compensation for completing, in accordance with Contract Documents, all Work required under the item or under Contract Documents, and for all expense incurred by Contractor for any purpose in connection with the performance and completion of said Work, including all incidental work necessary for completion of the Work.
- B. The Contract Sum shall be deemed to include all costs necessary to complete required Work, all costs (if any) for loss or damage arising from nature of Work or prosecution of the Work, and from action of elements. Unless Contract Documents expressly provide otherwise, the Contract Sum shall be deemed to include:

1. Any and all costs arising from any unforeseen difficulties which may be encountered during, and all risks of any description connected with, prosecution of Work or prosecution of Bid Item until acceptance by District;
  2. Escalation to allow for cost increases between time of Contract Award and completion of Work or completion of Bid Item.
- C. Whenever it is specified herein that Contractor is to do work or furnish materials in Contract Documents, it shall be understood that Contractor is to do such work or furnish such materials without extra charge or allowance or direct payment of any sort, and that cost of doing work or furnishing materials is to be included in price Bid, unless it is expressly specified herein, in particular cases, that work or material is to be paid for as extra work.
- D. No payment shall be made for materials or equipment not yet incorporated into the Work, except as specified in Section 01100 (Summary of Work).
- E. The District may, in its discretion, where Contractor requests payment on the basis of materials and equipment not incorporated in the Work, Contractor must satisfy the following conditions:
1. The materials and/or equipment shall be delivered and suitably stored at the Site or at another local location agreed to in writing, for example, a mutually acceptable bonded warehouse;
  2. Full title to the materials and/or equipment shall vest in District at the time of delivery to the Site, bonded warehouse or other bonded storage location;
  3. Obtain a negotiable warehouse receipt, endorsed over to District for materials and/or equipment stored in and off-site warehouse. No payment will be made until such endorsed receipts are delivered to District;
  4. Stockpiled materials and/or equipment shall be available for District inspection, but District shall have no obligation to inspect them and its inspection or failure to inspect shall not relieve Contractor of any obligations under the Contract Documents. Materials and/or equipment shall be segregated and labeled or tagged to identify these specific Contract Documents;
  5. After delivery of materials and/or equipment, if any inherent or acquired defects are discovered, defective materials and/or equipment shall be removed and replaced with suitable materials and/or equipment at Contractor's expense;
  6. At Contractor's expense, insure the materials and/or equipment against theft, fire, flood, vandalism, and malicious mischief, as well as any other coverages required under the Contract Documents;
  7. Contractor's Application for Payment shall be accompanied by a bill of sale, invoice or other documentation warranting that District has received the materials and equipment free and clear of all liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect District's interest therein, all of which must be satisfactory to District. This documentation shall include, but not be limited to, conditional releases of mechanics' liens and stop notices from all those providing materials and equipment as to which the Application for Payment relates, as well as unconditional releases of the same from the same as to the previous Application for Payment for which they have not already been provided. In addition, for each piece of major equipment listed in Section 01100 (Summary of Work) the Contractor is to submit a sample of the maintenance log (See paragraph 1.6.H.11 of Section 01600) that will be used during the project with the Application for Payment.
- F. Amounts previously paid for materials and equipment prior to incorporation into the Work shall be deducted from amounts otherwise due Contractor as they are incorporated.

## 1.6 BASIS OF PAYMENT

- A. Lump Sum: When estimated quantity for specific portion of Work is not indicated and unit is designated as lump sum, payment will be on a lump sum basis for Work satisfactorily completed in accordance with Contract Documents.
- B. Allowances: Allowance items (if any) will be paid for as provided in Section 01100 (Summary of Work). Funds authorized for Allowance work will not be released for Contract payments unless District has authorized Allowance work in writing.
- C. District does not expressly, or by implication, agree, warrant, or represent in any manner, that actual amount of Work will correspond with amount shown or estimated and reserves right to increase or decrease amount of any class or portion of Work, to leave out entire Bid Item or Items, or to add work not originally included in Bid or Contract Documents, when in its judgment such change is in best interest of District. No change in Work shall be considered a waiver of any other condition of Contract Documents.

## 1.7 PROGRESS PAYMENTS

- A. If requested by Contractor, progress payments will be made monthly.
- B. Schedule of Values:
  - 1. Within ten (10) Days from issuance of Notice of Award and prior to the Contractor's first Application for Payment, submit a detailed breakdown of its Bid by scheduled Work items and/or activities, including coordination responsibilities and Project Record Documents responsibilities. Where more than one Subcontractor comprises the work of a Work item or activity, the Schedule of Values shall show a separate line item for each subcontract. Furnish such breakdown of the total Contract Sum by assigning dollar values (cost estimates) to each applicable Progress Schedule network activity, which cumulative sum equals the total Contract Sum. See Specification 01320. The format and detail of the breakdown shall be as directed by District to facilitate and clarify future progress payments to Contractor for direct Work under Contract Documents. This breakdown shall be referred to as the Schedule of Values.
  - 2. Contractor's overhead, profit, insurance, cost of bonds (except to the extent expressly identified in a Bid Item) and/or other financing, as well as "general conditions costs," (e.g., Site cleanup and maintenance, temporary roads and access, off-Site access roads, temporary power and lighting, security, and the like), shall be prorated through all activities so that the sum of all the Schedule of Values line items equals Contractor's total Contract Sum, less any allowances designated by District. Scheduling, record documents and quality assurance control shall be separate line items.
  - 3. District will review the breakdown in conjunction with the Progress Schedule to ensure that the dollar amounts of this Schedule of Values are, in fact, fair market cost allocations for the Work items listed. Upon favorable review by District, District will accept this Schedule of Values for use. District shall be the sole judge of fair market cost allocations.
  - 4. District will reject any attempt to increase the cost of early activities, i.e., "front loading," resulting in a complete reallocation of moneys until such "front loading" is corrected. Repeated attempts at "front loading" may result in suspension or termination of the Work for default, or refusal to process progress payments until such time as the Schedule of Values is acceptable to District.
- C. Applications for Payment: Contractor shall establish and maintain records of cost of the Work in accordance with generally accepted accounting practices. In addition:
  - 1. On or before the 20<sup>th</sup> Day of each month (but after receipt of District's approval of the updated Schedule as required by Section 01320 (Progress Schedules and Reports)), Contractor shall submit to District one copy of an Application for

Payment for the cost of the Work put in place during the period from the 1<sup>st</sup> Day of the previous month to the Last Day of the previous month. Such Applications for Payment shall be for the total value of activities completed or partially completed, including approved activity costs, based upon Schedule of Values prices of all labor and materials incorporated in the Work up until midnight of the last Day of that one month period, less the aggregate of previous payments. Accumulated retainage shall be shown as separate item in payment summary. Contractor shall submit in a form similar in format to AIA form G702 and G703 an itemized cost breakdown of Contractor's record of Cost of the Work together with supporting data and any certification required by District. If Contractor is late submitting its Application for Payment, that Application may be processed at any time during the succeeding one-month period, resulting in processing of Contractor's Application for Payment being delayed for more than a Day for Day basis.

2. Applications for Payment may include, but are not necessarily limited to the following:
  - a. Material, equipment, and labor incorporated into the Work, less any previous payments for the same;
  - b. Up to 75 percent of the cost of equipment identified in paragraph 1.5E of this Section 01200 (if any), if purchased and delivered to the Site or stored off Site, as may be approved by District.
  - c. Up to 50 percent of the cost of materials identified in paragraph 1.5E of this Section 01200 (if any), specifically fabricated for the Project that are not yet incorporated into the Work.
3. At the time any Application for Payment is submitted, certify in writing the accuracy of the Application and that Contractor has fulfilled all scheduling requirements of Document 00700 (General Conditions) and Section 01320 (Progress Schedules and Reports), including updates and revisions. A responsible officer of Contractor shall execute the certification.
4. No progress payment will be processed prior to District receiving all requested, acceptable schedule update information. Failure to submit a schedule update complying with Section 01320 justifies denying the entire Application for Payment. Should Contractor fail to submit timely or accurate schedule updates the District has the right to impose a Withhold of funds in the amount up to \$10,000 per occurrence until the contractor demonstrates compliance with timely, acceptable and accurate schedule update submittals. In the sole judgment of the District if it is determined that the contractor is not capable of delivering timely and accurate updates these Withheld monies may be converted to a back charge to Contractor to offset the costs to the District associated with providing the schedule update function. See also Section 01320 (Progress Schedules and Reports), paragraph 1.2.J.
5. If Contractor fails or refuses to participate in work reconciliations or other construction progress evaluation with District, Contractor shall not receive current payment until Contractor has participated fully in providing construction progress information and schedule update information to District.
6. Each Application for Payment shall list each Change Order and Construction change directive ("CCD") executed prior to date of submission, including the Change Order/CCD Number, and a description of the work activities, consistent with the descriptions of original work activities. Submit a monthly Change Order/CCD status log to District.
7. If District requires substantiating data, submit information requested by District, with cover letter identifying Project, Application for Payment number and date,



and detailed list of enclosures. Submit one copy of substantiating data and cover letter for each copy of Application for Payment submitted.

8. With each Application for Payment the following reports and logs shall be submitted:
  - a. Copies of completed maintenance logs for each piece of major equipment listed in Section 01100 (Summary of Work) shall be submitted according to the requirements specified in Section 01600 (Product Requirements).
  - b. Copies of up-to-date Waste Reporting Log per Section 01740 (Clean Up) paragraph 1.2.E.5

Contractor's Application for Payment will be deemed incomplete without these documents.

D. Progress Payments

1. District will review Contractor's Application for Payment following receipt. If adjustments need to be made to percent of completion of each activity, District will make appropriate notations and return to Contractor. Contractor shall revise and resubmit. All parties shall update percentage of completion values in the same manner, i.e., express value of an accumulated percentage of completion to date.
2. Each Application for Payment may be reviewed by District and/or inspectors to determine whether the Application for Payment is proper, and shall be rejected, revised, or approved by District pursuant to the Schedule of Values prepared in accordance with this Section 01200.
3. If it is determined that the Application for Payment is not proper and suitable for payment, District will return it to the Contractor as soon as practicable, but no later than seven (7) Days after receipt, together with a document setting forth in writing the reasons why the Application for Payment is not proper. If District determines that portions of the Application for Payment are not proper or not due under the Contract Documents, then District may approve the other portions of the Application for Payment, and in the case of disputed items or defective Work not remedied, may withhold up to 150 percent of the disputed amount from the progress payment.
4. Pursuant to Public Contract Code Section 20104.50, if District fails to make any progress payment within 30 Days after receipt of an undisputed and properly submitted Application for Payment from Contractor, District shall pay interest to the Contractor equivalent to the legal rates set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure. The 30-Day period shall be reduced by the number of Days by which District exceeds the seven (7) Day return requirement set forth herein.
5. As soon as practicable after approval of each Application for Payment for progress payments, District will pay to Contractor in manner provided by law, an amount equal to 90 percent of the amounts otherwise due as provided in the Contract Documents, or a lesser amount if so provided in Contract Documents, provided that payments may at any time be withheld if, in judgment of District, Work is not proceeding in accordance with Contract, or Contractor is not complying with requirements of Contract, or to comply with stop notices or to offset liquidated damages accruing or expected.
6. Before any progress payment or final payment is due or made, Contractor shall submit satisfactory evidence that Contractor is not delinquent in payments to employees, Subcontractors, suppliers, or creditors for labor and materials incorporated into Work. This specifically includes, without limitation, conditional lien release forms for the current progress payment and unconditional release forms for past progress payments. District also may elect in its sole discretion to

pay progress payments by joint check to Contractor and each Subcontractor having an interest in that progress payment in such amount.

7. District reserves and shall have the right to withhold payment for any equipment and/or specifically fabricated materials that, in the sole judgment of District, are not adequately and properly protected against weather and/or damage prior to or following incorporation into the Work.
8. Granting of progress payment or payments by District, or receipt thereof by Contractor, shall not be understood as constituting in any sense acceptance of Work or of any portion thereof, and shall in no way lessen liability of Contractor to replace unsatisfactory work or material, though unsatisfactory character of work or material may have been apparent or detected at time payment was made.
9. When District shall charge sum of money against Contractor under any provision of Contract Documents, amount of charge shall be deducted and retained by District from amount of next succeeding progress payment or from any other moneys due or that may become due Contractor under Contract. If, on completion or termination of Contract, such moneys due Contractor are found insufficient to cover District's charges against it, District shall have right to recover balance from Contractor or Sureties.

#### 1.8 SUBSTITUTION OF SECURITIES IN LIEU OF RETENTION

- A. In accordance with the provisions of Public Contract Code Section 22300, substitution of securities for any moneys withheld under Contract Documents to ensure performance is permitted under following conditions:
  1. At request and expense of Contractor, securities listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by Contractor and District which are equivalent to the amount withheld under retention provisions of Contract shall be deposited with Controller or with a state or federally chartered bank in California, as the escrow agent, who shall then pay such moneys to Contractor. Upon satisfactory completion of Contract, securities shall be returned to Contractor.
  2. Alternatively, Contractor may request and District shall make payment of retentions earned directly to the escrow agent at the expense of Contractor. At the expense of Contractor, Contractor may direct the investment of the payments into securities and receive the interest earned on the investments upon the same terms provided for in this Section 01200 for securities deposited by Contractor. Upon satisfactory completion of Contract Documents, Contractor shall receive from escrow agent all securities, interest, and payments received by the escrow agent from District, pursuant to the terms of this Section 01200. Pay to each Subcontractor, not later than twenty (20) Days after receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each Subcontractor, on the amount of retention withheld to insure the performance of Contractor.
  3. Contractor shall be beneficial owner of securities substituted for moneys withheld and shall receive any interest thereon.
  4. Enter into escrow agreement with Controller according to Document 00680 (Escrow Agreement for Security Deposits in Lieu of Retention), as authorized under Public Contract Code Section 22300, specifying amount of securities to be deposited, terms and conditions of conversion to cash in case of default of Contractor, and termination of escrow upon completion of Contract Documents.
  5. Public Contract Code Section 22300 is hereby incorporated in full by this reference.

**1.9 FINAL PAYMENT**

- A. As soon as practicable after all required Work is completed in accordance with Contract Documents, including punchlist, testing, record documents and Contractor maintenance after Final Acceptance, District will pay to Contractor, in manner provided by law, unpaid balance of Contract Sum of Work (including without limitation retentions), or whole Contract Sum of Work if no progress payment has been made, determined in accordance with terms of Contract Documents, less sums as may be lawfully retained under any provisions of Contract Documents or by law.
- B. Prior progress payments shall be subject to correction in the final payment. District's determination of amount due as final payment shall be final and conclusive evidence of amount of Work performed by Contractor under Contract Documents and shall be full measure of compensation to be received by Contractor.
- C. Contractor and each assignee under an assignment in effect at time of final payment shall execute and deliver at time of final payment, and as a condition precedent to District's obligation to make final payment, Document 00650 (Agreement and Release of Any and All Claims) discharging District, its officers, District's Representative, employees, and consultants of and from liabilities, obligations, and claims arising under Contract Documents.

**1.10 EFFECT OF PAYMENT**

- A. Payment will be made by District, based on District's observations at the Site and the data comprising the Application for Payment. Payment will not be a representation that District has:
  - 1. Made exhaustive or continuous on-Site inspections to check the quality or quantity of Work;
  - 2. Reviewed construction means, methods, techniques, sequences, or procedures;
  - 3. Reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by District to substantiate Contractor's right to payment; or
  - 4. Made examination to ascertain how or for what purpose Contractor has used money previously paid on account of the Contract Sum.

**1.11 CONTINGENCY RESERVE**

- A. District will authorize and direct Contractor regarding provisions in this paragraph.
- B. Contingency Reserve Amount: as listed in Document 00520 (Agreement).
- C. District shall determine in its sole discretion which, if any, costs it will authorize in writing to be paid from the Contingency Reserve. Generally, Contingency Reserve will be used only for District-initiated changes in scope of Work of Contract Documents.
- D. Cost shall be determined as for CCD work as provided in Section 01250 (Modification Procedures).
- E. Prior to final payment, an appropriate Change Order will be issued to reflect actual amounts due Contractor on account of Work covered by this Contingency Reserve, and the Contract Sum will be correspondingly adjusted

**PART 2 PRODUCTS – NOT USED****PART 3 EXECUTION – NOT USED****END OF SECTION**

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**SECTION 01250****MODIFICATION PROCEDURES**

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**PART 1 GENERAL**

## 1.1 SUMMARY

- A. Section includes:
  - 1. Description of general procedural requirements for alterations, modifications, and extras.
- B. Reference
  - 1. Public Contract Code Section 7105 (d) (2).

## 1.2 GENERAL

- A. Any change in scope of Work or deviation from Contract Documents including, without limitation, extra work, or alterations or additions to or deductions from the original Work, shall not invalidate the original Contract, and shall be performed under the terms of the Contract Documents.
- B. Only Contractor or City of Sausalito may initiate changes in scope of Work or deviation from Contract Documents.
  - 1. Contractor may initiate changes by submitting RFIs, Notice of Concealed or Unknown Conditions, or Notice of Hazardous Waste Conditions.
    - a. RFIs shall be submitted to seek clarification of or request changes in the Contract Documents.
    - b. Notices of Concealed or Unknown Conditions shall be submitted in accordance with Document 00700 (General Conditions).
    - c. Notices of Hazardous Waste Conditions shall be submitted in accordance with Document 00700 (General Conditions), and Supplementary Conditions [Document or Section] 00805.
  - 2. Contractor shall be responsible for its costs to implement and administer RFIs throughout the Contract duration. Regardless of the number of RFIs submitted, Contractor shall not be entitled to additional compensation. Contractor shall be responsible for both City of Sausalito and its Architect/Engineer's administrative costs for answering RFIs where the answer could reasonably be found by reviewing the Contract Documents, as determined by City of Sausalito; at City of Sausalito's discretion, such costs may be deducted from progress payments or final payment.
  - 3. City of Sausalito may initiate changes by issuing a Supplemental Instruction, which may revise, add to or subtract from the Work.
  - 4. City of Sausalito may initiate changes in the Work or Contract Time by issuing RFPs to Contractor. Such RFPs will detail all proposed changes in the Work and request a quotation of changes in Contract Sum and Contract Time from Contractor.
  - 5. City of Sausalito may also, by Construction Change Directive ("CCD"), order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly. A CCD shall be used in the absence of total agreement on the terms of a Change Order and may, upon notice, consist of a Change Order executed by City of Sausalito only.

6. It is the responsibility of the Contractor to notify the City of Sausalito within seven (7) days if there is a cost change. Notifications beyond this time limit may result in future claims being time barred.

### 1.3 PROCEDURES

- A. Cost Proposal and Procedures: Whenever Contractor is required in this Section 01250 to prepare a Cost Proposal, and whenever Contractor is entitled to submit a Cost Proposal and elects to do so, Contractor shall prepare and submit to City of Sausalito for consideration a Cost Proposal using the form attached to this Section 01250. All Cost Proposals must contain a complete breakdown of costs of credits, deducts and extras; itemizing materials, labor, taxes, overhead and profit. All Subcontractor Work shall be so indicated. Individual entries on the Cost Proposal form shall be determined as provided in paragraphs 1.4 and 1.5 of this Section 01250. After receipt of a Cost Proposal with a detailed breakdown, City of Sausalito will act promptly thereon.
  1. If City of Sausalito accepts a Cost Proposal, City of Sausalito will prepare Change Order for City of Sausalito and Contractor signatures.
  2. If Cost Proposal is not acceptable to City of Sausalito because it does not agree with cost and/or time included in Cost Proposal, City of Sausalito will submit in a response what it believes to be a reasonable cost and/or adjustment, if any. Except as otherwise provided in this Section 01250, Contractor shall have seven (7) Days in which to respond to City of Sausalito with a revised Cost Proposal.
  3. When necessity to proceed with a change does not allow the City of Sausalito sufficient time to conduct a proper check of a Cost Proposal (or revised Cost Proposal), City of Sausalito may order Contractor to proceed on basis to be determined at earliest practical date. In this event, value of change, with corresponding equitable adjustment to Contract, shall not be more than increase or less than decrease proposed.
- B. Request for Information: Whenever Contractor requires information regarding the Project or Contract Documents, or receives a request for information from a Subcontractor; Contractor may prepare and deliver an RFI to City of Sausalito. Contractor shall use RFI format provided by City of Sausalito. Contractor must, immediately upon discovery of a discrepancy in the documents or unforeseen condition, submit time critical RFIs before scheduled start date of the affected Work activity. Contractor shall reference each RFI to an activity of Progress Schedule and shall note time criticality of the RFI, indicating time within which a response is required.
  1. City of Sausalito will respond in a timely manner from receipt of RFI with a written response to Contractor. Contractor shall distribute response to all appropriate Subcontractors. The City of Sausalito may return RFI requesting additional information should RFI be inadequate in describing the condition.
  2. If Contractor is satisfied with the response and does not request change in Contract Sum or Contract Time, then the response shall be executed without a change.
  3. If Contractor believes the response is incomplete, Contractor shall issue another RFI (with the same RFI number with the letter "A" indicating if it is a follow-up RFI) to City of Sausalito clarifying original RFI.
  4. If Contractor believes that the response results in change in Contract Sum or Contract Time, Contractor shall notify City of Sausalito in writing within seven (7) Days after receiving the response. If City of Sausalito disagrees with Contractor, then Contractor may give notice of intent to submit a Claim as described in

Article 12 of Document 00700 (General Conditions), and submit its Claim within thirty (30) Days. If City of Sausalito agrees with Contractor, then Contractor must submit a Cost Proposal within fourteen (14) Days of receiving the response to the RFI. Contractor's failure to deliver either the foregoing notice and Claim or Cost Proposal by the respective deadlines stated in the foregoing sentences shall result in waiver of the right to file a Cost Proposal or Claim.

- C. Supplemental Instruction: City of Sausalito may issue Supplemental Instruction to Contractor.
1. If Contractor is satisfied with Supplemental Instruction and does not request change in Contract Sum or Contract Time, then Supplemental Instruction shall be executed without a Change Order.
  2. If Contractor believes that Supplemental Instruction results in change in Contract Sum or Contract Time, then Contractor shall notify City of Sausalito in writing within seven (7) Days of receiving the Supplemental Instruction, and submit a Cost Proposal to City of Sausalito within fourteen (14) Days of receiving the Supplemental Instruction.
- D. Construction Change Directives: If at any time City of Sausalito believes in good faith that a timely Change Order will not be agreed upon using the foregoing procedures, City of Sausalito may issue a CCD with its recommended cost and/or time adjustment. Upon receipt of CCD, Contractor shall promptly proceed with the change of Work involved and concurrently respond to City of Sausalito's CCD within ten (10) Days.
1. Contractor's response must be any one of following:
    - a. Return CCD signed, thereby accepting City of Sausalito's response, time and cost.
    - b. Submit a (revised if applicable) Cost Proposal with supporting documentation (if applicable, reference original Cost Proposal number followed by letter A, B, etc. for each revision), if City of Sausalito so requests.
    - c. Give notice of intent to submit a Claim as described in Article 12 of Document 00700 (General Conditions), and submit its Claim within thirty (30) days.
  2. If the CCD provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:
    - a. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation.
    - b. Unit prices stated in the Contract Documents or subsequently agreed upon.
    - c. Cost to be determined based upon time and material tickets. Failure of the Contractor to include time and material tickets on any given day will result in Contractor having waived his right for compensation or time for any missing time and material tickets.
  3. CCCD signed by Contractor indicates the agreement of Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.
  4. If Contractor does not respond promptly or disagrees with the City of Sausalito's recommended adjustment in the Contract Sum or Contract Time, the method and the adjustment shall be determined by City of Sausalito on the basis of reasonable expenditures and savings of those performing the Work attributable to the change including, in case of an increase in the Contract Sum, a reasonable allowance for overhead and profit. If the parties still do not agree on the price for a CCD, Contractor may file a Claim per Article 12 of Document 00700 (General Conditions). Contractor shall keep and present, in such form as

City of Sausalito may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this paragraph shall be limited to those provided in paragraphs 1.4 and 1.5 of this Section 01250.

- E. City of Sausalito Requested RFP: Contractor shall furnish a Cost Proposal within fourteen (14) Days of City of Sausalito's RFP. Upon approval of RFP, City of Sausalito will issue a Change Order directing Contractor to proceed with extra Work. If the parties do not agree on the price for an RFP, City of Sausalito may either issue a CCD or decide the issue per Article 12 of Document 00700 (General Conditions). Contractor shall perform the changed Work notwithstanding any claims or disagreements of any nature.
- F. Differing Site Conditions: Contractor shall submit Notices of Differing Site Conditions to resolve problems regarding differing underground Site conditions encountered in the execution of the Work pursuant to paragraph 13.4 of Document 00700 (General Conditions), which shall govern. If City of Sausalito determines that a change in Contract Sum or Contract Time is justified, City of Sausalito will issue RFP or CCD.
- G. Hazardous Waste Conditions: Contractor shall submit Notices of Hazardous Waste Conditions to resolve problems regarding hazardous materials encountered in the execution of the Work pursuant to paragraph 13.5 of Document 00700 (General Conditions) and Document 00805. If City of Sausalito determines that a change in Contract Sum or Contract Time is justified, City of Sausalito will issue RFP or CCD.
- H. All Changes:
  - 1. Documentation of Change in Contract Sum and Contract Time:
    - a. Contractor shall maintain detailed records of Work performed under a CCD on a time-and-material basis.
    - b. Contractor shall document each proposal for a change in cost and time with sufficient data to allow evaluation of the proposal.
    - c. Contractor shall, on request, provide additional data to support computations for:
      - 1) Quantities of products, materials, labor and equipment.
      - 2) Taxes, insurance, and bonds.
      - 3) Overhead and profit.
      - 4) Justification for any change in Contract Time shall be in accordance with Section 01320.
      - 5) Credit for deletions from Contract, similarly documented.
      - 6) Invoices and receipts for products, materials, equipment and subcontracts, similarly documented.
    - d. Contractor shall support each claim for additional costs and for Work performed on a cost-and-percentage basis, with additional information including:
      - 1) Credit for deletions from Contract, similarly documented.
      - 2) Origin and date of claim.
      - 3) Dates and times Work was performed and by whom.
      - 4) Time records and wage rates paid.
      - 5) Invoices and receipts for products, materials, equipment and subcontracts, similarly documented.
- I. Correlation of Other Items:
  - 1. Contractor shall revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum as shown thereon prior to the next monthly pay period.

2. Contractor shall revise Progress Schedules to include approved Change Orders in accordance with Section 01320.
  3. Contractor shall enter changes in Project Record Documents prior to the next monthly pay period.
- J. Responses: For all responses for which the Contract Documents, including without limitation this Section 1250, do not provide a specific time period, recipients shall respond within a reasonable time.
- K. Disputes: For all disputes arising from the procedures herein, Contractor shall follow Article 12 of Document 00700.

#### 1.4 COST DETERMINATION

- A. Total cost of extra Work or of Work omitted shall be the sum of labor costs, material costs, equipment rental costs and specialist costs as defined herein plus overhead and profit as allowed herein. This limit applies in all cases of claims for extra Work, whether calculating Cost Proposals, Change Orders or CCDs, or calculating claims of all types, and applies even in the event of fault, negligence, strict liability, or tort claims of all kinds, including strict liability or negligence. Contractor may recover no other costs arising out of or connected with the performance of extra Work, of any nature. No special, incidental or consequential damages may be claimed or recovered against City of Sausalito, City of Sausalito's Representative, whether arising from breach of contract, negligence or strict liability, unless specifically authorized in the Contract Documents.
- B. Overhead and Profit: (Overhead shall be as defined in paragraph 1.8 of this Section 01250)
1. Overhead and profit on labor for extra Work shall be 15 percent.
  2. Overhead and profit on materials for extra Work shall be 15 percent.
  3. Overhead and profit on equipment rental for extra Work shall be 10 percent.
  4. When extra Work is performed by a first tier Subcontractor, Contractor shall receive a 5 percent markup on Subcontractors' total costs, excluding markup, of extra Work. First tier Subcontractor's markup on its Work shall not exceed 15 percent.
  5. When extra Work is performed by a lower tier Subcontractor, Contractor shall receive a total of 5 percent markup on the lower tier Subcontractors' total costs, excluding markup, of extra Work. Contractor and first tier Subcontractors and lower tier Subcontractors shall divide the 10 percent markup as mutually agreed.
  6. Notwithstanding the foregoing, in no case shall the total markup on any extra Work exceed 20 percent of the direct cost, notwithstanding the actual number of contract tiers.
  7. On proposals covering both increases and decreases in Contract Sum, overhead, profit, and commission shall be allowed on the net increase only as determined in paragraph 1.4 above. When the net difference is a deletion, no percentage for overhead profit and commission shall be allowed, but rather a deduction shall issue.
  8. The markup shall include profit, small tools, cleanup, engineering, supervision, warranties, and cost of preparing the cost proposal, jobsite overhead, and home office overhead. No markup will be allowed on taxes, insurance, and bonds.
- C. Taxes:
1. All State sales and use taxes, Marin County and applicable City sales taxes, shall be included.
  2. Federal and Excise tax shall not be included.



- D. Owner-Operated Equipment: When owner-operated equipment is used to perform extra Work, Contractor will be paid for operator as follows:
  - 1. Payment for equipment will be made in accordance with paragraph 1.5C of this Section 01250.
  - 2. Payment by the City of Sausalito for cost of labor will be made at no more than prevailing wage rates of such labor established by Department of Industrial Relations for type of worker and location of Work.
- E. Accord and Satisfaction: Every Change Order and accepted CCD shall constitute a full accord and satisfaction, and release, of all Contractor (and if applicable, Subcontractor) claims for additional time, money or other relief arising from or relating to the subject matter of the change including, without limitation, impacts of all types, cumulative impacts, inefficiency, overtime, delay and any other type of claim. Contractor may elect to reserve its rights to disputed claims arising from or relating to the changed Work at the time it signs a Change Order or approves a CCD, but must do so expressly in a writing delivered concurrently with the executed Change Order or approved CCD, and must also submit a Claim for the reserved disputed items pursuant to Article 12 of Document 00700 no later than 30 days of Contractor's first written notice of its intent to reserve rights.

#### 1.5 COST BREAKDOWN

- A. Labor: Contractor will be paid cost of labor for workers (including forepersons when authorized by City of Sausalito) used in actual and direct performance of extra Work. Labor rate, whether employer is Contractor, Subcontractor or other forces, will be sum of following:
  - 1. Actual Wages: Actual wages paid shall include any employer payments to or on behalf of workers for health and welfare, pension, vacation, and similar purposes.
  - 2. Labor surcharge: Payments imposed by local, county, state, and federal laws and ordinances, and other payments made to, or on behalf of, workers, other than actual wages as defined in paragraph 1.5A.1 of this Section 01250, such as taxes and worker's compensation insurance. Such labor surcharge shall not exceed that set forth in California Department of Transportation official labor surcharges schedule which is in effect on date upon which extra Work is accomplished and which schedule is incorporated herein by reference as though fully set forth herein.
- B. Material: Only materials furnished by Contractor and necessarily used in performance of extra Work will be paid for. Cost of such materials will be cost, including sales tax, to purchaser (Contractor, Subcontractor or other forces) from supplier thereof, except as the following are applicable:
  - 1. If cash or trade discount by actual supplier is offered or available to purchaser, it shall be credited to City of Sausalito notwithstanding fact that such discount may not have been taken.
  - 2. For materials salvaged upon completion of extra Work, salvage value of materials shall be deducted from cost, less discounts, of materials.
  - 3. If cost of a material is, in opinion of City of Sausalito, excessive, then cost of material shall be deemed to be lowest current wholesale price at which material is available in quantities concerned delivered to Site, less any discounts as provided in paragraph 1.5B.1 of this Section 01250.
- C. Equipment Rental for Extra Work: The following is applicable only for equipment rented specifically for extra work that is not currently on-site. For Contractor- or Subcontractor-owned equipment, payment will be made at rental rates listed for equipment in California Department of Transportation official equipment rental rate

schedule which is in effect on date upon which extra Work is accomplished and which schedule is incorporated herein by reference as though fully set forth herein. If there is no applicable rate for an item of equipment, then payment shall be made for Contractor- or Subcontractor-owned equipment at rental rate listed in the most recent edition of the Association of Equipment Distributors (AED) book. For rented equipment, payment will be made based on actual rental invoices. Equipment used on extra Work shall be of proper size and type. If, however, equipment of unwarranted size or type and cost is used, cost of use of equipment shall be calculated at rental rate for equipment of proper size and type, as determined by City of Sausalito. Rental rates paid shall be deemed to cover cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals. Unless otherwise specified, manufacturer's ratings, and manufacturer-approved modifications, shall be used to classify equipment for determination of applicable rental rates. Individual pieces of equipment or tools not listed in said publication and having a replacement value of \$100 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefore as payment is included in payment for labor. Rental time will not be allowed while equipment is inoperative due to breakdowns.

1. For equipment on Site, rental time to be paid for equipment shall be time equipment is in operation on extra Work being performed or on standby as approved by City of Sausalito. The following shall be used in computing rental time of equipment:
    - a. When hourly rates are listed, less than 30 minutes of operation shall be considered to be ½ hour of operation.
    - b. When daily rates are listed, less than four hours of operation shall be considered to be ½ Day of operation.
  2. For equipment that must be brought to Site to be used exclusively on extra Work, cost of transporting equipment to Site and its return to its original location shall be determined as follows:
    - a. City of Sausalito will pay for costs of loading and unloading equipment.
    - b. Cost of transporting equipment in low bed trailers shall not exceed hourly rates charged by established haulers.
    - c. Cost of transporting equipment shall not exceed applicable minimum established rates of California Department of Transportation.
    - d. City of Sausalito will not make any payment for transporting and loading and unloading equipment if equipment is used on Work in any other way than upon extra Work.
  3. Rental period may begin at time equipment is unloaded at Site of extra Work and terminate at end of the performance of the extra Work or Day on which City of Sausalito directs Contractor to discontinue use of equipment, whichever first occurs. Excluding Saturdays, Sundays, and City of Sausalito's legal holidays, unless equipment is used to perform extra Work on such Days, rental time to be paid per Day shall be four hours for zero hours of operation, six hours for four hours of operation and eight hours for eight hours of operation, time being prorated between these parameters. Hours to be paid for equipment that is operated less than eight hours due to breakdowns, shall not exceed eight less number of hours equipment is inoperative due to breakdowns.
- D. Work Performed by Special Forces or Other Special Services: When City of Sausalito and Contractor, by agreement, determine that special service or item of extra Work cannot be performed by forces of Contractor or those of any Subcontractors, service or extra Work item may be performed by specialist. In those

instances wherein Contractor is required to perform extra Work necessitating a fabrication or machining process in a fabrication or machine shop facility away from Site, charges for that portion of extra Work performed in such facility may, by agreement, be accepted as a specialist billing. City of Sausalito must be notified in advance of all off-Site Work. In lieu of overhead and profit provided in paragraph 1.4B of this Section 01250, 15 percent will be added to specialist invoice price, after deduction of any cash or trade discount offered or available, whether or not such discount may have been taken.

#### 1.6 FORCE-ACCOUNT WORK

- A. If it is impracticable because of nature of Work, or for any other reason, to fix an increase or decrease in price definitely in advance, the Contractor may be directed to proceed at a not-to-exceed (NTE) maximum price which shall not under any circumstances be exceeded. Subject to such limitation, such extra Work shall be paid for at actual necessary cost for Force-Account Work or at the negotiated cost, as determined by City of Sausalito. The cost for Force-Account Work shall be determined pursuant to paragraphs 1.4 and 1.5 of this Section 01250.
- B. Force-Account Work shall be used when it is not possible or practical to price out the changed Work prior to the start of that Work. In these cases, Force-Account Work will be utilized during the pricing and negotiation phase of the change. Once negotiations have been concluded and a bilateral agreement has been reached, the tracking of the Work under Force-Account is no longer necessary. Force-Account Work shall also be used when negotiations between City of Sausalito and Contractor have broken apart and a bilateral agreement on the value of the changed Work cannot be reached. City of Sausalito may approve other uses of Force-Account Work.
- C. Whenever any Force-Account Work is in progress, definite price for which has not been agreed on in advance, Contractor shall report to City of Sausalito each Business Day in writing in detail amount and cost of labor and material used, and any other expense incurred in Force-Account Work on preceding Day, by using the Cost Proposal form attached hereto. No claim for compensation for Force-Account Work will be allowed unless report shall have been made.
- D. Whenever Force-Account Work is in progress, definite price for which has not been agreed on in advance, Contractor shall report to City of Sausalito when 75 percent of the NTE amount has been expended.
- E. Force-Account Work shall be paid as extra Work under this Section 01250. Methods of determining payment for Work and materials provided in this paragraph 1.6 shall not apply to performance of Work or furnishings of material that, in judgment of City of Sausalito, may properly be classified under items for which prices are otherwise established in Contract Documents.

#### 1.7 CITY OF SAUSALITO-FURNISHED MATERIALS

- A. City of Sausalito reserves right to furnish materials as it deems advisable, and Contractor shall have no claims for costs and overhead and profit on such materials.

#### 1.8 OVERHEAD DEFINED

- A. The following constitutes charges that are deemed included in overhead for all Contract Modifications, including Force-Account Work or CCD Work, whether incurred by Contractor, Subcontractors, or suppliers, and Contractor shall not invoice or receive payment for these costs separately:

1. Drawings: field drawings, Shop Drawings, etc., including submissions of drawings
2. Routine field inspection of Work proposed
3. General Superintendence
4. General administration and preparation of cost proposals, schedule analysis, change orders and other supporting documentation as necessary
5. Computer services
6. Reproduction services
7. Salaries of project Architect/Engineer, superintendent, timekeeper, storekeeper and secretaries
8. Janitorial services
9. Temporary on-Site facilities:
  - a. Offices
  - b. Telephones
  - c. Plumbing
  - d. Electrical: Power, lighting
  - e. Platforms
  - f. Fencing, etc.
  - g. Water
  - h. Temporary Sanitary/Toilet Facilities for Campus use during utility interruptions
  - i. Emergency Generators for Campus use during utility interruptions
10. Home office expenses
11. Insurance and Bond premiums
12. Procurement and use of vehicles and fuel used coincidentally in Work otherwise included in the Contract Documents
13. Surveying
14. Estimating
15. Protection of Work
16. Handling and disposal fees
17. Final cleanup
18. Other incidental Work

#### 1.9 RECORDS AND CERTIFICATION

- A. Force-Account (cost reimbursement) charges shall be recorded daily and summarized in Cost Proposal form attached hereto. Contractor or authorized representative shall complete and sign form each day. Contractor shall also provide with the form: the names and classifications of workers and hours worked by each; an itemization of all materials used; a list by size type and identification number of equipment and hours operated; and an indication of all Work performed by specialists.
- B. No payment for Force-Account Work shall be made until Contractor submits original invoices substantiating materials and specialists charges.
- C. City of Sausalito shall have the right to audit all records in possession of Contractor relating to activities covered by Contractor's claims for modification of Contract, including Force-Account Work and CCD Work.
- D. Further, City of Sausalito will have right to audit, inspect, or copy all records maintained in connection with this Contract, including financial records, in possession of Contractor relating to any transaction or activity occurring or arising out of, or by virtue of, the Contract. If Contractor is a joint venture, right of City of Sausalito shall apply collaterally to same extent to records of joint venture sponsor,

and of each individual joint venture member. This right shall be specifically enforceable, and any failure of Contractor to voluntarily comply shall be deemed an irrevocable waiver and release of all claims then pending that were or could have been subject to the Article 12 of Document 00700.

**PART 2 PRODUCTS – NOT USED**

**PART 3 EXECUTION – NOT USED**

**END OF SECTION**

**COST PROPOSAL FORM FOLLOWS ON NEXT PAGE**

**WERNER ASSOCIATES ARCHITECTS**

**SAUSALITO PUBLIC RESTROOMS**

**COST PROPOSAL (CP)**

**PROJECT**  
Contract Number

CP Number: \_\_\_\_\_  
Date: \_\_\_\_\_  
In Response To: (RFP#, etc.) \_\_\_\_\_

To: **The City of Sausalito**  
Attention: [Point of Contact]  
[Insert POC address]  
Telephone: (415) [\_\_\_\_\_] Fax: (415) [\_\_\_\_\_]

From: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

REQUESTED CHANGE IN CONTRACT TIME (DAYS) \_\_\_\_\_

Brief description of change(s): \_\_\_\_\_

LINE	COST DESCRIPTION LIST CONTRACTOR BUSINESS NAME→	PRIME CONTR.	SUB 1 1 <sup>ST</sup> TIER	SUB 2 1 <sup>ST</sup> TIER	SUB 3 1 <sup>ST</sup> TIER	SUB 4 LOWER TIER	SUB-TOTAL ALL ROWS	
<b>1</b>	<b>LABOR</b>							
2	Taxes							
3	Overhead & Profit 15% (to Contractor or 1 <sup>st</sup> Tier Subs)							
4	Lower Tier Subs Markup 10% (divided between Contractor, 1 <sup>st</sup> Tier Subs and Lower Tier Subs)							
5	<i>SUBTOTAL LABOR excluding Taxes (ADD LINES 1,3,4 FOR EACH COLUMN)</i>						SUBTOTAL LABOR <b>A</b>	
<b>6</b>	<b>MATERIAL</b>							
7	Taxes							
8	Overhead & Profit 15% (to Contractor or 1 <sup>st</sup> Tier Subs)							
9	Lower Tier Subs Markup 10% (divided between Contractor, 1 <sup>st</sup> Tier Subs and Lower Tier Subs)							
10	<i>SUBTOTAL MATERIAL excluding Taxes (ADD LINES 6,8,9 FOR EACH COLUMN)</i>						SUBTOTAL MAT. <b>B</b>	
<b>11</b>	<b>EQUIPMENT</b>							
12	Taxes							
13	Overhead & Profit 10% (to Contractor and 1 <sup>st</sup> Tier Subs)							
14	Lower Tier Subs Markup 10% (divided between Contractor, 1 <sup>st</sup> Tier Subs and Lower Tier Subs)							
15	<i>SUBTOTAL EQUIPMENT excluding Taxes (ADD LINES 11,13,14 FOR EACH COLUMN)</i>						SUBTOTAL EQUIP. <b>C</b>	
<b>16</b>	<b>SPECIALIST WORK</b>							
17	Taxes							
18	Cash or trade discount							
19	Subtotal (Subtract Line 18 from Line 16)							
20	Total Markup 15% (divided between Contractor, 1 <sup>st</sup> Tier Subs and Lower Tier Subs)							
21	<i>SUBTOTAL SPECIALIST WORK excluding Taxes (ADD LINES 19,20 FOR EACH COLUMN)</i>						SUBTOTAL SPEC. <b>D</b>	
22	SUBTOTAL COSTS EXCLUDING MARKUP (ADD LINES 1,6,11,19 FOR EACH COLUMN)							
23	<b>Total Contractor Markup</b> for Subcontractor's Work 5% (MULTIPLY LINE 22 X 0.05)						SUBTOTAL O&P ON SUBS WORK <b>E</b>	
24	<b>Total Costs</b> (ADD LINES 5,10,15,21)						ADD CELLS A+B+C+D+E AND ENTER GRAND TOTAL BELOW	
25	<b>Total Taxes</b> (ADD LINES 2,7,12,17)							
26	<b>TOTAL EXPENSES (ADD LINES 23,24, 25)</b>	<b>T</b>	<b>U</b>	<b>V</b>	<b>X</b>	<b>Y</b>	<b>F</b>	
27	<b>GRAND TOTAL (ADD CELLS T,U,V,X,Y)</b>	<b>Z</b>						<b>TOTALS IN CELL F AND CELL Z MUST MATCH.</b>
28	Double check % of Markup on Total Cost above. [Equation: 1- line 22/line 26) = Answer must be ≤ 0.20]							
<b>Print Name &amp; Title:</b>		<b>Signature:</b>				<b>Date:</b>		

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**SECTION 01300****ADMINISTRATIVE REQUIREMENTS**

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**PART 1 - GENERAL****1.1 SUMMARY**

- A. This section describes general procedural requirements for ongoing submittals.
  - 1. Construction progress schedules.
  - 2. Schedule of values.
  - 3. Shop drawings.
  - 4. Product data.
  - 5. Samples.
  - 6. Manufacturers' certificates.
  - 7. Design/build procedures.
  
- B. Related Requirements:
  - 1. Section 01400: Test reports, manufacturer's field reports, and mock-ups.
  - 2. Section 01630: Product substitution request procedures.
  - 3. Section 01700: Manufacturers' instructions.
  - 4. Section 01770: Closeout requirements including Project Record Documents.
  - 5. Section 01780: Warranties.

**1.2 PROCEDURES**

- A. Submittals: Transmit each item under form furnished by or acceptable to Architect; where Contractor proposes to use customized submittal transmittal form or no form is furnished, submit sample to Owner and Architect for approval prior to use.
  - 1. Electronic Submittals: What would normally be paper submittals may be submitted in electronic PDF format where format is approved by Architect in advance.
  - 2. Identify Project, Contractor, subcontractor, major supplier.
    - a. Date and attach sequential identification number for each new submittal.
    - b. Identify each resubmittal using original submittal number and sequential identification clearly indicating item is resubmitted.
  - 3. Identify pertinent Drawing sheet and detail number, and Specification section number as appropriate.
  - 4. Identify deviations from Contract Documents.
  - 5. Provide space for Contractor and Architect review stamps.

6. Contractor: Review and stamp submittals from subcontractors prior to submitting to Architect.
  - a. Review submittals and indicate where conflicts occur with Contract Documents and with work of other subcontractors.
  - b. Return submittals that vary significantly from Contract Documents for correction and resubmittal prior to submitting to Architect.
  - c. Submittals that vary significantly from Contract Documents and that fail to indicate thorough Contractor review prior to submission to Architect will be returned without review.
  - d. Cursory review and stamping of subcontractor submittal by Contractor shall not be acceptable.
- B. Initial Schedules: Submit initial progress schedule and schedule of value in duplicate within 10 working days after award of Contract.
  1. After review by Owner and Architect revise and resubmit where required.
- C. Comply with progress schedule for submittals related to Work progress. Coordinate submittal of related items.
- D. After Architect review of submittal, revise and resubmit as required, identify changes made since previous submittal.
- E. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply.

### 1.3 TYPES OF SUBMITTALS

- A. General: Project requires various types of submittals to maintain communications, minimize misunderstandings, avoid unnecessary conflicts, and to ensure complete documentation for Project Record Documents.
  1. Maintain complete set of submittals including required revisions.
- B. Construction Schedules: Submit construction progress schedules for Design Team and Owner review and to maintain entire team up-to-date on construction activities.
- C. Schedule of Values: Submit Schedule of Values indicating division of Work, subcontractors to perform work, products being used, and values attributed to each to inform Design Team and Owner.
- D. Action Submittals: Submittals relating to product data and manufacturer's literature, shop drawings, and samples for Design Team review and comment; do not begin fabrication, delivery, or installation until Design Team review is complete.



- E. Information Submittals: Submittals relating to certifications, qualifications, reports, including test reports, and instructions are for information; Design Team may choose to comment but action is not generally anticipated.
  - 1. Manufacturer installation instructions and recommendations shall be considered information submittals.
- F. Design/Build Submittals: Where portion of Work requires design by specialized professionals submit information necessary to ensure work complies with Contract Documents along with certifications signed by qualified professional.
  - 1. Calculations: Do not submit calculations unless specifically required by Contract Documents; submit calculations required by applicable authorities directly to applicable authorities;
    - a. Submit certification by qualified professional indicating required calculations have been prepared and work conforms to Contract Documents and applicable codes and regulations.
- G. Maintenance Materials Submittals: Compile maintenance information and materials during Work to ensure complete set of documents, maintenance manuals, and operation instructions.
  - 1. Excess materials shall be considered property of Owner; inform Owner of extent of excess materials and methods required for handling and storage; remove from site excess materials not required by Owner for maintenance stock.
- H. Closeout Submittals: Compile closeout submittals, organize, and submit to Owner prior to or at time of Substantial Completion. Project will not be considered Substantially Complete until closeout submittals have been received by Owner.

#### 1.4 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit construction progress schedule with separate item for each major trade and operation, identifying first day of each week.
  - 1. Show complete sequence of construction by activity, identifying work of separate stages and logically grouped activities.
  - 2. Show projected percentage of completion for each item of Work as of time of each progress Application for Payment.
  - 3. "Submittal Schedule": Show Contractor submittal dates required for shop drawings, product data, and samples, and product delivery dates; deliver to Architect per approved "Submittal Schedule."
    - a. "Submittal Schedule" may be incorporated into construction progress schedule or may be separate, Contractor option.
    - b. Architect's Review Period: Architect will be expedient in review, however, Contractor shall schedule submittals recognizing possibility Architect may reject and may require resubmittal.
    - c. Contract extension shall not be allowed for Contractor's failure to properly schedule submittals to allow for Architect requiring resubmittal.

- B. Progress Schedule Format: Horizontal bar chart as approved.
  - 1. Contractor Option: Submit network analysis system using critical path method as approved by Owner and Architect in addition to a standard horizontal bar chart.
  - 2. Submit revised progress schedules with each Application for Payment reflecting changes since previous submittal, not less than monthly.

#### 1.5 SCHEDULE OF VALUES

- A. Submit typed schedule on AIA Form G703 or another Owner and Architect pre-approved 8-1/2" by 11" paper format; Contractor's standard media-driven printout will be considered on request. Submit within 10 days after award of Contract.
- B. Format: Table of Contents of this Project Manual, with modifications as pre-approved by Owner and Architect; identify each line item with number and title of major Specification sections.
- C. Include in each line item a directly proportional amount of Contractor overhead and profit.
- D. Revise schedule to list change orders for each Application for Payment.

#### 1.6 PRODUCT DATA/MANUFACTURERS' LITERATURE

- A. Mark each copy to identify applicable Products, models, options, and other data; supplement manufacturers' standard data to provide information unique to the Work.
- B. Include manufacturers' installation instructions only when required by Specifications or specifically requested by Architect.
  - 1. Maintain copy of manufacturer installation instructions and recommendations in Contractor's field office for review.
- C. Submit number of copies Contractor requires, plus one copy to be retained by Architect.

#### 1.7 SHOP DRAWINGS

- A. Shop drawings shall be submitted in reproducible format acceptable to Architect and Owner; computerized PDF files will be acceptable unless otherwise directed.
  - 1. Prints: Submit one reproducible print; minimum sheet size 8-1/2" by 11".
- B. Distribution: After review, reproduce and distribute.

#### 1.8 SAMPLES

- A. Submit full range of manufacturers' standard colors, textures, and patterns for Architect's selection.
- B. Submit samples to illustrate functional characteristics of Product, with integral parts and attachment devices.
- C. Coordinate submittal of different categories for interfacing work.

- D. Include identification on each sample, giving full information.
- E. Submit number of samples required by Contractor plus one to be retained by Architect.
  - 1. Maintain one set of approved samples at Project Field Office.
- F. Sizes: Provide following sizes unless otherwise specified.
  - 1. Flat or Sheet Products: Minimum 6" square, maximum 12" by 12".
  - 2. Linear Products: Minimum 6", maximum 12" long.
  - 3. Bulk Products: Minimum one pint, maximum one gallon.
- G. Full size samples may be used in the Work upon approval.

#### 1.9 MANUFACTURERS' CERTIFICATES

- A. Submit certificates, in duplicate in accordance with requirements of each Specification section.

#### 1.10 DESIGN/BUILD PROCEDURES

- A. Design as Part of Means and Methods of Construction: Select Project components require construction team design as part of means and methods of construction as described in various sections.
  - 1. Contractor may be required to provide design services as part of construction for specific work defined as design or design-build where special expertise is required that is not available in the Project design team.
  - 2. Subcontractors, fabricators, and manufacturers may be required to provide design services as part of their portion of Work due to special expertise in design services for their specific components.
  - 3. Contractor, subcontractors, fabricators, manufacturers, and suppliers, shall be responsible for attachments, anchors, fasteners, adhesives, and connectors suitable to applications unless specific items are listed in Contract Documents.
    - a. Where specific items are listed in Contract Documents Contractor, subcontractors, fabricators, manufacturers, and suppliers shall review and submit comments where items listed are not acceptable.
    - b. Where no comments are received listed items shall be considered acceptable.
- B. Contractor acknowledges and accepts responsibility for specialty design as part of means and methods of construction, as well as coordination of parties involved to achieve architectural design intent indicated in Contract Documents.
  - 1. Design-build work includes sizing, sequencing, and detailing for construction by professional licensed or registered engineer or design professional with special expertise applicable to portion of Work involved.
  - 2. Design-build work shall be constructed in compliance with building codes and regulations in effect and shall be fit and proper for intended use.

3. Design-build work shall include drawings, specifications, and calculations prepared, stamped, and signed by qualified professional licensed or registered engineer licensed in the Project location as appropriate to design-build work.
  - c. Plans, specifications, and calculations shall be acceptable to Owner, Owner's Representative, and applicable authorities.
- C. Where required by Owner Contractor shall submit copies of current insurance policies covering errors and omissions of persons designing design-build work with deductibles and limits per occurrence as mutually agreed by Owner and Contractor.
  1. Provide endorsement to insurance providing for 30 days notice to Owner prior to cancellation or material reduction in coverage.
  2. Insurance shall be maintained for not less than applicable statute of limitations for claims of latent defects, if such insurance is not written on an occurrence basis during time design-build work is designed and constructed.
- D. Review proposed layouts with Design Team and with various trades prior to commencing work related to design-build work.

**END OF SECTION**

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**SECTION 01310**

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**PROJECT MANAGEMENT AND COORDINATION**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Description of Project management and coordination including but not necessarily limited to the following:
  - 1. General Project coordination procedures.
  - 2. Staff names.
  - 3. Administrative and supervisory personnel.
  - 4. Project meetings.
- B. Related Sections:
  - 1. Section 01200: Measurement & Payment
  - 2. Section 01250: Modification Procedures
  - 3. Section 01300: Administrative requirements.

## 1.2 COORDINATION

- A. Coordination: Coordinate construction operations included in various Specifications sections to ensure efficient and orderly installation of each part of Work.
  - 1. Coordinate construction operations that depend on each other for proper installation, connection, and operation.
  - 2. Coordinate work to assure efficient and orderly sequence of installation of construction elements.
  - 3. Make provisions for accommodating items installed by Owner or under separate contracts.
- B. Prepare memoranda for distribution to each party involved as needed, outlining special procedures required for coordination.
  - 1. Include required notices, reports, and list of attendees at meetings; include Architect and Owner in distribution.
- C. Verify characteristics of interrelated operating equipment are compatible; coordinate work having interdependent responsibilities for installing, connection to, and placing such equipment in service.
- D. Coordinate space requirements and installation of mechanical and electrical work indicated diagrammatically on Drawings.
  - 1. Follow routing shown for pipes, ducts, and conduits as closely as possible; make runs parallel with lines of building.
  - 2. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

- E. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated; coordinate locations of fixtures and outlets with finish elements.
- F. Administrative Procedures: Coordinate scheduling and timing of administrative procedures with other construction activities and activities of other contractors to avoid conflicts and ensure orderly progress of Work.

### 1.3 SUBMITTALS

- A. Staff Names: Immediately after receipt of notice to proceed or immediately after signing of Contract by Owner and Contractor, submit list of principal staff assignments, including superintendent and other personnel in attendance at Project site.
  - 1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone.

### 1.4 SUPERVISORY AND ADMINISTRATIVE PERSONNEL

- A. Provide supervisory personnel, in addition to Project Superintendent, as required for proper and timely performance of Work and coordination of subcontracts.
- B. Provide administrative staff as required to allow Project Superintendent and supervisory personnel to allocate maximum time to Project supervision and coordination.

### 1.5 PROJECT MEETINGS

- A. Schedule and administer Project meetings throughout progress of Work:
  - 1. Pre-construction meeting.
  - 2. Progress meetings at weekly intervals.
  - 3. Pre-installation conferences.
  - 4. Coordination meetings.
  - 5. Special meetings.
- B. Make physical arrangements for meetings and assist Owner in preparing agenda.
- C. Owner's Representative shall preside at meetings, record minutes and distribute copies within two days to Architect, Owner, Contractor, participants, and those affected.
- D. Attendance: Job superintendent, major subcontractors and suppliers as appropriate to agenda; Architect, Owner, and Owner and Architect's consultants as appropriate to agenda topics for each meeting.
- E. Suggested Agenda: Review of Work progress, status of progress schedule and adjustments, delivery schedules, submittals, requests for information, maintenance of quality standards, pending changes and substitutions, and issues needing resolution.

END OF SECTION

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**SECTION 01400****QUALITY REQUIREMENTS**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. This section describes general quality control requirements.
  - 1. General quality control.
  - 2. Manufacturers' field services.
  - 3. Mock-ups.
  - 4. Independent testing laboratory services.
- B. Related Requirements:
  - 1. Refer to applicable codes and Specifications sections for test requirements.

## 1.2 QUALITY CONTROL, GENERAL

- A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

## 1.3 MANUFACTURER'S FIELD SERVICES

- A. When specified in respective Specification sections, require manufacturer or supplier to have qualified personnel provide on-site observations and recommendations.
  - 1. Observe field conditions, including conditions of surfaces and installation.
  - 2. Observe quality of workmanship.
  - 3. Provide recommendations to assure acceptable installation and workmanship.
  - 4. Where required, start, test, and adjust equipment as applicable.
- B. Representative shall submit written report to Architect listing observations and recommendations.

## 1.4 MOCK-UPS

- A. Erect field samples and field mock-ups at locations on site as approved in advance and in accordance with requirements where included in Specifications section.
  - 1. Test mock-ups requiring special equipment may be erected at location having access to necessary equipment; coordinate with Architect.
- B. Field samples and mock-ups not approved and not capable of being acceptably revised shall be removed from site.
- C. Approved field samples and mock-ups may be used as part of Project.

**1.5 TESTING LABORATORY SERVICES**

- A. An independent testing laboratory shall perform inspections, tests, and other services required by applicable codes and various Specification sections.
  - 1. Owner or Architect may also require independent testing of items where doubts exists that product or system does not conform to Contract Documents.
  - 2. Owner will employ and pay for testing laboratory to provide Project specific testing under applicable codes and Specification sections except where indicated otherwise.
    - a. Owner employment of testing laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of applicable codes and Contract Documents.
      - 1) Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
    - b. Retesting required because of non-conformance to specified requirements shall be performed by Owner's testing laboratory.
      - 1) Payment for retesting shall be charged to Contractor by deducting inspection and testing charges from Contract amount.
      - 2) Contractor Option: Pay Owner's testing laboratory directly for costs of retesting where acceptable to Owner and testing laboratory.
    - c. Owner provided testing shall be limited to Project specific testing and shall not include general tests or approvals of materials, equipment or systems.
- B. Services shall be performed in accordance with requirements of governing authorities and with specified standards.
- C. Reports will be submitted to Architect in duplicate giving observations and results of tests, indicating compliance or non-compliance with specified standards and with Contract Documents.
  - 1. Where required, testing laboratory will submit copy of test results directly to enforcing agency.
- D. Contractor shall cooperate with testing laboratory personnel; furnish tools, samples of materials, design mix, equipment, storage and assistance as requested.
  - 1. Notify Owner, Architect and testing laboratory sufficiently in advance of expected time for operations requiring testing services.

**END OF SECTION**



## 01420 - REFERENCES

### PART 1 - GENERAL

#### 1.1 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. 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. "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.

#### 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. Copies of Standards: Each entity engaged in construction on Project should 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.

- D. 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.

### 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 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
AATCC	American Association of Textile Chemists and Colorists (The)
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
ADAAG	Americans with Disabilities Act (ADA) Accessibility Guidelines
AEIC	Association of Edison Illuminating Companies, Inc. (The)
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 (Now part of CPA)
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
ALCA	Associated Landscape Contractors of America
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts
APA	APA - The Engineered Wood Association
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers 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	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industries International)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
CCFSS	Center for Cold-Formed Steel Structures

CDA	Copper Development Association Inc.
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CPA	Composite Panel 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)
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA	Electronic Industries Alliance
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
FCI	Fluid Controls Institute
FM	Factory Mutual System (See FMG)
FMG	FM Global (Formerly: FM - Factory Mutual System)
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	Geosynthetic Research Institute (See GSI)
GS	Green Seal
GSI	Geosynthetic Institute
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)
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
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
IGMA	Insulating Glass Manufacturers Alliance (The)
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association

LMA	Laminating Materials Association
LPI	Lightning Protection Institute
MFMA	Maple Flooring Manufacturers Association
MFMA	Metal Framing Manufacturers Association
MH	Material Handling Industry of America (See MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAIMA	North American Insulation Manufacturers Association (The)
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications 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	NFPA
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
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc.
NTRMA	National Tile Roofing Manufacturers Association (See RTI)
OPL	Omega Point Laboratories, Inc.
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
SAE	SAE International
SDI	Steel Deck Institute
SDI	Steel Door Institute
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (See IGMA)
SJI	Steel Joist Institute

SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SPIB	Southern Pine Inspection Bureau (The)
SPI/SPFD	Society of the Plastics Industry, Inc. (The) Spray Polyurethane Foam Division (See SPFA)
SPRI	SPRI (Single Ply Roofing Institute)
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USGBC	U.S. Green Building Council
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WI	Woodwork Institute (Formerly WIC - Woodwork Institute of California)
WSRCA	Western States Roofing Contractors Association
WWPA	Western Wood Products Association

B. 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.

IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials (See ICC)
ICBO ES	ICBO Evaluation Service, Inc. (See ICC-ES)
ICC	International Code Council (Formerly: CABO - Council of American Building Officials)
ICC-ES	ICC Evaluation Service, Inc.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

**END OF SECTION**

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**SECTION 01500****TEMPORARY FACILITIES AND CONTROLS**

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**PART 1 - GENERAL****1.1 SUMMARY**

- A. This section describes temporary construction facilities and temporary controls.
  - 1. Electricity and lighting.
  - 2. Heat and ventilation.
  - 3. Water and sanitary facilities.
  - 4. Construction aids.
  - 5. Temporary enclosures.
  - 6. Barriers.
  - 7. Cleaning during construction.
  - 8. Project identification.
  - 9. Field telephone service.
  - 10. Field storage.
  - 11. Site waste management.
- B. Related Requirements:
  - 1. Section 01700: Progress cleaning and final cleaning.
- C. Provide temporary construction facilities and temporary controls as required to conform to applicable authorities and as required to complete Project in accordance with Contract Documents.
  - 1. Authorities: Contact governing authorities to establish extent of temporary facilities and temporary controls required by authorities.

**1.2 ELECTRICITY AND LIGHTING**

- A. Provide electrical service required for construction operations, with branch wiring and distribution boxes located to allow service and lighting by means of construction-type power cords.
- B. Provide lighting for construction operations.
  - 1. Permanent lighting may be used during construction; maintain lighting and make routine repairs.

**1.3 HEAT AND VENTILATION**

- A. Provide heat and ventilation as required to maintain specified conditions for construction operation, to protect materials and finishes from damage due to temperature and humidity.

**1.4 WATER AND SANITARY FACILITIES**

- A. Provide water service required for construction operations; extend branch piping with outlets located so water is available by use of hoses.
- B. Provide and maintain required sanitary facilities and enclosures.

**1.5 CONSTRUCTION AIDS**

- A. Noise, Dust and Pollution Control: Provide materials and equipment necessary to comply with local requirements for noise, dust and pollution control.
- B. Fire Protection: Maintain on-site fire protection facilities as required by applicable authorities and insurance requirements.
- C. Dewatering: Provide and operate drainage and pumping equipment; maintain excavations and site free of standing water.

**1.6 ENCLOSURES**

- A. Temporary Closures: Provide temporary weather-tight closures for exterior openings for acceptable working conditions, for protection for materials, to protect interior materials from dampness, for temporary heating, and to prevent unauthorized entry.
  - 1. Provide doors with self-closing hardware and locks.

**1.7 BARRIERS**

- A. Barriers: Provide barriers as required to prevent public entry to construction areas and to protect adjacent properties from damage from construction operations.
  - 1. Fence: Provide minimum 8 foot high commercial grade chain link or painted solid wood fence around construction site; equip with gates with locks.
- B. Barricades: Provide barricades as required by governing authorities.

**1.8 CLEANING DURING CONSTRUCTION**

- A. Control accumulation of waste materials and rubbish; recycle or dispose of off-site.
- B. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

**1.9 PROJECT IDENTIFICATION**

- A. Project Sign: Provide minimum 32 square foot Project identification sign of wood frame and exterior grade plywood construction, painted, with exhibit lettering by professional sign painter.
  - 1. Design: As furnished by Architect.
  - 2. Submit to Owner and Architect additional names or changes proposed to Project sign for prior written approval.
  - 3. Erect on site at location established by Architect.
- B. Other Signs: Subject to approval of Architect and Owner.

### 1.10 FIELD TELEPHONE SERVICE

- A. Cellular Telephone Service: Provide each on-site Project Manager with cellular telephone to allow Owner and Architect on-site contact at all times during construction operations.
  - 1. Schedules: Submit schedules of on-site Project Managers with individual cellular telephone numbers to Owner and Architect; maintain schedules and cell phone numbers up-to-date during Project on-site operations.

### 1.11 FIELD STORAGE

- A. Storage for Tools, Materials, and Equipment: Limit on-site storage to Project area; provide weather-tight storage, with heat and ventilation for products requiring controlled conditions.
  - 1. Maintain adequate space for organized storage and access.
  - 2. Provide lighting for inspection of stored materials.

### 1.2 SITE WASTE MANAGEMENT

- A. Site Waste Management: Comply with applicable regulations for diverting Project waste from landfill; aim for waste management goal of 50% or higher.
  - 1. Effect optimum control of solid wastes.
  - 2. Prevent environmental pollution and damage.
- B. Reports: Provide as required by applicable authorities.
- C. Recycling: Implement recycling program that includes separate collection of waste materials of types as applicable to Project; recycling program to be applied by Contractors and subcontractors.
- D. Handling: Keep materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.
  - 1. Clean materials contaminated prior to placing in collection containers.
  - 2. Arrange for collection by or delivery to appropriate recycling center or transfer station that accepts construction and demolition waste for purpose of recycling.
- E. Participate in Re-Use Programs: Rebates, tax credits, and other savings obtained for recycled or re-used materials shall accrue to Contractor.

### 1.3 REMOVAL

- A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion Inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities.
- C. Restore existing facilities used during construction to specified or original condition.

**END OF SECTION**



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**SECTION 01600****PRODUCT REQUIREMENTS**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. This section describes basic product requirements governing material and equipment.
  - 1. General product requirements.
  - 2. Product list.
  - 3. Quality assurance.
  - 4. Delivery, storage, and handling.
- B. Related Requirements:
  - 1. Section 01300: Submittal of manufacturers' certificates.
  - 2. Section 01630: Product substitution procedures.
  - 3. Section 01770: Operation and maintenance data.

## 1.2 GENERAL PRODUCTS REQUIREMENTS

- A. Products include material, equipment, and systems.
- B. Comply with Specifications, referenced standards, and applicable codes and regulations as minimum requirements.
- C. Provide new materials except as specifically allowed by Contract Documents.
- D. Materials to be supplied in quantity within a Specification section shall be by one manufacturer, shall be the same, and shall be interchangeable.
- E. Provide equipment and systems composed of materials from a single manufacturer except where otherwise recommended by equipment or systems manufacturer or where otherwise indicated in Contract Documents.

## 1.3 SUBMITTALS

- A. Product List: Within 35 days after award of Contract, submit to Owner and Architect a complete list of major products proposed for installation, with name of manufacturer, trade name, and model.
  - 1. Tabulate products by Specification number and title.
- B. Substitutions: Refer to Section 01630 - Product Substitution Procedures.

## 1.4 QUALITY ASSURANCE

- A. Comply with industry standards and applicable codes except when more restrictive tolerances or requirements indicate more rigid standards or precise workmanship.

- B. Perform work by persons qualified to produce workmanship of specified quality.
- C. Install products straight, true-to-line, and in correct relationship to adjacent materials, with hairline joints, free of rough, sharp and potentially hazardous edges.
- D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
  - 1. Seismic Anchors: Conform to code requirements.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Transport products by methods to avoid product damage, deliver in undamaged condition in manufacturer's unopened containers or packaging.
- B. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.
- C. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- D. For exterior storage of fabricated products, place on sloped supports above ground.
- E. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- F. Arrange storage to provide access for inspection; periodically inspect to assure products are undamaged and are maintained under required conditions.
- G. Provide equipment and personnel to handle products by methods to prevent soiling and prevent damage.
- H. Promptly inspect shipments to assure products comply with requirements, quantities are correct, and products are undamaged.
- I. Immediately remove from Project products damaged, wet, stained, and products with mold and products with mildew.
  - 1. Take special care to prevent absorbent products such as gypsum board and acoustical ceiling units from becoming wet.

**END OF SECTION**

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**SECTION 01630****PRODUCT SUBSTITUTION PROCEDURES**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Provide products listed in Contract Documents, products by manufacturers listed in Contract Documents, and products meeting specified requirements.
  - 1. Contract Amount: Base on materials and products included in Contract Documents.
    - a. Where listed in Contract Documents, materials and products by manufacturers not listed shall not be used without Owner's and Architect's approval of Contractor's written request for substitution.
  - 2. Purpose: After bidding, substitutions will only be considered where Owner will receive benefit or because specified materials are no longer available due to no fault of Contractor.
    - a. Owner benefits either from a Contractor proposed reduction of the Contract amount or from a reduction in Contract time based on acceptance of proposed substitution.
    - b. List proposed cost or time reductions on request for substitution.
    - c. Requests not including a proposed cost or time reduction will not be considered unless Contractor submits supporting information indicating specified materials are not available.
- B. Procedures are described for requesting substitution of unlisted materials in lieu of materials named in Specifications or approved for use in addenda.

## 1.2 CONTRACTOR'S OPTIONS

- A. Products Identified by Reference Standards: Select product meeting referenced standard for products specified only by reference standard.
- B. Named Manufacturers and Named Products: Select products of any named manufacturer meeting Specifications for products specified by naming one or more products or manufacturers.
- C. Substitutions for Named Manufacturers and Named Products: Submit request for substitution for products and for manufacturers not specifically named where products or manufacturers are named in Specifications.
- D. "Or Equal" Clauses: Submit request for substitution for product or manufacturer not specifically named in Specifications where terms "or equal", "or approved equal", or similar references are made.

## 1.3 SUBSTITUTIONS

- A. Within a period of 35 days after award of Contract, Owner and Architect will consider formal requests for substitutions only from Contractor as specified in 1.1 Summary.
  - 1. Owner and Architect will consider only one request for substitution for each material; where requests are denied Contractor shall be required to provide specified materials.
  - 2. After initial 35 day period, requests will be considered only when a product becomes unavailable through no fault of Contractor; more than one request for substitution will be considered if necessary.
- B. Submit each request with sequentially numbered "Substitution Request Transmittal" acceptable to Owner and Architect; submit separate request for each product and support each request with:
  - 1. Product identification with manufacturer's literature and samples where applicable.
  - 2. Name and address of similar projects on which product has been used, and date of installation.
- C. Submit itemized comparison of proposed substitution with product specified and list significant variations.
- D. Submit data relating to changes in construction schedule.
- E. Note effect of substitution on other work, products, or separate contracts.
  - 1. Note if acceptance of substitution could require revision of Contract Documents, Drawings, details or Specifications.
- F. Include accurate cost data comparing proposed substitution with product and amount of net change in Contract price.
  - 1. Include costs to other contractors and costs for revisions to Drawings, details or Specifications.
- G. Substitutions will not be considered for acceptance when:
  - 1. They are indicated or implied on submittals without a formal request from Contractor.
  - 2. They are requested directly by a subcontractor or supplier.
  - 3. Acceptance will require substantial revision of Contract Documents.
- H. Substitute products shall not be ordered without written acceptance of Owner and Architect.
- I. Owner and Architect will determine acceptability of proposed substitutions and reserves right to reject proposals due to insufficient information.

**1.4 CONTRACTOR'S REPRESENTATION**

- A. Requests constitute a representation that Contractor:
  - 1. Has investigated proposed product and determined it meets or exceeds, in all respects, specified product.
  - 2. Will provide same warranty or longer warranty for substitution as for specified product.
  - 3. Will coordinate installation and make other changes that may be required for Work to be complete in all respects.
  - 4. Waives claims for additional costs that subsequently become apparent.
  - 5. Will pay costs of changes to Contract Documents, Drawings, details and Specifications required by accepted substitutions.

**1.5 ARCHITECT'S DUTIES**

- A. Review Contractor's requests for substitutions with reasonable promptness.
  - 1. Architect will recommend that Owner accept or reject substitution request.
  - 2. Upon request, Architect will provide cost for changes to Contract Documents, Drawings, details and Specifications required for substitutions.
- B. Notify Contractor in writing of decision to accept or reject requested substitution.

**END OF SECTION**

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**SECTION 01700****EXECUTION REQUIREMENTS**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

A. This section describes execution requirements.

1. Installer qualifications.
2. Examination.
3. Manufacturer's instructions.
4. Installation.
5. Cleaning.
6. Protection.

B. Related Requirements:

1. Section 01500: Cleaning during construction.
2. Section 01770: Closeout procedures.

## 1.2 INSTALLER QUALIFICATIONS

A. Experienced Installers: Installers to have minimum five years successful experience installing items similar to those required for Project, except for individuals in training under direct supervision of experienced installer.

## 1.3 EXAMINATION

A. Acceptance of Conditions: Beginning installation of a product signifies installer has examined substrates, areas, and conditions for compliance with manufacturer requirements for tolerances and other conditions affecting performance.

B. Field Measurements: Take field measurements as required to fit Work properly; recheck measurements prior to installing each product.

1. Where portions of Work are to fit to other construction verify dimensions of other construction by field measurements before fabrication; allow for cutting and patching in order to avoid delaying Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

## 1.4 MANUFACTURERS' INSTRUCTIONS

A. Manufacturer's Recommendations: When work is specified to comply with manufacturers' recommendations or instructions, distribute copies to persons involved and maintain one set in field office.

1. Conform to requirements specified in Section 01300 for submittal of recommendations or instructions to Architect; submit to Architect only where specified or where specifically requested.

- B. Perform work in accordance with details of recommendations and instructions and specified requirements.
  - 1. Should a conflict exist between Specifications and recommendations or instructions consult with Architect.
- C. Where manufacturer's information notes special recommendations in addition to installation instructions, comply with both recommendations and instructions.

### 1.5 INSTALLATION

- A. Pre-Installation Meetings: Installers and suppliers are to attend pre-installation meetings scheduled by Contractor.
- B. Comply with manufacturers written recommendations and installation instructions unless more restrictive requirements are specified.
- C. Locate Work and components accurately, in correct alignment and elevation.
  - 1. Make vertical work plumb and horizontal work level.
  - 2. Install components to allow space for maintenance and ease of removal for replacement.
- D. Install products at time and under conditions to ensure best possible results; maintain conditions required for product performance until Substantial Completion.
- E. Conduct operations so no part of Work is subject to damaging operations or loading in excess of that expected during normal conditions.
- F. Securely anchor permanent construction in place, accurately located and aligned with other portions of Work.
- G. Allow for building movement including thermal expansion and contraction.
- H. Make joints of uniform width; arrange joints as indicated, for best visual effect where not otherwise indicated; fit exposed connections together to form hairline joints except where otherwise indicated.

### 1.6 CLEANING

- A. Cleaning During Construction: Specified in Section 01500 - Temporary Facilities and Controls.
- B. Progress Cleaning: Keep installed areas clean using cleaning materials specifically recommended by manufacturers of product being cleaned; where not otherwise recommended use nontoxic materials that will not damage surfaces.
  - 1. Remove debris from concealed spaces before enclosing space.
  - 2. Supervise construction operations to assure no part of construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

- C. Final Cleaning: Execute final cleaning at Substantial Completion.
  - 1. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces.
  - 2. Clean equipment and fixtures to a sanitary condition.
  - 3. Clean site; sweep paved areas.
  - 4. Remove waste, surplus materials and rubbish from Project and site; recycle to maximum extent feasible.

#### 1.7 PROTECTION

- A. Protect products subject to deterioration with impervious cover. Provide ventilation to avoid condensation and trapping water.
- B. Take care to use protective covering and blocking materials that do not soil, stain, or damage materials being protected.
- C. After installation, provide coverings to protect products from damage from traffic and construction operations, remove when no longer needed.
- D. Protect interior materials from water damage; immediately remove wet materials from site to prevent growth of mold and mildew on site.

**END OF SECTION**



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**SECTION 01730****CUTTING AND PATCHING**

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**PART 1 - GENERAL****1.1 SUMMARY**

- A. Contractor shall be responsible for cutting, fitting and patching required to complete Work and to:
1. Make its parts fit together properly.
  2. Uncover work to provide for installation of ill-timed work.
  3. Remove and replace defective work.
  4. Remove and replace work not conforming to Contract Documents.
  5. Remove samples of installed work as required for testing.
  6. Provide routine penetrations of non-structural surfaces for installation of piping.
  7. Provide routine penetrations of non-structural surfaces for installation of conduit.
- B. Related Requirements:
1. Section 01500: Temporary facilities and controls.

**1.2 SUBMITTALS**

- A. Submit a written request to Architect well in advance of executing cutting or alteration which affects:
1. Work of Owner or separate contractor.
  2. Structural value or integrity of any element of Project.
  3. Integrity of weather-exposed or moisture-resistant elements.
  4. Efficiency, operational life, maintenance or safety of operational elements.
  5. Visual qualities of sight-exposed elements.
- B. Request shall include:
1. Identification of Project and description of affected work.
  2. Necessity for cutting or alteration.
  3. Effect on work of Owner or separate contractor.
  4. Effect on structural integrity, or weatherproof integrity of Project.
  5. Alternatives to cutting and patching.
  6. Cost proposal, when applicable.
  7. Written permission of separate contractor whose work will be affected.
  8. Description of proposed work including:
    - a. Scope of cutting, patching, alteration, or excavation.
    - b. Products proposed to be used.
    - c. Extent of refinishing to be included.
- C. Should conditions of Work or schedule indicate a change of products from original installation, Contractor shall submit request for substitution as specified in Section 01630 - Product Substitution Procedures.
- D. Submit written notice to Architect designating date and time work will be uncovered.

**PART 2 - PRODUCTS****2.1 MATERIALS**

- A. Comply with Specifications and standards for each specific product involved.
- B. Where Specifications and standards have not been provided, provide materials and fabrication consistent with quality of Project and intended for commercial construction.
- C. Provide new materials for cutting and patching unless otherwise indicated.

**PART 3 - EXECUTION****3.1 INSPECTION**

- A. Inspect existing conditions of Project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, inspect conditions affecting installation of products, or performance of work.
- C. Report unsatisfactory or questionable conditions to Architect in writing; do not proceed with work until Architect has provided further instructions.

**3.2 PREPARATION**

- A. Provide adequate temporary support as necessary to assure structural value or integrity of affected portion of Work.
  - 1. Provide services of licensed engineer for designing temporary support where required by applicable authorities for temporary supports and for shoring; submit engineering calculations directly to applicable authorities upon request.
- B. Protect other portions of Project from damage.

**3.3 PERFORMANCE**

- A. Execute cutting by methods that provide proper surfaces to receive installation of repairs and finishes.
  - 1. Execute excavating and backfilling by methods which will prevent settlement and which will prevent damage to other work.
- B. Employ same installer or fabricator to perform cutting and patching work as employed for new construction for:
  - 1. Weather-exposed or moisture resistant elements.
  - 2. Sight-exposed finished surfaces.
- C. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.

- D. Restore work that has been cut or removed; install new products to provide completed Work in accordance with requirements of Contract Documents.
- E. Fit work tight to pipes, sleeves, ducts, conduit and penetrations through surfaces.
- F. Refinish entire surfaces as necessary to provide even finish to match adjacent finishes:
  - 1. For continuous surfaces, refinish to nearest intersection.
  - 2. For an assembly, refinish entire unit.

**END OF SECTION**

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**SECTION 01770****CLOSEOUT PROCEDURES**

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**PART 1 - GENERAL****1.1 SUMMARY**

- A. This section describes Contract closeout procedures.
  - 1. Substantial completion.
  - 2. Final completion.
  - 3. Project record documents.
  - 4. Material and finish data.
  - 5. Operation and maintenance data.
- B. Related Requirements:
  - 1. Section 01780: Warranties.

**1.2 SUBSTANTIAL COMPLETION**

- A. Immediately prior to Substantial Completion, schedule agency reviews as required for “temporary certificate of occupancy” or for “certificate of occupancy”.
- B. When Contractor considers the Work or a designated portion thereof is substantially complete, submit written notice, with list of items to be completed or corrected.
  - 1. List (“Punch List”): Format pre-approved by Owner and Architect; tabular form with each space listed required.
- C. Within a reasonable time, Owner and Architect will inspect status of completion and may add to “Punch List”.
- D. Should Owner and Architect determine Work is not substantially complete, Contractor will be promptly notified in writing, giving reasons.
- E. Contractor shall remedy deficiencies and send a second written notice of substantial completion; Architect will reinspect Work.
  - 1. Contractor shall pay for Architect's time and direct expenses where more than one Substantial Completion inspection is required.
- F. When Architect determines Work is substantially complete, a Certificate of Substantial Completion will be prepared in accordance with General Conditions.

**1.3 FINAL COMPLETION**

- A. When Work is complete, submit written certification indicating:
  - 1. Work has been inspected for compliance with Contract Documents.

2. Work has been completed in accordance with Contract Documents and deficiencies listed (in 'Punch List') with Certificate of Substantial Completion have been corrected.
3. Equipment and systems have been tested in presence of Owner's representative and are operational.
4. Work is complete and ready for final inspection.

B. Special Submittals: In addition to submittals required by Contract, submit following.

1. Provide submittals required by governing authorities to governing authorities with copies included in Project Record Documents.
2. Submit final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.

#### 1.4 PROJECT RECORD DOCUMENTS

A. Keep documents current; do not permanently conceal any work until required information has been recorded.

1. Owner will provide Contractor with a separate set of Drawings to maintain for Project Record Documents.
2. Store reproducible Drawings, one set of Project Manual, and one copy of each Change Order separate from documents used for construction, for use as Project Record Documents.
3. Indicate actual work on Drawings; indicate actual products used in Project Manual, including manufacturer, model number and options.
4. Update Project Record Documents daily and allow for Architect inspection at least once a month.

B. At Contract close-out submit documents with transmittal letter containing date, Project title, Contractor's name and address, list of documents, and signature of Contractor.

#### 1.5 MATERIAL AND FINISH DATA

A. Provide data for primary materials and finishes.

B. Submit two sets prior to final inspection, bound in 8-1/2" by 11" three-ring binders with durable plastic covers, clearly identified regarding extent of contents.

1. Electronic Format: Where available in electronic format, submit computerized compact disk (CD's) of material and finish data.

C. Arrange by Specification division and give names, addresses, and telephone numbers of subcontractors and suppliers. List:

1. Trade names, model or type numbers.
2. Cleaning instructions.
3. Product data.

**1.6 OPERATION AND MAINTENANCE DATA**

- A. Provide data for:
  - 1. Electrically operated items, including Toilet Accessories.
  - 2. Mechanical equipment and controls, including Solar powered exhaust fan.
  - 3. Electrical equipment and controls.
  - 4. Plumbing Fixtures.
- B. Submit two sets prior to final inspection, bound in 8-1/2" by 11" three-ring binders with durable plastic covers, clearly identified regarding extent of contents.
- C. Provide a separate volume for each system, with a table of contents and index tabs for each volume.
- D. Arrange by Specification division and gives names, addresses, and telephone numbers of subcontractors and suppliers. List:
  - 1. Appropriate design criteria.
  - 2. List of equipment and parts lists.
  - 3. Operating and maintenance instructions.
  - 4. Shop drawings and product data.
- E. Electronic Format: Where available in electronic format, submit computerized compact disk (CD's) of operation and maintenance data.

**END OF SECTION**

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**SECTION 01780****WARRANTIES**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Compile required and incidental warranties required by Contract Documents.
- B. These warranties shall be in addition to and not a limitation of other rights Owner may have against Contractor under Contract Documents and which may be prescribed by law, regardless of wording of warranty.

## 1.2 FORM OF SUBMITTAL

- A. Provide duplicate copies, notarized or on Contractor and Manufacturer's letterhead.
  - 1. Assemble documents executed by subcontractors, installers, suppliers, and manufacturers.
  - 2. Provide table of contents and assemble in binder with durable plastic cover, clearly identified regarding extent of contents.
  - 3. Electronic Format: Submit computerized compact disk (CD's) of warranties, in Microsoft Word.
- B. Warranty Form: Use form acceptable to Owner; completed form shall not detract from or confuse interpretations of Contract Documents.
  - 1. Manufacturer shall countersign warranty.
  - 2. Subcontractor and installer shall countersign warranty where specified.
    - a. Provide required warranties for waterproofing and roofing systems countersigned by subcontractor and installer.
- C. Submit final warranties prior to final application for payment.
  - 1. For equipment put into use with Owner's permission during construction, submit within ten days after first operation.
  - 2. For items of Work delayed materially beyond Date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.
- D. Provide information for Owner's personnel regarding proper procedure in case of failure and instances that might affect validity of warranty.
- E. Size: 8-1/2" by 11" for three-ring binder; fold larger sheets to fit.

**1.3 WARRANTIES**

- A. Warranties are intended to protect Owner against failure of work and against deficient, defective and faulty materials and workmanship, regardless of sources.
- B. Limitations: Warranties are not intended to cover failures that result from:
  - 1. Unusual or abnormal phenomena of the elements.
  - 2. Owner's misuse, maltreatment or improper maintenance of work.
  - 3. Vandalism after substantial completion.
  - 4. Insurrection or acts of aggression including war.
- C. Related Damages and Losses: Remove and replace work which is damaged as result of failure, or which must be removed and replaced to provide access for correction of warranted work.
- D. Warranty Reinstatement: After correction of warranted work, reinstate warranty for corrected work to date of original warranty expiration, but not less than half original warranty period.
- E. Replacement Cost: Replace or restore failing warranted items without regard to anticipated useful service lives.
- F. Rejection of Warranties: Owner reserves right to reject unsolicited and coincidental product warranties that detract from or confuse interpretations of Contract Documents.

**END OF SECTION**



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**SECTION 02200****SITE PREPARATION**

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**PART 1 - GENERAL****1.1 SUMMARY**

- A. This section describes general requirements, products, and methods of execution relating to site preparation, unless otherwise noted. This section applies to:
1. Surface and subsurface demolition.
  2. Backfilling of excavations and depressions.
  3. Coordination, demolition and/or relocation of existing utilities.
  4. Prior to start of demolition of facilities, shut-off, disconnect, cut, and cap where required, underground utility services to facilities.
  5. Removal of A.C. pavement driveway and concrete pavement, concrete pads, and A.C. curbing.
  6. Removal of cyclone wire, wood fences and barricades.
  7. Removal of storm drainage piping, catch basins, and manholes.
  8. Removal of vegetation and trees as specified herein.
- B. Contractor shall provide labor, material and equipment required for demolishing, cutting, removing and disposing of existing construction as designated and shown on the drawings for the following as required, unless otherwise noted.
- C. Coordinate all work with capping or sealing of existing utilities.
- D. Related Sections:
1. Section 02300– EARTHWORK AND GRADING.
  2. Section 02315– TRENCHING, BACKFILLING, AND COMPACTING.

**1.2 SUBMITTALS**

- A. Comply with requirements of Section 01300– SUBMITTAL PROCEDURES.
- B. Submit copies of all permits and certificates required for the project to Owner's Representative, for record purposes.

- C. Permits and notices authorizing demolition.
- D. Submit copy of letters or certificates of severance of utilities services from the affected agencies or utilities.
- E. Submit copies of proposed haul route(s) from the demolition worksite to an authorized disposal site as approved by authority having jurisdiction.
- F. Submit copy of permit for transport and disposal of debris.
- G. Make arrangements of disposing of waste and excess materials at a legally licensed landfill/disposal facility outside worksite and pay cost thereof.
- H. Photograph existing conditions of existing structure surfaces, equipments, and adjacent improvements that might be misconstrued as damage related to removal operations. File photographs with Owner's Representative prior to start of work.
- I. Submit proposed dust control measures and a copy of approved permit.
- J. Submit proposed noise control measures and a copy of approved permit.
- K. Work Schedule: Submit a proposed schedule of work items to be performed, and a description of how the work is to be accomplished, for the review by the Owner's Representatives.
- L. Report of inspections conducted with the Owner's Representative and Architect both before and after performing work.

### 1.3 QUALITY ASSURANCE

- A. Comply with the following Standards: American National Standards Institute, Inc. "American National Standard Safety Requirements for Demolition" (ANSI A10.6 and A10.8).
- B. Regulatory Agencies:
  - 1. Comply with rules and regulations of State of California, California Code of Regulations, Title 8, Industrial Relations, Chapter 4, Subchapter 4, "Construction Safety Order."
  - 2. Comply with applicable local and state agencies having jurisdiction.
  - 3. Comply with governing EPA notification regulations.
- C. Secure all required Permits or Certificates for demolition or discontinuance of utilities, prior to beginning the work.

### 1.4 PROJECT CONDITIONS

- A. Owner assumes no responsibility for actual condition of the site to be altered.

1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- B. Disposal of Existing Improvements:
1. All materials indicated to be removed shall become the property of the Contractor; dispose of these outside the project site.
    - a. Do not dispose of removed materials to the general public by sale, gift or in any other manner at the Site.
    - b. These provisions shall not be construed as limiting or prohibiting sale or disposal of such materials at the Site to duly licensed Contractors or material suppliers, provided materials are removed from the construction site by the Contractor.
  2. All removal of debris from the site, including removal of inventory to site of storage, is part of this Contract and shall be done by Contractor's employees and no others.
- C. Salvage and Reuse:
1. Where units or items of existing work are designated in Section 01310 - PROJECT COORDINATION or Contract Plans to be removed and reused in the new work or are to become salvage, remove such units or items carefully.
    - a. Use tools and methods that will not damage such units or items.
    - b. Protect underlying or adjoining work from damage.
    - c. Salvaged items shall be cleaned by the Contractor.
  2. Recycle AC pavement and Class II AB where practical.
  3. Recycle concrete where practical.
  4. Items indicated to be salvaged shall be removed carefully, cleaned, and returned to the Owner. Coordinate with the Owner's Representative.
- D. Protection:
1. Erect and maintain temporary bracing, shoring, lights, and barricades, except construction barricades for subsequent new construction, warning signs, and guards necessary to protect the public, finishes, improvements to remain and adjoining property from damage, all in accordance with applicable regulations.
  2. Wet down areas affected by this work as required to prevent dust and dirt from rising.
- E. Scheduling:

1. The contractor shall limit construction operations to the following time periods, defined in City of Sausalito Municipal Code Section 12.16.140
    - Weekdays – Between 8:00 a.m. and 6:00 p.m.
    - Saturdays – Between 9:00 a.m. and 5:00 p.m.
    - Sundays – Prohibited
    - City Holidays (not including Sundays) – Between 9:00 a.m. and 7:00 p.m.
  2. Coordinate with the Owner's Representative in scheduling noisy or dirty work.
  3. Schedule work at the Owner's convenience to cause minimal interference with the Owner's normal operations.
  4. Jack hammering will be allowed only during the following time periods 8:00 AM - 6:00 PM on weekdays.
- F. Traffic Circulation: Ensure minimum interference with roads, streets, driveways, sidewalks, and adjacent facilities.
1. Do not close or obstruct public thoroughfares without first obtaining the required permit or permission of the responsible jurisdiction.
  2. Where closing of a vehicular or pedestrian traffic circulation route is necessary, provide adequate directional signs to minimize the potential for confusion.
  3. Maintain emergency access routes and coordinate any interruptions with local entities.
  4. Provide accessible pedestrian paths as necessary and coordinate with the Owner's Representative.

## **PART 2 – PRODUCTS**

### **2.1. PIPE ABANDONMENT MATERIALS**

- A. Slurry cement backfill conforming to Caltrans Standard Specification 19-3.062.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine areas affected by work of this Section and verify following:
  1. Disconnection of utilities as required.
  2. That utilities serving occupied portions of buildings on and off the site will not be disturbed.

3. Removal by the Owner's Representative of the Owner's personal property, movable furniture and equipment items not designated for relocation.
- B. Document video and/or photograph, as necessary, existing items to remain that are damaged and submit photographs to Owner's Representative.
- C. Where existing conditions conflict with representations of the Contract Documents, notify the Owner's Representative and obtain clarifications. Do not perform work affecting the conflicting conditions until clarification of the conflict is received.

### 3.2 PREPARATION

- A. Verify that the area to be demolished or removed has been vacated, or adequate space made available to perform the work.
- B. Arrange for, and verify termination of utility services to include removing meters and capping of lines.
- C. Lay out cutting work at Job Site and coordinate with related work for which cutting is required.

### 3.3 DEMOLITION

- A. If known or suspected hazardous materials are encountered during operations, stop operations immediately and notify the Owner's Representative.
- B. Perform work in accordance with ANSI A10.6-1969 unless otherwise noted.
- C. Provide noise and dust abatement as required to prevent contamination of adjacent areas.
- D. Remove all materials not designated as salvage, in their entirety.
- E. Remove building foundations in their entirety, unless otherwise indicated on the plans.
- F. Fill voids in the land left by the removal of existing structures as follows:
  1. In accordance with the requirements of Section 02300– EARTHWORK AND GRADING. Grade finished remaining surface to the contours shown, or if not shown, to match the existing natural contours.
- G. Lower, or remove, heavy structural framing members by hoist or crane.
- H. Concrete and Masonry:
  1. Demolish concrete and masonry in sections, less than 3 feet in any direction.
  2. Method of cutting shall be limited to saw cutting and torch.

- I. If unknown items such as human remains are encountered during operations, stop operations immediately and notify the Owner's Representative.
- J. The Owner's Representative will provide a list of any items to be stockpiled for future use. Stockpile location will be a site on campus determined by the Owner's Representative.

### 3.4 DEMOLITION AND REMOVAL OF AC PAVEMENT

- A. Saw cut pavement at edge of demolition area.
- B. Break pavement and remove.
- C. Remove any base material, gravel, and/or any other non-native soil per the Construction Documents.

### 3.5 CUTTING

- A. Make new openings neat.
- B. Do not cut or alter structural members and any utilities including appurtenances unless indicated to do so in the Construction Documents or written approval is received from the Architect.
- C. Take care not to damage reinforcing or structural steel scheduled to remain in place.
- D. Concrete: Cut new openings in concrete by coring and saw cutting. Saw run-bys will not be permitted.

### 3.6 PREPARATION FOR NEW FINISH WORK

- A. Where demolished surfaces are scheduled to receive new finishes, Contractor shall restore such substrate to a condition ready to receive the scheduled new finishes, including grinding or leveling.

### 3.7 UTILITY REMOVAL:

- A. Where utility removal is shown on the plans, excavate to expose existing utility, demolish and remove section of pipe or conduit indicated. Cap section of pipe or conduit to remain. Mark end of utility with stake, rebar, or Surveyor's marker.
- B. Provide thrust block or other mechanical restraint where dead end is created on pressurized pipe systems. Thrust blocks shall be per NFPA 24 Standards.
- C. Included in demolition are any appurtenances, including but not limited to valves, valve boxes, and irrigation system components.
- D. Backfill trench in accordance with requirements of Section 02315 – TRENCHING, BACKFILLING, AND COMPACTING.

### 3.8 DISPOSAL OF DEMOLISHED MATERIALS

- A. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning of demolished materials on-site is prohibited. Burning may be performed off-site of Owner's property provided it is done in a legal manner.

**3.9 FIELD QUALITY CONTROL**

- A. The Owner's Representative and Architect will accompany the Contractor before and after performance of work to observe physical condition of existing structures or improvements involved.

**END OF SECTION**

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**SECTION 02300****EARTHWORK AND GRADING**

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**PART 1 - GENERAL**

## 1.1 SUMMARY:

- A. This section describes general requirements, products, and methods of execution relating to on-site earthwork. Any work within the public right-of-way shall be constructed to the requirements of City permits, standards of the Cities and County of Marin and the State of California Department of Transportation. Work includes, but is not limited to, the following:
1. Grading.
  2. Material.
  3. Excavation.
  4. Filling and backfilling.
  5. Soil Sterilant.
  6. Termiticide.
- B. Provide labor, material and equipment and services necessary to complete the excavations, re-compaction and finish grading as specified and indicated on Drawings.
1. Obtain permit from local authorities.
  2. Provide surveying for grading operations.
  3. Provide shoring design.
  4. Provide dewatering operations.
  5. Provide site grading, cut, fill and finish.
  6. Provide excavation and backfill for filling construction, including trenches within building lines.
  7. Preparation for subgrade for building slabs, walks, pavements, and landscaping.
  8. Provide distribution of stockpiled topsoil.
  9. Provide sub-base course for walks and pavements.



10. Provide engineered fills for building slabs and foundations.
  11. Provide sand and gravel for capillary break/moisture barrier under building slabs.
  12. Provide sub-surface drainage backfill for walls and trenches.
- C. The work includes removal and legal disposal off the site of debris, rubbish and other materials resulting from clearing and grubbing operations.
- D. Work specified in Related Sections:
1. Section 02200 – SITE PREPARATION AND DEMOLITION AND DEMOLITION.
  2. Section 02315– TRENCHING, BACKFILLING, AND COMPACTING.

## 1.2 DEFINITIONS:

- A. Engineered Fill:
1. Soil or soil-rock material approved by Owner's Representative used by the Contractor in order to raise grades or to backfill excavations.
  2. The Contractor's Testing Agency will make sufficient tests and/or observations for the purpose of issuing a written statement that material meets or exceeds the specification requirements.
- B. On-site Material: Soil or earth material obtained from required on-site excavation.
- C. Dewatering soil (Sandy Loam): Planting soil material for surface dewatering in bio-swales
- D. Excavation: Consists of the removal of material encountered to subgrade elevations and the re-use or disposal of materials removed.
- E. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below sub-base, drainage fill, rock base course, or topsoil materials.
- F. Treatment soil (sandy loam); planting soil material for treatment of surface storm water in bio-retention areas.
- G. Import Material: Soil material obtained off-site when sufficient approved soil material is not available from excavations.
- H. Base Course: The layer placed between the sub-base and surface pavement in a paving system.
- I. Relative Compaction: In-place dry density of soil expressed as percentage of maximum dry density of same materials, as determined by laboratory compaction procedure American Society for Testing and Materials (ASTM) D1557.

J. Overexcavation: Removal of material below required subgrade elevations.

### 1.3 SUBMITTALS:

A. Comply with provisions of Section 01300– SUBMITTAL PROCEDURES.

B. Product Data: Manufacturer's literature and data, including, where applicable, capacity, labels, or other markings on equipment made to the specified standards for materials, for the following:

1. Imported materials.
2. Class II aggregate base (Caltrans Section 26).
3. Soil Sterilant.
4. Termiticide.
5. Cemenet Treatment.
6. Geotextiles.

C. Test Reports: Submit following reports for import material directly to Owner's Representative from the Contractor's testing services:

1. Test reports on borrow material.
2. Density test reports.
3. One optimum moisture-maximum density curve for each type of soil encountered.
4. Report of actual unconfined compressive strength and/or results of bearing test of each strata tested.
5. At least one laboratory optimum moisture - maximum dry density curve for each type of soil encountered.

D. Shoring Design: Where shoring is required by State Law or determined by the Contractor to be necessary, provide proposed excavation shoring method for review prior to commencement of excavation requiring shoring. Include the following information:

1. Basic design assumptions.
2. Design Calculations.
3. Describe materials or shoring system to be used.
4. Indicate whether or not any components will remain after filling or backfilling.
5. The shop drawings for the proposed shoring system.

6. Coordinate with the Construction Documents and identify any proposed modifications or deviations.
  7. Certification of the above by a registered professional civil or structural engineer licensed by the State of California.
  8. Submittal will be reviewed for general conformance with project plans, but no review of calculations will be provided.
- E. Dewatering Plan: Based upon site surface and subsurface conditions, including available geotechnical and hydrological data, provide a system to perform the following:
1. Lower the ground water level below bottom of excavation.
  2. Relieve the hydrostatic pressure below the subgrade to prevent uplift.
  3. Prevent surface drainage from accumulating within work area.
  4. Legally discharge and dispose of excess water.
  5. Submit description of basic components of proposed dewatering system and its planned method of operation.
- F. Samples:
1. 20-lb. samples sealed in air-tight containers, of each proposed fill and backfill soil material from on-site or borrow sources. Provide to Geotechnical Engineer as requested.
  2. 20-lb samples sealed in air tight containers of specialty soils for submission to a plant and soil testing facility for analysis. Include percolation test and sieve analysis.
- G. Pad Certification
1. Submit a pad certification stamped by a California Licensed Land Surveyor.
- H. Erosion Control Plans.
- I. Haul Routes.
- 1.4 ASSURANCE:
- A. Requirements of Regulatory Agencies:
1. Comply with State of California Business and Transportation Agency, California Department of Transportation (CDT, Caltrans) "Standard Specifications" (Caltrans Standard Specification).
  2. Comply with State of California Code of Regulations (CCR).

3. Comply with State of California Construction Safety Orders, Latest Edition (CAL/OSHA).
4. City of Sausalito Department of Public Works, Standards and Specifications and Drawings, latest edition.

B. Soil Testing:

1. Contractor will engage a geotechnical testing agency, to include testing soil materials proposed for use in the work and for quality control testing during excavation and fill operations.
2. Test results will be distributed in compliance with Section 01410– TESTING AND INSPECTION SERVICES.

C. Codes and Standards:

1. Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.

D. Comply with the latest editions of the following Standards and Regulations:

1. American Society for Testing and Materials (ASTM):
  - a. Concrete Aggregates.
  - b. C125: Standard Terminology Relating to Concrete and Concrete Aggregates.
  - c. C136: Sieve Analysis of Fine and Coarse Aggregates.
  - d. C566: Total Evaporable Moisture Content of Aggregate by Drying.
  - e. D421: Dry Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants.
  - f. D422: Particle Size Analysis of Soil.
  - g. D854: Specific Gravity of Soils.
  - h. D1556: Density of Soil by the Sand Cone Method.
  - i. D1557: Laboratory Compaction Characteristics of Soil Using Modified Effort
  - j. D2216: Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures.
  - k. D2487: Classification of Soils for Engineering Purposes.
  - l. D2922: Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

- m. D2937: Density of Soil in Place by Drive Cylinder Method.
- n. D3017: Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
- o. D4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- 2. California Code of Regulations, Title 24, Part 2 - Basic Building Regulations, Chapter 24 - Excavations, Foundations, and Retaining Walls.
- 3. California Department of Transportation (Caltrans) Standard Specifications:
  - a. Section 17: Watering.
  - b. Section 18: Dust Palliative.
  - c. Section 19: Earthwork.
- 4. CAL/OSHA, Title 8.
- 5. County of Marin Standard Plans and Specifications
- 6. Other authorities having jurisdiction
- E. Geotechnical Engineering Services:
  - 1. Geotechnical Engineer shall be provided by the Owner, as the Owner's Representative to observe grading observations during subgrade preparation, excavation, and compaction of fill materials.
  - 2. Make visits to site to familiarize him generally with progress and quality of work.
  - 3. Make field observations and tests to enable him to form opinions regarding adequacy of site preparation, acceptability of fill materials and extent to which earthwork construction and relative compaction comply with specifications requirements.
  - 4. Examine conditions exposed in foundation excavations.
- F. Site Information:
  - 1. Geotechnical Investigation Reports are available for examination by Contractor.
  - 2. Soil borings and other exploratory operations may be made by Contractor at no cost to Owner. Submit proposed boring locations for review prior to performing the work.

**1.5 DELIVERY, STORAGE, AND HANDLING:**

- A. Protect materials of this section before, during and after installation; objects designated to be retained; and the installed work of other trades.
- B. In the event of damage to any of these items, immediately make repairs or replacements necessary to the acceptance of the Owner's Representative and at no additional cost to the Owner.
- C. Comply with provisions of Section 01500– TEMPORARY FACILITIES AND CONTROLS where necessary to control dust and noise on and near the work caused by operations during performance of the Work.

#### 1.6 PROJECT CONDITIONS:

- A. Site Information: Review the geotechnical report provided by Owner upon request.
  - 1. The character of the material to be excavated or used for subgrade is not necessarily as indicated.
  - 2. Ground water elevations indicated are those existing at the time subsurface investigations were made and do not necessarily represent ground water elevation at the time of construction.
- B. Environmental Requirements:
  - 1. When unfavorable weather conditions necessitate interrupting filling and grading operations, prepare areas by compaction of surface and grading to avoid collection of water.
  - 2. Provide adequate temporary drainage to prevent erosion.
  - 3. After interruption, reestablish compaction specified in last layer before resuming work.
  - 4. Protect existing storm drainage system from silt and debris resulting from construction activities. If contamination occurs, remove contamination at no cost to Owner.
- C. Protections of open excavations.
  - 1. Barricade open excavations and post with warning lights.
  - 2. Comply with requirements of Section 01500–TEMPORARY FACILITIES AND CONTROLS.
  - 3. Operate warning lights as recommended by authorities having jurisdiction.
  - 4. Protect structures, utilities, sidewalks, pavements, and other facilities immediately adjacent to excavations, from damages caused by settlement, lateral movement, undermining, washout and other hazards.
- D. Protection of Subgrade

1. Protection of Subgrade: Do not allow equipment to pump or rut subgrade, stripped areas, footing excavations, or other areas prepared for project.
  2. At Contractor's option, a working pad of granular material may be laid to protect footing and floor subgrade soils from disruption by traffic during wet conditions.
- E. Transport of soils.
1. Transport all excess soils materials by legally approved methods to disposal areas.
  2. Coordinate with the Owner's Representative.
  3. Sufficient topsoil and fill material shall be retained from the site to complete project requirements.
  4. Any additional topsoil and fill requirements shall be the responsibility of the Contractor and shall be at no additional expense to the Owner.
- F. Blasting and use of explosives will not be permitted.
- G. Dust Control Requirements: At all times during earthwork operations and until final completion and acceptance of the earthwork, the Contractor shall prevent the formation of an airborne dust and dirt nuisance from interfering with the surrounding normal operations. The Contractor shall effectively stabilize the site of work in such a manner that it will confine dust particles to the immediate surface of the work and to obtain a minimum of 40 percent emissions reduction by applying a dust palliative except in areas of active cut and fill. The dust palliative shall be non-petroleum based. Water alone is not considered to be a dust palliative. The dust palliative shall be applied at the rate and method in conformance with Section 18, "Dust Palliative," of the Caltrans Standard Specifications and as recommended and/or specified by the manufacturer. Contractor shall assume liability for all claims related to dust and dirt nuisances.

## 1.7 EXISTING UTILITIES

- A. The Owner will contact local utility agencies prior to construction and arrange for the shut-off of all utilities serving the buildings to be demolished. Coordinate work required to abandon active lines with the Owner's Representative.
- B. Locate existing underground utilities in the areas of work. If utilities are to remain in place, provide adequate means of protection during excavation operations.
- C. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult Owner's Representative immediately for directions.
  1. Cooperate with the Owner and public and private utility companies in keeping their respective services and facilities in operation.

- 2. Repair damaged utilities to the satisfaction of the Owner's Representative and the respective utility owner.
- D. Do not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by Owner's Representative and then only after acceptable temporary utility services have been provided.

**1.8 SEQUENCING AND SCHEDULING:**

- A. The schedule of operations shall be reviewed and approved by the Owner's Representative prior to commencement of any work.
- B. Coordinate operations with other construction activities, such as relocation of existing utilities.

**PART 2 - PRODUCTS**

**2.1 MATERIALS:**

- A. General:
  - 1. Fill material will be subject to approval of the Geotechnical Engineer.
  - 2. For approval of imported fill material, notify the Owner's Representative at least 7 days in advance of intention to import material, designate proposed borrow area, and permit the Geotechnical Engineer to sample as necessary from borrow area for purpose of making acceptance tests to prove quality of material.
  - 3. The Geotechnical Engineer's report on acceptability shall be final and binding.
  - 4. During grading operations, soil types other than those analyzed in the geotechnical report for the project, may be encountered.
  - 5. Consult the Geotechnical Engineer to determine the suitability of these soils.
- B. Engineered Fill Material: Soil excavated from site (native) or imported conforming to requirements for fill material contained in geotechnical report for this project.
- C. Native Fill Requirements:
  - 1. Approved native materials shall have a plasticity index less than 20 and a particle size not exceeding 3 inches as determined by ASTM D422.
- D. Imported Fill Requirements: Imported fill, where required, shall be non expansive granular soil, free of organic matter and deleterious substances. Imported fill material shall conform to the following requirements:



1. Grading:	
<u>U. S. Sieve Size</u>	<u>Percentage Passing Sieve</u>
2 ½ inch	100
No. 8	25-45
No. 200	0-10

2. Be thoroughly compactable without excessive voids.

3. Meet the following plasticity requirements:

a. Maximum Plasticity Index of 12, as determined by ASTM D4318.

b. Maximum Liquid Limit of 40, as determined by ASTM D4318.

E. Imported Fill for Planting Areas: Imported fill for use in planting areas shall be sandy loam weed free soil. Submit analysis from certified Soil and Plant Lab. Coordinate with Owner's Representative.

F. Topsoil: Friable clay loam surface soil found in a depth of not less than 10 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones and other objects over 3 inches in diameter, and without weeds, roots and other objectionable material.

1. Use topsoil for top 2 feet of fill against exterior walls, except at paving and sidewalks.

2. Topsoil may also be used beyond the area within 5 feet of building, except under paving and sidewalks.

3. Confirm suitability of stockpiled materials.

G. Sand: Clean, well-graded fine to coarse sand with not more than 2 percent passing the #200 sieve based on wet sieve analysis.

Provide at locations indicated in the construction documents.

Where coarse sand is required, provide sand no finer than No. 40 sieve.

H. Dewatering Soil (Sandy Loam):

1. Soil material (no gravel) with a percolation rate between 2 and 10 inches per hour.

2. Material shall be free of trash and debris, expansive clays, seeds, and other deleterious materials.

3. The dewatering planting soil material shall have documentation from the supplier showing conformance to the following gradation guidelines:

<u>Screen Information</u>	<u>Percentage</u>
a. Maximum particle size	2 mm (0.078 in)

- b. Percent passing No.10 screen (2 mm) 100 (coarse sand or finer)
  - c. Percent passing No.200 screen (0.074 mm) 10 to 15%
  - d. The overall dry weight percentages shall be 85-90% sand, less than 5% clay, and less than 5% silt. The range of clay and silt and organics should be 10-15% of total volume.
- J. Drain Rock:
- 1. Washed, uniformly graded mineral aggregate ASTM D448 with percentage composition of dry weight conforming to following limits:
    - a. Passing 1-inch Sieve: 100 percent.
    - b. Passing 3/4-inch Sieve: 90-100 percent.
    - c. Passing No. 4 Sieve: 0-10 percent.
  - 2. Base at Slab-on-Grade: As specified in the geotechnical report for this project.
  - 3. Absorption of water to saturated-surface dry condition shall not exceed 3 percent of oven-dry weight of a sample.
- K. Backfill material for use behind retaining walls shall be a granular material consisting of sand, broken rock, or a mixture of sand and gravel containing no size larger than 2 ½ inches and not more than 15 percent passing the No. 200 sieve.
- L. Pea Gravel: 3/8 inch to ½ inch washed, uncrushed gravel. Use at drainage pipe and at other locations indicated.
- M. Filter Fabric: Provide filter fabrics that meet or exceed the listed minimum physical properties determined according to ASTM D4759 and the referenced standard test method in parentheses.
- 1. Grab Tensile Strength (ASTM D4632): 120 lb.
  - 2. Apparent Opening Size (ASTM D4751): #70 U.S. Standard sieve.
  - 3. Permeability (ASTM D4491): 135 gallons per minute per square foot.
- N. Drainage Pipe:
- 1. Acceptable Manufacturers and Products: Advanced Drainage Systems "DrainGuard," Hancor "Agri-Flow."
  - 2. Provide couplings, elbows and other fittings as recommended by pipe manufacturer.
- O. Water: Clean and free from deleterious amounts of acids, alkalis, salts and organic matter.

**2.2 SOIL STERILANT:**

- A. Soil Sterilant shall be Treflan E.C. or approved equivalent.

**2.3 TERMITICIDE:**

- A. Termiticide shall be Permethrin, Denon, or approved equivalent.

**PART 3 - EXECUTION****3.1 GENERAL:**

- A. Prior to commencement of earthwork, become thoroughly familiar with site conditions.
- B. If event discrepancies are found, immediately notify the Owner's Representative in writing, indicating the nature and extent of differing conditions.
- C. Requirements:
  - 1. Grades and elevations are to be established with reference to bench marks referenced on Drawings.
  - 2. Maintain engineering markers such as monuments, bench marks and location stakes. If disturbed or destroyed, replace.
- D. No earthwork shall be performed without physical presence or acceptance of the Geotechnical Engineer.
- E. The Geotechnical Engineer's acceptance is required by these specifications; notify the Owner's Representative at least 48 hours prior to commencing any phase of earthwork.
  - 1. No phase of work shall proceed until prior phase has been accepted by the Geotechnical Engineer.
  - 2. Work shall not be covered up or continued until acceptance of the Geotechnical Engineer shall give written notice of conformance with the specifications upon completion of grading.
- F. Compacting:
  - 1. Compact by power tamping, rolling or combinations thereof as accepted by the Geotechnical Engineer.
  - 2. Where impractical to use rollers in close proximity to walls, stairs, etc., compact by mechanical tamping.
  - 3. Scarify and re-compact any layer not attaining compaction until required density is obtained.

4. Compaction by flooding, ponding or jetting will not be permitted, unless specifically accepted by the Geotechnical Engineer.

G. Hazardous Materials

1. If any materials are encountered that may be hazardous (as defined in Section 25117 of the California Health and Safety Code), inform the Owner's Representative verbally within 24 hours and in writing within 2 business days. Upon discovery, material is to remain undisturbed until investigation by County's representative is complete. The removal and disposal of hazardous materials, if discovered, is not part of the scope of work of this Division for this project.

3.2 SITE PREPARATION:

- A. Protect structures, utilities, sidewalks, pavements, and other facilities which are to remain from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations. Set up tree protection measures, as directed by the engineer, prior to commencing grading or demolition operations.

B. Clearing and Grubbing:

1. Remove from area of designated project earthwork all improvements and obstructions, including designated concrete curbs or slabs, asphaltic concrete, all tree and shrub roots, any buried utility and irrigation lines, and other matter determined by the Geotechnical Engineer to be deleterious.
  - a. In all new planting areas, remove existing base material.
  - b. Use only hand methods for grubbing inside the drip line of trees indicated to be left standing.
2. Remove from the site all trees and shrubs, unless otherwise indicated on the drawings as existing trees to be left standing.
3. Remove or fill existing basements left from removed structures as appropriate to areas. Compact in accordance with requirements of these specifications.
4. Removed material shall become property of the Contractor and shall be removed from site, unless otherwise indicated on the drawings or specified herein.
5. Holes resulting from removal of underground obstructions that extend below finish grades shall be cleared and backfilled with engineered fill.
6. Existing Trees to remain:
  - a. Verify the locations of existing trees to be preserved.
  - b. Replace existing trees to remain that are damaged during construction at no additional cost to the Owner.

**C. Topsoil:**

1. Strip topsoil to whatever depths encountered in manner to prevent intermingling with the underlying subsoil or other objectionable material.
2. Remove heavy growths of grass from areas before stripping. Where trees are indicated to be left standing, stop topsoil stripping a sufficient distance to prevent damage to the main root system.
3. Stockpile topsoil in storage piles to freely drain surface water.
4. Cover storage piles if required to prevent windblown dust.

**3.3 EXISTING UTILITIES:**

- A. Protect existing utilities that are to remain in operation as specified.
- B. Demolish and completely remove from the site existing underground utilities indicated to be removed. See Section 02200– SITE PREPARATION AND DEMOLITION.
- C. Movement of construction machinery and equipment over existing pipes and utilities during construction shall be at contractor's risk.
- D. Excavation made with power-driven equipment is not permitted within 2 feet of any known utility or subsurface structure.
  1. Use hand or light equipment for excavating immediately adjacent to or for excavations exposing a utility or buried structure.
  2. Start hand or light equipment excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured.
  3. Support uncovered lines or other existing work affected by excavation until approval for backfill is obtained.
  4. Report damage of utility line or subsurface structures immediately to Owner's Representative.

**3.4 PREPARATION OF SUBGRADE:**

- A. Based As determined necessary by the Geotechnical Engineer, soft soils encountered shall be over-excavated and recompacted to provide a stable subgrade for the building foundation.
- B. Scarify building pad, exterior flatwork and pavement subgrade to a depth of at least 8 inches and work until uniform and free from large clods.
  1. Bring expansive subgrades to 2 to 5 percentage points above the optimum moisture content and compact to 90 percent of the maximum laboratory dry density, in accordance with ASTM D1557.

2. Bring non-expansive subgrades to or slightly above the optimum moisture content and compact to 90 percent of the maximum laboratory dry density in accordance with ASTM D1557.
3. Increase compaction of the upper 12 inches of pavement subgrades to 95 percent of the maximum laboratory dry density per ASTM D1557 for non-expansive subgrades.

**3.5 DEWATERING:**

- A. A dewatering plan, if necessary, shall be reviewed and approved by the engineer prior to implementation.
- B. Do not allow water from surface drainage or underground sources to accumulate in excavations, unfinished fills, or other low areas.
- C. Provide and maintain ample means and devices to remove water promptly and dispose properly of water entering excavations or other parts of the work to prevent softening of exposed surfaces.
- D. Dewater by methods which will ensure dry excavation and preservation of finish lines and grades of excavation bottoms.
- E. Prior to excavating below ground water level, place dewatering system in operation.
  1. Lower the ground water level a minimum of 1 foot below the bottom of the excavation.
  2. Relieve the hydrostatic pressure in pervious zones below the subgrade elevation to prevent uplift.
  3. Use screens and gravel packs as necessary to prevent removal of fines from the soil.
- F. Operate the dewatering system continuously, 24 hours a day, 7 days a week until construction work below existing ground water level is completed.
  1. Measure and record the performance of the dewatering system.
  2. After placement of initial slabs and backfill, the ground water level may be allowed to rise.
  3. At no time allow ground water to rise higher than 1 foot below the prevailing level of excavation or backfill.
  4. Have a back-up pump and system available for immediate use.
- G. Dispose of water away from the work in suitable manner without damage to adjacent property or menace to public health.
- H. Do not drain water into work being built or under construction without prior acceptance of the Owner's Representative.

- I. Protect existing storm drainage system from silt and debris resulting from construction activities. If contamination occurs, remove contamination at no cost to the Owner.

### 3.6 SITE EXCAVATION:

#### A. General

1. All supports, shoring, and sheet piling required for the sides of excavations or for protection of adjacent existing improvements shall be provided and maintained by the Contractor. The adequacy of such systems shall be the complete responsibility of the Contractor.
2. Earth and rock, regardless of character and subsurface conditions, shall be excavated to depths shown on drawings and to the neat dimensions of the footings wherever practicable, to permit pouring of footings and grade beams without use of side forms, except at slab perimeters.
3. Large rocks, pieces of concrete or other obstructions, if encountered during the excavation/scarifying operations, shall be removed and disposed of by the Contractor off the site in a legal manner.
4. Where footing excavation is too deep, backfill shall be concrete. Where footings are over dug laterally, side forms shall be employed for backfill with rock fill or concrete backfill shall be used (Contractor's option).
5. Where forming is required, only that excavation necessary to permit placing and removal of forms shall be done.
6. Bottoms of all footings and foundations trenches shall be subject to testing by the Geotechnical Engineer. Corrective measures as directed by the Owner's representative shall be executed promptly.

- B. Excavate subgrade as required to allow for finish grades shown on drawings, as required for structural fill or otherwise required for proper completion of the work.

- C. Remove and replace subgrade materials designated by Geotechnical Engineer as unsuitable.

### 3.7 FILL AND COMPACTING:

#### A. General Requirements:

1. Backfill excavations as promptly as work permits.
2. Do not place engineered fill or backfill until rubbish and deleterious materials have been removed and areas have been approved by the Owner's Representative.
3. Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.
4. In excavations, use satisfactory excavated or borrow material.

5. Under grassed areas, use satisfactory excavated or borrow material.
- B. After subgrade compaction has been approved by the Geotechnical Engineer, spread the engineered fill materials in lifts not exceeding 8 inches and uniformly mixed during the spreading operation.
1. Bring non-expansive fill materials to or slightly above the optimum moisture content and compacted to at least 90 percent of the maximum laboratory dry density, per ASTM D1557.
  2. Bring non-expansive aggregate fill materials to or slightly above the optimum moisture content and compacted to at least 95 percent of the maximum laboratory dry density, per ASTM D1557.
  3. Do not compact the top 12 inches of soil in the planting areas.
  4. Fill sections greater than 5 feet in depth shall be compacted to at least 90 percent.
- C. Repeat compaction procedure until proper grade is attained.
- D. Rocks generated during site earthwork may be used in fill when conforming to material specifications.

### 3.8 MOISTURE CONTROL:

- A. Do not place, spread or roll fill material during unfavorable weather conditions or when fill material is excessively wet.
- B. Do not resume operations until moisture content and fill density are satisfactory to the Geotechnical Engineer.
- C. Provide berms or channels to prevent surface water from flooding excavations. Promptly remove water collecting in depressions.
- D. Where soil has been softened or eroded by flooding or by placement during unfavorable weather, remove damaged areas and re-compact as described for fill and compaction.
- E. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material.
1. Prevent free water appearing on surface during or subsequent to compaction operation.
  2. Remove and replace, or scarify and air dry, soil material too wet to permit compaction to specified density.
  3. Soil material removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.



### 3.9 GRADING:

- A. General: Uniformly grade areas of work including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
1. All areas covered by the project, including excavated and filled areas and adjacent transition areas, shall be uniformly graded so that finished surfaces are at the elevations established by the plans. Planter areas to receive future topsoil shall be graded below finished grade to allow for such material.
  2. Finished surfaces and surfaces to receive paving and aggregate base shall be smooth, compacted, and free from irregular surface drainage.
  3. Ditches, gutters, and swales shall be finished to permit proper surface drainage.
  4. All surface areas, except paved and sloped embankments exceeding 8:1, shall be seeded and covered with an erosion control blanket.
- B. Grading Tolerances:
1. Excavations shall not exceed 0.10-foot variation from dimensions and elevations shown or noted, unless otherwise approved by Owner's Representative.
  2. Fill and backfill shall be placed with tolerance of plus or minus 0.10 foot if placed in layers.
  3. Grading shall be done within plus or minus 0.10 foot typically; areas under slabs, walks or pavements shall be graded within tolerance of 0 to 0.10 foot.
  4. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10 foot above or below required subgrade elevations.
  5. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10 foot above or below required subgrade elevation. Grades of pavement shall be within tolerance of 0 to 0.02 foot.
  6. Pavements: Shape surface of areas under pavement (subgrade) to line, grade and cross-section, with finish surface not more than ½ inch above or below required subgrade elevation. Grades of pavement shall be within 0 to 0.02 foot.
- C. Compaction: After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.

### 3.10 SOIL STERILIZATION:

- A. General: Soil sterilant shall be applied to prepared subgrade or after installation of rock or aggregate base as recommended by the manufacturer. Sterilant shall be applied uniformly at the rate recommended by the manufacturer to all areas beneath asphalt concrete pavement, brick pavement, concrete pavement, or on-grade concrete slabs including sidewalks, curbs, and gutters and areas between the inner and outer security fences. In addition to ground areas treated, sterilant shall be applied below expansion or control joints, and at all areas where pipe, ducts, or other features penetrate slabs.

### 3.11 DISPOSAL OF EXCESS AND WASTE MATERIALS:

- A. Removal of Excess Excavated Material: Excess material shall be removed by the Contractor off the site in a legal manner.

### 3.12 FIELD QUALITY CONTROL:

- A. Testing Agency Services: Allow testing agency to inspect and test each subgrade and each fill or backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.
  - 1. Perform field in-place density tests according to ASTM D1556 (sand cone method), ASTM D2167 (Rubber Balloon Method), or ASTM D2937 (Drive Cylinder Method), as applicable.
    - a. Field in-place density tests may also be performed by the nuclear method according to ASTM D2922, provided that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D1556. With each density calibration check, check the calibration curves furnished with the moisture gauges according to ASTM D3017.
    - b. When field in-place density tests are performed using nuclear methods, make calibration checks of both density and moisture gauges at beginning of work on each different type of material encountered, and at intervals as directed by the Architect.
  - 2. Paved and Building Slab Areas; At subgrade and at each compacted fill and backfill layer, perform at least one field in-place density test for every 2,000 square feet or less of paved area or building slab, but in no case fewer than three tests.
  - 3. Foundation Wall Backfill: In each compacted backfill layer, perform at least one field in-place density test for each 100 feet or less of wall length, but no fewer than two tests along a wall face.
  - 4. Trench Backfill: In each compacted initial and final backfill layer, perform at least one field in-place density test for each 150 feet or less of trench, but not fewer than two tests.
- B. Number and location of test shall be at option of the Geotechnical Engineer.

- C. When testing agency reports that subgrades, fills, or backfills are below specified density, scarify and moisten or aerate, or remove and replace soil to the depth required, re-compact and retest until required density is obtained.
- D. After grading is completed and the testing agency has completed observation of the work, permit no further excavation or filling, except as approved by Owner's Representative.

3.13 PROTECTION:

- A. Protect newly graded areas from traffic and erosion. In unpaved areas without landscaping, cover with straw erosion control blanket. Follow manufacturer's recommendations for installation. Provide and place straw wattles or biodegradable fiber logs across the slope at the midpoint and along the downhill edge of site. No soil is to be left uncovered at the completion of construction. Keep free of trash and debris.
- B. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- C. Where completed compacted areas are disturbed by subsequent construction operation or adverse weather, scarify surface, reshape, compact to required density and provide other corrective work, including retesting, prior to further construction.

3.14 CLEAN-UP:

- A. Comply with requirements of Section 01700- CLEANING.

3.15 TERMITICIDE:

- A. Termiticide shall be applied to soils as recommended by the manufacturer. Termiticide shall be applied uniformly at the rate recommended by the manufacturer to all areas beneath and around wood frame structures.

**END OF SECTION**

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**SECTION 02315****TRENCHING, BACKFILLING, AND COMPACTING**

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**PART 1 – GENERAL**

## 1.1 SUMMARY:

- A. Provide labor, material, equipment, and services necessary to complete the backfilling and compacting as necessary for this project. Section includes, but is not limited to:
  - 1. Initial Backfill Material.
  - 2. Subsequent Backfill.
  - 3. Detectable Tape.
  - 4. Trench Excavation.
  - 5. Pipe Bedding.
  - 6. Trench Backfill.
  - 7. Trench Surfacing.
- B. Work specified in Related Sections include:
  - 1. Section 02300– EARTHWORK AND GRADING.

## 1.2 DEFINITIONS:

- A. Engineered Fill:
  - 1. Soil or soil-rock material approved by the Geotechnical Engineer and transported to the site by the Contractor in order to raise grades or to backfill excavations.
  - 2. Contractor shall provide sufficient tests, and a written statement that all materials brought onto the project site comply with specification requirements.
- B. Excavation: Consists of the removal of material encountered to subgrade elevations.
- C. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below base.
- D. Base: The layer placed between the subgrade and surface pavement in a paving system.

- E. Relative Compaction: In-place dry density of soil expressed as percentage of maximum dry density of same materials, as determined by laboratory test procedure American Society for Testing and Materials (ASTM) D1557.

### 1.3 SYSTEM DESCRIPTION:

#### A. Requirements:

1. Comply with the recommendations of the Geotechnical Engineer.
2. Protect existing trees to remain. No grading is permitted under the drip line of protected trees.
3. Excavations for appurtenant structures, such as, but not limited to, manholes, transition structures, junction structure, vaults, valve boxes, catch basins, thrust blocks, and boring pits, shall be deemed to be in the category of trench excavation.
4. Unless otherwise indicated in the Drawings, all excavation for pipelines shall be open cut.

### 1.4 SUBMITTALS:

#### A. Comply with provisions of Section 01300– SUBMITTAL PROCEDURES.

#### B. Test Reports: Submit the following report for import material directly to the Owner's Representative from the Contractor's testing services:

1. Compaction test reports for aggregate base.

#### C. Submit description of compactors proposed for use when requesting placement of base material.

### 1.5 QUALITY ASSURANCE:

#### A. Requirements of Regulatory Agencies:

1. Comply with State of California Business and Transportation Agency, Department of Transportation (Caltrans) latest edition of "Standard Specifications." (Caltrans Standard Specification).
2. Comply with State of California Code of Regulations (CCR).
3. Comply with State of California Construction Safety Orders, Latest Edition (CAL/OSHA).

#### B. Soil Testing:

1. Owner shall engage a geotechnical testing agency, to include compaction testing and for quality control testing during fill operations.
2. Test results will be submitted to the Owner's Representative.

C. Codes and Standards:

1. Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.
2. California Department of Transportation Standard Specifications (Caltrans Standard Specification):
  - a. Section 19: Earthwork.
  - b. Standard Test Methods: No. 202.
3. American Society for Testing and Materials (ASTM):
  - a. D2922: Density of Soil and Soil Aggregate in Place by Nuclear Methods.
  - b. D3017: Water Content of Soil and Rock by Nuclear Methods
  - c. D1557: Moisture Density Relations of Soils and Soil-Aggregate Mixtures.

1.6 DELIVERY, STORAGE AND HANDLING:

- A. Protect materials before, during and after installation.
- B. Comply with provisions of Section 01500– TEMPORARY FACILITIES AND CONTROLS where necessary to control dust and noise on and near the work caused by operations during construction activities.

1.7 PROJECT CONDITIONS:

- A. Environmental Requirements:
  1. Protect existing storm drainage system from silt and debris resulting from construction activities. If contamination occurs, remove contamination at no cost to the Owner.
  2. Protect existing streams, ditches and storm drain inlets during work on this project.
- B. Barricade open excavations and post with warning lights.
  1. Comply with requirements of Section 01500– TEMPORARY FACILITIES AND CONTROLS.
  2. Operate warning lights and barricades as required.
  3. Protect all site components not designated for removal, including structures, utilities, sidewalks, pavements, and other facilities immediately adjacent to excavations, from damages caused by settlement, lateral movement, undermining, washout, and other hazards for the duration of the project.

- C. Protection of Subgrade: Do not allow equipment to pump or rut subgrade, stripped areas, footing excavations, or other areas prepared for project.
- D. Transport all excess soils materials by legally approved methods to disposal areas.
  - 1. Coordinate with the Owner's Representative.
  - 2. Any additional fill requirements shall be the responsibility of the Contractor.

**1.8 EXISTING UTILITIES:**

- A. Locate existing underground utilities in the areas of work. For utilities that are to remain in place, provide adequate means of protection during excavation operations.
- B. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult utility agency immediately for directions.
  - 1. Cooperate with the Owner's Representative and public and private utility companies in keeping their respective services and facilities in operation.
  - 2. Repair damaged utilities to the satisfaction of the utility owner.
- C. Do not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by the Owner's Representative and then only after acceptable temporary utility services have been provided.

**1.9 SEQUENCING AND SCHEDULING:**

- A. Prior to the issuance of the Notice to Proceed, the contractor shall submit a detailed construction sequence of operations and schedule to be reviewed and approved by the Owner's Representative.

**PART 2 – PRODUCTS**

**2.1 MATERIALS:**

- A. General:
  - 1. Backfill materials will be subject to approval of the Engineer.
  - 2. For approval of backfill fill material, notify the Owner's Representative at least 7 days in advance of intention to import material.
  - 3. Consideration shall also be given to the environmental characteristics as well as the corrosion potential of backfill materials. Laboratory testing, including pH, soluble sulfates, chlorides, and resistivity shall be reviewed. Backfill materials shall not be more corrosive than the native materials.
- B. Trench Sand:

1. Material free from clay, organic materials, and other deleterious substances and conforming to Caltrans Standard Specification Section 19-3.025 B.
- C. Trench Gravel:
  1. Granular material free from clay, organic materials, and other deleterious substances and conforming to Class 1 Type A Permeable Material, per Caltrans Standard Specification Section 68-2.02F(2).
- D. Approved Native Fill:
  1. See Section 02300– EARTHWORK AND GRADING.
- E. Imported Fill:
  1. See Section 02300– EARTHWORK AND GRADING.
- F. Class II Aggregate Base:  $\frac{3}{4}$ " maximum, Class II AB, free from organic matter and other deleterious substances and conforming to Caltrans Standard Specification Section 26-1.02.
- G. Water: Clean and free from deleterious amounts of acids, alkalis, salts and organic matter.

## 2.2 BURIED WARNING AND IDENTIFICATION TAPE

- A. Polyethylene plastic and metallic core or metallic-faced, acid- and alkali-resistant, polyethylene plastic warning tape manufactured specifically for warning and identification of buried utility lines. Provide tape on rolls, 75 mm 3 inch minimum width, color coded as specified below for the intended utility with warning and identification imprinted in bold black letters continuously over the entire tape length. Warning and identification to read, "CAUTION, BURIED (intended service) LINE BELOW" or similar wording. Color and printing shall be permanent, unaffected by moisture or soil.
  1. Warning Tape Color Codes.
    - Red: Electric.
    - Yellow: Gas, Oil; Dangerous Materials.
    - Orange: Telephone and Other Communications.
    - Blue: Water Systems.
    - Green: Sewer Systems.
    - White: Steam Systems.
    - Gray: Compressed Air.
  2. Warning Tape for Metallic Piping: Acid and alkali-resistant polyethylene plastic tape conforming to the width, color, and printing requirements specified above.



Minimum thickness of tape shall be 0.003 inch. Tape shall have a minimum strength of 1500 psi lengthwise, and 1250 psi crosswise, with a maximum 350 percent elongation.

3. Detectable Warning Tape for Non-Metallic Piping: Polyethylene plastic tape conforming to the width, color, and printing requirements specified above. Minimum thickness of the tape shall be 0.004 inch. Tape shall have a minimum strength of 1500 psi lengthwise and 1250 psi crosswise. Tape shall be manufactured with integral wires, foil backing, or other means of enabling detection by a metal detector when tape is buried up to 920 mm 3 feet deep. Encase metallic element of the tape in a protective jacket or provide with other means of corrosion protection.

2.3 DETECTION WIRE FOR NON-METALLIC PIPING

- A. Detection wire shall be insulated single strand, solid copper with a minimum of 12 AWG.

**PART 3 – EXECUTION**

3.1 GENERAL:

- A. Prior to commencement of work, become thoroughly familiar with site conditions.
- B. In the event discrepancies are found, immediately notify the Owner's Representative in writing, indicating the nature and extent of differing conditions.
- C. Backfill excavations as promptly as work permits.
- D. Do not place engineered fill or backfill until rubbish and deleterious materials have been removed and areas have been approved by the Owner's Representative.
- E. Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.
- F. In excavations, use satisfactory excavated or borrow material.
- G. Under grassed areas, use satisfactory excavated or borrow material.

3.2 COMPACTING:

- A. Compact by power tamping, rolling or combinations thereof.
  1. Where impractical to use rollers in close proximity to walls, stairs, etc., compact by mechanical tamping.
  2. Scarify and re-compact any layer not attaining compaction until required density is obtained.

3.3 SITE PREPARATION:

- A. Protect all site components not designated for removal, including structures, utilities, sidewalks, pavements, and other facilities immediately adjacent to excavations, from damages caused by settlement, lateral movement, undermining, washout, and other hazards for the duration of the project.
- B. Protect existing storm drainage system from silt and debris resulting from construction activities. If contamination occurs, remove contamination at no cost to the Owner.

#### 3.4 EXISTING UTILITIES:

- A. Identify the location of existing utilities.
  - 1. Prior to trenching, the Contractor shall excavate at locations specifically indicated on the Drawings, if any, and where new lines cross other utilities of uncertain depth and determine the elevation of the utility in question to ensure that the new line will clear the potential obstruction.
  - 2. The Contractor shall contact Underground Service Alert (USA) at 1-800-227-2600 a minimum of 48 hours prior to the commencement of work for assistance in locating existing utilities.
  - 3. If, after the excavation, a crossing utility does present an obstruction, then the line and grade of the new line will be adjusted as directed by the Owner's Representative to clear the utility.
- B. Protect all existing utilities to remain in operation.
- C. Movement of construction machinery and equipment over existing pipes and utilities during construction shall be at Contractor's risk.
- D. Excavation made with power-driven equipment is not permitted within 2 feet of any known utility or subsurface structure.
  - 1. Use hand or light equipment for excavating immediately adjacent to known utilities or for excavations exposing a utility or buried structure.
  - 2. Start hand or light equipment excavation on each side of the indicated utility and continue until the utility is uncovered or until clearance for the new grade is assured.
  - 3. Support uncovered lines or other existing work affected by excavation until approval for backfill is obtained.
  - 4. Report damage of utility line or subsurface structures immediately to the Owner's Representative and respective utility owner.
- E. Backfill trenches resulting from utility removal in accordance with this section.

#### 3.5 TRENCH EXCAVATION

- A. General:

1. Excavation shall include removal of all water and materials that interfere with construction. The Contractor shall remove any water which may be encountered in the trench by pumping or other methods during the pipe laying, bedding and backfill operations. Material shall be sufficiently dry to permit approved jointing.
2. Excavation shall include the construction and maintenance of bridges required for vehicular and pedestrian traffic, support for adjoining utilities.
3. The Contractor shall be responsible to safely direct vehicular and pedestrian traffic through or around his/her work area at all times.
4. The Contractor shall relocate, reconstruct, replace or repair, at his/her own expense, all improvements which are in the line of construction or which may be damaged, removed, disrupted or otherwise disturbed by the Contractor.

B. Existing Paving and Concrete:

1. Existing pavement over trench shall be saw cut, removed, and hauled away from the job. Existing pavement shall be neatly ground and T-Cut (1.5" min depth) a minimum of 6-inches beyond the limits of excavations.
2. Existing concrete over the trench shall be saw cut to a full depth in straight lines either parallel to the curb or right angles to the alignment of the sidewalk. Dowel #4-12" long dowels staggered at 24" O.C. into existing/proposed concrete point of conform.
3. Boards or other suitable material shall be placed under equipment out rigging to prevent damage to paved surfaces.

C. Trench Width:

1. The maximum allowable trench widths at the top of the pipe shall be as follows:

<u>Pipe Type</u>	<u>Trench Width (Maximum)</u>
Copper	Outside diameter of barrel plus 18 inches
Plastic	"
Vitrified Clay	"
Cast-Iron	Outside diameter of barrel plus 24 inches
Concrete Cylinder	"
Ductile-Iron	"
Reinforced Concrete	"

- a. The maximum trench width shall be inclusive of all shoring.
  - b. If the maximum trench width is exceeded, the Owner's Representative or Inspector of Record may direct the Contractor to encase or cradle the pipe in concrete at no additional charge.

2. For pipes 3 inch diameter and larger, the free working space on each side of the pipe barrel shall not be less than 6 inches.

D. Open Trench:

1. The maximum length of open trench shall be 300 feet or the distance necessary to accommodate the amount of pipe installed in a single day, whichever is greater. No trench shall be left open at the end of the day.
2. Provisions for trench crossings and free access shall be made at all street crossings, driveways, water gate valves, and fire hydrants.

E. Excavation Bracing:

1. The excavation shall be supported and excavation operations shall be conducted in accordance with the California Industrial Accident Commission and CAL/OSHA.
2. The Contractor shall, at his/her own expense, furnish, put in place, and maintain such sheeting and bracing as may be required to support the sides of all excavations (whether above or below the pipe grade), and to prevent any movement which could in any way diminish the required trench section or otherwise injure or delay the work. The sheeting and bracing shall be withdrawn in a manner such as to prevent any earth movement that might overload the pipe.

F. Excavated Material:

1. All excavated material not required for backfill shall be immediately removed and properly disposed of in a legal manner by the Contractor.
2. Material excavated in streets and roadways shall be laid alongside the trench no closer than 2 feet from the trench edge and kept trimmed to minimize inconvenience to public traffic.
3. Provisions shall be made whereby all storm and wastewater can flow uninterrupted in gutters or drainage channels.

3.6 PIPE BEDDING

- A. Bedding Excavation: The trench shall be excavated below the grade of the pipe bottom to the following minimum depths:

<u>Pipe Type</u>	<u>Depth</u>
Copper	3 inch
Reinforced Concrete	3 inch
Plastic: 2 inch diameter and smaller	3 inch
Cast/Ductile Iron	6 inch
Plastic: over 2 inch diameter	6 inch

1. Stabilization of Trench Bottom: When the trench bottom is unstable due to wet or spongy foundation, trench bottom shall be stabilized with gravel or crushed

rock. The Inspector of Record will determine the suitability of the trench bottom and the amount of gravel or crushed rock needed to stabilize a soft foundation. Soft material shall be removed and replaced with gravel or crushed rock as necessary.

2. Placement of Bedding Material: The trench bottom shall be cleaned to remove all loose native material prior to placing pipe bedding material. Pipe bedding shall be trench sand or trench gravel, as defined in these specifications. Sufficient pipe bedding material shall be placed in trench and tamped to bring trench bottom up to grade of the bottom of pipe, plus 1/8<sup>th</sup> of the pipe diameter. The relative compaction of tamped material shall be not less than 90 percent. It is the intention of these requirements to provide uniform bearing under the full length of pipe to a minimum width of 60 percent of the external diameter.

3.7 TRENCH BACKFILL

A. Initial Backfill:

1. Prior to trench backfill, the condition of the trench and lying of pipe must be inspected and approved by the Inspector of Record.
2. Trench Sand and Trench Gravel shall be used for initial backfill. After the pipe has been properly laid and inspected, initial backfill material shall be placed on both sides of the pipe and compacted to final depth as follows:

<u>Pipe Type</u>	<u>Depth</u>
Copper	6 inches above top of pipe
Cast Iron	6 inches above top of pipe
Plastic: less than 3 inches diameter	6 inches above top of pipe
Plastic: 3 inches diameter and larger	12 inches above top of pipe
Ductile Iron	12 inches above top of pipe
Reinforced Concrete	½ outside diameter of pipe (pipe spring line)

3. Compaction: Initial backfill compaction shall be by mechanical means. The initial backfill material shall be hand tamped in layers not exceeding 4 inches in un-compacted depth and shall be brought up uniformly on both sides of the pipe to avoid bending or distortional stress. After hand tamping, the relative compaction of the initial backfill material shall be not less than 95 percent.
4. Pipe Detection: In trenches containing pressurized plastic pipes, tracer wire shall be placed directly above the pipe and shall be connected to all valves, existing exposed tracer wires, and other appurtenances as appropriate.

B. Subsequent Backfill:

1. Subsequent backfill material shall consist of approved native material, imported fill, or Class II AB conforming to these specifications.
2. Structure and utility trench backfill should be moisture conditioned, placed in lifts eight inches or less in loose thickness, and mechanically compacted to at least 90 percent relative compaction except the relative compaction shall not

be less than 95 percent within 2-1/2 feet of finished permanent surface grade or 1-1/2 feet below the finished subgrade, whichever is greater; jetting will not be permitted. The moderately expansive clay soils exposed in trenches should not be allowed to dry out prior to placement of trench backfill materials.

3. It must be the contractor's responsibility to select equipment and procedures that will accomplish the grading as described above. He/she must organize his/her work in such a manner that the Soil Engineer can test and/or observe each element of grading.

C. Jetting and Ponding:

1. Jetting of trench backfill is not permitted.

D. Compaction Testing:

1. Compaction testing shall be in accordance with ASTM Test Methods D2922 and D3017.

### 3.8 TRENCH SURFACING

A. Unpaved Areas:

1. In unimproved areas, the trench surface shall be restored to its original condition. No mounds of earth shall be left along the trench. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
2. Where completed compacted areas are disturbed by subsequent construction operation or adverse weather, scarify surface, reshape, compact to required density and provide other corrective work, including retesting, prior to further construction.

B. Temporary Surfacing:

1. Temporary surfacing shall be a minimum of 2 inches of cutback asphalt on 10 inches of Class 2 aggregate base and shall be placed at all trench locations subject to vehicular or pedestrian traffic.
2. Temporary surfacing shall be laid within one day after backfilling (except where the Contractor elects to place permanent surfacing within this time period).
3. Before the trenching area is opened for traffic, all excess dirt, rock, and debris shall be removed, the street surface shall be swept clean and the pavement shall be washed down with a water truck and pressure nozzle.
4. Temporary surfacing shall be maintained to prevent the occurrence of mud holes and prevent the surface from settling below 1/4" inch or rising more than 1/4" inch from the existing pavement grade.

### 3.9 MOISTURE CONTROL:

- A. Do not resume operations until moisture content and fill density are satisfactory to the Engineer.

### 3.10 DISPOSAL OF EXCESS AND WASTE MATERIALS:

- A. Testing Services: Allow testing agency to test each backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.
- B. When testing agency reports that backfills are below specified density, scarify and moisten or aerate, or remove and replace soil to the depth required, re-compact and retest until required density is obtained.

### 3.11 PROTECTION:

- A. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- B. Where completed compacted areas are disturbed by subsequent construction operation or adverse weather, scarify surface, reshape, compact to required density and provide other corrective work, including retesting, prior to further construction.

### 3.12 CLEAN-UP:

- A. Remove all debris, equipment, tools and materials upon completion prior to final inspections to the satisfactions of the engineer.
- B. In unpaved areas without landscaping, cover with straw erosion control blanket. Follow manufacturer's recommendations for installation. Provide and place straw wattles or biodegradable fiber logs across the slope at the midpoint and along the downhill edge of site. No soil is to be left uncovered at the completions of construction.

**END OF SECTION**

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**SECTION 02750****PAVING AND SURFACING**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes (but is not necessarily limited to):
  - 1. Asphalt Concrete Paving.
  - 2. Concrete Paving.
  - 3. Liquid Asphalt and Asphalt Emulsion.
  - 4. Aggregate Base.
  - 5. Decorative Paving.
- B. Related work furnished under other sections but conforming to the provisions of this section:
  - 1. Subgrade preparation.
  - 2. Aggregate Base installation.
- C. Related Sections:
  - 1. Section 02200– SITE PREPARATION AND DEMOLITION.
  - 2. Section 02300– EARTHWORK AND GRADING.
  - 3. Section 02780– PAVEMENT MARKING.

## 1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
  - 1. A615: Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
  - 2. C150: Portland Cement.
  - 3. D1557: Moisture Unit Weight Relations of Soils and Aggregate Mixtures Using a 10 lb (4.5 kg) Rammer and 18 in. (457 mm) Drop.
  - 4. D1682: Breaking Loads and Elongation of Textile Fabrics.



- B. California Code of Regulations (CCR): Title 24, Chapter 2-71, Site Development Requirements for ADA Accessibility.
- C. California Department of Transportation (Caltrans):
  - 1. Standard Specifications:
    - a. Section 26: Aggregate Bases.
    - b. Section 37: Bituminous Seals.
    - c. Section 39: Asphalt Concrete.
    - d. Section 51: Concrete Structures.
    - e. Section 52: Reinforcement.
    - f. Section 73: Concrete Curbs and Sidewalks.
    - g. Section 90: Portland Cement Concrete.
    - h. Section 92: Asphalts.
    - i. Section 93: Liquid Asphalts.
    - j. Section 94: Asphaltic Emulsions.
  - 2. Traffic Manual.
  - 3. Highway Design.
- D. Institute of Transportation Engineers: Transportation and Traffic Engineering Handbook.

### 1.3 SUBMITTALS

- A. Requirements: Refer to Section 01300– SUBMITTAL PROCEDURES.
- B. Asphalt Concrete Paving:
  - 1. Provide copies of material certificates signed by the material producer and the Contractor, certifying that each material item complies with or exceeds specified requirements.
  - 2. The Contractor shall furnish a certified weight or load slip for each load of material used in the construction of the asphalt concrete pavement.
- C. Concrete Paving: The Contractor shall furnish mill test reports on the cement, reinforcement bars, and aggregates, showing compliance with the respective specifications. The Testing Engineer may make concrete test cylinders and slump tests as deemed necessary to determine compliance with the Specifications.

- D. Liquid Asphalt.
- E. Pavement Reinforcement Fabric.
- F. Tack Coat.
- G. Pavement Reinforcement Mesh.
- H. Structural Geotextile Fabric.
- I. Decorative Concrete Paving: 4' x 4' samples.
- J. Slurry Seal.

1.4 PROJECT CONDITIONS

- A. Liquid Asphalt and Asphalt Emulsion:
  - 1. Seal coat and paint binder shall be applied only when the ambient temperature is above 50° Fahrenheit and when temperature has not been below 35° Fahrenheit for 12 hours immediately prior to application.
  - 2. Fog coat, seal coat, and paint binder shall not be applied when base or surfaces are wet or contain excess moisture.
- B. Asphalt Concrete Paving: Asphalt concrete surfaces shall be constructed only when ambient temperature is above 50° Fahrenheit and when base is dry.

**PART 2 - PRODUCTS**

2.1 PAVING MATERIALS

- A. Aggregate Base: Aggregate base shall conform to Caltrans Class 2 (R value 78 min) aggregate base, 3/4" maximum size, as specified in Section 26 of the Caltrans Standard Specifications.
- B. Asphalt Concrete Paving:
  - 1. Paving asphalt to be mixed with aggregate shall be performance-graded asphalt, PG64-10, conforming to Section 92 of the Caltrans Standard Specifications.
  - 2. Mineral aggregate shall be Type B mineral aggregate as specified in Section 39 of the Caltrans Standard Specifications.
  - 3. Aggregate size shall be as follows:
 

Total AC Thickness	Min # of AC lifts	Aggregate Grading
3/4 inch – 1-1/2 inch	1	1/2" max, medium
2 inch – 2-1/2 inch	1	1/2" max, medium
3 inch or greater	2	1/2" max, medium for top lift & 3/4" max, medium for initial

4. Asphaltic emulsion for paint binder, fog coat, and seal coat shall be emulsified asphalt, Type SS-1h, conforming to Section 94 of the Caltrans Standard Specifications.
- C. Portland Cement Concrete:
1. Concrete shall be Mix Design No. 3370 manufactured by Shamrock Materials or approved equivalent.
  2. Water shall be potable and free of organic matter and injurious amounts of oil, acid, alkali, or other deleterious substances.
  3. Filled joints, unless noted otherwise on the Drawings, shall be 1/4-inch thick, the full depth of the concrete section and conforming to Section 51 of the Caltrans Standard Specifications.
  4. Joint filler shall conform to Section 51 of the Caltrans Standard Specifications for pre-molded expansion joint filler and expanded polystyrene joint filler.
  5. No admixtures will be allowed without prior approval of the Owner's Representative.
- D. Pavement Reinforcement Fabric: Pavement reinforcement fabric shall meet Caltrans Section 88-1.02, BP Petromat or approved equivalent.
- E. Crack Sealant:
1. Crack sealant shall be rubberized hot-pour type and shall meet ASTM D 3405, Husky 1611 or approved equivalent.
  2. Blotting Agent shall be one of: Screened sand, cement, or fly ash.
- F. Tack coat: Tack coat shall meet Caltrans Section 39-4.02.
- G. Pavement reinforcement mesh: Pavement reinforcement mesh for use in Type 2 Overlay shall be Glasgrid Model 8501 or approved equivalent.
- H. Structural geotextile fabric: Structural geotextile fabric shall be Mirafi 500X or approved equivalent.
- I. Slurry seal: Slurry seal shall meet Caltrans Section 37-2.02

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Subgrade and Aggregate Base:
1. Prepare subgrade and over excavate per Section 02300—EARTHWORK AND GRADING.

2. Aggregate base shall be compacted to 95 percent ASTM D1557. Sections 26-1.04B and 26-1.05 of the Caltrans Standard Specifications shall apply.
3. Soil sterilant shall be applied to prepared subgrade or after installation of rock or aggregate base uniformly at the rate recommended by the manufacturer.

B. Crack Sealing:

1. Before sealing, cracks shall be cleared of dirt, dust, and all other deleterious materials to a depth of 1/4-inch to 1/2-inch.
2. Cracks 1/8-inch in width and greater shall be sealed.
3. Application of crack sealer shall be in accordance with the manufacturer's recommendations unless otherwise directed.

3.2 ASPHALT CONCRETE PAVING

A. General:

1. Asphalt concrete shall be proportioned, mixed, placed, spread, and compacted in conformance with Section 39 of the Caltrans Standard Specifications.
2. Before placing asphalt concrete, an asphalt emulsion tack coat shall be applied to all vertical surfaces of existing pavement, curbs, gutters, construction joints, and all existing pavement to be surfaced, in conformance with Section 39 of the Caltrans Standard Specifications.
3. Spreading and compacting asphalt concrete shall be performed in accordance with Section 39 of the Caltrans Standard Specifications.
4. Fog seal shall be applied to all finished surfaces of asphalt concrete pavement at a rate of 0.05 gallons per square yard, in accordance with Section 37 of the Caltrans Standard Specifications.
5. After fog seal has been applied, ample time shall be allowed for drying before traffic is allowed on the pavement or paint striping is applied.

3.3 CONCRETE CONSTRUCTION

A. General:

1. All concrete shall be mixed in accordance with applicable provisions of Section 90 of the Caltrans Standard Specifications.
2. Construction of concrete substructures shall conform to applicable provisions of Section 51 of the Caltrans Standard Specifications. Unless noted otherwise in the Specifications, all exposed surfaces of structure shall have Class 1 surface finish. Finish shall match adjacent existing concrete paving.
3. Schedule of Locations for Concrete Finish Types:

- a. Slabs or Stairs to receive toppings and fills: Scratched.
  - b. Exposed Stairs Fills: Nonslip.
  - c. Exterior Paved Areas: Light Broomed.
  - d. Formed Surface to receive paint: Smooth Formed.
  - e. Concealed Concrete Surfaces: Rough Formed.
- 4. Curing shall conform to provision of Caltrans Section 90-7. No pigment shall be used in curing compounds for construction of concrete curbs, gutters, and structures.
  - 5. All work shall be subject to field inspection. No concrete shall be placed until the Owner's Representative has approved the forms and reinforcement.
  - 6. Expansion joints on curbs and gutters shall be placed 20 feet on centers, adjacent to structures, and at all returns, and shall be filled with joint filler. Control joints shall be formed 10 feet on centers.
  - 7. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it be dropped freely more than 6 feet. Spouts, elephant trunks, or other approved means shall be used to prevent segregation.

### 3.4 SLURRY SEAL

#### A. General:

- 1. Mixing, spreading and placing shall be in accordance with applicable provisions of Section 37 of the C.D.T Standard Specifications.

### 3.5 FIELD QUALITY CONTROL

#### A. Asphalt Concrete Paving:

- 1. Contractor shall perform a flood test in the presence of the engineer and/or Owner's representative. Location of ponding greater than 1/8" in depth may impact proper drainage and shall be marked and remedied by the contractor.
- 2. The specified thickness of the finished pavement shown on the plans and specifications shall be the minimum acceptable.
- 3. Conforms shall form a smooth, pond-free transition between existing and new pavement.
- 4. Depressions in paving between high spots are not to exceed 1/8-inch when measured below a 10 feet long straight edged placed anywhere on surface in any direction.
- 5. The finished asphalt pavement shall have positive drainage without ponding.

3.6 CLEANUP

A. General:

1. Surplus material remaining upon completion of paving operations shall become the property of the Contractor, to be removed from the work site and disposed of in a lawful manner.
2. Surfaces shall be left in a clean, neat, and workmanlike condition, and all construction waste, rubbish, and debris shall be removed from the work site and disposed of in a lawful manner.

**END OF SECTION**

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**SECTION 02780****PAVEMENT MARKING**

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**PART 1 – GENERAL**

## 1.1 SUMMARY:

- A. Provide requirements for materials, fabrications, and installation of traffic control and pavement markings.

## 1.2 SUBMITTALS:

- A. Submit manufacturer's product data describing application of products and compliance with VOC requirements.
- B. Shop Drawings: Show complete layout and location of pavement markings prior to demolition or obliteration of the existing markings.
- C. Submit samples as follows:
  - 1. Traffic paint.
  - 2. Pavement markers and adhesives.
  - 3. Reflectorized markers and posts.

## 1.3 DELIVERY, STORAGE AND HANDLING:

- A. Comply with Division 1 requirements, specifications, and the Owner's Representative.
- B. Deliver and store packaged products in original containers with seals unbroken and labels intact until time of installation.
- C. Provide proper facilities for handling and storage of products to prevent damage. Where necessary, stack products off ground on level platform, fully protected from weather.

**PART 2 – PRODUCTS**

## 2.1 MATERIALS:

- A. Traffic Marking and Symbol Paint: Water-Born, Fast-Dry, Traffic Paint distributed by Fuller-O'Brien Corp. D.J. Simpson (#108-273, White); (#108-280, Blue); or approved equivalent.
- B. Accessible Symbol Background Paint: Blue Color. Glidden Co. "Glid-Guard Lifemaster Finish No. 5200 /series, Color 1/M 79", or approved equivalent.

- C. Thermoplastic Stripes and Markings:
  - 1. Thermoplastic stripes and markings shall be hot applied conforming to CALTRANS STANDARD SPECIFICATION Section 84 and shall be Cataphote-Catatherm brand, Pavemark thermoplastic brand, or approved equivalent.
  - 2. Thermoplastic stripes and markings shall have a minimum skid friction value of BPN 35.
- D. Pavement Markers and Adhesives:
  - 1. Pavement markers shall be two-way retroreflective "Blue" markers and shall conform to the applicable requirements of Caltrans Standard Specification Section 85.
  - 2. Adhesive for pavement markers shall be standard set epoxy adhesive conforming to the requirements of Caltrans Standard Specification Section 95-2.05.

### **PART 3 - EXECUTION**

#### **3.1 INSPECTION:**

- A. Examine receiving surfaces and verify that surfaces are clean and proper for installation.
- B. Do not start work until unsatisfactory conditions have been corrected.

#### **3.2 APPLICATION:**

- A. Preparation:
  - 1. Clean and prepare surfaces to receive traffic paint in accordance with Caltrans Standard Specification Section 84-3.05 and these special provisions. Where required, remove existing striping and markings by wet blasting or equivalent method. Do not use dry sandblasting or other dust producing methods.
- B. Traffic Paint:
  - 1. Traffic paint shall be machine applied in accordance with Caltrans Standard Specification Section 84-3.04.
  - 2. No paint shall be applied until the surface has been approved by the Engineer and until at least 10 days after the slurry seal on asphalt concrete has been placed. Place markers in accordance with Caltrans Standard Specification Section 85-1.06.
- C. Striping Layout:



1. Layout striping locations via “cat tracking” or chalk line for Owner approval prior to application of any markings or paint.
2. Traffic stripe shall be single and double, solid and broken, and of the color to match existing conditions.
3. Traffic striping shall be placed in patterns to match existing conditions, contractor shall document.

D. Thermoplastic Stripes and Markings:

1. Thermoplastic stripes and markings shall be applied hot in conformance with manufacturer’s recommended instructions and the applicable requirements of Caltrans Standard Specification Section 84-2.06.

E. Pavement Markers:

1. Pavement markers shall be installed to delineate the location of fire hydrants along off-site and on-site roadways. No markers shall be installed until the surface has been approved by the Engineer and until at least 10 days after the slurry seal on asphalt concrete has been placed. Place markers in accordance with Caltrans Standard Specification Section 85-1.06.

F. Apply marking paint in accordance with approved manufacturer’s recommendations.

G. Density of paint coverage shall hide color and texture of substate.

H. Parking Stripes: Paint four inches wide unless otherwise noted.

I. Symbol Marking: Paint to match existing conditions.

3.3 CLEANING AND PROTECTION:

- A. Comply with requirements of Section 01700– CLEANING.
- B. Upon completion of work, remove surplus materials and rubbish and clean off spilled or splattered paint resulting from this work.
- C. Permit no surface traffic until pavement and symbol marking has dried thoroughly.

**END OF SECTION**

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**SECTION 02870****SITE FURNISHINGS**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide site furnishings including accessories as required for complete, finished installation.
  - 1. Provide factory finished steel bus stop bench and litter receptacle.

## 1.2 SUBMITTALS

- A. Product Data: Submit manufacturer data for site furnishings.
- B. Shop Drawings: Indicate construction, materials, dimensions, thicknesses, fabrication details, tolerances, colors, finishes, methods of support and anchorages.
- C. Samples: Submit samples of each exposed finish material, indicating color, texture and finish.

**PART 2 - PRODUCTS**

## 2.1 MANUFACTURERS

- A. Victor Stanley, Inc.
- B. Manufacturer's listed on Drawings.
- C. Substitutions: Refer to Section 01630.

## 2.2 MATERIALS

- A. Bench: Type as indicated on Drawings, as directed by Architect where not otherwise indicated.
- B. Trash Receptacle: Type as indicated on Drawings, as directed by Architect where not otherwise indicated.
  - 1. Metal: Galvanized steel fabrication with not less than G90 hot dip galvanized coating.
  - 2. Powder Coating Finish: Provide factory formulated polyester TGIC powder coating materials intended for powder coating application and as required to match approved sample, and approved mock-up.
    - a. Manufacturers:
      - 1) Courtaulds Coatings (Interpon)/TGIC Powder Coating.
      - 2) Porter Powder Coatings/TGIC Powder Coating.
      - 3) H.B. Fuller Co./TGIC Powder Coating.
      - 4) Fuller O'Brien/TGIC Powder Coating.
      - 5) Substitutions: Refer to Section 01630.

- b. Color: As indicated, as directed by Architect where not otherwise indicated; custom color may be required.
- C. Accessories: Provide anchors and accessories as required for complete secure site furnishing installation.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Handle and install site furnishings in accordance with manufacturer's approved shop drawings and instructions.
- B. Set site furnishings level and true to line, in correct relationship to adjacent materials.

**END OF SECTION**

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**SECTION 02876****BIKE RACKS**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide inverted "U" shaped bicycle racks including accessories as required for complete, secure installation.

## 1.2 SUBMITTALS

- A. Product Data: Submit manufacturer literature.
- B. Shop Drawings: Indicate construction, materials, dimensions, thicknesses, fabrication details, tolerances, colors, finishes, methods of support and anchorages.
- C. Samples: Submit color samples.

**PART 2 - PRODUCTS**

## 2.1 MATERIALS

- A. Bicycle Racks: Stock manufactured inverted "U" bicycle racks.
  - 1. Manufacturers:
    - a. Cycle-Safe/Inverted U-2 Bicycle Racks.
    - b. Huntco/HP Bike Racks.
    - c. Madrax, a T.L. Graber Co./Square "U" Bike Racks.
    - d. Substitutions: Refer to Section 01630.
  - 2. Construction: Manufacturer's standard in-ground mounted galvanized steel tube construction with configuration indicated; not less than G90 galvanized coating.
  - 3. Powder Coating Finish: Provide factory formulated polyester TGIC powder coating materials intended for powder coating application and as required to match approved sample, and approved mock-up.
    - a. Manufacturers:
      - 1) Courtaulds Coatings (Interpon)/TGIC Powder Coating.
      - 2) Porter Powder Coatings/TGIC Powder Coating.
      - 3) H.B. Fuller Co./TGIC Powder Coating.
      - 4) Fuller O'Brien/TGIC Powder Coating.
      - 5) Substitutions: Refer to Section 01630.
    - b. Color: As indicated, as directed by Architect where not otherwise indicated; custom color may be required.
- B. Accessories: Provide anchors and accessories as required for complete secure bike rack installation.

**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. Handle and install bike racks in accordance with manufacturer's recommendations and installation instructions.
- B. Set bike racks secured to construction, level and true to line, in correct relationship to adjacent materials.

**END OF SECTION**

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**SECTION 02900****PLANTING**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide landscape planting with related items and accessories as required for complete installation including initial landscape maintenance.

## 1.2 SUBMITTALS

- A. Product Data: Submit plant material list from supplying nurseries certifying quality and size of plant materials.
- B. Samples: Submit samples of mulch showing brand and source.
- C. Certificates: Submit certified laboratory organic amendment analysis.

## 1.3 QUALITY ASSURANCE

- A. Qualification of Installers: Landscaping firm successfully engaged in landscaping work for not less than five years.

## 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Do not prune prior to delivery, except by prior approval.
- B. Protect plants from sun and wind.
- C. Remove rejected plants from site immediately.

## 1.5 WARRANTY

- A. Special Warranty: Replace dead plants and plants not showing evidence of active growth at end of warranty period.
  - 1. Replacement Plants: Provide same kind and size originally planted. Maintain replacement plants for original maintenance period or until active growth is established.
  - 2. Special Warranty Period: One year.

**PART 2 - PRODUCTS**

## 2.1 MATERIALS

- A. Plant Materials: Nursery-grown stock.
  - 1. Quality and Size: Conform to State of California Grading Code for Nursery Stock Number 1 grade.

2. Measurements of Plants: As indicated.
    - a. Where not indicated, provide plants of uniform and standard size, neither overgrown nor too recently canned so root system is not thoroughly established throughout can.
  3. Plant Label: Identify species and variety; do not make variety substitutions without prior approval.
- B. Commercial Fertilizer for Backfilling: As approved by Architect.
- C. Mulch: Ground pine or fir bark, particle size range within 1-1/4" to 2" and with not over 10% wood fibers, free of salt, foreign materials such as clods, coarse objects, sticks, roots, weeds or weed seeds.
1. Maximum pH: 5.5.
- D. Imported Soil: Obtain from approved sources; free of rocks, sticks, noxious weed seeds and other foreign matter.
- E. Staking and Tree Protector Materials:
1. Stakes: Minimum 2" square or diameter, not less than 8 feet long, or as long as necessary to properly support tree as indicated.
  2. Hoses: Dull green or black rubber hose, 1/2" diameter; provide for covering wire at points of contact.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Locations: Verify locations of each type of plant before planting areas are finalized and before pits are excavated.

#### **3.2 INSTALLATION**

- A. Pits: Circular with vertical sides; minimum 24" diameter, unless otherwise indicated; depth as indicated; sides broken to open wall of pit for root penetration.
- B. Pit Bottoms: Replace native soil in bottom 3'-0" of tree holes with commercial fertilizer and backfill mix.
- C. Backfill Mix: Place trees and shrubs so crown of ball is 2" above surrounding grade; backfill with imported topsoil.
- D. Water backfill until saturated full depth of hole.
- E. Build basins around plants; raise settled plants to specified level.
- F. Mulch plant basins to a depth of 1" and thoroughly water.
- G. Stake trees; drive stakes 4'-0" into ground alongside root ball prior to backfilling hole.
- H. Tie trees to stakes, at half-way point and at top, by means of hose-covered wire; locate wire on side of prevailing wind.

**3.3 FIELD QUALITY CONTROL**

- A. Preliminary Inspections: Contractor to provide preliminary inspection of planting work upon completion of planting.
  - 1. Approval of planting work after inspection establishes beginning of maintenance period; no partial approvals will be given.
- B. Final Inspection: Owner will make final inspection for acceptance of planting at conclusion of planting maintenance period, provided improvements and corrective work have been completed.
  - 1. If corrective work has not been completed, continue planting maintenance until work has been completed.
  - 2. Final inspection will be made within 10 working days of written request by Contractor.
  - 3. Complete following prior to time of final inspection.
    - a. Put plant basins in good condition.
    - b. Put stakes and plant ties in good condition.
    - c. Remove weeds from planting areas.
    - d. Remove dead, diseased or damaged plants and provide new plants.
    - e. Broom clean walks and paved areas.
    - f. Remove debris and discarded materials from site.
    - g. Put landscape work in a neat and orderly condition.

**3.4 MAINTENANCE**

- A. General: Maintain plants during and immediately following planting operations; continue for minimum 45 days after planting or longer where necessary to establish thriving plants.
- B. Tree, Shrub & Ground Cover Maintenance:
  - 1. Maintain plants by regular watering; replacement of dead plants; repair of stakes, ties and guys; and spraying for insect pests.
  - 2. Keep water basins in good condition and deep weed free.
  - 3. After 30 calendar days, fertilize each tree using commercial fertilizer at rate concentration and rate recommended by fertilizer manufacturer and as approved by Architect.
  - 4. Spread fertilizer evenly over surface of plant basin and cultivate into mulch or soil; thoroughly water plants after applying fertilizer.
  - 5. Water ground cover plants as frequently as necessary to keep plants adequately moist; replace disturbed or dead plants prior to final inspection.

**END OF SECTION**



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**SECTION 03100****CONCRETE FORMS AND ACCESSORIES**

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**PART 1 – GENERAL**

## 1.1 SUMMARY

- A. Section Includes: All labor, materials and equipment and all operations required to complete all formwork as indicated on the drawings; to produce shapes and configurations as shown, as required; and as specified herein, including:
1. Forms, shores, bracing, removal and other operations as necessary for all cast-in-place concrete and masonry placed.
  2. Setting and securing anchor bolts and other metal items embedded in concrete into formwork, using materials and layouts furnished and delivered to jobsite as specified under other sections.
- B. Related Sections:
1. Pertinent Sections of other Divisions specifying site concrete: Formwork for site concrete.
  2. Section 03200 - Concrete Reinforcement.
  3. Section 03300 - Cast-in-Place Concrete.
  4. Pertinent Sections of other Divisions specifying work to be embedded in concrete.
  5. Pertinent Sections of other Divisions specifying work penetrating concrete foundations and formwork.

## 1.2 REFERENCES

- A. ACI 347 "Recommended Practice for Concrete Formwork."
- B. American Plywood Association (APA).
- C. West Coast Lumberman's Association (WCLA).
- D. ACI SP-66 – ACI Detailing Manual; American Concrete Institute International

- E. ASTM A185 – Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete, 2005.
- F. ASTM A 615 – Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
- G. ASTM A706 – Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement, 2005.
- H. AWS/ANSI/D1.4/D1.4M – American Welding Society (Structural Welding Code-Reinforcing Steel).
- I. California Building Code; California Code and Regulations, Latest Edition (CBC), Chapter 19
- J. CRSI (DA4) – Manual of Standard Practice; Concrete Reinforcing Steel Institute.

### 1.3 DESIGN REQUIREMENTS

- A. Design, engineer and construct formwork, shoring and bracing to conform to design and code requirements, resist imposed loads; resultant concrete to conform to required shape, line and dimension.

### 1.4 SUBMITTALS

- A. Limitation of review: Structural Engineer's review will be required only where specifically requested for general architectural applications and features only. Contractor is responsible for structural stability, load-resisting characteristics and sufficiency of form work design.
- B. Submit elevations for formwork at cambered slabs.

### 1.5 QUALITY ASSURANCE

- A. General: All form materials shall be new at start of work. Produce high quality concrete construction. Minimize defects due to joints, deflection of forms, roughness of forms, nonconforming materials, concrete or workmanship.
- B. Reuse of Forms: Plywood forms may be reused, if thoroughly cleaned of all dirt, mortar, and foreign materials, and undamaged at edges and contact face. Reuse shall be subject to permission from the Architect without exception, and issued in writing. Reuse of any panel which will produce a blemish on exposed concrete, will not be permitted.

**PART 2 – PRODUCTS**

## 2.1 MATERIALS

## A. Form Materials:

1. Non-Exposed Surface Formwork Facing: Forms for concrete which is not exposed to view, may be of plywood as specified for exposed surfaces, or square edge 1" x nominal Douglas Fir, Construction Grade, S4S.
2. Exposed Surface Formwork Facing:
  - a. Forms for all exterior and interior concrete flat surfaces unless otherwise specified as board formed shall be new Douglas Fir Plywood (APA) ply, 5/8-inch, B-B Plyform, Class 1, Exterior Type, oiled and edged and edge-sealed conforming to U.S. Product Standard PS 1-83 in large sheet sizes to achieve joint patterns shown.
  - b. All exposed concrete edges shall be chamfered 3/4" minimum or as noted on the drawings.
3. Exposed Surface Formwork - Special Pattern Form Liner:
  - a. Forms for all exterior and interior concrete flat surfaces indicated shall be as designated by Architect.

D. Earth Forms: Allowed, subject to soil standing in excavations without ravel or caving.

E. Form Release Agent: Spray-on compound, not affecting color, bond or subsequent treatment of concrete surfaces; "Formfilm" by W. R. Grace, [www.grace.com](http://www.grace.com), "Nox-Crete Form Coating", [www.nox-crete.com](http://www.nox-crete.com), or approved equal.

F. Accessories: Types recommended by manufacturers or referenced standards to suit conditions indicated;

1. Anchors, spacers, void in-fill materials: sized to resist imposed loads.
2. Waterstops: Profiles and locations indicated, configured to provide continuous waterproof barrier.

- a. Products by J. P. Specialties, "Earthshield®", [www.jpsspecialties.com](http://www.jpsspecialties.com); Greenstreak, [www.greenstreak.com](http://www.greenstreak.com); or approved equal.
3. Form Ties: Prefabricated rod, flat band, or wire snap ties with 1" break-back or threaded internal disconnecting type with external holding devices of adequate bearing area. Ties shall permit tightening and spreading of forms and leave no metal closer than 1" to surface.
- C. Corner Chamfers and Rustications: Filleted, wood strip or foam type; sizes and shapes as detailed, or 3/4 x 3/4 inch size minimum if not detailed; maximum possible lengths.
- D. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

### **PART 3 – EXECUTION**

#### **3.1 EXAMINATION**

- A. Inspect the substrate and the conditions under which concrete formwork is to be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected. Commencement of work indicates acceptance of substrates and conditions.
- B. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

#### **3.2 EARTH FORMS**

- A. If natural soil or compacted fill can be accurately cut and maintained, foundations and grade beams may be poured against earth without forming when requested by Contractor and approved by Architect. Provide positive protection of trench top corners.
- B. Maintain earth forms free of water and foreign materials.

#### **3.3 ERECTION – FORMWORK**

- A. General: Construct formwork in accordance with calculations, and recommendations of Section 401 of ACI 347. Construct forms to the sizes, shapes, lines and dimensions shown, and as required to obtain accurate alignment, location, grades, level and plumb work in finished structure. Provide for openings, offsets, sinkages, keyways, recesses,

moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required. Use selected materials to obtain required finishes.

1. Construct cambers specified in concrete members and slabs in the formwork.
  2. Schedule the work and notify other trades in ample time so that provisions for their work in the formwork can be made without delaying progress of the project. Install all sleeves, pipes, etc. for building services systems, or other work. Secure information about and provide for all openings, offsets, recessed nailing blocks, channel chases, anchors, ties, inserts, etc. in the formwork before concrete placement.
  3. Deflection: Formwork and concrete with excessive deflection after concrete placement will be rejected. Excessive deflection is that which will produce visible and noticeable waves in the finished concrete.
  4. Measure formwork for elevated structural slabs, columns, wall elevations points of maximum camber and submit in writing to the Architect/Engineer prior to placing concrete.
- B. Formwork Construction: Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301. Uniform, substantial and sufficiently tight to prevent leakage of concrete paste, readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials. Tie, brace, shore, and support to insure stability against pressures from any source, without failure of any component part and without excessive deflection. Solidly butt joints and provide backup material at joints as required to prevent leakage and fins.
- C. Provide all openings, offsets, inserts, anchorages, blocking, and other features of the work as shown or required. Refer to Article 3.5 titled INSERTS, EMBEDDED PARTS, AND OPENINGS for detailed requirements.
- D. Warped, checked or scuffed forms will be rejected.
- E. Maintain membranes, reinforcing and other work free of damage; protect with plywood runway boards or other positive, durable means.
- F. Align joints and make watertight. Keep form joints to a minimum.
- G. Provide fillet and chamfer strips on external corners of exposed locations and as indicated to form patterns in finished work. Extend patterns around

corners and into alcoves, on backs of columns and similar locations not otherwise shown.

1. Produce beveled, smooth, solid, unbroken lines, except as otherwise indicated to conform to patterns.
  2. Form corners and chamfers with 3/4 inch x 3/4 inch strips, unless otherwise indicated, accurately formed and surfaced to produce uniformly straight lines and tight edge joints. Extend terminal edges to required limit and miter chamfer at changes in direction.
- H. Unexposed corners may be formed either square or chamfered.
- I. Ties and Spreaders: Arrange in a pattern acceptable to the Architect when exposed. Snap-ties may be used except at joints between pours where threaded internal disconnecting type shall be used.
- J. Coordinate this section with other sections of work that require attachment of components to formwork.
- K. Reglets and Rebates: Accurately locate, size, and form all reglets and rebates required to receive work of other trades, including flashing, frames, and equipment.

#### 3.4 APPLICATION - FORM RELEASE AGENT

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not allow excess form coating material to accumulate in the forms or to come into contact with reinforcement or surfaces which will be bonded to fresh concrete.
- D. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork will be rejected.
- E. Leave no residue or stain on the face of the concrete, nor affect bonding of subsequent finishes or work specified in other sections.

#### 3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS

- A. Provide formed openings where required for items to be embedded in passing through concrete work.

1. Provide openings in concrete formwork to accommodate work of other sections including those under separate contracts (if any). Size and location of openings, recesses and chases shall be in accordance with the section requiring such items. Accurately place and securely support items to be built into forms.
- B. Construction Joints: Construct and locate generally as indicated on Drawings and only at locations approved by Structural Engineer, so as not to impair the strength of the structure. Form keys in all cold joints shown or required.
- C. Locate and set in place items that will be cast directly into concrete.
- D. Rough Hardware and Miscellaneous Metal: Set inserts, sleeves, bolts, anchor, angles, and other items to be embedded in concrete. Set embedded bolts and sleeves for equipment to template and approved shop drawings prepared by trades supplying equipment.
- E. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.
- F. Wood Inserts and Nailers: Provide approved preservative-treated lumber. Set all required nailing blocks, grounds, and other inserts as required to produce results shown. Wood plugs shall not be used.
- G. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- H. Piping: Do not embed piping in structural concrete unless locations specifically approved by Structural Engineer.
- I. Conduit: Place conduit below slabs-on-grade and only as specifically detailed on structural drawings. Minimum clear distance between conduits shall be 3 diameters. Location shall be subject to Engineer's written approval and shall not impair the strength of the structure.
- J. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.
  1. Provide openings for the introduction of vibrators at intervals necessary for proper placement.

2. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.
  - K. Install Form Liner inserts in accordance with manufacturer's recommendations, to produce patterns and textures indicated.
  - L. Install waterstops in accordance with manufacturer's recommendations to provide continuous waterproof barrier.
- 3.6 FORM CLEANING
- A. Clean forms as erection proceeds, remove foreign matter within forms.
  - B. Clean formed cavities of debris prior to placing concrete.
    1. Remove all dirt, chips, sawdust, rubbish, water and foreign materials detrimental to concrete.
    2. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
- 3.7 FOOTINGS
- A. Verify elevations and provide final excavation required for footings prior to placing of concrete.
- 3.8 EQUIPMENT BASES
- A. Form concrete bases for all mechanical and electrical equipment in accordance with approved shop details furnished by other sections.
  - B. Sizes and locations as indicated and as required to produce results shown.
  - C. Provide coved base for all equipment bases placed on concrete slabs.
- 3.9 FORMWORK TOLERANCES
- A. Construct formwork to maintain tolerances required by ACI 301.
- 3.10 FIELD QUALITY CONTROL
- A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and to verify that supports, fastenings, wedges, ties, and items are secure.



- B. Do not reuse wood formwork more than 2 times for concrete surfaces to be exposed to view. Do not patch formwork.
- C. Clean and repair surfaces to be re-used in the work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable. Apply new form coating compound material to concrete contact surfaces as specified for new formwork.
- D. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets.

### 3.11 FORM REMOVAL

- A. Do not loosen or remove forms before minimum curing period has elapsed without employment of appropriate alternate curing methods, approved by the Architect in writing.
- B. Remove forms without damage to the concrete using means to insure complete safety of the structure and without damage to exposed beams, columns, wall edges, chamfers and inserts. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- C. Do not remove forms until the concrete has hardened sufficiently to permit safe removal and the concrete has attained sufficient strength to safely support imposed loads. The minimum elapsed time for removal of forms after concrete has been placed shall be as follows:
  - 1. Columns and Walls: 7 days, provided members are not subjected to overhead loads.
  - 2. Retaining Walls: 21 days minimum.
  - 3. Footings: 7 days minimum. If backfilled immediately, side forms may be removed 24 hours after concrete is placed.
  - 4. Beams, elevated slab, and similar overhead conditions: 28 days unless adequate shoring is provided.
- D. Durations listed above are minimums and are subject to extension at the sole judgment of the Architect/Engineer.
- E. Reshoring: Reshore members where and if required by Formwork Design Engineer.

- F. Elevated slabs with Camber: Submit measured elevations of completed work at the same locations as provided for formwork, within 7 days of removing forms.
- G. Do not subject concrete to superimposed loads (structure or construction) until it has attained full specified design strength, nor for a period of at least 14 days after placing.
- H. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

**3.12 CLEANING**

- A. Remove excess material and debris associated with this work from the job site.

**END OF SECTION**

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**SECTION 03200****CONCRETE REINFORCEMENT**

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**PART 1 – GENERAL**

## 1.1 SUMMARY

## A. Section Includes:

1. Reinforcing steel work for all concrete and masonry work as indicated on the drawings and specified herein.
2. Coordinate this work with the other work affected by these operations, such as forms, electrical work, mechanical work, structural steel, masonry and concrete.

## B. Related Sections:

1. Pertinent sections of Division 01 specifying Quality Control and Testing Laboratory services.
2. Pertinent sections of Division 02 (32) specifying site concrete paving requiring reinforcement.
3. Pertinent Sections of other Divisions specifying reinforcement, including, concrete, masonry, and rough carpentry.
4. Pertinent sections of other Divisions specifying work to be embedded in concrete.
5. Pertinent sections of other Divisions specifying work penetrating concrete work.

## 1.2 REFERENCE STANDARDS

- A. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International.
- B. ACI 315 - Manual of Standard Practice for Detailing Reinforced Concrete.
- C. ACI 318 - Building Code Requirements For Reinforced Concrete and Commentary; American Concrete Institute International.
- D. ACI SP-66 - ACI Detailing Manual; American Concrete Institute International.

- E. ASTM A185- Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete, 2005.
- F. ASTM A 615- Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- G. ASTM A706- Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement, 2005
- H. AWS/ANSI/D1.4/D1.4M - American Welding Society, Structural welding code for reinforcing steel.
- I. California Building Code, latest edition, Chapter 19.
- J. CRSI (DA4) - Manual of Standard Practice; Concrete Reinforcing Steel Institute.

### 1.3 SUBMITTALS

- A. Submit in accordance with pertinent sections of Division 01 specifying submittal procedures. Submit for review prior to fabrication.
- B. Limitation of Review: Structural Engineer's review will be for general conformance with design intent as indicated in the Contract Documents and does not relieve Contractor of full responsibility for conformance with the Contract Documents. The General Contractor shall review and approve shop drawings prior to submittal to the Architect/Engineer.
- C. Shop Drawings: Show complete fabrication and placing details of all reinforcing steel. Comply with requirements of ACI SP-66. Include:
  - 1. Bar sizes and schedules;
  - 2. Shapes of bent bars, layout and spacing of bars, location of splices.
  - 3. Stirrup spacing, arrangements and assemblies,
  - 4. References to Contract Documents detail numbers and designations.
  - 5. Wall elevations corresponding to elevations shown in Contract Documents.
- D. Product Data: Submit manufacturer's product data, specifications, location and installation instructions for proprietary materials and reinforcement accessories. Provide samples of these items upon request.

- E. Certificates: Submit all certifications of physical and chemical properties of steel for each heat number as manufactured, including location of material in structure as specified below in Article titled QUALITY ASSURANCE. All materials supplied shall be tagged with heat numbers matching submitted Mill Test Report analyses.
- F. Samples: Provide to the Owner's Testing laboratory as specified in Article SOURCE QUALITYCONTROL.

#### 1.4 QUALITY ASSURANCE

- A. Perform work of this Section in accordance with CRSI (DA4), CRSI (P1), ACI 301, and ACI 318.
- B. Requirements of Regulatory Agencies, refer to pertinent Sections of Division 01.
- C. Certification and Identification of Materials and Uses: Provide Owner's Testing Agency with access to fabrication plant to facilitate inspection of reinforcement. Provide notification of commencement and duration of shop fabrication in sufficient time to allow inspection and all material identification/test information listed below.
  - 1. Provide manufacturer's Mill Test Reports for all materials. Include chemical and physical properties of the material for each heat number manufactured. Tag all fabricated materials with heat number.
  - 2. Provide letter certifying all materials supplied are from heat numbers covered by supplied mill certificates. Include in letter the physical location of each grade of reinforcing and/or heat number in the project (i.e. foundations, walls, etc.).
  - 3. Unidentified Material Tests: Where identification of materials by heat number to mill tests cannot be made, Owner's Testing Agency shall test unidentified materials as described below.
- D. Testing and Inspection: Tests and Inspections required by Independent Testing Agency are specified below in Articles SOURCE QUALITYCONTROL and FIELD QUALITY CONTROL. Duties and limitations of Independent Testing Agency, test costs and test reports in conformance with pertinent Sections of Division 01.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Comply with pertinent requirements of Section 01600.

- B. Deliver reinforcement to project site in bundles marked with durable tags indicating heat number, mill, bar size and length, proposed location in the structure and other information corresponding with markings shown on placement diagrams.
- C. Handle and store materials above ground to prevent damage, contamination or accumulation of dirt or rust.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

- A. Reinforcing Steel: Deformed billet steel bars, conform to ASTM A706; or to ASTM 615, Grade 60, except (1) the maximum yield strength shall be 78,000 psi, and (2) the tensile strength shall not be less than 1.25 times the actual yield strength.
  - 1. Exception: Bars used as column ties, stirrups, and field bent dowels shall be Grade 40 minimum, unless otherwise noted on the drawings.
  - 2. All reinforcement to be welded shall be or shall meet the requirements for ASTM A706 reinforcement.
  - 3. All reinforcement to be unfinished.
- B. Welded Wire Fabric: ASTM A185.
- C. Tie Wire: No. 16 AWG or heavier, black annealed.
- D. Reinforcing Supports: Plastic or galvanized steel chairs, bolsters, bar supports, or spacers sized and shaped for adequate support of reinforcement and construction loads imposed during concrete placement, meeting ACI and CRSI standards.
  - a. For use over formwork: Galvanized wire bar type supports complying with CRSI recommendations. Provide plastic tips where exposed to view or weather after removal of formwork. Do not use wood, brick, or other unacceptable materials.
  - b. For slabs on grade: Supports with sand plates or horizontal runners where base material will not support chair legs.
- E. Concrete blocks: Slab-on-grade conditions only, as required to support reinforcing bars in position.
- F. Reinforcement Splice Couplers: Products recommended by manufacturer to suit conditions indicated. "Bar Lock" Reinforcement Splicing systems,

ICC-ES ER-5064, July 2005, by Dayton-Superior Corporation,  
www.daytonsuperior.com.

- G. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice, unless specifically shown otherwise. Details not specifically shown or indicated shall conform to ACI 315 and specified codes and standards.
  - 1. Accurately shop-fabricate to shapes, bends, sizes, gauges and lengths indicated or otherwise required.
  - 2. Bend bars once only. Discard bars improperly bent due to fabricating or other errors and provide new material; do not re-bend or straighten unless specifically indicated. Rebending of reinforcement in the field is not allowed.
  - 3. Do not bend reinforcement in a manner that will injure or weaken the material or the embedding concrete.
  - 4. Do not heat reinforcement for bending. Heat-bent materials will be rejected.
- H. Unacceptable materials: Reinforcement with any of the following defects will not be permitted in the work.
  - 1. Bar lengths, depths and bends exceeding specified fabrication tolerances.
  - 2. Bends or kinks not indicated on Drawings or final shop drawings.
  - 3. Bars with reduced cross-section due to rusting or other cause.
- I. Tag reinforcement with durable identification to facilitate sorting and placing.

### 2.3 SOURCE QUALITY CONTROL

- A. The Testing Agency, as specified in the Article QUALITY ASSURANCE, will perform the following:
  - 1. Material Testing:
    - a. Identified Steel: When samples are taken from bundled steel identified by heat number, matched with accompanying mill analyses as delivered from the mill, Owner's Testing Agency will perform one tensile test and one bend test per each ten tons or fraction thereof for each required size of reinforcing steel.

- b. Unidentified Steel: When identification of materials by heat number matched to accompanying mill analyses cannot be made, perform one tensile test and one bend test per each two and one-half tons or fraction thereof for each required size of reinforcing steel. Tests of unidentified steel shall be performed by the Owner's Testing Agency and costs for these tests shall be paid by the Contractor by deductive change order.

### **PART 3 – EXECUTION**

#### **3.1 EXAMINATION**

- A. Inspect the conditions under which concrete reinforcement is to be placed. Do not proceed with the work until unsatisfactory conditions have been corrected.
- B. Coordinate with work of other sections to avoid conflicts or interference. Bring conflicts between reinforcement and other elements to Architect's attention. Resolve conflicts before concrete is placed.
- C. Notify Architect and Structural Engineer for review of steel placement observation not less than 48 hours before placing concrete.

#### **3.2 PLACEMENT**

- A. General: Comply with the specified codes and standards, and Concrete Reinforcing Steel Institute recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.
- B. Clean bars free of substances which are detrimental to bonding. Maintain reinforcement clean until embedded in concrete.
- C. Place reinforcement to obtain the minimum coverages for concrete protection. Do not deviate from required position. Maintain required distance, spacing and clearance between bars, forms and ground.
- D. Location and Support: Provide metal chairs, runners, bolsters, spacers and hangers, as required.
- E. Provide additional steel reinforcement as necessary or as directed, to act as spreaders or separators to maintain proper positioning.
- F. Tying and Attachment: Securely tie at all intersections and supports with wire. Prevent dislocation or movement during placement of concrete. Direct twisted ends of wire ties away from exposed concrete surfaces.



- G. Separate reinforcing from pipes or conduits with approved non-metallic separators. Do not use wood or steel form stakes or reinforcement used as stakes as support for reinforcement.
- H. Accommodate placement of formed openings required by other sections.
- I. Obstructions:
  - 1. Where obstructions, block-outs or penetrations (conduits, raceways, ductwork) prevent continuous placement of reinforcement as indicated, provide additional reinforcing as detailed and as directed by the Structural Engineer to supplement the indicated reinforcement around the obstruction.
  - 2. Place additional trim bars, ties, stirrups, or other elements as detailed and as directed at all opening, sleeves, pipes or other penetrations through structural elements.
- J. Welded Wire Fabric: Reinforce slabs with 6"x 6"-W1.4 x W1.4 welded wire fabric reinforcing, unless otherwise noted on drawings.
  - 1. Roll out, straighten, cut to required size, and lay out flat in place.
  - 2. Securely wire-tie fabric to other reinforcement at frequent intervals.
  - 3. Extend fabric over supporting beams and walls, and to within 1 inch of edge of slabs, construction joints, and expansion joints.
  - 4. Support fabric in mid-depth of slab.
  - 5. Lift fabric reinforcement at intervals as slab concrete is placed, ensure proper embedment.

### 3.3 REINFORCING SPACING AND COVERAGE

- A. Spacing: Do not space bars closer than four (4) diameters of the largest of two adjacent bars, except at bar laps, which shall be placed such that a minimum of 2 bar diameters is clear between bars.
  - 1. Where reinforcing in members is placed in two layers, the distance between layers shall not be less than four bar diameters of the largest bar and the bars in the upper layers shall be placed directly above those in the bottom layer, unless otherwise detailed or dimensioned.
- B. Coverage of bars (including stirrups and columns ties) shall be as follows, unless otherwise shown:

1. Footings and Mat Foundation: 3 inches to any soil face, 2 inches to top.
2. Slabs (on grade): 2 inches to grade face, 1-1/2 inches to top face.
3. Slabs (elevated): 1-1/2 inches top and bottom.
4. Beam & Column: 1-1/2" inches to form.
5. Walls: 1-1/2" clear to form and 2 inches clear to form at soil face.

### 3.4 DOWELS, SPLICES, OFFSETS AND BENDS

- A. Provide standard reinforcement splices at splices, corners, and intersections by lapping ends, placing bars in contact, and tightly tying with wire at each end. Comply with details shown on structural drawings and requirements of ACI 318.
- B. Provide minimum 1-1/2 inch clearance between sets of splices. Stagger splices in horizontal bars so that adjacent splices will be 4 feet apart.
- C. Laps of welded wire fabric shall be at least two times the spacing of the members in the direction lapped but not less than twelve inches.
- D. Splices of reinforcement shall not be made at points of maximum stress. Provide splice lengths as noted on the structural drawings, with sufficient lap to transfer the stress between bars by bond and shear.
- E. Spacing:
  1. Space bars minimum distance specified and all lapped bars 2 bar diameters (minimum) clear of the next bar.
  2. Stagger splices of adjacent bars where possible and where required to maintain bar clearance.
  3. Beam or slab top bars shall be spliced mid-span of column support and bottom bars spliced at column supports.
  4. Request Architect/Engineer review prior to placement for all splices not shown on the drawings.
- F. Reinforcement Couplers: Install at all locations indicated and may be used as an alternate to lap splices in general. Install couplers in accordance with manufacturer's recommendations.

### 3.5 WELDING

- A. No reinforcing shall be welded unless specifically indicated or without prior approval of the Structural Engineer.
- B. Only when so approved for use as noted above, all welding shall conform to the AWS D1.4, UBC Standard 19-2 and the following;
  - 1. All welding performed by certified welders.
  - 2. All reinforcement requires preheat prior to welding. All preheat and welding shall be continuously inspected by the Testing Agency.

### 3.6 MISPLACED REINFORCEMENT

- A. Notify Architect/Engineer immediately if reinforcing bars are known to be misplaced after concrete has been placed.
- B. Perform no correction or cutting without specific direction. Do not bend or kink misplaced bars.
- C. Correct misplaced reinforcing only as directed in writing by the Architect/Engineer. Bear all costs of redesign, new, or additional reinforcing required because of misplaced bars at Contractor's expense.

### 3.7 FIELD QUALITY CONTROL

- A. The Testing Agency as specified in the Article QUALITY ASSURANCE, will inspect the work for conformance to contract documents before concrete placement.
  - 1. Inspection: Provide inspection and verifiable installed reinforcement.
  - 2. All preheat and welding activities for steel reinforcement, when these occur. Confirm that the surface of the rebar is free of form release oil or other coatings.

### 3.8 CLEANING

- A. Remove excess material and debris associated with this work from the job site

**END OF SECTION**

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**SECTION 03300****CAST-IN-PLACE CONCRETE**

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**PART 1 – GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide all labor, materials, equipment and services to complete all concrete work required, including, but not limited to, the following:
1. Foundations, beams, columns, elevated slabs, slabs-on-grade, walls, and retaining walls.
  2. Installation of all bolts, inserts, sleeves, connections, etc. in the concrete.
  3. Joint devices associated with concrete work.
  4. Miscellaneous concrete elements, including, but not limited to: equipment pads, light pole bases, flagpole bases, thrust blocks, and manholes.
  5. Concrete curing.
  6. Coordination with other sections:
    - a. Make all preparations and do all work necessary to receive or adjoin other work. Install all bolts and anchors, including those furnished by other sections, into formwork and provide all required blocking.
    - b. Install all accessories embedded in the concrete and provide all holes, blockouts and similar provisions necessary for the work of other sections. Provide all patching or cutting made necessary by failure or delay in complying with this requirement at the Contractor's expense.
    - c. Coordinate with other sections for the accurate location of embedded accessories.

B. Related Sections:

1. Pertinent Sections of Division 01 specifying Quality Control and Testing Laboratory services.
2. Pertinent Sections of other Divisions specifying site concrete: Formwork for site concrete.
3. Section 03100 (03 1000) - Concrete Formwork.
4. Section 03200 (03 2000) - Concrete Reinforcement.
5. Pertinent Sections of Division 03 specifying concrete construction.
7. Pertinent Sections of other Divisions specifying work to be embedded in concrete.
8. Pertinent Sections of other Divisions specifying work penetrating concrete foundations and formwork.
9. Pertinent sections of other Divisions specifying floor finishes and sealants applied to concrete substrates.

1.2 REFERENCES

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; ACI 211.2-Standard practice for selecting proportions for lightweight concrete; American Concrete Institute International.
- B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International.
- C. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International.
- D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International.
- E. ACI 305R - Hot Weather Concreting; American Concrete Institute International.

- F. ACI 306R - Cold Weather Concreting; American Concrete Institute International.
- G. ACI 308 - Standard Practice for Curing Concrete; American Concrete Institute International.
- H. ACI 318 - Building Code Requirements for Reinforced Concrete and Commentary; American Concrete Institute International.
- I. California Building Code, CBC, California Code of Regulations, Chapter 19, Concrete, latest adopted edition.

### 1.3 SUBMITTALS

- A. Submit in accordance with pertinent sections of Division 01 specifying submittal procedures. The General Contractor shall review and approve shop drawings prior to submittal to the Architect/Engineer. Submittals that do not meet these requirements will be returned for correction without review. Submit for review prior to fabrication.
- B. Limitation of Review: Structural Engineer's review will be for general conformance with design intent as indicated in the Contract Documents and does not relieve Contractor of full responsibility for conformance with the Contract Documents.
- C. Product Data: Submit manufacturers' data on manufactured products and other concrete related materials such as bond breakers, cure/sealer, admixtures, etc. Demonstrate compliance with specified characteristics. Provide samples of items upon request.
- D. Mix Designs: Submit Mix Designs for each concrete type required for work per requirements of articles CONCRETE MIXES and QUALITY ASSURANCE. Resubmit revised designs review if original designs are adjusted or changed for any reason.
- E. Shop Drawings: Proposed location of construction and cold joints when different or in addition to those shown on the drawings.
- F. Shop Drawings: Proposed location of all slab construction joints, dowel joints and blockouts.

- G. Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent construction for concrete accessories.
- H. Batch Plant Certificates: Include with delivery of each load of concrete. Provide Certificates to the Testing Agency and the Architect/Engineer as separate submittals. Concrete delivered to the site without such certificate shall be rejected and returned to the plant. Each certificate shall include all information specified in Article SOURCE QUALITY CONTROL below.
- I. Engineering Analysis: Prepared by a California-licensed Civil or Structural Engineer, justifying construction-imposed loads on slabs, beams, and walls which exceed those allowed by CBC for the specified use.
  - 1. 2000 lbs maximum allowable construction load without analysis.
  - 2. 10,000 lbs maximum allowable construction load with analysis.
- J. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

#### 1.4 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Concrete construction verification and inspection to conform to CBC 1704.4.
- C. Common Sourcing: Provide each of the following materials from a single source for entire project.
  - 1. Cement.
  - 2. Aggregate.
- D. Follow recommendations of ACI 305R when concreting during hot weather.
- E. Follow recommendations of ACI 306R when concreting during cold weather.

- F. Services by the Independent Testing Agency (includes "Special" Inspections) as specified in this Section and as follows:
  - 1. Perform tests and inspections specified below in articles SOURCE QUALITY CONTROL and FIELD QUALITY CONTROL. Duties and limitations of Independent Testing Agency, test costs and reports to be in conformance with pertinent Sections of Division 01.
  - 2. Review mix designs and certifications. Provide letter authored by a Civil Engineer licensed in California recommending acceptance or rejection based upon conformance to specifications, and suitability of mix design for proposed use. Submit to Architect / Engineer for review and final distribution.
  - 3. Review Contractor submittals specified in this section; batch plant certificates; admixtures, and similar information.
- G. Contractor shall bear the entire cost of remediation, removal, and/or replacement of concrete determined defective or non-conforming, including Architect/Engineer fees for redesign.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Materials specified by brand name shall be delivered in unbroken packages bearing manufacturer's label and shall be brand specified or an approved equal.
- B. Delivery, Handling and Storage of other materials shall conform to the applicable sections of the current editions of the various reference standards listed in this Section.
- C. Protect materials from weather or other damage. Sort to prevent inclusion of foreign materials.
- D. Specific Requirements:
  - 1. Cement: Protect against dampness, contamination, and warehouse set. Store in weather tight enclosures.



2. Aggregates: Prevent excessive segregation, or contamination with other materials or other sizes of aggregates. Use only one supply source for each aggregate stock pile.
3. Admixtures:
  - a. Store to prevent contamination, evaporation, or damage.
  - b. Protect liquid admixtures from freezing and extreme temperature ranges.
  - c. Agitate emulsions prior to use.

## 1.6 ENVIRONMENTAL REQUIREMENTS

### A. Cold Weather (Freezing or near-freezing temperatures) per ACI 306R:

1. Heat concrete materials before mixing, as necessary to deposit concrete at a temperature of at least fifty (50) degrees F but not more than ninety (90) degrees F.
2. Do not place concrete during freezing, near-freezing weather, snow, rain or sleet unless protection from moisture and/or cold is provided.
3. Protect from freezing and maintain at a temperature of at least fifty (50) degrees F for not less than seven days after placing. Take special precautions to protect transit-mixed concrete.
4. No salts, chemical protection or admixture are permitted without written approval of Architect/Engineer.
5. Contractor shall maintain an air temperature log for the first 7 days after placement with entry intervals not to exceed 8 hours.

### B. Hot Weather per ACI 305R:

1. Cool concrete materials before mixing, or add ice in lieu of mix water as necessary to deposit concrete at a temperature below 85 degrees F.

2. Do not place concrete in hot/windy weather without Architect/ Engineer review of procedures.
3. Provide sunshades and/or wind breakers to protect flat work during finishing and immediate curing operations. Do not place flatwork concrete at air temperature exceeding 90 degrees F.
4. Provide modified mix designs, adding retarders to improve initial set times and adding evaporative retardants during hot/windy weather for review by Independent Testing Agency prior to use.

### 1.7 MOCK-UP

- A. Construct and erect mock-up panel for architectural concrete surfaces indicated to receive special treatment or finish, as result of formwork.
  1. Panel Size: Sufficient to illustrate full range of treatment.
  2. Number of Panels: 2.
  3. Locate as indicated on drawings.
- B. If requested by Architect / Engineer, cast concrete against mock-up panel. Obtain acceptance of resulting surface finish prior to erecting formwork.
- C. Accepted mock-up panel is considered basis of quality for the finished work. Keep mock-up exposed to view for duration of concrete work.
- D. Mock-up may remain as part of the Work.

### 1.8 SCHEDULING AND SEQUENCING

- A. Organize the work and employ shop and field crew(s) of sufficient size to minimize inspections by the Testing Agency.
- B. Provide schedule and sequence information to Testing Agency in writing upon request. Update information as work progresses.

## **PART 2 – PRODUCTS**

### 2.1 FORMWORK

- A. Comply with requirements of Section 03100.

## 2.2 REINFORCEMENT

- A. Comply with requirements of Section 03200.

## 2.3 MATERIALS

- A. General Requirements: All materials shall be new and best of their class or kind. All materials found defective, unsuitable, or not as specified, will be condemned and promptly removed from the premises.

- B. Cementitious Materials:

1. Portland Cement: ASTM C150, Type II, low alkali conforming to CBC 1903 A.2.
2. Fly Ash (Pozzolan): ASTM C618, Class F.

- C. Concrete Aggregates:

1. Coarse and Fine Aggregates: ASTM C33; Stone aggregate and sand. Specific source aggregate and/or sand or shrinkage characteristics as required for class of concrete specified.
2. Lightweight aggregate: ASTM C330 and C332.
3. Source shall remain constant throughout the duration of the job. The exact portions of the fine aggregates and coarse aggregates to be used in the mix shall be determined by the mix design.

- D. Water: Potable, clean, from domestic source.

- E. Admixtures: All admixtures shall be used in strict accordance with the manufacturer's recommendations. Admixtures containing calcium chlorides or other accelerators shall not be used without the approval of the Architect/Engineer and the Owner's Testing Laboratory.

1. Mid Range Water Reducing Admixtures: ASTM C-494, Type A, "Polyheed 997" by Master Builders, "WRDA 79" by W.R. Grace or equal.

2. High Range Water-Reducing Admixtures(Super Plasticizer):  
"Rheobuild 1000" by Master Builders or equal.
  3. Water Reducing Admixture and Retarder: ASTM C-494, Type D,  
"Pozzolith 300R", by Master Builders; "Plastiflow-R" by Nox-crete;  
or acceptable equivalent.
  4. Air Entrainment - MBAE - 10 (Master Builders Air Entrainment).
- F. Slurry: Same proportion of cement to fine aggregates used in the regular concrete mix (i.e. only coarse aggregate omitted); well mixed with water to produce a thick consistency.
- G. Non-shrink Grout: ASTM C 1107 and CRD-C621, premixed compound consisting of aggregate, cement, water reducing and plasticizing agents.
1. Minimum Compressive Strength at 48 Hours: 2,400 psi.
  2. Minimum Compressive Strength at 28 days: 7000 psi, when placed in a "fluid" state.
  3. Acceptable Grout Types for Base Plates:
    - a. Concealed Work: Provide metallic or non-metallic type.
    - b. Exposed Work: Provide non-metallic type only.
  4. Manufacturer / Product: Meet or exceed properties of Master Builders "Master Flow 928" mixed to fluid consistency.
    - a. Other Acceptable Manufacturers: The Burke Company, and W.R. Meadows, Inc.
- H. Dry Pack: Dry pack (used only for cosmetic concrete repairs) shall consist of:
1. One part cement to 2-1/2 parts fine aggregate (screen out all materials retained on No.4 sieve), mixed with a minimum amount of water, added in small amounts.

2. Mix to consistency such that a ball of the mixture compressed in the hand will retain it's shape, showing finger marks, but without showing any surface water.

## 2.4 ACCESSORIES

- A. Bonding Agent: ASTM C 1059, Type II acrylic non-redispersable type.
  1. "Concresive" Liquid LPL, Masters Builders Inc. or equal;
  2. "Top Bond #40", Nox-Chem, "Rezi-Weld 1000" by W.R. Meadows or equal.
- B. Epoxy Bonding System: ASTM C 881, type as required by project conditions.
  1. Epoxy-Tie SET manufactured by Simpson.
  2. Hilti HY-150 manufactured by Hilti.
- C. Chemical Hardener: Fluosilicate solution designed for densification of cured concrete slabs. National Expansion Joint Co., "Techkote #1080", W.R. Meadows Co. "Pena-lith" or equal.
- D. Moisture-Retaining Cover: ASTM C 171, type 1, one of the following;
  1. Regular Curing Paper, Type I, reinforced waterproof: Fortifiber Corporation "Orange Label Sisalkraft", "Pabcotite" paper, or equal.
  2. Polyethylene Film: ASTM D 2103, 4 mil thick, clear or white color.
  3. White-burlap-polyethylene sheet, weighing not less than 10 oz/per linear yd.
- E. Liquid Curing Compound: ASTM C 309, Type 1, Class B, clear or translucent, 25% minimum solids, water base acrylic cure/sealer which will not discolor concrete and compatible with bonding of finishes specified in related sections. W.R. Meadows Co. "Vocomp 25", "Vocomp 30" or equal.
- F. Under Slab Water Vapor Barrier: Vapor barrier sheet to be ASTM E 1745, performance classification A; 15 mil, single ply extruded polyolefin; .025 U. S. perm water vapor permeance per ASTM E154 or E96 procedure B;

1. Raven Industries, Inc. Sioux Falls SD, [www.ravenind.com](http://www.ravenind.com), 605-335-0174; Product: "Vapor Block 15".
  2. Stego Industries, LLC, San Juan Capistrano, CA [www.stegoindustries.com](http://www.stegoindustries.com), 1-877-GO-4-STEGO; Product: "Stego Wrap Class A Vapor Retarder (15mil)."
  3. Approved Equal.
- G. Evaporation Reducer: "Con-Film", by Master Builders.
- H. Permeability Reducer: Use only where specifically referred to.
1. Admixture Type: Xypex Chemical Corporation "XYPEX Admix C-500".  
Dosage: 2-3% of cement content by weight; 15 lb/cu. yd. max.
  2. Surface-Applied Type: Xypex Chemical Corporation "XYPEX Concentrate".  
Brush application: 1.25-1.50lb/sq. yd., 5 parts powder to 2 parts water.
  3. Approved equal.

## 2.5 JOINT DEVICES AND MATERIALS

- A. Waterstops: Resilient type, COE CRD-C 513. Provide W. R. Meadows Co."Seal Tight PVC Water Stop" or equal.
- B. Expansion Joint Filler: ASTM D 1751, Nonextruding, resilient asphalt impregnated fiberboard or felt, 3/8 inch thick and 4 inches deep; tongue and groove profile.
1. Products: "Servicised Products", W.R. Meadows, Inc., "National Expansion Joint Company", "Celotex Corporation", or equal.
- C. Joint Filler: ASTM D 944, Compressible asphalt mastic with felt facers, 1/4 inch thick and 4 inches deep.
- D. Sealant and Primer: As specified in Section 07900 (07-9105).

- E. Slab Joint Sealant: Compatible with floor finishes specified in related sections.

## 2.6 CONCRETE MIXES

- A. General Requirements for Mix Design and Submittal:
  - 1. Provide Contractor submittals to Architect / Engineer and the Owners Testing Laboratory not less than fifteen (15) days before placing concrete.
  - 2. Contractor shall review mix designs and proposed placing requirements prior to submittal for compatibility to insure that the concrete as designed can be placed in accordance with the drawings and specifications.
  - 3. Changes or Revisions require re-submittal: All variations to approved mix designs, including changing type and / or quantity of admixtures shall be resubmitted to the Architect/Engineer and the Testing Agency for review prior to use.
  - 4. Mix design(s) for all structural classes of concrete to be prepared by qualified person experienced in mix design. Allow for time necessary to do trial batch testing when required.
  - 5. Certification of Mix Design: Preparer to certify in writing that mix design meets:
    - a. Requirements of the specifications for concrete durability and quality;
    - b. Requirements of the California Building Code and ACI 318, Sections 5.2 to 5.5 including a historical background for designs based on field experience.
  - 6. Clearly note on mix designs with specified maximum WCR if design permits addition of water on site, or clearly identify in the mix design, that no water is to be added on site.

7. Deviations: Clearly indicate proposed deviations, and provide written explanation explaining how the deviating mix design(s) will provide equivalent or better concrete product(s) than those specified.
  8. Include adjustments to reviewed mix designs to account for weather conditions and similar factors.
- B. Proportioning - General: The following provisions apply to all Mix Designs:
1. Proportion concrete mixes to produce concrete of required average strength (as defined by California Building Code Section 1905).
    - a. Select slump, aggregate sizes, shrinkage, and consistency that will allow thorough compaction without excessive puddling, spading, or vibration, and without permitting the materials to segregate, or allow free water to collect on the surface.
  2. Select aggregate size and type to produce dense, uniform concrete with low to moderate shrinkage, free from rock pockets, honeycomb and other irregularities.
  3. All concrete mixes shall have entrained air, four (4) percent maximum to improve workability.
  4. Mix designs may include water reducing and retarding admixtures to meet or exceed minimum set times (time required to place and finish) and to minimize Water Cement Ratios (WCR). Minimum and maximum criteria presented in this section are guidelines and do not represent a specific mix design.
  5. Cement Content: Minimum cement content indicates minimum sacks of cementitious material. Increasing cement content to increase early strengths or to achieve specified WCR while maintaining water content is discouraged in order to minimize effects of shrinkage.



- a. Substitution of Fly Ash for Portland cement on an equivalent weight basis up to 15% replacement is permitted. Replacement in excess of 15% is not permitted unless part of a specified mix design that has been submitted for review.
  - b. Such substitution requests may be denied by the Engineer.
6. Water Content: Mix designs with a specified maximum Water Cement Ratio (WCR) may be designed with a lower WCR than specified in order to allow addition of water at the site.
  7. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301 and this section.
    - a. For trial mixtures method, employ independent testing agency acceptable to Architect / Engineer for preparing and reporting proposed mix designs.
  8. Placement Options: Mix Designs may, at the Contractor's option, be designed for either pump or conventional placement with aggregate size, slumps, etc. to be maintained as specified in this section.
- C. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations and this section.
  - D. Proportioning Structural Lightweight Concrete: Comply with ACI 211.2 recommendations and this section.
  - E. Special mix design requirements for interior concrete floor slabs on grade to receive floor coverings:
    1. Proportion concrete mixes per this specification, ACI 211.1, and the requirements below:
    2. Minimum strength at 28 days to be 3000 psi; minimum strength at 56 days to be 4000 psi.
    3. Fly Ash Type F, shall be substituted for cement on a 1 lb. per 1 lb. basis, with a minimum replacement of 25% and a maximum of 35%.

4. Total cementitious materials to exceed 6.1 sacks of cementitious material per 27 cubic feet (1 cubic yard).
5. Water Cement Ratio (WCR): Maximum on-site 0.45.
6. Coarse aggregates to be 1 in. x #4, per ACI 211.1, with the addition of 200 lbs. of 3/8(-) aggregate which shall be added to reduce total sand.
7. Reduce Total Sand and blend sand to minimum practical. Blend sand 100 lb. maximum.
8. Entrained and/or entrapped air: Four (4) percent maximum.
9. Water reducing, and high slump water reducing, admixtures are to be based on cement content only, not total cementitious materials. Dosage may be increased for workability as long as set times are not excessive for placement and finishing.

F. Mix Design Minimum Requirements:

Concrete Class	Coarse Aggregate Size (Inches) & Fine Aggregate <sup>3</sup>	Minimum WCR or Maximum Nominal Slump & Tolerance (Inches) <sup>1,2</sup>	Minimum 28-Day Design Strength <sup>4</sup>	Minimum Cement Sacks/per yd <sup>4</sup>
<b>NON-STRUCTURAL</b>				
1) Lean Concrete for Backfill	1" x #4	---	---	3.0
2) Slab on Grade Exterior (Walks & Patios)	1" x #4	4" ± 1"	2,000	4.5
<b>STRUCTURAL</b>				
3) Interior Slab on Grade w/floor coverings/coatings <sup>5</sup>	1" x #4	WCR = .45	—	—
4) Interior Slab on Grade w/o floor coverings/coatings	1" x #4	WCR = .45	2,500	5.0
5) Foundation	1" x #4	WCR = .53	3,000	5.0
6) Formed Cast Slab Above Grade	1" x #4	WCR = .46	4,000	6.0
7) Cast Slab Above Grade on Metal Deck	1" x #4	WCR = .53	3,000	5.0
8) Columns, Walls & Beams	1" x #4 or	WCR = .46	4,000	6.0
9) Tilt-Up Concrete Wall Panels	1" x #4	WCR = .53	3,000	5.25
10) Light Weight Concrete	3/4" Expanded Shale x #4	3" ± 1/2"	3,000	5.5

1. The tolerance is the maximum deviation allowable without rejection. The mix design shall be based on the nominal value specified and is without water reducing mixtures. Slump to be measured at the end of the hose.
2. The maximum water cement ratio (WCR) is limited at time of placement as noted. No water is to be added on site such that the specified WCR or maximum slump is exceeded without approval of the testing laboratory and the Architect/Engineer. Workability is to be achieved utilizing an acceptable mid range to high range water reducing admixture.
3. Gradation of aggregate is per California Building Code (CBC), Chapter 19A Section 1903 and ASTM C33.
4. Minimum cement content as defined by California Building Code (CBC) Section 1905A. See 56 day design strength and cementitious material requirement at slabs.
5. Slabs on grade to receive floor covering or any coatings to be proportioned in accordance with detailed requirements in Article 2.6 titled CONCRETE MIXES.

2.7 MIXING CONCRETE

- A. Batch final proportions in accordance with approved mix designs. All adjustments to approved proportions, for whatever reason, shall be reviewed by the Architect / Engineer prior to use.
- B. Batch and mix concrete in accordance with ASTM C-94, at an established plant. Site mixed concrete will be rejected.
- C. Provide batch and transit equipment adequate for the work. Operate as necessary to provide concrete complying with specified requirements.
- D. Place mixed concrete in forms within 1-1/2 hours from the time of introduction of cement and water into mixer. Use of, re-mixing and/or tempering mixed concrete older than 1 hour will not be permitted.
- E. Do not add water at the site to concrete mixes with a maximum specified WCR unless the water content at batch time provides for a WCR less than specified and this provision, including the quantity of water which may be added at the site, is specifically noted on the Mix Design and Certification by the mix preparer.

## 2.8 SOURCE QUALITY CONTROL

- A. Services by independent Testing Agency:
  - 1. Batch Plant Certificates: Obtain the weighmaster's Batch Plant Certificate at arrival of truck at the site. If no batch plant certificate is provided, recommend to the General Contractor that the truckload of concrete be rejected. So note in daily log, along with the location of the load of concrete in the structure if the load is not rejected. See requirements of CBC 1903A.4.4.
    - a. Laboratory's inspector shall obtain for each transit mixer Batch Plant Certificates to verify mix design quantities and condition upon delivery to the site.
    - b. Certificates to include: Date, time, ingredient quantities, water added at plant and on job, total mixer revolutions at time of placement, and time of departure.
    - c. Concrete with specified water cement ratio: Add no water on site unless mix design and batch records each show additional water may be added.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Verify lines, levels, and dimensions before proceeding with work of this section.
- B. Verify work of other sections is complete and tested as required before proceeding.

#### 3.2 PREPARATION

- A. Observation, Inspection and Testing:
  - 1. Architect/Engineer: Notify not less than 48 hours (2 working days) before each concrete placement, for observation and review of reinforcing, forms, and other work prior to placement of concrete.
  - 2. Testing Agency: Notify not less than 24 hours before each placement for inspection and testing.
- B. Placement Records: Contractor shall maintain records of time, temperature and date of concrete placement including mix design and location in the structure. Retain records until completion of the contract. Make available for review by Testing Agency and Architect/Engineer.
- C. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.
- D. Verify location, position and inclusion of all embedded and concealed items.
- E. Verify that installation of vapor retarder under interior slabs on grade as specified in related section, is complete.
- F. Cleaning and Preparation:
  - 1. Remove loose dirt, mud, standing water, and foreign matter from excavations and cavities.
  - 2. Close cleanout and inspection ports securely.

3. Thoroughly clean reinforcement and other embedded items free from loose rust and foreign matter. Maintain reinforcing securely in place. Do not place concrete on hot reinforcing.
  4. Dampen form materials and substrates on which concrete is to be placed at least 1 hour in advance of placing concrete; repeat wetting as necessary to keep surfaces damp. Do not saturate. Do not place concrete on saturated material.
    - a. Thoroughly wet wood forms (except coated plywood), bottom and sides of trenches, adjacent concrete or masonry and reinforcement.
    - b. Concrete slabs on base rock, dampen rock.
    - c. Concrete slabs on vapor barrier, do not wet vapor barrier.
  5. Verify that metal forms are clean and free of rust before applying release agent.
  6. Thoroughly clean metal decking. Do not place concrete on wet deck surface.
  7. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
- G. Drill holes in existing concrete at locations where new concrete is doweled to existing work. Insert steel dowels and prepare connections as detailed.

### 3.3 PIPES AND CONDUITS IN CONCRETE

- A. Slabs-On-Grade:
1. No pipe or conduit exceeding 1 inch outside diameter shall be embedded within the specified slab thickness except as specifically detailed.
  2. Do not stack or abut pipes, maintain 3 inches minimum clearance.
- B. Sleeving and Wrapping:

1. Foundations: Sleeve or wrap all individual pipe penetrations, minimum 1-1/2 inches clear to reinforcing all around.
    - a. Sleeves: Provide 1 inch minimum clear all around to reinforcing.
    - b. Wrapped pipes Provide 1/8 inch nominal sheet foam with three wraps minimum.
  2. Slabs or Curbs: Wrap pipes as described above.
- C. Space groups of pipes/conduits at least 3 sleeve diameters apart, do not interrupt specified concrete and reinforcement.
1. Provide block-outs as detailed when grouping of pipes/conduits in foundation or other structural member prevents spacing as described,. Notify Architect/Engineer for review of any conditions not conforming to details.
  2. Center pipe/conduit penetrations in the depth and/or thickness of foundations.
  3. Maximum size of pipe/conduit penetrations shall not exceed the least dimension of concrete divided by 3.
- D. Do not embed pipes/conduits in concrete slabs on metal deck.
- E. Provide the following at pipes/conduits detailed to be embedded in a concrete beam, wall or column:
1. Place as near as possible to center of member with reinforcing as specified on each side.
  2. Where reinforcing is located near or at center of member, place pipe or conduit 1 inch minimum clear from reinforcing and provide #3 at 12 inches on center perpendicular to the pipe/conduit. Reinforcing to extend 1'-0" minimum past pipe/conduit each side.
  3. Maintain 3/4 inch clear minimum from added reinforcing to face of concrete where not exposed to weather, and 1-1/2 inches clear where exposed to weather.

4. Space embedded items, (groups of pipe/conduit, junction boxes or other elements) minimum 3 inches apart.
5. Provide reinforcing in walls, beams, columns as detailed for groups of pipe/conduit. Provide minimum replacement reinforcement of same size and number for interrupted or displaced reinforcement for the full height, length, width of the wall, beam, column on each side of the "effective opening."

### 3.4 CONCRETE PLACEMENT

#### A. Transporting:

1. Provide clean, well-maintained equipment of sufficient quantity and capacity to execute the work and produce concrete of quality specified.
2. Handle and transport concrete from mixer to final deposit location as rapidly as practicable. Prevent separation or loss of ingredients.

#### B. Perform concrete placement by methods which will not puncture, damage or disturb vapor retarder membrane. Repair all damage to vapor retarder membrane before covering.

#### C. Placement - General: Placement, once started, shall be carried on as a continuous operation until section of approved size and shape is completed. Provide construction joints as detailed on the drawings. Engineer's written approval required for all deviations.

##### 1. Deposition:

- a. Deposit concrete to maintain an approximately horizontal plastic surface until the completion of the unit placement.
- b. Deposit as neatly as practicable in final position, minimize re-handling or flow.
- c. Do not drop concrete freely where reinforcing bars will cause segregation, or for more than four vertical feet. Provide spouts, elephant trunks or other means to prevent segregation during placement.



2. Depth: Layered placement in columns and walls, shall not exceed ten feet vertical depth.
    - a. Place concrete in minimum 32 inch horizontal lifts.
    - b. Schedule placement to ensure that concrete will not take initial set before placement of next lift.
    - c. No horizontal cold joints are allowed in columns or walls.
  3. Progress Cleaning: Remove all concrete spilled on forms or reinforcing steel in portions of structure not immediately concreted. Remove completely before concrete sets.
  4. Interruptions: Shut down placement operations and dispose of all remaining mixed concrete and concrete in hoppers or mixers following all interruption in placement longer than 60 minutes.
    - a. If such interruption occurs, provide new or relocate existing construction joints as directed by Engineer.
    - b. Cut concrete back to the designated line, cleaning forms and reinforcing as herein specified.
    - c. Prepare for resumption of placement as for new unit when reason for interruption is resolved.
- D. Placement - Elevated Structural Systems: Place as noted for "General" above and as follows:
1. Metal Decking and Structural Steel Beam Systems that are not to be shored: Locate screed lines on primary structural members. Review proposed screed line locations and expected structural deflections with the Architect/Engineer prior to placement of concrete.
  2. Place screed lines to match camber of primary girders made of material other than concrete. Locate screeds to provide the minimum specified thickness of concrete at all locations.
  3. Compensate for deflection of intermediate structural members and decking by placement of additional concrete.

4. Adjust embedded items to compensate for camber and deflection. Maintain locations within specified tolerances.

E. Consolidation:

1. Consolidate all concrete thoroughly during placement with high-speed mechanical vibrators and other suitable tools. Perform manual spading and tamping to work around reinforcement, embedded fixtures, and into corners of formwork as required to obtain thorough compaction.
  - a. Provide vibrators with sufficient amplitude for adequate consolidation.
  - b. Use mechanical vibrators at each point of concrete placement.
  - c. Keep additional spare vibrators, in addition to those required for use, at the site for standby service in case of equipment failure.
2. Consolidate each layer of concrete as placed.
  - a. Insert vibrators vertically at points 18 to 30" inches apart; work into top area of previously placed layer to reconsolidate, slowly withdraw vibrator to surface.
  - b. Avoid contact of vibrator heads with formwork surfaces.
  - c. Systematically double back and reconsolidate wherever possible. Consolidate as required to provide concrete of maximum density with minimized honeycomb.

F. Unacceptable Materials:

1. Do not place concrete that has started to set or stiffen. Dispose of these materials.
2. Do not add water on site to concrete except as specified in the approved Mix Design, see PART 2 above.

- G. Protection of installed work:
1. Do not introduce any foreign material into any specified drainage, piping or duct systems.
  2. Contractor shall bear all costs of work required to repair or clean this affected work as a result of failure to comply with this requirement.

### 3.5 CONCRETE JOINTS

- A. Structural Joints (Construction/Cold Joints):
1. Locate joints only where shown, or as approved.
  2. Review Required: Joints not indicated on the plans shall be located to meet the minimum requirements below, shall not impair the strength of the structure and shall be submitted to Architect/Engineer for review prior to placement of concrete.
    - a. Indicate proposed location(s) of construction/cold/expansion joints on shop drawing submittals for review prior to placing concrete.
  3. Clean and roughen all surfaces of previously placed concrete at construction joints by washing and sandblasting to expose aggregate to 1/4 inch amplitude.
  4. Slabs-On-Grade: Maximum Length of continuous placement shall not exceed 60' without special review by the Architect/Engineer. Alternate or stagger placement sections.
  5. Foundations, Beams, Elevated Slabs and Joists: Maximum Length of continuous placement shall not exceed 200 foot increments. Provide "keyed" shut-off locations made up with form boards. Extend reinforcing one lap length or more through shut-off.
    - a. All reinforcement shall be continuous through construction/cold joint, lapping to adjacent reinforcing in future placement.

- b. Construction Joints in Elevated Slabs: Review all proposed locations with Architect/Engineer.
    - c. Construction Joints in Slabs on Metal Decking: Review all proposed locations with Architect/Engineer. Do not locate closer than 24 inches to faces of girder or beam.
  - 6. Horizontal Construction Joints: Place 2 inch slurry (specified concrete mix less coarse aggregate) at beginning of pour at at the bottom of walls unless a prior review of a mock-up section demonstrates that segregation of aggregate will not occur.
- B. Expansion/Construction Joints (Dowel Joints and Control Joints):
  - 1. Exterior Concrete Paving (walkways, patios) and other non-structural concrete flatwork at grade:
    - a. Expansion/ construction joints: Provide a 2 inch deep troweled groove or asphalt impregnated joint material embedded 50 percent of the slab depth at 12 feet on center, maximum.
    - b. Proportions: Place no section with a length larger than two times width. Additionally, place joints at all inside corners and at all intersections with other work.
  - 2. Interior and Exterior Floor Slabs at Grade: Provide dowel joints or control joints at a maximum dimension (in feet) of three times the slab thickness (in inches) in each direction unless noted otherwise. Install joints to match slab level and in straight lines. Locate joints at all reentrant corners including blockouts, and maintain maximum slab ratio of 2 to 1 length to width between slab joints.
  - 3. Elevated Structural Slabs: Locate construction joints as specifically indicated on the drawings. All additional proposed locations shall be reviewed by the Architect/Engineer prior to placement.
- C. Joint Types:
  - 1. Dowel Joint: A keyed joint with smooth dowels passing through to allow unrestricted movement due to contraction and expansion. Joints are as shown on the drawings.

2. Control Joint(s): Shrinkage crack control joints may be of the following types when shown on the drawings. Install joints in a straight line between end points with edges finished appropriate to type. Fill joints with sealant as shown on the drawings or as required by related sections.
  - a. Two (2) inch deep x 1/4 inch wide troweled joint.
  - b. Keyed joint: Only at locations where concealed by other finishes.
  - c. Masonite Strip, 1/8 inch x 2 inch: Only at locations where concealed by other finishes.
  - d. Saw Cut, 1/8 inch x 2 inch deep: Must be performed within eight hours of completion of finishing. Do not make saw cuts if aggregate separates from cement paste during cutting operation. Prevent marring of surface finish. Fill with flexible sealant.

### 3.6 VAPOR BARRIER

- A. Vapor Barrier Installation: Install as specified in Article 2.4, ASTM E 1643 and per manufacturer's recommendations.

### 3.7 FLATWORK

- A. General Requirements for All Concrete Formed & Finished Flat:
  1. Edge Forms and Screeds: Set accurately to produce indicated design elevations and contours in the finished surface, edge forms sufficiently strong to support screed type proposed.
  2. Jointing: Located and detailed as indicated.
  3. Consolidation: Concrete in slabs shall be thoroughly consolidated.
- C. Flatwork Schedule:
  1. Exterior Slabs-On-Grade: Place concrete directly over sub-base as indicated.

- a. Sub-Base: Clean free-draining, crushed base rock, 6 inch minimum thickness, thoroughly compacted.
2. Interior Slabs-On-Grade without floor covering:
  - a. Sub-Base: Clean free-draining, crushed base rock, 6 inch minimum thickness, thoroughly compacted.
3. Concrete Slabs-On-Grade with floor coverings specified in related sections:
  - a. Sub-Base: Clean free-draining, rounded or crushed base rock, 6 inch minimum thickness, thoroughly compacted.
  - b. Vapor Barrier: Install over sub-base.
  - c. Mix Design: Meet the specific requirements of CONCRETE MIXES Article 2.6 for concrete placed in this location.

### 3.8 FORMED SURFACES

- A. Form all concrete members level and plumb, except as specifically indicated.
  1. Comply with tolerances specified in ACI 301 Chapter 4 and this specification, except that maximum permissible deviation is 1/4 inch end-to-end for any single member.
- B. Cambers: Provide all cambers indicated in the formwork construction. Set screeds to produce specified cambers in the finished concrete.

### 3.9 CONCRETE FINISHES

- A. Flatwork Finishing:
  1. Perform with experienced operators.
  2. Finish surfaces monolithically. Establish uniform slopes or level grades as indicated. Maintain full design thickness.

3. In areas with floor drains, maintain design floor elevation at walls; slope surfaces uniformly to drains as indicated on drawings.
  4. Flatwork Finish Types:
    - a. Wood Float Finish: Surfaces to receive quarry tile, ceramic tile, or cementitious terrazzo with full bed setting system, or wood frame for raised finished floors.
    - b. Steel Trowel Finish: Surfaces to receive carpeting, resilient flooring, seamless flooring, thin set terrazzo, thin set tile or similar finishes specified in related sections. Trowel twice, minimum.
    - c. Broom Texture Finish: Exterior surfaces as indicated or for which no other finish is indicated. Finish as for steel trowel finish, except immediately following first troweling, (depending on conditions of concrete and nature of finish required) provide uniform surfaces texture using a medium or coarse fiber broom.
- B. Other Concrete: Provide as required to achieve appearance indicated on structural and architectural drawings and related sections.
1. Repair surface defects, including tie holes, immediately after removing formwork.
  2. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.
  3. Exposed Form Finish: Finish concrete to match forms. Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
    - a. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
    - b. Grout Cleaned Finish: Wet areas to be cleaned and apply grout mixture by brush or spray; scrub immediately to remove excess grout. After drying, rub vigorously with clean burlap, and keep moist for 36 hours.

- c. Cork Floated Finish: Immediately after form removal, apply grout with trowel or firm rubber float; compress grout with low-speed grinder, and apply final texture with cork float.
4. Intermediate joint and score marks and edges: Tool smooth and flush unless otherwise indicated or as directed by the Architect.
5. Use steel tools of standard patterns and as required to achieve details shown or specified. All exposed corners not specified to be chamfered shall have radiused edges.

### 3.10 TOLERANCES

- A. Minimum Flatwork Tolerances: Measure flatness of slabs within 48 hours after slab installation in accordance with ACI 302.1R and ASTM E1155 and to achieve the following FF and FL tolerances:
  1. Exterior surfaces: 1/8 inch minimum per foot where sloped to drain. Level otherwise. FF 20 and FL15.
  2. Interior surfaces not otherwise shown or required: Level throughout. FF25 and FL20
  4. Interior surfaces required to be sloped for drainage: 1/8 inch in 10 ft.
  5. Finish concrete to achieve the following tolerances:
    - a. Under Glazed Tile on Setting Bed: FF 30 and FL 20.
    - b. Under Resilient Finishes: FF 35 and FL 25.
    - c. Flooring manufacturer and pertinent section of Division 9.
- B. Formed Surface Tolerances:
  1. Permanently Exposed Joints and Surfaces: Provide maximum differential height within two feet of, and across construction joints of 1/16 inch.



2. Vertical Elevations: Elevation of surfaces shall be as shown or approved.

### 3.11 SEPARATE FLOOR TOPPINGS

- A. Prior to placing floor topping, roughen substrate concrete surface and remove deleterious material. Broom and vacuum clean.
- B. Place required dividers, edge strips, reinforcing, and other items to be cast in.
- C. Apply bonding agent to substrate in accordance with manufacturer's instructions.
- D. Apply sand and cement slurry coat on base course, immediately prior to placing toppings.
- E. Place concrete floor toppings to required lines and levels.
  1. Place topping in checkerboard panels not to exceed 20 ft in either direction.
- F. Screed toppings level, maintaining surface tolerances per above.

### 3.12 CONCRETE CURING

- A. Curing - General: Cure in accordance with ACI 308. Maintain concrete water content for proper hydration and minimize temperature variations. Begin curing immediately following finishing.
- B. Protection During Curing: Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury. The General Contractor is responsible for the protection of the finished slab from damage.
  1. Avoid foot traffic on concrete for minimum of 24-hours after placement.
  2. Protect concrete from sun and rain.

3. Maintain concrete temperature at or above 50 degrees F. during the first seven (7) days after placement. See Article ENVIRONMENTAL REQUIREMENTS.
  4. Do not subject concrete to design loads until concrete is completely cured, and until concrete has attained its full specified twenty-eight (28) day compressive strength or until twenty-one (21) days after placement, whichever is longer.
  5. Protect concrete during and after curing from damage during subsequent building construction operations. See Article PROTECTION.
- C. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
1. Normal concrete: Not less than 7 days.
  2. High early strength concrete: Not less than 4 days.
- D. Begin curing immediately following finishing.
- E. Formed Surfaces: Cure by moist curing with forms in place for full curing period.
- F. Surfaces Not in Contact with Forms:
1. Start initial curing as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
  2. Begin final curing after initial curing but before surface is dry.
    - a. Moisture-retaining cover: Seal in place with waterproof tape or adhesive.
    - b. Curing compound: Apply in two coats at right angles, using application rate recommended by manufacturer.
- G. Flatwork on Grade: Cure by one of the following methods:

1. Water Cure (Ponding): Maintain 100 percent coverage of water over floor slab areas, continuously for minimum seven (7) calendar days.
  2. Spraying: Spray water over floor slab areas and maintain wet for 7 days.
  3. Moisture-Retaining Film or Paper: Lap strips not less than 6 inches and seal with waterproof tape or adhesive; extend beyond slab or paving perimeters minimum 6 inches and secure at edges; maintain in place for minimum seven (7) days.
  4. Absorptive Moisture-Retaining Covering: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides and extend beyond slab or paving perimeters 6 inches minimum; maintain in place for minimum seven (7) days.
  5. Liquid Membrane-forming Curing Compound: Provide only when subsequent concrete treatments or finish flooring specified in related sections will not be affected by cure/sealer. Apply curing compound in accordance with manufacturer's instructions at the maximum recommended application rate in two coats, with second coat applied at right angles to first.
- H. Elevated Flatwork: Cure by one of the following methods.
1. Moisture-Retaining Sheet: As specified for Flatwork on Grade above.
  2. Water Cure: As specified above for minimum fourteen (14) days.
  3. Apply Membrane Curing Compound as specified above after initial curing period.
- I. Flatwork on Metal Decking: Moisture-Retaining Sheet method as specified above.
- J. Formed Concrete Members: Cure by moist curing with forms in place for full curing period.

1. Protect free-standing elements from temperature extremes.
2. Maintain forms tight for minimum seven (7) days. Maintain exposed surfaces continuously damp and completely covered by sheet materials thereafter.
3. Maintain all shoring in place. Refer to related sections specifying formwork.
4. Membrane Curing Compound: Apply compound in accordance with manufacturer's instructions in one coat.

K. Foundations: Apply curing compound immediately after floating.

### 3.13 CONCRETE HARDENER

- A. Apply hardener to all floor slabs not receiving other finishes after 30 days minimum curing. Clean slabs of non-compatible cure/sealers or other foreign material(s) and apply in strict accordance with the manufacturer's directions.

### 3.14 GROUTING AND DRY PACK

- A. Set steel plates on concrete or masonry with grout bed, completely fill all voids; thoroughly compact in place.
- B. Bolts or inserts dry packed or grouted in place shall cure for minimum seven (7) days before tensioning.

### 3.15 FIELD QUALITY CONTROL

- A. Testing and Inspections by Independent Testing Agency: Provided verification and inspection of concrete per CBC Table 1704.4. Provide written reports for to Engineer, Architect, Contractor and Building Official for the following tests and inspections:
  1. Inspection: Provide periodic inspection of reinforcing steel. Provide periodic inspection during placement of structural class concrete, 3000 psi or more, on a 150 cubic yard basis as required to assure conformance.

- a. Provide continuous inspection of bolts in concrete prior to and during placement where so noted on the construction documents.
  2. Structural Concrete Cylinder Tests: Perform in accordance with ASTM C-31.
    - a. Take four standard 6 inch x 12 inch cylinder specimens on the site, of each class of concrete as specified in PART 2, not less than a day or for each 50 cubic yards or 2000 sq ft or fraction thereof placed each day.
    - b. Record the location of each concrete batch in the building in a log and also note on each specimen.
    - c. Perform standard compression test of cylinders in accordance with ASTM C-39, one at 7 days and two at 28 days.
    - d. Hold fourth cylinder untested until specified concrete strengths are attained.
  3. Structural Concrete Slump Test and Air Tests: Perform in accordance with ASTM D 143 at the time of taking test cylinders, and/or at one-hour intervals during concrete placing.
  4. Measure and record concrete temperature upon arrival of transit mixers and when taking specimens. Note weather conditions and temperature.
  5. Propose adjustments to reviewed mix designs for Architect / Engineer review to account for variations in site or weather conditions, or other factors as appropriate.
  6. Water Vapor Transmission Tests: Floors receiving floor finishes specified in related sections will be tested prior to installation of flooring systems. Refer to sections specifying floor finishes for related requirements.
- B. Services by Contractor:

1. Rejection of Concrete Materials: Do not use the following without prior written approval of the Architect/Engineer;
  - a. Materials without batch plant certificates.
  - b. Materials not conforming to the requirements of these specifications.

### 3.16 ADJUSTING

- A. Inspect all concrete surfaces immediately upon formwork removal. Notify Architect/Engineer of identified minor defects. Repair all minor defects as directed.
- B. Surface and Finish Defects: Repair as directed by the Architect/Engineer, at no added expense to the Owner. Repairs include all necessary materials; reinforcement grouts, dry pack, admixtures, epoxy and aggregates to perform required repair.
  1. Repair minor defective surface defects by use of drypack and surface grinding. Specific written approval of Architect/Engineer is required. Submit proposed patching mixture and methods for approval prior to commencing work.
  2. Slabs On Grade, Elevated Slabs and on Slabs On Metal Deck: Review for "curled" slab edges and shrinkage cracks prior to installation of other floor finishes. Grind curled edges flush, fill cracks of 1/16 inch and greater with cementitious grout.
  3. Grind high spots, fins or protrusions caused by formwork; Fill-in pour joints, voids, rock pockets, tie holes and other void not impairing structural strength. Provide surfaces flush with surrounding concrete.

### 3.17 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required compressive strength, lines, details, dimensions, tolerances, finishes or specified requirements; as determined by the Architect/Engineer.
- B. Repair or replacement of defective concrete will be determined by the Architect/Engineer who may order additional testing and inspection at his

option. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

C. Specific Defects:

1. "Low-Strength"; Concrete Not Meeting Specified Compressive Strength after 28 days:
  - a. Concrete with less than 25% Fly Ash as cementitious material: Test remaining cylinder(s) at 56 days. If strength requirements are met, concrete strength is acceptable.
  - b. Concrete with 25% or more Fly Ash as cementitious material: Test remaining cylinder(s) at 70 days. If strength requirements are met, concrete strength is acceptable.
2. Excessive Shrinkage, Cracking, Cracking or Curling; Defective Finish: Remove and replace if repair to acceptable condition is not feasible.
3. Lines, Details, Dimensions, Tolerances: Remove and replace if repair to acceptable condition is not feasible.
4. Slab sections not meeting specified tolerances for trueness/flatness or lines/levels: Remove and replace unless otherwise directed by the Architect/Engineer.
  - a. Minimum area for removal: Fifteen square feet area unless directed otherwise by the Architect/Engineer.
5. Defective work affecting the strength of the structure or the appearance: Complete removal and replacement of defective concrete, as directed by the Architect/Engineer.

### 3.18 CLEANING

- A. Maintain site free of debris and rubbish. Remove all materials and apparatus from the premises and streets at completion of work. Remove all drippings, leave the entire work clean and free of debris.
- B. Slabs to Receive Floor Finishes Specified in other sections: Remove non-compatible cure/sealers or other foreign material(s) which may affect

bonding of subsequent finishes. Leave in condition to receive work of related sections.

### 3.19 PROTECTION

- A. Protect completed work from damage until project is complete and accepted by Owner.
- B. Construction Loads: Submit engineering analysis for equipment, where wheel point loads (including all carried loads) are in excess of the following:
  - 1. Slabs on grade and structural slabs above grade: 4,000 lbs.
  - 2. Slabs above grade on metal deck: 2,000 lbs.
- C. Keep finished areas free from all equipment traffic for a minimum of 4 additional days following attainment of design strength and completion of curing.
- D. Protection of Drainage Systems:
  - 1. Care shall be taken not to introduce any foreign material into any specified drainage, piping or duct system.
  - 2. Cost of work to repair or clean drainage system as a result of failure to comply with this requirement will be back charged to the contractor.
- E. Cover traffic areas with plywood sheets or other protective devices; maintain protection in place and in good repair for as long as necessary to protect against damage by subsequent construction operations.

**END OF SECTION**



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**SECTION 04270****GLASS MASONRY UNITS**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

A. Section Includes: Provide glass unit masonry, including reinforcing, anchors, mortar, and accessories as required for a complete glass unit masonry installation.

1. Build in items supplied by other trades or suppliers.

B. Related Work:

1. Section 04815: Bonded thin masonry veneer.

## 1.2 SUBMITTALS

A. Product Data: Furnish manufacturer's literature.

B. Samples: Furnish samples of type of glass masonry units and of each color mortar.

## 1.3 QUALITY ASSURANCE

A. Regulatory Requirements: Perform glass unit masonry work in accordance with requirements of applicable codes and regulations.

1. Comply with California Building Code requirements for masonry construction.

2. Seismic Requirements: Design glass unit masonry system to comply with seismic loading as required by applicable codes.

B. Mock-Up: Provide minimum 16 square foot mock-up glass unit masonry wall, with mortar and perimeter construction.

## 1.4 PROJECT CONDITIONS

A. Maintain materials and surrounding air temperature to minimum 50 degrees F prior to, during and 48 hours after completion of glass masonry work.

B. Provide temporary bracing during erection of glass unit masonry work. Maintain in place until building structure provides permanent bracing.

**PART 2 - PRODUCTS**

## 2.1 MATERIALS

A. Glass Masonry Units: Hollow non-load-bearing units made by fusing together two halves of pressed glass to produce partially evacuated hollow units.

1. Manufacturers:

a. Pittsburg Corning Corp.

- b. Substitutions: Refer to Section 01630.
  2. Size: 8" by 8" by 3-1/8".
  3. Pattern: Pittsburg Corning/Delphi Pattern.
- B. Mortar Materials: ASTM C270, Type S unless otherwise required for fire ratings.
1. Portland Cement: ASTM C150, Type I, white.
  2. Hydrated Lime: ASTM C207, Type S.
  3. Aggregates: ASTM C144; clear silica type as required to produce approved colored mortar; clean, dry and protected against dampness, freezing and foreign matter.
  4. Admixture: ASTM C979, pure, non-fading mineral oxide colors as required to produce uniform approved colored mortar; setting accelerators and anti-freeze compounds shall not be used.
  5. Water: Clean, drinkable, free of injurious amounts of oil, alkali, organic matter or other harmful materials.
  6. Integral Waterproofing: Metallic-stearate type:
    - a. Manufacturers:
      - 1) Sonneborn Contech/Hydracide Powder.
      - 2) Master Builders Company/Omicron Mortarproofing.
      - 3) Substitutions: Refer to Section 01630.
- C. Reinforcement and Anchorages: Manufacturer's standard reinforcing and anchor system as indicated on Drawings and as required to conform with applicable codes.
1. Steel Components: Galvanized, minimum ASTM A153, Class B-2 coating applied after fabrication.
- D. Expansion Strips: Glass fiber strips as recommended by manufacturer.
- E. Asphalt Emulsion: Water based asphalt emulsion type as recommended by glass block manufacturer.

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. Supply metal anchors to other trades for placement; direct placement.
- B. Ensure items built in by other trades for this work are properly located and sized.
- C. Establish lines, levels and coursing; protect from disturbance.
- D. Do not install broken, chipped or cracked units where exposed to view.
- E. Cover sill area with heavy coat of asphalt emulsion, prior to application of mortar.

## 3.2 INSTALLATION

- A. Place glass unit masonry units in accordance with lines and levels indicated, in strict accordance with manufacturer's recommendations and installation instructions.
- B. Fully bond external and internal corners and intersections.
- C. Isolate glass unit masonry partitions from vertical structural framing members with a control joint, with mortar raked back 1/4" regardless of joint treatment.
- D. Do not shift or tap glass unit masonry units after mortar has taken initial set; where adjustment must be made, remove mortar and replace.
- E. Buttering corners of joints and furrowing of mortar joints is not permitted.
- F. Isolate partitions from adjacent construction on sides and top with expansion strips, concealed within perimeter trim; keep expansion joint voids clean of mortar.
- G. Ensure glass unit masonry courses are of uniform height; make vertical and horizontal joints equal and of uniform thickness.
  - 1. Mortar Joints: Uniform 3/8", rodded.
- H. Lay glass masonry units in full bed of mortar, properly jointed with other work.
- I. Remove excess mortar and projections; take care to prevent damage to glass units.
- J. Lay glass unit masonry in stack bond unless otherwise indicated.
- K. Tolerances:
  - 1. Variation from Unit Face to Adjacent Unit Face: Maximum 1/32".
  - 2. Variation of Wall from Plane: Maximum 1/16".
- L. Reinforcement and Anchorage: Provide as indicated, recommended by manufacturer, and in accordance with applicable codes.
  - 1. Fully reinforce corners and intersections.
  - 2. Lap splices minimum 6" unless otherwise indicated.
  - 3. Extend splices minimum 16" each side of openings unless otherwise indicated.
- M. Expansion Control: Do not continue horizontal masonry reinforcing across control joints; keep expansion joints clean, ready to receive sealant.
- N. Built-In Work:
  - 1. Build in frames, lintels, anchor bolts, plates and other items supplied by other trades as work progresses.
  - 2. Build in items plumb and true.
  - 3. Do not build in organic materials which will be subject to rot or deterioration.

4. Bed anchors of frames in mortar joints; fill frame voids solid with mortar.

**3.3 CLEANING**

- A. Remove excess mortar and smears immediately.
- B. Point or replace defective mortar; match adjacent work.
- C. Clean soiled surfaces using a materials which will not harm glass unit masonry or adjacent materials.
  1. Consult glass unit masonry manufacturer for acceptable cleaners.
  2. Use non-metallic tools in cleaning operations.

**3.4 PROTECTION**

- A. Maintain protective boards at exposed external corners which may be damaged by construction activities.
- B. Provide protection without damaging completed work.

**END OF SECTION**

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**SECTION 04815****BONDED THIN MASONRY VENEER**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide exterior adhered masonry facing veneer system including cementitious backer units, waterproof membrane, bond coat, brick and stone tile veneer, and accessories for complete, finished installation.
  - 1. Base: Provide cementitious backer unit base for bonded thin masonry veneer.
  - 2. Integral Waterproofing: Provide system with integral waterproofing.
- B. Related Sections:
  - 1. Section 09300: Interior tile set over cementitious backer units.

## 1.2 REFERENCES

- A. ANSI A108.5: Tile installed with Latex-Portland Cement Mortar.
- B. Tile Council of North America (TCNA): Handbook for Ceramic Tile Installation.
- C. ASTM C1088: Standard Specifications for Thin Veneer Brick Units Made from Clay or Shale.

## 1.3 SUBMITTALS

- A. Product Data: Submit literature for each system component.
- B. Shop Drawings: Clearly indicate dimensioning, general construction details, anchorages and method of anchorage.
- C. Samples: Furnish samples of each type of adhered masonry unit and sanded grout, including sample with masonry and grout indicating installed appearance.
- D. Quality Assurance Submittals:
  - 1. Manufacturer's Certificate: Submit system manufacturer's certification noting Contract Documents have been thoroughly reviewed and conditions and substrates are acceptable and in conformance with applicable codes.
    - a. Inform Architect where conditions and substrates vary from manufacturer's standard recommendations.
  - 2. Manufacturer's Field Reports: Furnish manufacturer's representative's report indicating work has been installed in accordance with manufacturer's recommendations.

**1.4 QUALITY ASSURANCE**

- A. Qualification of Installer: Minimum five years successful experience in projects of similar scope.
- B. Manufacturer's Representative Inspection: Inspect work of Project on regular basis and provide report indicating system has been installed in accordance with manufacturer's recommendations.
  - 1. Provide unobstructed access to adhered masonry work.
  - 2. Correct defects and irregularities as advised by manufacturer's representative.
- C. Mockup: Provide minimum 50 square foot section of adhered masonry system indicating proposed construction including reveals, corners, special shapes, and treatment of mortar joints. Approved mock-up may be incorporated into Project.
  - 1. Mock-up to include section of building corner and both bonded thin brick and stone tile masonry.
- D. Pre-Installation Meetings: Convene pre-installation meeting prior to commencement of work of this section. Require attendance of parties directly affecting work of this section.
  - 1. Review procedures and coordination required between adhered masonry and related work, including tolerances required for substrates.

**PART 2 - PRODUCTS****2.1 MATERIALS**

- A. Masonry Veneer: Veneer tiles designed to provide natural brick appearance when installed, complete with matching preformed corners and special shapes as required for complete brick-like installation.
  - 1. Brick Veneer: McNear Brick & Block. Modular Thin Brick (2-1/4" by 7-5/8" by 5/8" thick).
    - a. Color: McNear Red.
    - b. Components. Provide manufacturer's standard corners, stretchers, headers, long and short edge caps, and corner caps as indicated on the Drawings.
  - 2. Stone Tile Veneer: Cold Springs Granitestone tile, nominal 3/8" thick by sizes as indicated on Drawings.
    - a. Color: Academy Black, thermal finish.
- B. Substitutions: Refer to Section 01630.
- C. Latex Bond Coat and Integral Waterproofing: Premixed latex bond coat and waterproofing system recommended by manufacturer for application of masonry veneer on exterior cementitious backer unit base and for grout.

1. Manufacturer:
    - a. Laticrete International, Inc./Laticrete.
    - b. Mer-Kote Products, Inc./Mer-Krete.
    - c. Bostik Construction Products/Hydroment Acrylic Latex Tile Mate.
    - d. Custom Building Products/Custom Crete Crete-Mix.
    - e. Substitutions: Refer to Section 01630.
  2. Integral Waterproofing System: Match Laticrete/Hydro Ban.
  3. Bond Coat: Match Laticrete/254 Platinum.
  4. Grout: Match Laticrete/PermaColor Grout.
    - a. Color: As directed by Architect.
- D. Metal Accessories: Comply with requirements of ASTM C1063 system manufacturer recommendations.
1. Components: Hot-dip galvanized finish; ASTM A653 minimum G90 for 18 gage and lighter formed metal products, ASTM A123 galvanized after fabrication for 16 gage and heavier products.
    - a. Exposed Components: Zinc alloy accessories unless fully concealed.
  2. Accessories: Provide as indicated, as recommended by referenced standards, and as required for complete installation.
    - a. Manufacturers:
      - 1) Keene Products from Metalex, a Division of The Koller Group.
      - 2) Delta Star, Inc., Superior Metal Trim.
      - 3) Lath manufacturers.
      - 4) Substitutions: Refer to Section 01630.
    - b. Base Channel: Minimum 0.063" "L" shaped aluminum channels designed not to protrude beyond face of bonded thin masonry veneer.
    - c. Expansion and Control Joints: Two piece slip type joints; commonly referred to as No. 40.
  3. Anchorages: Special corrosion resistant Type 316 stainless steel screws and other approved metal anchors and supports, of type and size to suit application.
- E. Cementitious Backer Units: ANSI A118.9 aggregated Portland cement with woven glass-fiber mesh on both faces; approximately 1/2" thick typical, provide additional 1/4" thick layer at locations indicated to receive stone tile as indicated on Drawings.
1. Manufacturers:
    - a. USG Industries, Durabond Division/Durock.
    - b. National Gypsum Co./PermaBase Cement Board.
    - c. Custom Building Products/Wonderboard.
    - d. Substitutions: Refer to Section 01630.

## 2.2 MIXING

- A. Mix and proportion bonding materials in accordance with manufacturers' recommendations.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Site Verification of Conditions: Inspect substrate and verify work is complete and suitable for installation of system.
  - 1. Do not proceed unless substrates are acceptable to manufacturer's representative and are suitable to maintain tolerances specified for finished installation.

### 3.2 INSTALLATION

- A. Cementitious Backer Units: Screw sheathing to metal framing in accordance with ASTM C840, manufacturer's recommendations, and bonded thin masonry veneer system manufacturer instructions and recommendations.
  - 1. Maintain surface flatness with maximum variations of 1/8" in 10 feet.
- B. Installation of Metal Accessories: Fasten in place true to line and in correct relation to adjacent materials and as required to prevent dislodging and misalignment by subsequent operations.
  - 1. Base Channel: Use single length of metal wherever length of run does not exceed longest standard stock length available; miter or cope corners.
  - 2. Install expansion and control joints so plaster areas do not exceed 120 ft<sup>2</sup>, and with area sides having a maximum one to two ratio, unless otherwise approved by Architect.
    - a. Carefully coordinate joint location with masonry veneer grout joints.
- C. Integral Waterproofing: Install integral waterproofing system over cementitious backer units prior to application of bonded thin masonry veneer; comply with system manufacturer recommendations and installation instructions.
- D. Bonded Thin Masonry Veneer: Install bonded thin masonry veneer in accordance with bonding material manufacturer's instructions, ANSI A108.5, and recommendations of Tile Council of North America (TCNA) W-244.
  - 1. Place in accordance with patterns as indicated on Drawings or as directed; carefully plan masonry veneer layouts; ensure pattern is uninterrupted from one surface to next.
  - 2. Neatly cut masonry veneer where required; accurately form corners, intersections and returns.
  - 3. Adhered masonry units to be 100% back buttered prior to application to wall.



4. Ensure joints are uniform in width, subject to normal variance in tolerance allowed in veneer size; ensure joints are watertight, without voids, cracks or excess mortar.
  - a. Form mortar in joints to smooth concave shape; avoid getting latex mortar on face of masonry veneer.
5. Completed installation shall be free of broken, damaged and faulty veneer.
- E. Grout Joints: Grout joints as required to match approved samples and mock-up; joints are required to be grouted and tooled to rodded mortar joint.

**3.3 CLEANING AND PROTECTION**

- A. Immediately clean adjacent materials of plaster, grout, and other materials as work progresses.
  1. Use only non-metallic tools in cleaning process.
- B. Protect system until installation of flashing and sealants.

**END OF SECTION**

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**SECTION 05110****STRUCTURAL AND MISCELLANEOUS STEEL**

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**PART 1 – GENERAL**

## 1.1 SUMMARY

- A. Section Includes: All labor, materials, equipment and operations required to complete structural and miscellaneous metals in shapes and configurations indicated; including:
1. Structural steel columns, beams, bracing, base plates, bolts, joist hangers, and stud bolts welded to structural steel.
  2. Miscellaneous structural steel and connections; fabricated connectors and hangers installed by related sections.
  3. Anchor bolts and steel inserts embedded in concrete or masonry, installed by related sections.
  4. Fabricated steel items embedded in concrete or masonry installed by related sections.
  5. Supervision of anchor bolt setting, leveling and elevations to insure required fit of steel work.
  6. Shop priming and field touch-up, galvanizing.
  7. Bracing, Shoring, Fabrication and Erection.
- B. Related Sections:
1. Pertinent sections of Division 01 specifying Quality Control and Testing Agency services.
  2. Pertinent Sections of other Divisions specifying concrete reinforcement, formwork, concrete, and rough carpentry.
  3. Pertinent Sections of other Divisions specifying structural and miscellaneous metal fabrications, steel joists, metal decking, cold-formed metal framing.

## 1.2 REFERENCES

- A. AISC 360- Specification for Structural Steel Buildings; American Institute of Steel Construction, Inc.
- B. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges; AISC, Inc.
- C. ANSI/AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society.
- D. California Building Code, CBC, California Code of Regulations, Chapter 22, latest edition.
- E. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.

## 1.3 SUBMITTALS

- A. Submit in accordance with pertinent sections of Division 01 specifying submittal procedures. The General Contractor shall review and approve shop drawings prior to submittal to the Architect/Engineer. Submittals that do not meet these requirements will be returned for correction without review.
- B. Limitation of Review: Structural Engineer's review will be for general conformance with design intent as indicated in the Contract Documents and does not relieve Contractor of full responsibility for conformance with the Contract Documents.
- C. Product Data: Submit manufacturer's product data, specifications, location and installation instructions for proprietary materials and reinforcement accessories. Provide samples of these items upon request.
- D. Shop drawings: Submit each building as a complete unit. Do not mix components from multiple buildings or units of work in a submittal. Include all of the following;
  - 1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
  - 2. Indicate fabrication tolerances for all steel.
  - 3. Connections: All, including type and location of shop and field connections
  - 4. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths, type, size, and sequence.

5. Cross-reference all shop drawing detail references to contract document detail references.
  6. Secure all field measurements as necessary to complete this work.
  7. Provide holes, welded studs, etc. as necessary to secure work of other sections.
  8. Provide the following as separate submittals for each building or unit of work:
    - a. Bolt and Anchor setting plans.
    - b. Layout, Fabrication and Erection Drawings.
- E. Certifications:
1. Steel Materials: Submit the following for identified materials.
    - a. Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.
    - b. Mill Test Reports: Indicate structural strength, destructive test analysis and non-destructive test analysis.
    - c. Contractor's affidavit certifying that all identified steel materials provided are of the grades specified and match the certificates supplied.
  2. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.
- F. Samples: Provide samples to the Testing Agency as specified in Article SOURCE QUALITY CONTROL, at no additional costs.

#### 1.4 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies, refer to pertinent sections of Division 01 and CBC Chapter 19.
- B. All tests shall be performed by a recognized testing agency as specified in pertinent sections of Division 01.
- C. Certification and Identification of Materials and Uses: Provide Testing Agency with access to fabrication plant to facilitate inspection of steel. Provide notification of commencement and duration of shop fabrication in sufficient time to allow inspection and all material identification/test information listed below.

1. Test all steel as required by ASTM A6.
  2. Provide manufacturer's Mill Test Reports for all materials. Include chemical and physical properties of the material for each heat number manufactured. Tag all fabricated materials with heat number.
  3. Provide letter certifying all materials supplied are from heat numbers covered by supplied mill certificates. Include in letter the physical location of each material type and/or heat number in the project (i.e. walls, braced frames etc.).
  4. Unidentified Material Tests: Where identification of materials by heat number to mill tests cannot be made, Owner's Testing Agency shall test unidentified materials as described below.
  5. Provide all certification, verifications, and other test data required to substantiate specified material properties at no additional cost to the Owner.
- D. Testing and Inspection: Tests and Inspections performed by Independent Testing Agency are specified below in Articles SOURCE QUALITY CONTROL and FIELD QUALITY CONTROL. Duties and limitations of Independent Testing Agency, test costs and test reports in conformance with pertinent sections of Division 01.
- E. The following standards are the minimum level of quality required. Provide higher quality work as specifically indicated in the Contract Documents.
1. Workmanship and details of structural steel work, shall conform to the California Building Code, and the AISC Specification for Structural Steel Building.
  2. The quality of materials and the fabrication of all welded connections shall conform to the American Welding Society, AWS D1.1 - Structural Welding Code.
  3. Comply with Section 10 of AISC "Code of Standard Practice for Steel Buildings and Bridges" for architecturally exposed structural steel.
- F. The Testing Agency will review all submittals and testing of materials.
- G. All re-inspections made necessary by non-conforming work shall be at the Contractor's expense.

## 1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to project site in bundles marked with durable tags indicating heat number, mill, member size and length, proposed location in the structure and other information corresponding with markings shown on placement diagrams.
- B. Handle and store materials above ground to prevent damage, contamination or accumulation of dirt or rust.

## 1.6 SCHEDULING AND SEQUENCING

- A. Organize the work and employ shop and field crew(s) of sufficient size to minimize inspections by the Testing Agency.
- B. Provide schedule and sequence information to Testing Agency in writing upon request. Update information as work progresses.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Structural Steel W Shapes: ASTM A 572 Grade 50 or ASTM A 992 Grade 50.
- B. Structural Steel Plates and Channels ASTM A 572 Grade 50.
- C. HSS (Hollow Structural Sections – formerly SSP & TS):
  - 1. Round: ASTM A-53, Grade B;
  - 2. Rectangular or Square: ASTM A-500, Grade B.
- D. Machine Bolts and Washers: Bearing and Shear connections (denoted as “MB”); ASTM A-307. Provide hot-dipped galvanized finish at all connection where steel is required to be galvanized.
- E. Anchor Bolts/Rods: ASTM A307 or ASTM A36. No upset thread allowed.
- F. Arc-Welding Electrodes: AWS Standards E70 or equivalent, except no E70T-4 allowed.
- G. Other Welding Materials: AWS D1.1; type required for materials being welded.

### 2.2 ACCESSORIES

- A. Grout: ASTM C 1107, Non-shrink, non-metallic aggregate type, capable of developing minimum compressive strength of 7,000 psi at 28 days. Provide "Masterflow 928" manufactured by Master Builders.
- B. Building Structural Steel Primers: Comply with local VOC limitations of authorities having jurisdiction and compatible with finish coats specified in other sections. Follow manufacturers printed instructions. Apply one coat unless otherwise directed.
  - 1. Type A: Modified Alkyd type, Tnemec Series V10 Primer (2.0 to 3.5 mils DFT).
  - 2. Type B: Organic Zinc-rich Urethane, Tenemec 90-97 Tnemec-Zinc Primer (2.5 to 3.5 mils DFT).
  - 3. Type C: MIO-Zinc Filled Primer, Tnemec 394 PerimePrime (2.5 to 2.5 mils DFT).
- C. Galvanizing: ASTM A153, and A123.
- D. Touch-Up Primer for Galvanized Surfaces: Type B primer.

### 2.3 FABRICATION

- A. Shop fabricate to greatest extent possible.
- B. Continuously seal joined members by continuous welds. Grind exposed welds smooth.
- C. Fabricate connections for bolt, nut, and washer connectors.
- D. Protect all materials, before and after fabrication, from rust, corrosion, dirt, grease and other foreign matter.
- E. Fabricate framing members free from twists or bends. Form holes, cut and sheared edges neatly without kinks, burrs, or warped edges.
- F. Exposed Steel: Straight, smooth, free of nicks, scars or dents.
- G. Gas Cutting: Gas cutting of holes in a member shall not be permitted.
- H. Splicing of members: Members requiring splicing due to length requirements may be spliced using full penetration butt welds when such welds and procedures are inspected and certified by the Testing Agency, in conformance with AWS and AISC standards. The location of splices shall be approved by the Architect/Engineer in writing prior to fabrication.

- I. Welding: Welding of structural steel connections shall be performed by qualified welders in accordance with AWS Standards. All weld sizes shall match those shown on the drawings.
  1. Preparation: Clean all surfaces free of rust, paint and all foreign matter. Remove paint or scale by brushing, chipping or hammering as required. Chip clean and wire brush burned or flame cut edges before welding. Space and alternate welds, clamping as necessary to prevent warp or misalignment.
  2. Sequence Welding: When welds enclose, or partially enclose, the perimeter or portion of the surface of a member, make weld bead in sequence, or staggered. Minimize internal stresses. Weld groups of members occurring in a single line in staggered sequence to minimize distortion of the structural frame.
  3. Faulty and Defective Welding: Welds failing to meet AWS standards and the Contract Documents shall be rejected and remade at Contractor expense. All welds showing cracks, slag inclusion, lack of fusion, bad undercut or other defects, ascertained by visual or other means of inspection shall be removed and replaced with conforming work.
  4. Minimum Weld Strengths: All welds shall match the minimum weld sizes recommended by AISC. Details of fabrication not specifically shown shall match similar details which are specifically shown. All bevel and groove welds shall be full penetration unless size is noted otherwise.
- J. Camber: Fabricate all beams cambered as indicated on the drawings.
  1. Fabricate beams without camber for installation with any "natural" crown up.
  2. Exception: Fabricate cantilever beams with "crown" down.
- K. Grinding: Grind smooth the following structural steel and connections;
  1. Exposed cut ends of structural and fabricated shapes.
  2. All welds exposed to view.
  3. Mitered and fit-up corners and intersections.
- L. Back-Up Bars: Required for all complete penetration welds.



- M. Bolt Holes: Edge, end distances and spacing shall conform to dimensions shown on the drawings, and as follows;
1. Round: Size indicated and 1/16 inch maximum oversize
  2. Slotted: At locations specifically noted on the drawings, provide size indicated and 1/16 inch by 1/4 inch oversize slotted in direction perpendicular to applied loads.
  3. Holes in base plates for anchor bolts may be 1/8" oversize.

## 2.4 FINISHES

- A. Prepare and finish structural component surfaces as follows:
1. Structural and miscellaneous Steel for interior dry exposure (finish painted or unpainted):
    - a. Surface preparation: SSPC-SP2 hand tool or SP3 Power Tool Cleaning. Where jobsite exposure is expected to exceed 6 months, SSPC-SP6 Commercial Blast Cleaning is required.
    - b. Apply Primer Type A.
  2. Structural and miscellaneous exterior steel or interior steel subjected to wet conditions or fumes (finish painted):
    - a. Surface preparation: SSPC-SP6 Commercial Blast Cleaning. For severe (immersion) exposure, SSPC-SP10 Near-White Blast Cleaning is required.
    - b. Apply Primer Type B.
  3. Structural steel to be fire proofed, all interior perimeter steel, steel that will be inaccessible after erection, steel to receive high performance finish coatings and slip critical bolted connection surfaces (finish painted or unpainted):
    - a. Surface preparation: SSPC-SP3 Power Tool Cleaning.
    - b. Apply Primer Type C.
- B. Do not prime the following surfaces unless otherwise indicated:
1. Connections to be field welded.

2. Steel in contact with concrete.
  3. Surfaces to receive welded metal decking.
- C. Galvanize structural steel members exposed to weather and not finish painted, or as otherwise indicated to receive galvanizing, to comply with ASTM A 123/A 123M. Provide minimum 1.3 oz/sq ft galvanized coating. Passivation agents are not permitted on galvanized metal that is to be painted. Galvanize all bolts and washers.
- D. Field prime with Type B after connections are complete.
- E. Do not finish work until inspection is complete and work approved by Testing Agency.

## 2.5 SOURCE QUALITY CONTROL

- A. An independent Testing Agency will perform source quality control tests and submit reports, as specified in pertinent sections of Division 01.
- B. Steel Materials Testing:
1. Unidentified steel- General: Test all structural shapes. In addition, test to verify  $F_y$  and  $F_u$  values when engineering requirements exceed  $F_y = 25$  ksi for design.
  2. No testing is required for Materials identified in accordance with CBC 2203 (heat number, grade stencil, etc.).
- C. Shop Welding Inspection:
1. Testing Agency shall inspect and certify all structural welds, unless the fabricating shop has been accredited in conformance with CBC requirements. Submit certification to the Architect/Engineer for review and the Building Official for approval.
  2. Welder Qualifications: Welding inspector shall verify that all the welders are properly qualified prior to steel fabrication and state the qualifications of each welder in the welding inspection report.
  3. Welding Inspection: Continuous inspection required unless otherwise noted below. Comply with requirements of AWS D1.1
    - a. Welding Inspector shall check all welds, materials, equipment and procedures.

- b. Welding Inspector shall provide reports certifying the welding is as required and has been done in conformity with the plans, specifications and codes.
  - c. Welding Inspector shall use radiographic, ultrasonic, magnetic particle, or any other necessary aid to visual inspection to assure adequacy of welds.
4. Periodic Inspection Acceptable:
- a. Single pass fillet welds not exceeding 5/16
  - b. Welding of studs to beams.
- D. Bolts, Nuts and Washers: Provide samples to Testing Agency for required testing, at no additional cost.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

#### **3.2 ERECTION**

- A. Erect structural steel in compliance with AISC "Code of Standard Practice for Steel Buildings and Bridges".
- B. Framing:
  - 1. Erect all structural steel true and plumb.
  - 2. Verify proper final alignment prior to making final connections.
- C. Field Connections:
  - 1. Workmanship of field bolted and welded connections shall conform in all respects to methods and tolerances specified for fabrication.
  - 2. Field weld components indicated on shop drawings. Sequence field welds to minimize built-up stress and distortion of the structural frame. Verify sequence with Engineer. Coordinate field welding schedule with Testing Laboratory.

3. Welded Studs: Install in accordance with manufacturer's instructions and structural welding code AWS D1.1.
- D. Templates: Provide bolt setting templates for all anchor bolts. Provide instructions for the setting of anchors and bearing plates, verify these items are set correctly as work progresses.
- E. Column base plates: Set level to correct elevations, support temporarily on steel wedges, shims, or leveling nuts where shown, until the supported members are plumbed and grouted.
1. Grout solid the full bearing area under base plates prior to installation of floor and/or roof decks. See Section 03300 - Cast-In-Place Concrete.
  2. Comply with manufacturer's instructions for nonshrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.
- F. Bolting - General:
1. Inspect mating surfaces to insure that bolt head and nut will have full bearing and that metal plies will mate flush between bolts.
  2. Install bolts in matching holes; Do not distort metal or enlarge holes by drifting during assembly. Remake mismatched components to achieve tolerances indicated.
  3. Holes mismatched in excess of 1/8 inch will be rejected.
  4. Ream holes mismatched in excess of 3/32 inch to the next larger size bolt.
  5. Do not enlarge holes by flame cutting or air/arc ("plasma") cutting.
  6. Provide flat washer(s) at over-size holes.
  7. Provide ASTM F-436 beveled washers when the slope of the surfaces of parts in contact with the bolt head or nut is greater than 1:20.
  8. Do not install bolts with damaged threads.
  9. Threads shall commence outside of the shear plane.
- G. Bolting - Specific:

1. Machine Bolts (MB): Install and tighten to a snug condition (ST) such that laminated surfaces bear fully on one another, using an impact wrench or "full effort" of an installer using a standard spud wrench.
- H. Supports, Shoring and Bracing: Allow for erection loads and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing. Conform to requirements of all applicable laws and governing safety regulations. Resist imposed loads, including those of stored materials and equipment.
1. Provide all temporary supports, shoring and bracing necessary to achieve work of tolerances indicated.
  2. Provide all necessary temporary flooring, planking and scaffolding required for erection of steel, and support of erection machinery.
  3. Construction Loading: Do not overload the structure or temporary supports with stored materials, equipment or other loads.
  4. Maintain temporary bracing and shoring until work is complete, and longer as required to ensure stability and safety of structure.
- I. Do not make final connections until structure is aligned to meet specified tolerances.

### 3.3 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.

### 3.4 FIELD QUALITY CONTROL

- A. The independent Testing Agency will perform field quality control tests, as specified in pertinent sections of Division 01.
- B. Field Welding Inspection: Conform to all requirements of section SOURCE QUALITY CONTROL.

### 3.5 ADJUSTING

- A. Touch-up damaged finishes with compatible specified primer.
- B. Replace all defective work at Contractor's expense.

- C. Replace defective or damaged work with conforming work.
- D. Straighten materials by means that will not injure the materials.
- E. Replace defective or damaged work which cannot be corrected in the field with new work, or return defective items to the shop for repair.
- F. Architect/Engineer shall review all proposals for the repair or replacement of damaged, defective, or missing work.
- G. Pay expenses incurred by Owner for Architect/Engineer's costs for (re-design) and obtaining approvals of Authorities Having Jurisdiction (AHJ) necessitated by incomplete, inefficiently scheduled, improperly performed, defective or nonconforming work, as specified in pertinent sections of Division 01.
- H. Pay expenses due to re-testing and re-inspection necessitated by incomplete, inefficiently scheduled, improperly performed, defective or nonconforming work, as specified in pertinent sections of Division 01.

**3.6 CLEANING AND PROTECTION**

- A. Clean all surfaces upon completion of erection, leave free of grime and dirt. Remove unused materials, tools, equipment and debris from the premises and leave surfaces broomed clean.
- B. Protect work from damage by subsequent operations.

**END OF SECTION**

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**SECTION 05401****COLD-FORMED METAL FRAMING**

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**PART 1 – GENERAL**

## 1.1 SUMMARY

## A. Section Includes:

1. All design and other services, material, labor and equipment as necessary for the fabrication, erection and completion of all cold formed metal framing including all bracing and shoring required for erection, miscellaneous metal, and related work.

## B. Related Sections:

1. Pertinent Sections of Division 01 Specifying Quality Control and Testing Agency Sections
2. Pertinent Sections of Division 05 Specifying Structural Steel.

## 1.2 REFERENCE STANDARDS

A. Specification for the Design of Cold-Formed Steel Structural Members, latest edition with Addendums, American Iron and Steel Institute.

B. Cold-Formed Steel Design Manual, latest edition, American Iron and Steel Institute.

C. California Building Code, California Code and Regulations, (CBC) Chapter 22, latest edition.

D. American Society for Testing and Materials (ASTM), latest edition:

1. ASTM A 307 carbon steel externally and internally threaded standard fasteners.
2. ASTM A 653 steel sheet, zinc coated (galvanized) by the hot-dip process, physical (structural) quality.
3. ASTM A 449 Quenched and Tempered Steel Bolts and Studs.
4. ASTM A 570 Hot-Rolled Carbon Steel Sheet and Strip, Structural Quality.

5. ASTM A 606 Steel Sheet and Strip, Hot-Rolled and Cold-Rolled, High-Strength, Low-Alloy, with Improved Corrosion Resistance.
  6. ASTM A 606 Steel Sheet and Strip, Hot-Rolled and Cold-Rolled, High-Strength, Low Alloy Columbian and/or Vanadium.
  7. ASTM A 611 Steel, Cold-Rolled Sheet, Carbon, Structural.
- E. American Welding Society (AWS), latest edition.
1. AWS A5.1 Mild Steel Covered Arc-Welding Electrodes.
  2. AWS A5.2, Iron and Steel Gas Welding Rods.
  3. AWS A5.5, Low Alloy Steel Covered Arc-Welding Electrodes.
  4. AWS A5.17, Bare Mild Steel Electrodes and Fluxes for Submerged-Arc Welding.
  5. AWS A5.18, Mild Steel Electrodes for Gas Metal-Arc Welding.
  6. AWS D1.3 Structural Welding Code.
- F. Federal Specifications (FS)
1. TT-P-664C(1), Primer Coating, Synthetic, Rust-inhibiting, Lacquer-resisting.
- G. Industrial Fasteners Institute (IFI)
1. IFI-112, High Performance Thread Rolling Screws.
  2. IFI-113, Steel Self-Drilling Tapping Screws.
- 1.3 SUBMITTALS
- A. Shop Drawings
1. Show size and locations of all framing members in conformance to the criteria shown on the drawings.
  2. Shop and field assembly details, including cuts and connections. All details must reference detail callouts on the construction documents.
  3. Type and location of shop and field welds, rivets, bolts, and fastening devices.



4. General Contractor shall review and approve shop drawings prior to submittal.
  5. Shop drawing submittals that do not meet these requirements will be returned for correction without review.
- B. Manufacturer's Literature:
1. Descriptive data illustrating cold-formed framing system components including fasteners and accessories, including ICC-ES reports.
  2. Erection instructions containing sequence of operations.
- C. Samples: Provide adequate samples of unidentified material to the Owner's Testing Laboratory for testing purposes.

#### 1.4 QUALITY ASSURANCE

- A. Erector Qualifications:
1. Minimum of three years successful experience on comparable cold-formed metal framing projects.
  2. Welders Qualified in accordance AWS D1.3.
- B. Cold form carbon and low alloy steel used for structural purposes shall be identified per CBC Section 2203.
- C. Welding inspections shall conform to AWS D1.3.

### **PART 2 - PRODUCTS**

#### 2.1 ACCEPTABLE MANUFACTURERS

- A. Members of the "Metal Stud Manufacturer's Association" with products meeting all the requirements of ICC-ES ER-4943P, latest revision.

#### 2.2 MATERIALS

- A. Steel Framing System:
1. All stud and/or joist framing members shall be of the type, size as shown on the plans and reviewed shop drawings.

2. All runner and end tracks, bridging and non-load bearing studs shall be of the type, size shown on the plans.
  3. All 14 and 16 gage steel studs and steel joists or headers to joist shall be formed from steel that corresponds to the requirements of the following standards with a minimum yield of 50,000 psi:
    - a. Painted Material - ASTM A570 or ASTM 611 Grade C
    - b. Galvanized Material - ASTM A653
  4. All 12, 14 and 16 gage track and bridging shall be formed from steel that corresponds to the requirements of the following Standards with a minimum yield of 33,000 psi:
    - a. Painted Material - ASTM A570 or ASTM 611 Grade C
    - b. Galvanized Material - ASTM A653
  5. All 18 and 20 gage steel studs, joists, track, bridging and accessories shall be formed from steel that corresponds to the requirements of the following Standards with a minimum yield of 33,000 psi:
    - a. Painted Material - ASTM A611, Grade C
    - b. Galvanized Material - ASTM A653
  6. All stud and joist components shall be formed from steel having a G-60 galvanized coating or shall be primed with paint meeting the performance requirements TT-P-636C, where noted.
  7. Welding Electrodes: AWS A5.1 E 6013 Rods, AWS A5.18 (Gas Metal Arc).
  8. Primer: FS TT-P-664, Composition G - General Use.
- B. Screws: IFI-113 - "Steel self-drilling tapping screws"
- C. Fasteners: Cold-formed metal framing manufacturer's standard and/or standard machine bolts per ASTM A-307.
- D. Accessories: Cold-formed metal framing manufacturer's standard.

## 2.3 FABRICATION

- A. Form members to manufacturer's standard shapes meeting design criteria.
- B. Cut right angle connections of framing components to fit squarely against abutting members.
- C. Prime un-galvanized steel to 1.5 mil (0.038) minimum dry film thickness.

### **PART 3 - EXECUTION**

#### **3.1 ERECTION**

- A. Clean surfaces that will be in contact after assembly.
- B. Position members plumb, square and true to line.
- C. Hold members firmly in position until permanently fastened.
- D. Seat studs squarely in track with stud web and flange abutting track web.
- E. Connect members together by welding and/or fasteners in accordance with the drawings.
- F. Do not splice studs, provide "headers" and "trim studs" at openings as required. Studs shall be securely attached to tracks at all exterior walls except as noted below.
- G. Provide for expansion and contraction between floors at solid wall sections of two stories or more by providing a slip joint between stud and track at one end. This connection shall be capable of transmitting lateral loads to the structure.
- H. Tracks, studs, etc. shall be securely attached to the structure in order to properly transmit all imposed loads.
- I. Provide and install bridging, fire blocking, etc. per manufacturer's recommendations, the plans and code requirements.
- J. Perform welding in accordance with AWS D1.1
- K. Remove erection bolts and screws used in welded construction.
- L. Do not use gas cutting for field correction of fabrication without concurrence of Architect/Engineer.
- M. Touch-up field connections and breaks in shop coating with same primer used for shop priming.

3.2 DEFECTIVE WORK AND MATERIALS

- A. Work found to be defective, missing or damaged shall be immediately replaced with proper work. Such replaced work and the inspection for same shall be at the expense of the Contractor.
- B. Straightening of any materials, if necessary, shall be done by a process and in a manner that will not injure the materials, and which is approved by the Architect. Sharp kinks or bends shall be cause for rejection. Heating will not be allowed.
- C. If defects or damaged work cannot be corrected in the field, the material shall be returned to the shop or new parts furnished, as the Architect directs; the Contractor shall replace all work at his own expense.

3.3 CLEANING

- A. After erection, all surfaces shall be cleaned and left free of all grime and dirt. Remove unused materials, tools, equipment and debris from the premises and leave broom clean.

**END OF SECTION**

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**SECTION 05500****METAL FABRICATIONS**

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**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes: Provide stock and custom fabricated metal items complete in respect to function as intended.
  - 1. Metal fabrications includes items made from iron and steel shapes, plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or metal systems specified elsewhere.
  - 2. Railings: Provide railings as indicated; special powder coat finish.
  - 3. Gates: Provide custom steel gates and hardware to allow bathrooms to be locked; special powder coat finish.
  - 4. Janitor Closet Shelving: Provide heavy duty metal shelving for Janitor Closet.
- B. Related Sections:
  - 1. Section 02870: Site furnishings including bus stop benches.
  - 2. Section 02876: Bike racks.
  - 3. Section 07412: Metal roofing.
  - 4. Section 07600: Flashing and sheet metal.

**1.2 SYSTEM DESCRIPTION**

- A. Design Requirements: Design railings to support a lateral force of 50 lbs. /lin. ft. uniform load and 200 lbs. at any single point without permanent set or damage; ASTM E935.
  - 1. Top Rails: Design to support minimum 300 lb. concentrated single point load applied at any point vertically or horizontally.

**1.3 REFERENCES**

- A. American Welding Society (AWS): D1.1, Structural Welding Code.
- B. National Association of Architectural Metal Manufacturers (NAAMM): Pipe Rail Manual.

**1.4 SUBMITTALS**

- A. Product Data: Submit manufacturer's literature for products used in metal fabrications, including paint, grout and manufactured items.
- B. Shop Drawings: Submit for fabrication and erection of metal fabrications. Indicate profiles, sizes, connection, reinforcing and anchorage.
  - 1. Provide templates for anchorage installation by others.

## 1.5 QUALITY ASSURANCE

### A. Regulatory Requirements:

1. Access: Comply with California Building Code and Americans with Disabilities Act Standards requirements for access for persons with disabilities.
2. Code: Comply with requirements of applicable codes for railing design, except where more restrictive codes are specified.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Steel Shapes, Plates and Bars: ASTM A36.
- B. Structural Steel Sheet: Hot rolled, ASTM A1011; or cold rolled, ASTM A1008, Class 1; of grade required for design loading.
- C. Steel Pipe: ASTM A53, Type S seamless, grade as selected by fabricator and as required for design loading; minimum standard weight, STD or Schedule 40.
- D. Steel Tubing: Cold formed ASTM A500; or hot rolled, ASTM A501; minimum Grade B; seamless where exposed.
- E. Castings: Gray iron, ASTM A48, Class 30; malleable iron, ASTM A47.
- F. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron ASTM A47, or cast steel ASTM A27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A153.
- G. Grout: Non-shrink meeting ASTM C1107, non-metallic, pre-mixed, factory-packaged, non-staining, non-corrosive; type specifically recommended by manufacturer as applicable to job condition.
  1. Manufacturers:
    - a. Master Builders/Masterflow 713.
    - b. Five Star Products, Inc./Five Star Grout.
    - c. Bostik Construction Products/Upcon Grout.
    - d. Protex Industries, Inc./Propak.
    - e. Substitutions: Refer to Section 01630.
- H. Fasteners and Rough Hardware: Type required for specific usage; provide zinc-coated fasteners for exterior use or where built into exterior walls.
- I. Welding Materials: AWS D1.1, type required for materials being welded.
- J. Paint:
  1. Primers: Provide primers as recommended by paint manufacturers for substrates and paints specified in Section 09900 – Paints and Coatings.

2. Galvanizing Repair Paint: High zinc-dust content paint for regalvanizing welds in galvanized steel.
3. Powder Coating (Railings, Gates, and Shelving): Provide factory formulated polyester TGIC powder coating materials intended for powder coating application and as required to match approved sample, and approved mock-up.
  - a. Manufacturers:
    - 1) Courtaulds Coatings (Interpon)/TGIC Powder Coating.
    - 2) Porter Powder Coatings/TGIC Powder Coating.
    - 3) H.B. Fuller Co./TGIC Powder Coating.
    - 4) Fuller O'Brien/TGIC Powder Coating.
    - 5) Substitutions: Refer to Section 01630.
  - b. Color: As indicated, as directed by Architect where not otherwise indicated; custom color may be required.

## 2.2 FABRICATION

- A. Fabricate items with joints neatly fitted and properly secured.
- B. Grind exposed welds continuous, smooth and flush with adjacent finished surfaces, and ease exposed edges to approximate 1/32" uniform radius.
- C. Exposed Mechanical Fastenings: Flush countersunk fasteners unobtrusively located, consistent with design of structure.
- D. Fit and shop assemble in largest practical sections for delivery.
- E. Make exposed joints flush butt type, hairline joints where mechanically fastened.
  1. Fabricate joints exposed to weather in manner to exclude water or provide weep holes where water could accumulate.
- F. Supply components required for proper anchorage of metal fabrications; fabricate anchorage and related components of same material and finish as metal fabrication.
- G. Railings: Comply with California and ADA Standards access requirements and NAAMM "Pipe Railing Manual"; welded construction; cap exposed ends.
  1. Handrails: Seamless steel tube rails, 1-1/2" outside diameter, continuous railings conforming to applicable code and design requirements.
  2. Wall Rail Brackets: Castings as approved by Architect.
  3. Wall Returns: 90° elbow return with 1/4" maximum clearance unless otherwise indicated.
    - a. Provide wall plates only where indicated and where required by applicable codes.

- H. Custom Gates: Configurations indicated; welded construction; with hardware as required for complete operational heavy duty installation. Hardware to comply with general requirements specified in Section 08700 – Hardware.
  - 1. Hinges: Not less than three extra heavy duty ball bearing hinges with non-removable pins; corrosion resistant nonmagnetic stainless steel with satin finish.
  - 2. Locksets: Provide heavy duty bolt with hasp and staple for padlock.
    - a. Padlock: Owner furnished, not in Contract (NIC).
  - 3. Hold-Open: Provide wall mounted strike plate allowing gates to be locked in open position as well as closed position.
  - 4. Stops: Provide rubber stops to prevent gates from contacting metal in both full open and full closed position.
- I. Shelving: Configuration indicated, not less than 16 gage formed galvanized steel sheet with welded corners, free of sharp edges, and capable of supporting not less than 60 pounds per square foot.
  - 1. Supports: As required to support shelving with specified load without deflection and without failure.
- J. Finishes: Galvanize and prime paint work unless otherwise noted; comply with requirements of Section 09900 - Paints and Coatings for preparation and priming.
  - 1. Thoroughly clean surfaces of rust, scale, grease and foreign matter prior to applying finish.
  - 2. Do not shop prime surfaces in contact with concrete or requiring field welding; shop prime in one coat.
  - 3. Galvanized Coating: Provide coating comparable to ASTM A924 and A653, minimum G90 hot dip galvanized coating.
  - 4. Gates and Railings: Galvanized and apply power coat finish including primer.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible; do not delay job progress; allow for trimming and fitting where necessary.

#### **3.2 ERECTION**

- A. Obtain Architect's review prior to site cutting or making adjustments which are not part of scheduled work.
  - 1. Perform necessary cutting and altering for installation and coordination with other work.



- B. Install items square and level, accurately fitted and free from distortion or defects detrimental to appearance or performance.
  - 1. Supply items required to be cast into or embedded in other materials to appropriate trades.
  - 2. Ensure alignment with adjacent construction; coordinate with related work to ensure no interruption in installation.
- C. Make provision for erection stresses by temporary bracing; keep work in alignment.
- D. Field bolt and weld to match standard of shop bolting and welding; hide bolts and screws whenever possible, where not hidden, use flush countersunk fastenings.
  - 1. Perform field welding in accordance with AWS D1.1.
- E. After installation, touch-up field welds and scratched and damaged surfaces; use primer consistent with shop coat or recommended for galvanized surfaces, as applicable.
- F. Replace items damaged in course of installation and construction.

**END OF SECTION**

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**SECTION 06105****MISCELLANEOUS ROUGH CARPENTRY**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide miscellaneous wood blocking, including blocking for roofing system and related flashing.
  - 1. Provide mop holder at Janitor Closet.
  - 2. Preservative treat wood members as indicated.

## 1.2 REFERENCES

- A. Forest Products Society (FPS): National Design Specification for Stress Grade Lumber and its Fastening.

## 1.3 SUBMITTALS

- A. Product Data: Submit wood treatment certifications and instructions for proper use of each type of treated material.

## 1.4 QUALITY ASSURANCE

- A. Lumber Grades: Provide visible grade stamp of an agency certified by FPS.
- B. Lumber Standard: Comply with US Product Standard PS20 for each indicated use, including moisture content and actual sizes related to indicated nominal sizes.

**PART 2 - PRODUCTS**

## 2.1 MATERIALS

- A. Blocking: Provide dimensional lumber graded in accordance with FPS Grading Rules; Construction Grade, Douglas Fir; minimum S-Dry.
- B. Nails, Spikes and Staples: Galvanized; size and type to suit application.
- C. Bolts, Nuts, Washers, Lags, Pins and Screws: Medium carbon steel; galvanized; size and type to suit application.
- D. Fasteners: Provide fasteners as required for complete, secure installation of miscellaneous rough carpentry.
  - 1. Solid Masonry or Concrete: Expansion shield and lag bolt type.
  - 2. Steel: Bolts or powder activated type.

E. Janitor Closet Mop Holders: Spring loaded anti-slip mop holders with rubber cam, with three mop holders on stainless steel.

1. Manufacturers:

- a. Bobrick Washroom Equipment, Inc./Model B-223.
- b. Bradley Corp./Model 9953.
- c. American Specialties Inc./Model 0796A.
- d. Substitutions: Refer to Section 01630.

## 2.2 FABRICATION

A. Wood Preservation: Treat blocking to comply with applicable requirements of American Wood Preservers Association.

1. Decay Resistance Treatment: Pressure treat with water-borne preservatives for above ground use with AWPA C-2.

a. Kiln-dry wood to a maximum moisture content of 19% after treatment with water-borne preservative.

2. Complete fabrication of treated items prior to treatment, wherever possible; if cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment.

3. Inspect each piece after drying and discard damaged and defective pieces.

## PART 3 - EXECUTION

### 3.1 PLACEMENT

A. Place miscellaneous rough carpentry true to lines and levels.

B. Correlate location so attached work will comply with design requirements and be properly located.

C. Construct members of continuous pieces of longest possible lengths.

D. Fit carpentry work to other work; scribe and cope as required for accurate fit.

E. Shim with metal or slate for bearing on concrete and masonry.

F. Securely attach carpentry work to substrates by anchoring and fastening as required by recognized standards.

1. Provide washers under bolt heads and nuts in contact with wood.

G. Wood Blocking: Provide blocking of S4S lumber not less than 1-1/2" wide and of thickness required to provide adequate support or to properly locate attached material.

1. Provide attachment to other work; form to shapes shown.

2. Countersink bolts and nuts flush with surfaces.
  3. Remove temporary blocking when no longer needed.
  4. Anchor to formwork before concrete placement.
- H. Accessories: Install Janitor Closet mop holders in accordance with manufacturer's recommendations in locations indicated or as directed by Architect.

**END OF SECTION**

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**SECTION 07412****MANUFACTURED STANDING SEAM ROOFING**

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**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes: Provide factory finished manufactured metal standing seam type roofing including integral metal flashings and sealants, supplemental framing members, supports, and accessories as required for complete weather-tight installation.
- B. Related Work:
  - 1. Section 07600: Galvanized steel gutters and rainwater leaders with EPDM liners, and galvanized downspouts.
  - 2. Section 07720: Solar powered roof vents.
  - 3. Section 07900: Joint Sealers

**1.2 REFERENCES**

- A. Sheet Metal and Air Conditioning Contractors National Association (SMACNA): Architectural Sheet Metal Manual, Fifth Edition.

**1.3 SYSTEM DESCRIPTION**

- A. Design/Build Criteria: Design metal roofing system to withstand loads as required by California Building Code.
  - 1. Design system to provide movement of components without buckling, failure of joint seals, undue stress on fasteners or other detrimental effects, when subject to 100 year seasonal temperature ranges.
  - 2. Design system to accommodate tolerances of structure, provided irregularities do not exceed industry recognized standards and clearances are maintained.
  - 3. Provide for positive drainage of water entering or occurring within preformed metal roofing system.

**1.4 PERFORMANCE REQUIREMENTS**

- A. General: Provide metal roof panel system meeting performance requirements as determined by application of specified tests by a qualified testing agency on manufacturer's standard assemblies.
- B. Air Infiltration: Maximum 0.03 cfm/sq. ft. (0.3 L/s per sq. m) per ASTM E 1680 at a static-air-pressure difference of 4 lbf/sq. ft. (191.5 Pa).
- C. Water Penetration Static Pressure: No uncontrolled water penetration at a static pressure of 6.4 lbf/sq. ft.(306.4 Pa) when tested per ASTM E 1646.

- D. Structural Performance: Provide metal roof panel system capable of withstanding the effects of indicated loads and stresses within limits and under conditions indicated, per ASTM based on testing according to ASTM E 1592:
1. Wind Loads: Determine loads based on uniform pressure, importance factor, exposure category, and basic wind speed indicated on drawings.
  2. Deflection Limits: Metal roof panel system shall withstand wind loads with vertical deflections no greater than 1/180 of the span.
  3. Concentrated Load Performance: Provide metal roof panel system that withstand a concentrated load of 250 lbs (113 kg) applied to a 4 sq. in. (2580 sq. mm) at midspan and center of the panel halfway between supports without causing deformation, buckling or side lap separation.
  4. Seismic Performance: Comply with ASCE 7 Sections 9, "Earthquake Loads" and as indicated on drawings.
- E. FMG Listing: Comply with FMG 4471. Provide metal roof panel assembly listed in FMG's "Approval Guide."
1. Fire and Windstorm Classification: Class 1A-90.
  2. Hail Resistance: SH.
- F. Wind Uplift Resistance: UL 580 wind uplift rating UL 90.
- G. Thermal Movements: Allow for thermal movements from variations in both ambient and internal temperatures. Accommodate movement of support structure caused by thermal expansion and contraction.
1. Thermal Cycle test: Provide metal roof panel system that shows no wear when subject to 100,000 cycles of 1 inch (25 mm) movement in the plane of the panel face relative to the clip anchor.

## 1.5 SUBMITTALS

- A. Product Data: Furnish manufacturer's literature and data sheets for prefabricated components, and recommendations for cleaning and protection.
- B. Shop Drawings: Indicate dimensioning, panel layout, general construction details including closures, flashings, locations of and types of sealants, and anchorage. Make distinctions between factory and field assembled work.
1. Coordination Drawings: Submit coordination drawings for connections to structural framing, secondary framing, penetrations, and openings.
  2. Include data indicating compliance with performance requirements.
  3. Indicate points of supporting structure that must coordinate with metal roof panel system installation.
  4. Include structural data indicating compliance with performance requirements and requirements of local authorities having jurisdiction.

- C. Samples: Furnish finished preformed metal roofing and each type of exposed metal flashing.
- D. Manufacturer Certification: Provide certification by manufacturer indicating compliance with Contract Documents and applicable codes and from manufacturer representative indicating installation conforms to manufacturer recommendations.
- E. Design/Build Certificates: Submit certification signed by California licensed structural engineer indicating compliance with Contract Documents and code requirements.
  - 1. Calculations: Where requested, submit calculations directly to enforcing agency.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer/Source: Provide metal roof panel system from a single manufacturer.
- B. Installer Qualifications: Firm acceptable to system manufacturer with not less than five years successful experience installing specified system for similar projects.
- C. Pre-Installation Meeting: Prior to fabrication of components, meet at Project to review areas of potential interference and conflicts. Coordinate layout and support provisions for interfacing work. Coordinate openings, penetrations and manufacturer's accessories with installation of roof panels.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Provide protective covering on finished materials to protect them through installation.

#### 1.8 WARRANTY

- A. Special Manufacturer's Warranty: On Manufacturer's standard form, in which Manufacturer agrees to repair or replace components of metal roof panel system that fail in materials and workmanship within two (2) years from date of Substantial Completion.
- B. Special Weathertight Performance Warranty: On Manufacturer's standard form, in which Manufacturer and Installer agree to pay the cost of repair or replacement of components of metal roof panel system that fail to remain weathertight for a period of five (5) years from date of Substantial Completion, up to the cost of the initial material purchase order and initial installation labor cost.
- C. Special Panel Finish Warranty: A Twenty (20) Year Warranty for Marine Environments within ¼ Mile of Coast is required to be submitted upon the completion of the project. (Please note special restrictions apply; contact CENTRIA for more information). The warranty shall cover color change, chalk and film integrity for a period of twenty (20) years from date of Substantial Completion, including:
  - 1. Color fading in excess of 5 Hunter units per ASTM D 2244.
  - 2. Chalking in excess of No. 8 rating per ASTM D 4214.
  - 3. Failure of adhesion, peeling, checking, or cracking.

**PART 2 - PRODUCTS****2.1 MANUFACTURERS**

- A. CENTRIA Architectural Systems; Moon Township, PA 15108-2944. Tel: (800)759-7474. Tel: (412)299-8000. Fax: (412)299-8317. Web: www.CENTRIA.com.
  - 1. District Sales Manager; Mr. Gary Smith, CENTRIA Architectural Systems, 1735 East Bayshore Road, Suite 2A, Redwood City, CA 94063-4139. Tel: (650)369-9400. Fax: (650)369-9483. Email: gsmith@centria.com.
- B. Substitutions: Refer to Section 01630.

**2.2 MATERIALS**

- A. Roofing System: Preformed metal roofing system complete with hat channel supports, subgirt framing, anchoring assembly, and accessory components.
  - 1. Type: CENTRIA/SRS3 Structural Standing Seam Metal Roof Panel System: Formed with 3 inch (76 mm) high vertical ribs at panel edges and evenly spaced raised longitudinal planks, manufactured for sequential installation by attaching panels to supports using concealed clips and engaging edges of adjacent panels and mechanically seaming panel ribs together, sealed with factory-applied sealant.
  - 2. Panel Coverage: 16 inch (406 mm).
  - 3. Anchor Clips: Galvanized steel G90, 1-piece, 16 ga., movement allowance 2 inch (51 mm).
- B. Metal Roofing and Sheet Metal: Minimum 22 gage galvanized steel, minimum G90 galvanized coating, ASTM A924 and A653.
  - 1. Provide all sheet metal integral with roofing assembly.
  - 2. Gutters, rainwater leaders, and downspouts are specified in Section 07600.
- C. Finish: Fluoropolymer Two-Coat Corrosion and Abrasion Resistant System: 3.0 mil primer with 0.8 mil 70 percent PVDF fluoropolymer color coat.
  - 1. Basis of Design: Centria Versacor Ultra PF, applied to both top and bottom surfaces of roofing system and related sheet metal.
  - 2. Colors: As indicated, as selected by Architect where not otherwise indicated; note different colors are required for top surface and bottom surface of roofing (both surfaces are exposed in finished installation).
    - a. Exterior Surface: Centria 971 Chromium Gray.
    - b. Interior Surface: Centria 179 Regal White
- D. Sealants and Gaskets: Manufacturer's standard type suitable for use in conjunction with installation of metal roofing.



1. Non-staining; non-corrosive; non-shrinking and non-sagging; ultra-violet and ozone resistant for exterior applications.
  2. Color of exposed sealants and gaskets to match adjacent roofing finish.
- E. Hat Channels, Anchors, and Fasteners: Manufacturer's standard hot dip galvanized hat channels, anchors, and fasteners with not less than G90 galvanized coating.
1. Hat Channels: Not less than 16 gage.
  2. Fasteners: Provide bolts and nuts for attachment of roofing to hat channels and anchors; screw fasteners are not acceptable as fasteners where exposed to inside of building.
  3. Finish exposed components and fasteners to match adjacent roofing finish.

### 2.3 FABRICATION

- A. Expansion Joints: Provide concealed metal expansion control throughout roofing system.
- B. Integral Sheet Metal Flashings, Closures and Other Components: Brake formed to required profiles; conform to SMACNA Manual.
1. Conform to requirements specified in Section 07600 - Flashing and Sheet Metal

## **PART 3 - EXECUTION**

### 3.1 EXAMINATION

- C. Examine metal roof panel system substrate with Installer present. Inspect for erection tolerances and other conditions that would adversely affect installation of metal roof panel installation. Do not install roof panels until panel substrate meets roof panel manufacturer's requirements.
1. Inspect framing that will support metal roof panel system to determine if support components are installed as indicated on approved shop drawings. Confirm presence of acceptable framing members at recommended spacing to match installation requirements of metal roof panels.

### 3.2 INSTALLATION

- A. Install manufactured metal standing seam roofing in accordance with manufacturer's recommendations, installation instructions, and approved shop drawings.
- B. Install metal flashing and sheet metal in accordance with SMACNA Architectural Sheet Metal Manual.
1. Conform to installation requirements specified in Section 07600 - Flashing and Sheet Metal.
- C. Exercise care when cutting materials on site, to ensure cuttings do not remain on finished surfaces.

- D. Protect metal surfaces in contact with cementitious materials and dissimilar metals with bituminous paint; allow protective coating to dry prior to installing members.
- E. Permanently fasten roofing system to building properly aligned, leveled, and plumb.
  - 1. Maximum 1/16" offset from true alignment between adjacent members butting or in line.
  - 2. Maximum 1/4" variation from plane or location indicated on Drawings.
- F. Locate end laps over supports; end lap panels minimum 2"; ensure sidelaps are over firm bearing.
- G. Provide expansion joints at regular basis, concealed within system.
- H. Install sealants and gaskets where required to prevent direct weather penetration.
- I. Completed installation shall be free of rattles, noise due to thermal and air movement, and wind whistles.
- J. Remove protective coating when no longer required to protect roofing and flashing from construction.

### 3.3 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Manufacturer's representative shall visit site and verify installation of metal roofing system is consistent with manufacturer installation recommendations. Submit written report. Correct deficiencies noted in report.

### 3.4 CLEANING AND PROTECTION

- A. Remove temporary protective films when directed by Architect. Clean finished surfaces as recommended by metal roof panel manufacturer.
- B. Replace damaged panels and accessories that cannot be repaired to the satisfaction of the Architect.

**END OF SECTION**

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**SECTION 07600****FLASHING AND SHEET METAL**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide galvanized steel flashing and sheet metal including accessories as required for complete weathertight installation.
  - 1. Flashing and sheet metal includes galvanized steel gutters and rainwater leaders with EPDM liners, galvanized steel downspouts (for field painting), and similar fabricated components.
  - 2. Provide concealed sealants used in conjunction with installation of metal flashing and sheet metal.
  - 3. Provide miscellaneous sheet metal flashing not provided by other trades or suppliers.
- B. Related Sections:
  - 1. Section 06105: Miscellaneous rough carpentry.
  - 2. Section 07412: Manufactured metal roofing including factory finished flashings.
  - 3. Section 07720: Solar powered roof vent and fan.

## 1.2 SYSTEM DESCRIPTION

- A. Design Requirements: Allow for movement of components without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects, when subject to 100 year seasonal temperature ranges.

## 1.3 REFERENCES

- A. Sheet Metal and Air Conditioning Contractors National Association (SMACNA): Architectural Sheet Metal Manual.

## 1.4 SUBMITTALS

- A. Product Data: Furnish literature for manufactured products.
- B. Shop Drawings: Clearly indicate dimensioning, layout, general construction details including closures, flashings, locations and types of sealants, anchorages, and method of anchorage.
- C. Samples: Furnish samples of typical metal flashing fabrication indicating standard soldered joints and edge conditions and section of gutter with applied EPDM liner.

## 1.5 WARRANTY

- A. Special Warranty: Provide for correcting failure of metal flashing system to resist penetration of water and damage from wind.
  - 1. Special Warranty Period: Two years.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Gutters, Rainwater Leaders, and Downspouts: ASTM A924 and A653 G90 galvanized steel; not less than 24 gage.
  - 1. Mill phosphatized for field painting; field painting is specified in Section 09900.
- B. Accessories: Provide strainers, outlet tubes, screens, baffles, hangers and gutter ends as required for a complete system and complying with SMACNA Manual; match adjacent metal and finish.
  - 1. Gutter Liners: Provide ASTM D4637, Type I Ethylene Propylene Diene Monomer (EPDM) liner permanently bonded to inside of gutters and rainwater leaders.
    - a. EPDM Thickness: Not less than 60 mils.
    - b. Bonding Adhesive: As recommended by EPDM manufacturer.
- C. Solder and Fasteners: As recommended by SMACNA and complying with applicable codes and regulations; hot dipped galvanized minimum coating comparable to G90.
- D. Concealed Sealant: Butyl type for use in conjunction with sheet metal; non-staining; non-corrosive; non-shrinking and non-sagging; ultra-violet and ozone resistant for exterior concealed applications.
- E. Bituminous Paint: Acid and alkali resistant type; black color; asbestos free.
- F. Plastic Cement: Cutback asphaltic type; asbestos free.

### 2.2 FABRICATION

- A. Fabricate sheet metal in accordance with SMACNA Architectural Sheet Metal Manual.
- B. Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
  - 1. Fabricate corners and intersections in shop with solder joints; watertight fabrication.
- C. Form sections in maximum 10'-0" lengths; make allowance for expansion at joints.
- D. Hem exposed edges on underside 1/2".
- E. Backpaint flashings with heavy bodied bituminous paint where in contact with cementitious materials or dissimilar metals.

**PART 3 - EXECUTION****3.1 INSTALLATION**

- A. Install metal flashing and sheet metal in accordance with SMACNA Architectural Sheet Metal Manual.
  - 1. Install tight in place, with corners square, surfaces true and straight in planes, and lines accurate to profiles as indicated on Drawings.
  - 2. Lap joints in direction of water flow.
  - 3. Hold downspouts in position, clear of wall, by hangers spaced not more than 10'-0" on center; securely fasten hangers to wall without exposed damage to wall surface.
- B. Exercise care when cutting materials on site, to ensure cuttings do not remain on finished surfaces.
- C. Provide expansion joints concealed within system.
- D. Use concealed fasteners, continuous cleat type, except where specifically approved by Architect.
  - 1. Exposed fasteners may be used, where clearly indicated on shop drawings and approved by Architect, at areas not exposed at exterior walls nor in sight of interior spaces.
- E. Apply sealing compound at junction of metal flashing and felt flashing.
- F. Lock seams and end joints; fit flashing tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- G. Counter-flash mechanical and electrical items projecting through roof membrane.
- H. Install sealants where required to prevent direct weather penetration.
- I. Completed installation shall be free of rattles, noise due to thermal and air movement, and wind whistles.

**END OF SECTION**

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**SECTION 07720****SOLAR POWERED ROOF VENTS**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide manufactured solar powered roof vents with fan, integral support curb, counterflashing, and accessories as required for complete, weather-tight installation.
- B. Related Sections:
  - 1. Section 07600: Flashing roof hatches to roof system.

## 1.2 SUBMITTALS

- A. Product Data: Furnish manufacturer's literature.
- B. Shop Drawings: Clearly indicate general construction, configurations, jointing methods and locations when applicable, fastening methods and general details.

**PART 2 - PRODUCTS**

## 2.1 MANUFACTURERS

- A. Attic Breeze, LLC.
- B. Substitutions: Refer to Section 01630.

## 2.2 ROOF HATCHES

- A. Solar Powered Roof Vents: Attic Breeze/Model AB-254A solar powered ventilation fan with unit mounted photovoltaic (PV) panel, integral curb, housing, and shop finish.
  - 1. Size: Outside (curb) 24" by 24".
  - 2. Metal: ASTM A792, aluminum zinc alloy, "Zincalume", 24 gage.
  - 3. Powder Coating Finish: Provide factory formulated polyester TGIC powder coating materials intended for powder coating application and as required to match approved sample, and approved mock-up.
    - a. Manufacturers:
      - 1) Courtaulds Coatings (Interpon)/TGIC Powder Coating.
      - 2) Porter Powder Coatings/TGIC Powder Coating.
      - 3) H.B. Fuller Co./TGIC Powder Coating.
      - 4) Fuller O'Brien/TGIC Powder Coating.
      - 5) Substitutions: Refer to Section 01630.
    - b. Color: As indicated, as directed by Architect where not otherwise indicated; custom color may be required.

4. Fan Blade: 14" five-wing aluminum blade with integrated balanced hub.
5. Motor: 38 Volt variable speed DC motor.
6. Photovoltaic Panel: 25 Watt monocrystalline panel with 36 cells.
7. Internal Wiring: 18 AWG.
8. Terminations: UV and weather resistant quick disconnect plugs.
9. Performance: 1550 CFM at 0.0 in H<sub>2</sub>O.
10. Noise Level: Less than 30 dB.

### 2.3 FABRICATION

- A. Fabricate roof vents weather-tight, free of visual distortions and defects.

## **PART 3 - EXECUTION**

### 3.1 INSTALLATION

- A. Install roof hatches in accordance with manufacturer's recommendations and instructions for complete, weather-tight installation.
- B. Coordinate with installation of roofing system and related flashings.
- C. Apply bituminous paint on metal surfaces of roof hatches to be in contact with dissimilar metals.
- D. Test operation and verify installed vents operate in accordance with manufacturer specifications.

**END OF SECTION**

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**SECTION 07900****JOINT SEALERS**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

A. Section Includes: Provide joint sealers, for interior and exterior joints not specified elsewhere, with backing rods and accessories as required for complete installation.

1. Joint sealers include sealants and caulking as indicated.

B. Related Sections:

1. Section 07600: Flashing and sheet metal concealed sealants.

2. Section 08800: Glazing sealants.

## 1.2 SYSTEM DESCRIPTION

A. Performance Requirements:

1. Select materials for compatibility with joint surfaces and indicated exposures.

2. Where not indicated, select modulus of elasticity and hardness or grade recommended by manufacturer for each application indicated.

3. Comply with applicable limitations on volatile organic compound (VOC) emissions.

## 1.3 SUBMITTALS

A. Product Data: Furnish manufacturer's descriptive literature.

B. Samples: Furnish samples of each type of exposed joint sealer in required colors.

C. Certifications:

1. Furnish manufacturer's certification joint sealers comply with Contract Documents and are suitable for Project applications.

2. Furnish certification indicating installers are trained in proper use of specified products, qualified, and familiar with proper installation techniques.

## 1.4 QUALITY ASSURANCE

A. Installer Qualifications: Firm with minimum five years successful experience on projects of similar type and size, using specified products.

1. Installers shall be familiar with proper application procedures to ensure maximum joint sealer expansion and contraction capabilities.



### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, cure time, and mixing instructions.

### 1.6 SITE CONDITIONS

- A. Do not proceed with installation of joint sealers under unfavorable weather conditions.
- B. Install elastomeric sealants when temperature is in lower third of temperature range recommended by manufacturer.

### 1.7 WARRANTY

- A. Special Warranty: Repair or replace joint sealers which fail to perform as intended, because of leaking, crumbling, hardening, shrinkage, bleeding, sagging, staining, loss of adhesion, and loss of cohesion.

- 1. Special Warranty Period: Two years.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

#### A. Elastomeric Sealants:

- 1. Single Component Low Modulus Silicone Sealant: ASTM C920 Type S, Class 25, Grade NS; minimum 50% expansion and compaction capability.
  - a. Provide at exterior locations not exposed to traffic.
  - b. Manufacturers:
    - 1) General Electric Co./Silpruf, Silglaz or GESIL.
    - 2) Dow Corning Corp./790 or 795.
    - 3) Pecora Corp./864 Architectural Silicone.
    - 4) Tremco/Spectrum 3.
    - 5) Substitutions: Refer to Section 01630.
- 2. Multi-Component Polyurethane Sealant: ASTM C920, Type M, Grade P, Class 25, self-leveling; minimum 25% expansion and compaction capability.
  - a. Provide at traffic bearing locations.
  - b. Manufacturers:
    - 1) Pecora Corp./NR-200 Urexpan.
    - 2) Tremco/Vulkem 245.
    - 3) Sonneborn Division of ChemRex /SL 2
    - 4) Substitutions: Refer to Section 01630.

3. Mildew-Resistant Silicone Rubber Sealant: ASTM C920, Type S, Grade NS, Class 25, compounded with fungicide, specifically for mildew resistance and recommended for interior joints in wet areas.
  - a. Provide at interior tile joints and fiberglass wall panel joints.
  - b. Manufacturers:
    - 1) General Electric Co./SCS 1702 Sanitary Sealant.
    - 2) Dow Corning Corp./786 Bathtub Caulk.
    - 3) Pecora Corp./898 Sanitary Mildew Resistant Sealant.
    - 4) Tremco/Tremsil 200.
    - 5) Substitutions: Refer to Section 01630.

**B. Miscellaneous Materials:**

1. Primers/Sealers: Non-staining types recommended by joint sealer manufacturer for joint surfaces to be primed or sealed.
2. Joint Cleaners: Non-corrosive types recommended by joint sealer manufacturer; compatible with joint forming materials.
3. Bond Breaker Tape: Polyethylene tape as recommended by joint sealer manufacturer where bond to substrate or joint filler must be avoided for proper performance of joint sealer.
4. Sealant Backer Rod: Compressible polyethylene foam rod or other flexible, permanent, durable non-absorptive material as recommended by joint sealer manufacturer for compatibility with joint sealer.
  - a. Oversize backer rod minimum 30% to 50% of joint opening.

**C. Colors:** Provide colors indicated or as selected by Architect from manufacturer's full range of colors.

**PART 3 - EXECUTION**

**3.1 PREPARATION**

- A. Prepare joint surfaces in accordance with ASTM C1193 and as recommended by joint sealer manufacturer.
- B. Clean joint surfaces immediately before installation of joint sealer; remove dirt, insecure materials, moisture and other substances which could interfere with bond of joint sealer.
- C. Prime or seal joint surfaces where recommended by joint sealer manufacturer; do not allow primer/sealer to spill or migrate onto adjoining surfaces.
- D. Ensure protective coatings on surfaces in contact with joint sealers have been completely stripped.

## 3.2 INSTALLATION

- A. Comply with manufacturer's printed instructions and ASTM C1193, except where more stringent requirements are shown or specified.
- B. Set sealant backer rods at proper depth or position in joint to coordinate with other work, including installation of bond breakers and sealant; do not leave voids or gaps between ends of backer rods.
  - 1. Do not stretch, twist, puncture or tear backer rods.
- C. Install bond breaker tape as required to avoid three-sided bond of sealant to substrate and where required by manufacturer's recommendations to ensure joint sealers will perform properly.
- D. Size materials to achieve required width/depth ratios.
- E. Employ installation techniques that will ensure joint sealers are deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of bond surfaces equally on opposite sides.
- F. Joint Configuration: Fill sealant joint to a slightly concave surface, slightly below adjoining surfaces, unless otherwise indicated.
- G. Where horizontal joints are between a horizontal surface and vertical surface, fill joint to form a slight cove, so that joint will not trap moisture or dirt.
- H. Install joint sealers to depths recommended by joint sealer manufacturer but within the following general limitations, measured at center (thin) section of bead.
  - 1. Horizontal Joints: 75% width with minimum depth of 3/8".
  - 2. Other Joints: 50% width with minimum depth of 1/4".
- I. Spillage: Do not allow sealants or compounds to overflow or spill onto adjoining surfaces, or to migrate into voids of adjoining surfaces.
  - 1. Clean adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage.
- J. Cure joint sealers in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength and surface durability.
- K. Maintain finished joints free of embedded matter, ridges and sags.

**END OF SECTION**

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**SECTION 08110****STEEL DOORS AND FRAMES**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide full flush steel doors and pressed steel frames, including anchors, silencers, and louvers in doors.
- B. Related Sections:
  - 1. Section 05500: Custom steel gates.
  - 2. Section 08700: Hardware for doors.

## 1.2 REFERENCES

- A. Steel Door Institute (SDI): SDI-100 (ANSI/SDI A250.8) - Recommended Specifications - Standard Steel Doors and Frames.
- B. National Association of Architectural Metal Manuf. (NAAMM): Hollow Metal Manual.

## 1.3 SUBMITTALS

- A. Product Data: Submit manufacturers' literature.
- B. Shop Drawings: Indicate general construction, configuration, jointing methods, reinforcements, anchorage methods, hardware locations, and locations of cut-outs.

**PART 2 - PRODUCTS**

## 2.1 MANUFACTURERS

- A. The Ceco Corporation.
- B. Curries.
- C. Amweld Building Products Inc.
- D. Pioneer Industries Division, Core Industries, Inc.
- E. Substitutions: Refer to Section 01630.

## 2.2 MATERIALS

- A. Doors: Hollow metal flush steel door, 1-3/4" thick, not less than 16 gage.
  - 1. Typical: Full flush with steel channel or welded edge; close top with flush end closer treatment, bottom optional flush or recessed channel; steel stiffened core.

- B. Frames: Welded (pre-assembled) type, not less than 16 gage.
  - 1. Door Silencers: Manufacturer's standard resilient type; removable for replacement.
  - 2. Mortar Guard Boxes: Minimum 22 gage mortar guard boxes welded in place; provide where frames may be grouted.
- C. Door Louvers: Weatherproof Z-shaped blades with U-shaped frames; 1-3/8" thick; blades 1-1/2" on center; not less than 16 gage welded construction.
  - 1. Provide removable bird screens on interior faces, 1/2" by 1/2" bronze woven wire mesh.

## 2.3 FABRICATION

- A. Conform to requirements of SDI (ANSI A250 Series) or NAAMM.
- B. Reinforce and prepare doors and frames to receive hardware.
  - 1. Refer to Section 08700 for hardware requirements.
- C. Frames: Accurately form and cut mitered corners of welded type frames; continuously weld on inside surfaces (fully welded); grind welded joints to smooth uniform finish.
- D. Door Silencers: Place minimum three single bumpers on single door frames; space equally along strike jambs.
- E. Provide jamb anchors per SDI-100 (ANSI/SDI 250.8) and NAAMM; weld floor jamb anchors in place.
- F. Edge Clearances:
  - 1. Between Doors and Frames: Maximum 1/8" at head and jambs.
  - 2. Door Sills (No Threshold): Maximum 3/8".
- G. Finish: Galvanize and prime paint. Comply with requirements of Section 09900 for primer including application and compatibility with specified finishes.
  - 1. Exterior Exposed Units: Apply minimum A60 non-spangle galvanized coating, ASTM A924 and A653.
    - a. Surface treat after galvanizing to remove oils and prepare for painting and apply one coat of primer; comply with requirements in Section 09900 – Paints and Coatings.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install doors and frames in accordance with SDI-100 (ANSI/SDI A250.8) and ANSI/SDI A250.11 or NAAMM "Hollow Metal Manual" and with manufacturer's recommendations and installation instructions.

- B. Install doors and frames plumb and square, and with maximum diagonal distortion of 1/16".
  - 1. Coordinate hardware installation with requirements of Section 08700.
- C. Remove and replace doors and frames damaged during delivery, storage, installation and construction.
  - 1. Paste filler repair shall not be permitted.
- D. After installation, touch-up scratched paint surfaces.

**END OF SECTION**

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**SECTION 08700****HARDWARE**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide hardware for hollow metal doors.
  - 1. Provide cylinders for custom steel gates fabricated with hardware.
- B. Related Sections:
  - 1. Section 05500: Metal fabrications including custom steel gates.
  - 2. Section 08110: Door silencers.
  - 3. Review other sections for doors fabricated with hardware.

## 1.2 REFERENCES

- A. ANSI A115 Series: Door and Frame Preparation Standards.
- B. ANSI A156.1 through A156.20: Standards for various hardware items.
- C. California Building Code: California Code of Regulations, Title 24, Part 2.
- D. Americans with Disabilities Act Standards.

## 1.3 SYSTEM DESCRIPTION

- A. Hardware Schedule: Contractor to develop Hardware Schedule based on requirements in Contract Documents with Architectural Hardware Consultant (AHC) with not less than five years successful experience in scheduling hardware.
  - 1. AHC may be independent or may be employed by manufacturer or supplier.
- B. Products: Provide heavy duty commercial grade units of each type of hardware (hinges, pivots, locksets, latchsets, closers, trim) from single manufacturer unless otherwise indicated in Hardware Schedule.
  - 1. Provide products by manufacturers specified and manufacturers listed in Hardware Schedule, with references to catalog numbers and designations.
- C. Access for Persons with Disabilities: Comply with California Building Code and Americans with Disabilities Act Standards.

## 1.4 SUBMITTALS

- A. Product Data: Submit catalog cuts for each type of hardware.
- B. Shop Drawings: Indicate locations and mounting heights of hardware.
  - 1. Supply templates to door and frame manufacturers for proper and accurate sizing and locations of cut-outs for hardware.
- C. Samples: Indicate required style and finish of exposed door hardware.

**1.5 QUALITY ASSURANCE**

- A. Supplier Qualifications: Recognized builder's hardware supplier with minimum five year's successful experience in scheduling and furnishing hardware.
- B. Pre-Installation Meeting: Convene pre-installation meeting prior to commencing work of this section. Include persons involved with installation of doors, frames, and hardware.
- C. Access for Persons with Disabilities: Comply with California Building Code and Americans with Disabilities Act Standards.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver hardware in manufacturer's original packages, marked for intended opening and use.
- B. Pack complete with necessary screws, bolts, keys, instructions, and installation template, if necessary, for spotting mortising tools.
- C. Upon delivery, furnish complete list of hardware for checking, clearly marked to correspond with marking on each package.
  - 1. Review list for completeness and accuracy.

**1.7 MAINTENANCE**

- A. Provide manufacturer's parts list and maintenance instructions for each type of hardware supplied and necessary wrenches and tools required for proper maintenance of hardware.

**PART 2 - PRODUCTS****2.1 MATERIALS**

- A. General: Review Drawings for door locations and types; comply with following general requirements; inform Architect where conflicts occur.
  - 1. Provide hardware items with accessories complete to door function as intended, as specified, and as required by applicable codes and regulations.
- B. Hinges and Butts: ANSI A156.1; comply with following unless otherwise indicated.
  - 1. Manufacturers:
    - a. Hager Hinge Co.
    - b. Lawrence Brothers Inc.
    - c. McKinney Products Co., Division of Essex Industries.
    - d. Stanley Hardware Division of Stanley Works.
    - e. Substitutions: Refer to Section 01630.
  - 2. Type: 4-1/2" heavy weight, extra heavy weight ball or oilite bearing where over 40" wide. Provide widths sufficient to clear trim projection when door swings 180 degrees.



3. Provide minimum 3 hinges per door leaf.
  4. Provide corrosion resistant stainless steel butts with non-removable pins.
  5. Provide ball bearing or oilite bearing hinges at doors with closers.
  6. Tips: Flat button tips with matching plug.
- C. Locking Devices: Provide of metal matching specified finish; interior parts of steel and zinc-dichromate plating, to resist rusting and corrosion; do not supply plastic, die-cast or aluminum mechanisms.
1. Manufacturers:
    - a. Schlage Lock Co.
    - b. Sargent Manufacturing Co., Division of Essex Industries.
    - c. Yale Security, Inc.
    - d. Best Access Systems a Stanley Company.
    - e. Substitutions: Refer to Section 01630.
  2. Locksets: ANSI A156.13, Series 1000, Grade 1, Mortise Type with 6 pin tumbler cylinders.
  3. Function: Storage lock function as approved by Architect.
  4. Lockset and Latchset Design: Solid lever with rose, as selected by Architect.
  5. Backset: 2-3/4".
  6. Strikes: Furnish standard strikes with extended lips where required to protect trim from being marred by latch bolt; verify type of cutouts provided in metal frames.
- D. Cylinders, Keys, and Keying: Hardware manufacturers shall provide for grand master, master key alike or key different keying as directed by Owner.
1. Provide cylinders of extruded brass bar material.
  2. Submit keys for final use to Owner; provide not less than four keys for each lockset.
- E. Weatherstripping:
1. Manufacturers:
    - a. National Guard Products.
    - b. Pemko Mfg. Co.
    - c. Quality Hardware Mfg. Co., Inc.
    - d. Zero International, Inc.
    - e. Substitutions: Refer to Section 01630.
  2. Weather-Stripping: Provide continuous weather-stripping at top and sides of exterior doors.
  3. Door Stops: Do not provide door stops.
  4. Thresholds: Do not provide thresholds.

## 2.2 ACCESSORIES

- A. General: Provide complete hardware with accessories as required for doors and applications indicated.
- B. Templates: Furnish templates or physical hardware items to manufacturers concerned sufficiently in advance to avoid delay in Work.
- C. Reinforcing Units: Furnished by door manufacturer, coordinated by hardware manufacturer.
- D. Fasteners: Furnish as recommended by manufacturer and as required to install secure hardware.
  - 1. Finish: Match hardware.
  - 2. Furnish screws for items applied on gypsum board sufficiently long to provide solid connection to framing or backing
- E. Through Bolts: Through bolts and grommet nuts shall be avoided on door faces in highly visible areas, unless no alternative is possible, as directed and approved, and shall not be used for solid wood core doors.

## 2.3 FINISHES

- A. Typical Hardware Finish: BHMA 630 (US32D), satin finished stainless steel.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install finish hardware specified under this section; coordinate with manufacturer and installation of doors and frames.
- B. Fit hardware prior to painting. Remove for painting of doors and frames before final installation of hardware.
- C. Install hardware in accordance with manufacturer's instructions.
- D. No extra cost will be allowed because of changes or corrections necessary to facilitate installation of hardware.

### 3.2 MOUNTING POSITIONS

- A. Heights given are center line heights from finished floor.
  - 1. Locks and Latches: 38" to center of lever.
  - 2. Top Hinge: To jamb manufacturer's standard, but not greater than 10" from head of frame to center line of hinge.
  - 3. Bottom Hinge: To jamb manufacturer's standard, but not greater than 12-1/2" from floor to center line of hinge.

4. Intermediate Hinges: Equally spaced between top and bottom hinges and from each other.
  5. Hinge Mortise on Door Leaf: 1/4" to 5/16" from stop side of door.
  6. Dead Bolt: Not more than 44" from floor to operating lever.
- B. Comply with recommendations of Builders Hardware Manufacturers Association, subject to approval, for heights of items not indicated.

**3.3 ADJUSTING**

- A. Qualified hardware supplier's or manufacturer's representatives shall inspect installation and make adjustments.
1. Adjust closers, locks, and critical operational hardware.
  2. Deliver instructions for maintenance and future adjustments to Owner's Representative.

**END OF SECTION**

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**SECTION 08800****GLAZING**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

## A. Section Includes:

1. Provide glass and glazing for bus shelter including attachment hardware and accessories as required for complete installation.
2. Provide frameless mirrors with accessories as required for complete installation.

## B. Related Sections:

1. Section 04270: Glass unit masonry.

## 1.2 REFERENCES

- A. Glass Association of North America (GANA): Glazing Manual.

## 1.3 SYSTEM DESCRIPTION

- A. Safety Glass Standard: Comply with California Building Code and CPSC 16 CFR 1201, and pass ANSI Z97.1.

## 1.4 SUBMITTALS

- A. Product Data: Furnish for each type of glass other than clear glass, and each type of exposed glazing material.

## 1.5 WARRANTY

## A. Special Warranties:

1. Replace laminated glass which exhibits signs of delaminating.
2. Replace mirrors which exhibit signs of desilvering or signs of distortion.
3. Special Warranty Period: Two years.

**PART 2 - PRODUCTS**

## 2.1 MATERIALS

- A. Glass: Laminated glass, ASTM C1172, Kind LA, two sheets of clear float glass laminated with polyvinyl buteral film, safety glass; laminated layers shall be free of air pockets and foreign substances.
1. Manufacturers:
    - a. Guardian Industries Corp.
    - b. PPG Industries, Inc.
    - c. Global Security Glazing.
    - d. AFGD Glass.
    - e. Substitutions: Refer to Section 01630.
  2. Glass Thickness: Nominal 1/4" glass and 1/8" glass.
  3. Polyvinyl Buteral Core Thickness: Minimum 60 mil.
- B. Supports for Bus Shelter Glass: ASTM A666, Type 316, special corrosion resistant non-magnetic stainless steel plates custom fabricated to provide support for bus shelter glass in configurations indicated and suitable for anticipated loads.
- C. Spacer Shims: Silicone compatible, 50 durometer hardness; not less than 3/32" thick; designed specifically to separate glass from supports and anchors.
1. Color: Black.
- D. Frameless Mirrors: Mirror quality q1 or q2, clear float glass; 1/4" thick; full silver coating, copper coating and organic coating; arised edges; factory treated and sealed after cutting and finishing.
1. Manufacturers:
    - a. Binswanger Mirror Products, Memphis, TN.
    - b. Downey Glass Co., Los Angeles, CA.
    - c. General manufacturers listed.
    - d. Substitutions: Refer to Section 01630.
  2. Mirror Attachment:
    - a. Bottom Supports: Stainless steel angles, minimum 0.05" thickness; provide felt pads for setting mirrors on angles; provide concealed fasteners.
    - b. Adhesive: Nontoxic type as recommended by mirror manufacturer.

**PART 3 - EXECUTION**

## 3.1 PREPARATION

- A. Weld stainless steel supports to structural members using clean uniform continuous welds as approved by Architect.

- B. Clean glazing supports.
- C. Apply primer to joint surfaces where recommended by sealant manufacturer.

**3.2 INSTALLATION**

- A. Bus Shelter Glazing: Comply with GANA Glazing Manual and glazing manufacturer instructions.
  - 1. Do not allow glass to touch metal surfaces.
- B. Frameless Mirror Attachment: Attach mirrors in accordance with mirror manufacturer's recommendations and to provide ventilation to coating; set or trim felt to face of mirror.

**3.3 CLEANING**

- A. Remove nonpermanent labels immediately.
- B. Remove and replace glass which is broken, chipped, cracked, abraded or damaged during construction period, including natural causes, accidents and vandalism.

**END OF SECTION**

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**SECTION 09260****GYPSUM BOARD ASSEMBLIES**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide gypsum board systems including gypsum board, joint treatment, and general accessories for complete installation.
- B. Related Sections:
  - 1. Section 09300: Cementitious backer unit tile substrates.

## 1.2 SYSTEM DESCRIPTION

- A. Systems Responsibility: Provide products manufactured by or recommended by manufacturer of gypsum board to maintain single-source responsibility for system.
- B. Openings: Obtain dimensions and locations from other trades and provide openings and enclosures for accessories, specialties, equipment, and ductwork.

## 1.3 REFERENCES

- A. ASTM C840: Application and Finishing of Gypsum Board.

## 1.4 SUBMITTALS

- A. Product Data: Furnish manufacturer's literature for gypsum board and acoustical accessories.

## 1.5 PROJECT CONDITIONS

- A. Do not begin installation of gypsum board until space is not exposed to sources of water, and space is free of standing water.
- B. Immediately remove from site gypsum board for interior use exposed to water, including gypsum board with water stains, with signs of mold, and gypsum board with mildew.

**PART 2 - PRODUCTS**

## 2.1 MANUFACTURERS

- A. National Gypsum Co.
- B. Georgia-Pacific Corp.
- C. United States Gypsum Co., USG Corp.
- D. Substitutions: Refer to Section 01630.

## 2.2 MATERIALS

- A. Gypsum Board: Comply with ASTM C840; maximum permissible lengths; ends square cut, tapered edges on boards to be finished.
  - 1. Type: Gypsum soffit board (exterior gypsum soffit board to be used for interior of unconditioned building: ASTM C931, Type X; nominal 5/8" thick, 1/2" thick where indicated to align surface with surface of tile (surface above tile line).
  - 2. Tile Substrates: Cementitious backer units specified in Section 09300 - Tile.
- B. Gypsum Board Accessories: Comply with ASTM C840.
  - 1. Provide galvanized steel corner beads and edge trim; type designed to be concealed in finished construction by tape and joint compound.
  - 2. Corner Beads: Manufacturer's standard metal beads.
  - 3. Edge Trim: "J", "L", "LK", or "LC" casing beads.
  - 4. Reinforcing Tape, Joint Compound, Adhesive, Water, Fasteners: Types recommended by system manufacturer and conforming to ASTM C475.
    - a. Type: Water-resistant type joint compound.
  - 5. Control Joints: Back to back casing beads.
    - a. Back control joints with 4 mil thick polyethylene air seal.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Gypsum Board Installation: Install in accordance with ASTM C840 and manufacturer's recommendations.
  - 1. Use screws when fastening gypsum board to furring and to framing.
  - 2. Erect gypsum board with ends and edges occurring over firm bearing.
  - 3. Place control joints to be consistent with lines of building spaces and as directed by Architect.
    - a. Provide where system abuts structural elements.
    - b. Provide at dissimilar materials.
    - c. Wings of "L", "U" and "T" shaped ceilings.
  - 4. Place corner beads at external corners; use longest practical lengths.
  - 5. Place edge trim where gypsum board abuts dissimilar materials.
  - 6. Tape, fill, and sand exposed joints, edges, corners and openings to produce surface ready to receive finishes; feather coats onto adjoining surfaces.



7. Finishing: Comply with Gypsum Association (GA) "Levels of Gypsum Board Finish".
  - a. GA Level 4, three coat finishing and sanding is required for surfaces indicated to be painted; provide flush, smooth joints and surfaces ready for applied paint finishes.
8. Remove and replace defective work.

**END OF SECTION**

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**SECTION 09300****TILE**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide tile installations with accessories, as required for complete installation.
  - 1. Provide cementitious backer unit tile substrate.
- B. Related Sections:
  - 1. Section 04815: Bonded thin masonry veneer including brick and stone over cementitious backer units.

## 1.2 REFERENCES

- A. ANSI A108.1: Installation of Tile with Portland Cement Mortar.
- B. ANSI A108.5: Installation of Tile with Latex-Portland Cement Mortar.
- C. ANSI A108.10: Installation of Grout in Tilework.
- D. ANSI A108.11: Interior Installation of Cementitious Backer Units.
- E. Tile Council of North America (TCNA): Handbook for Ceramic Tile Installation.

## 1.3 SUBMITTALS

- A. Product Data: Furnish manufacturer's literature for each type of material to be provided for Project.
- B. Samples: Furnish each type of tile clearly indicating pattern, coloration and joints.
  - 1. Color Charts: Submit actual tile sections showing full range of colors, textures and patterns available for each type of tile.
  - 2. Prepare two 12" square sample panels of each selected type of tile and grout.

## 1.4 PROJECT CONDITIONS

- A. Take precautionary measures necessary to ensure excessive temperature changes do not occur.

**PART 2 - PRODUCTS****2.1 MATERIALS**

- A. Tile: Types as indicated; ceramic tile to comply with ANSI A137.1 Specifications for Ceramic Tile for types and grades of tiles; furnish tile complying with Standard Grade requirements unless otherwise indicated.
1. Manufacturers:
    - a. American Olean Tile Company, Inc.
    - b. Dal-Tile Corp.
    - c. Butler Johnson Ceramics, BJCeramics, and Crossville.
    - d. Summitville Tiles, Inc.
    - e. Manufacturers listed on Finish Schedule.
    - f. Substitutions: Refer to Section 01630.
  2. Color, Style and Pattern: As indicated on Finish Schedule and conforming to Architect approved samples.
  3. Floor Tile: Provide non-slip units with minimum wet and dry value 0.60 coefficient of friction when tested in accordance with ASTM C1028.
  4. Base and Trim: Provide matching trim pieces, coordinated with sizes and coursing of adjoining flat tile as directed by Architect; types as indicated, as selected by Architect where not indicated.
- B. Portland Cement Setting Bed: Portland cement bed conforming to ANSI A108.1 and TCNA recommendations including separator sheet and reinforcing mesh.
- C. Latex Thin Set: Thinset bond coat, consisting of latex-cementitious mortar conforming to ANSI A118.4.
1. Manufacturers:
    - a. Laticrete International Inc.
    - b. Bostik Construction Products/Hydroment.
    - c. Custom Building Products.
    - d. Mapei Corp.
    - e. Mer-Kote Products, Inc.
    - f. Substitutions: Refer to Section 01630.
- D. Latex-Cement Grout: ANSI A118.7, latex-cementitious type, uniform in color, resistant to shrinkage.
1. Manufacturers:
    - a. Laticrete International Inc.
    - b. Bostik Construction Products/Hydroment.
    - c. Custom Building Products.
    - d. Mapei Corp.
    - e. Mer-Kote Products, Inc.
    - f. Substitutions: Refer to Section 01630.
  2. Color: Match tile unless otherwise indicated.

- E. Cementitious Backer Units: ANSI A118.9 aggregated Portland cement with woven glass-fiber mesh on both faces; approximately 1/2" thick; UL fire rated as required to maintain integrity of fire rated assemblies.

- 1. Manufacturers:

- a. USG Industries, Durabond Division/Durock.
- b. National Gypsum Co./PermaBase Cement Board.
- c. Custom Building Products/Wonderboard.
- d. James Hardie Building Products/Hardibacker.
- e. Substitutions: Refer to Section 01630.

- F. Cleaning and Sealing Materials: As recommended by tile and grout manufacturers, such as Bostik Construction Products/Hydroment CeramaSeal.

## 2.2 MIXES

- A. Mix and proportion cementitious materials for site-made leveling coats, setting beds and grout as recommended by the TCNA Handbook for Ceramic Tile Installation.
- B. Mix and proportion pre-mixed setting beds and grout materials in accordance with manufacturer's recommendations.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Prior to installing tile, ensure surfaces are level.
  - 1. Bed Set Tile Tolerance: Maximum surface variation of 1/4" in 10'-0".
  - 2. Thin Set Tile Tolerance: Maximum surface variation of 1/8" in 10'-0".
- B. Ensure surfaces are clean and well cured.
  - 1. Drains: Where indicated, ensure surfaces are properly sloped to drains.
- C. Do not commence work until surface conditions are within tolerances required for proper installation; apply latex leveling material where necessary to meet required tolerances.
- D. Cementitious Backer Units: Install units in accordance with ANSI A108.11, manufacturer's recommendations, and as required to provide fire ratings indicated on Drawings.

### 3.2 INSTALLATION

- A. Install tile in accordance with referenced ANSI Standards and TCNA recommendations for type of substrate and indicated setting method.
  - 1. Bed Set Floors over Concrete: TCNA F111, with latex cement bond coat.
  - 2. Latex-Cement Thin Set Wall Tile over Cementitious Backer Units: TCNA W244.

- B. Place tile in accordance with patterns indicated on Drawings or as directed by Architect; carefully plan tile layouts, ensure pattern is uninterrupted from one surface to the next and through doorways.
  - 1. Apply latex thin set to back of tile where necessary to ensure 100% bond between bond coat and substrate; replace tiles which break due to voids between tile and substrate.
- C. Neatly cut tile around fixtures and drains; accurately form corners, base, intersections and returns.
  - 1. Base, Coves: Flush cove type with base grout joint on wall, cove tile on floor, unless otherwise indicated.
  - 2. Corners and Edges: Bullnose tile unless otherwise indicated.
- D. Locate expansion joints, control joints, contraction joints, and isolation joints where indicated; where not indicated, provide as recommended by TCNA Handbook and as approved by Architect.
  - 1. Install special trim pieces as indicated on Drawings and in accordance with manufacturer recommendations and installation instructions, true to lines and levels indicated and in correct relationship with tile and adjacent materials.
- E. Ensure tile joints are uniform in width, subject to normal variance in tolerance allowed in tile size; ensure joints are watertight, without voids, cracks, excess mortar or grout.
- F. Sound tile after setting, remove and replace hollow sounding units.
- G. Allow tile to set for a minimum 48 hours prior to grouting.
- H. Grout tile to comply with recommendations of TCNA and as specified.
- I. Leave completed installation free of broken, damaged and faulty tile.

### 3.3 CLEANING AND SEALING

- A. Clean tile surfaces free of foreign matter upon completion of grouting.
- B. Seal tile and grout surfaces where recommended by manufacturer for materials and applications involved; comply with manufacturer's recommendations.

**END OF SECTION**

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**SECTION 09775****FIBERGLASS WALL PANELS**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide glass fiber reinforced polyester resin fabricated wall panels, with accessories as required for complete installation.
- B. Related Sections:
  - 1. Section 07900: Sanitary silicone sealant at joints in fiberglass wall panels.

## 1.2 SUBMITTALS

- A. Shop Drawings: Indicate design parameters, adjacent construction, materials, dimensions, thickness, fabrication details, tolerances, colors, finishes, methods of support and anchorages.
- B. Product Data: Furnish manufacturer's literature.
- C. Maintenance Instructions: Include manufacturer's recommended cleaning materials and application methods, including precautions in use of cleaning materials that may be detrimental to surfaces.
- D. Samples: Furnish fiberglass wall panels and exposed trim.

## 1.3 DELIVERY, STORAGE, AND HANDLING

- A. Store panels in clean and dry area where temperatures are maintained at minimum 40 degrees F with normal humidity.
  - 1. Do not store in upright position.
- B. Take precautionary measures with adhesives and solvents to prevent fire hazards.

## 1.4 PROJECT CONDITIONS

- A. Maintain surfaces and materials at minimum 60 degrees F three days before and during application period.
- B. Provide continuous ventilation during work and after installation of wall covering.

## 1.5 SCHEDULING

- A. Schedule installation of wall paneling as late in construction schedule as possible to prevent damage during construction.

**PART 2 - PRODUCTS**

## 2.1 MANUFACTURERS

- A. Kemlite Company/Kemlite Glasbord Plus.
- B. Sequentia, Inc./Structoglas Panel System.
- C. Nudo Products, Inc./Fiber-Lite Panels.
- D. Substitutions: Refer to Section 01630.

## 2.2 MATERIALS

- A. Panels: Fiberglass reinforced plastic (FRP) panel system.
  - 1. Thickness: 0.090" nominal thickness.
  - 2. Fire-Rating: Class III (UL Class C), maximum 200 flame spread, 450 smoke developed, ASTM E84.
  - 3. Surface: Smooth surface as approved by Architect.
  - 4. Color: White.
- B. Primer: Provide non-staining nontoxic release coat primer as recommended by wall panel manufacturer where panels are applied to gypsum board.
  - 1. Primer: Type designed to allow removal of wall paneling from gypsum board without damaging paper facing of board, and without premature separation of wall paneling from wall.
- C. Adhesive: Panel manufacturer's standard nontoxic, waterproof adhesive suitable for substrates indicated and for application indicated.
- D. Trim Pieces: Not permitted. Joints and edges of fiberglass wall panels are to be sealed with sanitary silicone joint sealer under Section 07900; coordinate with Section 07900 to maintain appropriate joints for sealing materials.
- E. Mechanical Fasteners: Not permitted unless concealed.

**PART 3 - EXECUTION**

## 3.1 INSPECTION

- A. Ensure surfaces to receive wall paneling are clean, true and free of irregularities, do not commence with work until surfaces are satisfactory.
- B. Ensure wall surface flatness tolerance does not vary more than 1/8" in 10'-0", nor vary at a rate greater than 1/16" per running foot.
- C. Schedule installation of wall paneling as late in construction schedule as possible to prevent damage during construction.

**3.2 INSTALLATION**

- A. Handle and install wall panels in accordance with manufacturer's recommendations and installation instructions.
- B. Maintain joints as needed for sealing joints and edges under Section 07900.
- C. Securely adhere panels to wall surfaces; use blind nailing methods as required to support panels until adhesive dries; exposed mechanical fasteners shall not be acceptable.
  - 1. Install panels in maximum size increments available.
- D. Remove excess adhesive from edges; wipe seam clean with dry cloth towel.
- E. Install wall paneling before installation of plumbing, bases, hardware, and similar accessories.

**3.3 CLEANING**

- A. Clean panel system in accordance with manufacturer's instructions.
- B. Remove debris and leave areas neat and clean.
- C. Replace accessories.

**END OF SECTION**



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**SECTION 09900****PAINTS AND COATINGS**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

## A. Section Includes:

1. Provide painting and finishing of exposed items and surfaces.
  - a. Specified surface preparation, priming and coats of paint are in addition to shop-priming and surface treatment specified under other sections of work.
  - b. Painting and finishing includes field finishing of exterior and interior items not listed as "Surfaces not to be Painted" unless clearly indicated otherwise.
  - c. Painting and finishing includes field finishing of select shop finished items where indicated as required to match adjacent surfaces, such as mechanical grilles and registers.
  - d. Field paint exposed bare and covered pipes, ducts, and hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under mechanical and electrical work in occupied spaces.

## B. Related Sections: Shop priming of ferrous metal items is included under various Specification sections.

1. Section 02780: Pavement marking.
2. Section 02870: Shop finishing of site furnishing.
3. Section 02876: Shop finishing of bike racks.
4. Section 05500: Shop finishing of custom metal gates and metal railings.

## C. Surfaces Not To Be Painted:

1. Finished items including finished metal surfaces.
2. Walls and ceilings in concealed areas and generally inaccessible areas.
3. Moving parts of operating mechanical and electrical units.
4. Labels: Keep equipment identification and fire rating labels free of paint.
5. Plastic smoke stops and weather-stripping at doors.

## 1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information, including paint label analysis and application instructions for each material.

- B. Samples: Submit samples for review of color and texture; provide list of material and application for each coat of each finish sample.
  - 1. Brush-Outs: Submit samples of each color and material with texture to simulate actual conditions, on hardboard.
- C. Certificates: Furnish certificates from each manufacturer stating materials are top quality lines and suitable for intended use on this Project.

### 1.3 QUALITY ASSURANCE

- A. Regulatory Requirements: Furnish materials approved for use by applicable air quality management district for limitations of volatile organic compounds for architectural or special coatings as applicable.

### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, with:
  - 1. Name of material, color and sheen.
  - 2. Manufacturer's name, stock number and date of manufacture.
  - 3. Contents by volume, for major pigment and vehicle constituents.
  - 4. Thinning and application instructions.

### 1.5 SITE CONDITIONS

- A. Apply water-base paints when temperature of surfaces and surrounding air are between 50 and 90 degrees F.
- B. Do not apply paint in rain, fog or mist; or when relative humidity exceeds 85 percent; or to damp or wet surfaces.

## **PART 2 - PRODUCTS**

### 2.1 MANUFACTURERS

- A. Benjamin Moore & Co.
- B. Sherwin-Williams Co.
- C. P.P.G. Industries, Inc., Coatings and Resins Division.
- D. Dunn-Edwards Corp.
- E. ICI Paints.
- F. Kelly Moore Paint Co.
- G. Vista Paint Co.
- H. Substitutions: Refer to Section 01630.

## 2.2 MATERIALS

- A. Definition: "Paint" as used herein means coating systems including primers, emulsions, enamels, stains, sealers and fillers, whether used as prime, intermediate or finish coats.
- B. Material Quality: Provide top line quality commercial grade (professional painter) paints; materials not bearing manufacturer's identification as a best-grade product shall not be acceptable.
  - 1. Primers: Provide premium grade primers recommended by paint manufacturer for substrates indicated and for finish systems specified.
  - 2. Undercoats and Barrier Coats: Provide undercoat paints produced by same manufacturer as finish coats; use only thinners approved by paint manufacturer, and use only within recommended limits.
  - 3. Finish Coats: Provide finish coats capable of being washed with mild detergent without loss of color, sheen, or pigments.
    - a. Color pigments: Pure, non-fading, applicable types to suit substrates and service indicated; no lead content permitted.
  - 4. Finish Coat Coordination: Provide finish coats which are compatible with prime paints, undercoats, and barrier coats used.
    - a. Review other Specification sections in which prime paints are provided; ensure compatibility of total coatings systems.
    - b. Upon request from other trades furnish information on characteristics of finish materials proposed for use.
    - c. Provide barrier coats over incompatible primers or remove and prime as required.
    - d. Notify Architect in writing of any anticipated problems in use of specified coating systems with substrates primed by others.
- C. Colors and Finishes: Prior to commencement of painting work, Architect will furnish color chips for surfaces to be painted.
  - 1. Use of proprietary names in color selection is not intended to imply exclusion of equivalent products of other manufacturers.
  - 2. Final acceptance of colors will be from samples applied on site.
- D. Volatile Organic Compound (VOC) Emissions: Select materials that generate least amount of pollution; consider pollution and volatile organic compound (VOC) emissions generated during manufacturing, transport, installation, use, and disposal.

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. Inspection: Examine areas and conditions under which painting work is to be applied.
  - 1. Start of painting work indicates acceptance of surfaces and conditions of surfaces and conditions within any particular area.
  - 2. Where exposed items or surfaces are not specifically mentioned in Schedules, paint same as adjacent similar materials or areas.
  - 3. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to a durable paint film.
- B. Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as specified for substrate condition.
- C. Remove hardware, accessories, and items in place and not to be painted, or provide protection prior to surface preparation and painting; after painting reinstall removed items.
- D. Clean surfaces before applying paint; remove oil and grease prior to mechanical cleaning; program cleaning so contaminants from cleaning process do not fall onto wet, newly painted surfaces.
- E. Ferrous Metals: Touch up shop-applied prime coats wherever damaged using same type of primer as applied in shop or barrier coat compatible with finish paint.
  - 1. Galvanized Surfaces: Clean free of oil and surface contaminants, using non-petroleum based solvent; primer and touch-up primer to be zinc-rich primer.
- F. Mix painting materials in accordance with manufacturer's directions.
- G. Store materials in tightly covered containers; maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.
- H. Stir materials before application to produce mixture of uniform density, and stir as required during application; do not stir surface film into material, if necessary, strain material before using.

**3.2 APPLICATION**

- A. Apply paint in accordance with manufacturer's directions; use applicators and techniques best suited for substrate and type of material being applied.
  - 1. Apply additional coats when stains or blemishes show through final coat, until paint is a uniform finish, color and appearance.
  - 2. Provide extra attention to assure dry film thickness at corners and crevices is equivalent to that of flat surfaces.

3. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces; paint surfaces behind permanently-fixed equipment and furniture with prime coat only.
  4. Finish doors on tops, bottoms and side edges same as faces.
  5. Sand lightly between each succeeding enamel coat and each varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated or prepared for painting as soon as practicable after preparation.
1. Allow time between successive coatings to permit proper drying.
  2. Do not recoat until paint feels firm and does not deform or feel sticky under moderate thumb pressure.
- C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as recommended by coating manufacturer.
- D. Prime Coats: Apply to items not previously primed; recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat.
- E. Finish Coats: Provide even texture; leave no laps, irregularity in texture, skid marks, or other surface imperfections.
1. Opaque Finishes: Provide opaque, uniform finish, color and coverage; cloudiness, spotting, holidays, brush marks, runs, sags, ropiness, and other surface imperfections are not acceptable.
- F. Completed Work: Match approved samples for color, texture and coverage; remove, refinish or repaint work not accepted.

### 3.3 PAINTING SCHEDULE

- A. Provide following paint systems.
1. Metal (Not Shop Finished): Semigloss sheen.
    - a. 1st Coat: Touch-up primer, prime if none.
    - b. 2nd and 3rd Coat: Exterior 100% acrylic enamel.
  2. Gypsum Board Systems: Semigloss sheen at toilet rooms.
    - a. 1st Coat: Universal primer.
    - b. 2nd and 3rd Coat: 100% acrylic emulsion.
  3. Opaque Finished Wood (Janitor Closet Shelving): Semigloss sheen.
    - a. 1st Coat: Primer undercoat.
    - b. 2nd and 3rd Coat: 100% acrylic enamel.

4. Waterproof Paint Over Brick Column Caps: Manufacturer's standard sheen.
  - a. 1st Coat: Primer undercoat.
  - b. 2nd and 3rd Coat: Elastomeric waterproof acrylic coat.

### 3.4 CLEAN-UP, PROTECTION, AND REPAIR

- A. Clean-Up: During progress of work, remove discarded paint materials, rubbish, cans and rags from site at end of each work day.
  1. Clean glass and paint-spattered surfaces immediately by proper methods of washing and scraping, using care not to scratch or damage finished surfaces.
- B. Protection: Protect work of other trades, whether to be painted or not; correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
  1. Provide "Wet Paint" signs to protect newly-painted finishes.
  2. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.
- C. Repair: At completion of work of other trades, touch-up and restore damaged surfaces or defaced painted surfaces.

**END OF SECTION**

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**SECTION 10125****DISPLAY CASES**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide stock manufactured exterior exposed wall mounted display cases with LED lighting and accessories as required for complete finished installation.
- B. Related Sections:
  - 1. Division 16: Electrical connections.

## 1.2 SUBMITTALS

- A. Shop Drawings: Show custom fabrication details, including large-scale sections of typical members, reinforcement, anchorages, components, and finishes.
- B. Product Data: Furnish manufacturer's literature.
- C. Samples: Submit samples of each material finish and color, and lettering type required.
  - 1. Submit full-size sample unit; acceptable units may be installed as part of work.

**PART 2 - PRODUCTS**

## 2.1 MANUFACTURERS

- A. Nelson-Harkins Industries.
- B. Poblocki & Sons, Inc.
- C. The Tablet & Ticket Co.
- D. Substitutions: Refer to Section 01630.

## 2.2 MATERIALS

- A. Stainless Steel: Minimum 20 gage, ASTM A666, Type 304, No. 4 directional polish.
- B. Tackboard: Plastic impregnated cork, 1/4" thick, integrally colored throughout, washable vinyl finish, burlap backing.
  - 1. Color: As selected from manufacturer's standard colors and conforming to approved samples.
- C. Glazing: ASTM C1048, Kind FT, fully tempered select glazing quality clear float safety glass, nominal 1/4" thick for display case, 3/8" thick for shelves.

## 2.3 FABRICATION

- A. Type: Stainless steel framed glass display cases with swing type glass front door, tackboard back, LED lights concealed in enclosure, and black felt lined interior other than back.
  - 1. Size: As indicated on Drawings.
- B. Fabricate frames and trim with reinforced corners, mitered to hairline fit, with no exposed fasteners.
- C. Tackboards: Colored cork material laminated to 1/4" exterior type plywood.
- D. Door: Provide door configuration as indicated; furnish door with manufacturer's standard lock, locks keyed alike, 2 keys per lock.
  - 1. Hinged Door: Construct door of same material and finish as surrounding frame, with mitered, reinforced corners and concealed fasteners.
    - a. Swing doors with concealed pivot hinges or continuous piano hinges; set glazing into frame with vinyl glazing channels.
- E. Illuminated Units: Provide LED illumination using only UL approved electrical components.
  - 1. Provide LED units concealed in frame with internal wiring and lead-out wire for electrical connection.
- F. Exterior Units: Provide manufacturer's standard construction for exterior units, including weatherstripping and venting provisions for condensation control.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions under which display cases are to be installed.
- B. Beginning installation signifies acceptance of substrates and conditions.

### 3.2 INSTALLATION

- A. Securely attach to supporting structure with concealed fasteners, in accordance with manufacturer's recommendations and installation instructions.
- B. Install units plumb, level, true to line, and in correct relation to adjacent materials.

### 3.3 CLEANING

- A. Clean surfaces in accordance with manufacturer's instructions.

**END OF SECTION**



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**SECTION 10160****METAL TOILET COMPARTMENTS**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide floor mounted overhead braced stainless steel partitions for toilet cubicles including hardware and attachment devices, and integral accessories as required for complete installation.
  - 1. Provide wall mounted stainless steel urinal screens including attachment hardware and integral accessories as required for complete installation.
- B. Related Work:
  - 1. Section 10810: Toilet accessories.

## 1.2 REFERENCES

- A. Americans with Disabilities Act Standards.
- B. California Building Code: California Code of Regulations, Title 24, Part 2, requirements for providing accessibility for persons with disabilities.

## 1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's literature.
- B. Shop Drawings: Clearly indicate partition layouts, swing of doors, elevations, anchorage and mounting details, panel construction, hardware, finishes and relevant dimensions.
- C. Samples: Submit samples of metal finish.

## 1.4 QUALITY ASSURANCE

- A. Access for Persons with Disabilities: Comply with California Building Code and Americans with Disabilities Act Standards
  - 1. Door Width: Provide minimum 32" clear door openings when front entry, minimum 34" clear door openings when side entry.
  - 2. Spacing: Provide minimum 32" clearance between water closet and inside edge of partition on side away from grab bars, minimum 60" clear width, and front space as applicable.
  - 3. Reinforcing: Provide reinforcing for grab bars indicated to be partition mounted.
  - 4. Urinal Screens: Provide minimum 30" clear space at urinal.

**PART 2 - PRODUCTS****2.1 MANUFACTURERS**

- A. Global Steel Products Corp.
- B. Flush Metal Partition Corp.
- C. Bradley Corporation Mills Partitions.
- D. General Partitions Mfg. Corp.
- E. Substitutions: Refer to Section 01630.

**2.2 MATERIALS**

- A. Stainless Steel: Stainless steel, ASTM A666, Type 304, with Number 4 polished finish; manufacturer's standard gages for units specified.
  - 1. Pilaster Shoes: 3" high.
- B. Attachments, Screws and Bolts: Stainless steel; tamper proof type; heavy duty stainless steel or extruded aluminum brackets.
- C. Hardware: Heavy duty stainless steel.
  - 1. Hinges: Pivot hinges, gravity type, adjustable for door close positioning; nylon bearings.
  - 2. Latch: Slide latch; door strike and keeper with rubber bumper.
  - 3. Coat Hook/Bumper: Combination unit.
  - 4. Wall Bumper: Wall mounted rubber bumper for outswinging doors.
  - 5. Pulls: Comply with applicable requirements for providing access for persons with disabilities; two pulls required at compartments accessible to persons with disabilities, one inside and one outside.
- D. Overhead Braced Partition Headrails: 1" by 1-5/8" tubular stainless steel, with socket type stainless steel wall brackets.

**2.3 FABRICATION**

- A. Doors and Panels: Minimum 1" thick by minimum 24" wide by minimum 58" high sheet steel face pressure bonded to sound deadening core.
  - 1. Provide wider doors where required for accessibility for persons with disabilities.
- B. Pilasters: 1-1/4" thick, constructed same as doors, of sizes required to suit cubicle widths and spacing.
- C. Provide formed and closed edges for doors, panels and pilasters; miter and weld corners and grind smooth.
- D. Provide internal reinforcement in areas of attached hardware and fittings; mark locations of reinforcement for partition mounted washroom accessories.

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. Examine site conditions to which work is to be applied.
- B. Take site dimensions affecting this work.
- C. Ensure correct spacing and size of plumbing fixtures; take special note of fixtures in compartments indicated to be designed for persons with disabilities to assure clearances complying with access regulations.
- D. Ensure correct location of built-in framing, anchorage, and bracing, where required.

**3.2 INSTALLATION**

- A. Install units in accordance with manufacturer recommendations and installation instructions, secure, plumb, level, and square.
- B. Leave 1/2" space between wall, panels and end pilasters.
- C. Attach panel brackets securely to walls using anchor devices.
- D. Attach panels and pilasters to bracket with through sleeve tamper proof bolts and nuts.
- E. Locate headrail joints at pilaster center lines.
- F. Provide for adjustment of floor variations with screw jack through steel saddles integral with pilaster; conceal floor fastenings with stainless steel shoes.
- G. Equip each door with hinges, latch, and coat hook/bumper combination.
- H. Install door strike keeper and door bumper on each pilaster in alignment with door latch.
- I. Adjust and align hardware to uniform clearance at vertical edges of doors not exceeding 3/16".
- J. Adjust hinges to locate doors in partial open position when unlatched, except adjust hinges to return doors to closed position at stalls designed for use by persons with disabilities.
- K. Anchor urinal screen panels to walls with two panel brackets or continuous brackets.

**3.3 CLEANING**

- A. Field touch-up of scratches and defaced finishes will not be permitted; replace damaged, scratched and marred defective materials with new, undamaged materials.

**END OF SECTION**

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**SECTION 10440****SIGNAGE**

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**PART 1 - GENERAL**

## 1.1 SUMMARY

- A. Section Includes: Provide signage as indicated complete with attachment devices and accessories as required for complete installation.
  - 1. Provide "768 RESTROOM" pin mounted building address signs.
  - 2. Provide "MEN" and "WOMEN" pin mounted signs above restroom entries.
  - 3. Provide City of Sausalito logo sign on Bus Shelter.
  - 4. Provide security gate signs.
  - 5. Provide toilet room signs.
- B. Related Sections:
  - 1. Section 10125: Display cases.

## 1.2 SUBMITTALS

- A. Product Data: Furnish manufacturer's literature and indicate each sign type, style, color, and method of attachment.
- B. Shop Drawings: Furnish listing of sign types, lettering and locations, along with overall dimension of each sign.
  - 1. Computerized Output: Furnish computerized samples of applied copy signs and graphics at full scale duplicating final appearance.

## 1.3 QUALITY ASSURANCE

- A. Access for Persons with Disabilities: Provide signs for assuring access for persons with disabilities in accordance with state and federal regulations.
  - 1. California Regulations: Comply with California Building Code.
  - 2. Federal Regulations: Comply with Americans with Disabilities Act Standards.

## 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Package separately or in like groups of names, labeled as to names enclosed; include installation template, attachment system and installation instructions.

**PART 2 - PRODUCTS**

## 2.1 MANUFACTURERS

- A. ASI Modulex.
- B. Mohawk Sign Systems.
- C. Vomar Products, Inc.
- D. Substitutions: Refer to Section 01630.

## 2.2 MATERIALS

- A. Building "768 RESTROOM" Address Letter Signage, "MEN" and "WOMEN" Letter Signs and Security Gate Signs:
1. Letter Signs: Provide individual letter signs "768 RESTROOM" and "MEN" and "WOMEN" signs as indicated, 4" high individual letters.
  2. Stainless Steel: ASTM A666, Type 316 special corrosion resistant non-magnetic stainless steel with No. 4 satin directional polish finish.
  3. Fabrication: Fabricate as indicated of minimum 0.25" plate or casting with edges and corners smooth and finished to match adjacent metal finishes.
  4. Attachment: Secure using connections concealed after installation; method subject to Architect approval.
    - a. Take care back welding does not damage exposed sign surfaces.
  5. Security Gate signs: Provide security gate sign "THIS GATE TO REMAIN LOCKED OPEN WHEN BUILDING IS OCCUPIED" as indicated. 1" high letters. 0.25" thick panel, approximately 6" high by 18 1/8" wide, to match adjacent tile.
- B. Toilet Room Signs: Provide stainless steel signs; conform to California and ADA Standards requirements for signs with symbols and with raised lettering and Contracted (Grade 2) Braille characters; concealed mounting system.
1. Total Thickness: 0.25".
  2. Provide signs required by California Code of Regulations Title 24.
    - a. Men's Room: 12" equilateral triangle, vertex pointing up.
    - b. Ladies' Room: 12" diameter circle.
    - c. ADA Accessible Signs: As indicated.
  3. Fabrication: Fabricate as indicated of minimum 0.25" plate or casting with edges and corners smooth and finished to match adjacent metal finishes. Provide pictograms and lettering graphics raised 1/32 inch minimum as indicated with contrasting custom color applied to stainless steel as directed by Architect.
  4. Attachment: Secure using connections concealed after installation; method subject to Architect approval.
- C. Bus Shelter Logo Sign: Provide sign using graphics furnished by Owner.
1. Stainless Steel: ASTM A666, Type 316 special corrosion resistant non-magnetic stainless steel with No. 4 satin directional polish finish.
  2. Fabrication: Fabricate as indicated of minimum 0.50" plate or casting with edges smooth and finished to match adjacent metal finishes. Graphics as indicated in custom color applied to stainless steel as directed by Architect.
  3. Attachment: Secure using connections concealed after installation; method subject to Architect approval.
    - a. Take care back welding does not damage exposed sign surfaces.

**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Examine areas and conditions under which signage is to be installed.
- B. Beginning installation signifies acceptance of substrates and conditions.

**3.2 INSTALLATION**

- A. General: Install signs in accordance with manufacturer recommendations and installation instructions, free from distortions and defects.
- B. Dimensional Letter and Logo Signage:
  - 1. Locate dimensional letters with spacing based on full size computer generated installation drawings secured to structure as required to resist anticipated loads.
  - 2. Locate logo signage where indicated.
  - 3. Final Locations: As approved in field by Architect based on full size drawings.
- C. Security Gate Sign:
  - 1. Install to match wall tile. Grout edges to adjacent tiles.
  - 2. Final Location: As approved in field by Architect based on full size drawings.
- D. Toilet Room Signs: Install signs on walls after surfaces on which they are to be mounted are cleaned and finished.
  - 1. Location: Mount signs centered at 60" above finished floor.
  - 2. Install level, in line, in accordance with the manufacturer's recommendations, California Building Code, and ADA Standards.
  - 3. Clean and polish.

**END OF SECTION**

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**SECTION 10810****TOILET ACCESSORIES**

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**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes: Provide toilet accessories with attachment hardware and rough-in frames as required for complete, operational installation.
- B. Related Sections:
  - 1. Section 08800: Frameless glass mirrors.
  - 2. Section 10160: Hardware for toilet partitions, including coat hook/bumper mounted on partition doors, and wall bumpers for outswinging doors.

**1.2 SUBMITTALS**

- A. Product Data: Submit manufacturer's product data illustrating each accessory at large scale.

**1.3 QUALITY ASSURANCE**

- A. Access for Persons with Disabilities: Comply with California Building Code and Americans with Disabilities Act Standards.

**1.4 DELIVERY, STORAGE AND HANDLING**

- A. Deliver inserts and rough-in frames to jobsite at appropriate time for building in.
- B. Do not deliver accessories to site until rooms in which they are to be installed are ready to receive them.
- C. Pack accessories individually, protect each item and its finish.

**1.5 PROJECT CONDITIONS**

- A. Protect adjacent or adjoining finished surfaces from damage during installation of work of this section.
- B. Before starting work notify Architect in writing of conditions detrimental to installation or operation of units.
- C. Verify with Architect exact location of accessories.

**PART 2 - PRODUCTS****2.1 MANUFACTURERS**

- A. Bobrick Washroom Equipment, Inc.
- B. Bradley Corporation.
- C. American Specialties, Inc.
- D. Substitutions: Refer to Section 01630.

**2.2 MATERIALS**

- A. General: Provide manufacturer's standard materials and finishes for accessories listed; where more than one material or finish is available and not otherwise indicated provide as selected by Architect from manufacturer's standard materials and finishes.
- B. Stainless Steel Sheet: ASTM A666, commercial grade, Type 304, gages as standard with manufacturer of specified items.
- C. Stainless Steel Tubing: ASTM A269, commercial grade, seamless welded.
- D. Sheet Steel: ASTM A1008, cold rolled stretcher leveled; minimum G90 galvanized coating, ASTM A924 and A653.
- E. Adhesive: Epoxy type contact cement as recommended by accessory manufacturer.
- F. Fasteners, Screws, and Bolts: Hot dip galvanized; as recommended by accessory manufacturer for component and substrate.
- G. Keys: Provide universal keys for access to toilet accessory units requiring internal access for servicing and supply.
  - 1. Provide minimum six keys to Owner representative.
  - 2. Coin Operated Units: Provide locked coin box keyed separately from standard units, coin operated units keyed alike.

**2.3 FABRICATION**

- A. Weld and grind smooth joints of fabricated components.
- B. Form exposed surfaces from one sheet of stock, free of joints.
- C. Fabricate units with tight seams and joints, exposed edges rolled; hang doors and access panels with continuous piano hinges; provide concealed anchorage where possible.
- D. Provide steel anchor plates and anchor components for installation on building finishes.



- E. Form surfaces flat without distortion; maintain flat surfaces without scratches and without dents; finish exposed edges eased, free of sharp edges where potential exists for physical contact.
- F. Back paint components where contact is made with building finishes, to prevent electrolysis.
- G. Hot dip galvanize ferrous metal anchors and fastening devices.
- H. Assemble components in shop; package complete with anchors and fittings.

## 2.4 FINISHES

- A. Exposed Finishes: Stainless steel, number 4, satin finish; satin chrome finish acceptable where stainless steel not available for accessory item listed or scheduled.
- B. Concealed Surfaces: Treat and clean, spray-apply one coat primer and baked enamel finish.

## **PART 3 - EXECUTION**

### 3.1 PREPARATION

- A. Provide templates and rough-in measurements.

### 3.2 INSTALLATION

- A. Install accessories in accordance with manufacturer's printed instructions using fasteners appropriate to substrate.
- B. Install true, plumb and level, securely and rigidly anchored to substrate.
- C. Use tamper-proof, security type fasteners.
- D. Adjust accessories for proper operation and verify mechanisms function smoothly.
- E. Replace damaged and defective items.
- F. Clean and polish exposed surfaces after removing temporary labels.

### 3.3 ACCESSORIES SCHEDULE

- A. Refer to Drawings.

**END OF SECTION**

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**SECTION 15400**

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**PLUMBING**

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**PART 1 - GENERAL**

## 1.1 SCOPE:

- A. The General Conditions, Supplementary Conditions and Division 1.

## 1.2 DESCRIPTION OF WORK:

- A. Work Included: Work under this Section includes, but is not necessarily limited to:

1. All labor materials, tools, appliances and equipment that are required to furnish and install the complete installation shown on the Drawings for this Section of the work and/or specified in the following Specifications, including that which is reasonable inferred.
2. Soil, waste, and vent piping including connection to piping outside of the building.
3. Hot water and cold water piping including installation of water heating equipment where indicated. Work includes connection to cold water piping outside of the building.
4. Installation of plumbing fixtures and trim.
5. Drains and cleanouts.
6. Repair of all damage done to premises as a result of this installation and removal of all debris left by those engaged in this installation.
7. Excavation, trenching and backfilling.
8. Flashing and counterflashing of piping through roof.
9. Cutting, patching, sawcutting, and core-drilling.
10. Testing and adjusting of piping and equipment.
11. Be responsible for all damage to any part of the premises caused by leaks or breaks in pipe or equipment furnished or installed under this Section of the Work for a period of one (1) year after date of acceptance of the Work.
12. Cleanliness of all exposed materials and equipment at time building is turned over to the Owner.

13. All insurance, fees and taxes required and applicable shall be included.

14. All rigging, hoisting, transportation and associated work necessary for placement of all equipment in the final location shown.

B. Related Work in Other Sections:

1. Electrical material and connections to equipment.

2. Interior and exterior painting: Prime and finish painting.

### 1.3 GENERAL REQUIREMENTS:

A. Visit the site of the work, compare it with the Drawings and Specifications as to the conditions under which Work is to be performed, ascertain and check all conditions and elevations and take all measurements which may affect the Work. Where revisions or changes to the Work are required to permit the installation of new work, they shall be made by this contract without extra cost. No allowance shall subsequently be made for any expense due to failure or neglect under this Section to make such an examination, or to observe areas of difficult working conditions which may affect the contract cost.

B. Pay all fees and obtain all permits and licenses necessary for the completion of the Work and notify all interested authorities when this Work is ready for any necessary or required inspections. Deliver to the Owner a certificate of all inspections and acceptances issued by the jurisdictional authorities, approving the complete plumbing installation.

C. All work shall be in strict accordance with the latest rules of any local or State ordinances and codes, UPC, building codes, and the NFPA. No extra charge will be paid for furnishing items required by the regulations but not specified herein or shown on the Drawings. Rulings and interpretations of the agencies shall be considered as part of the regulations if commonly known to the trade prior to the submittal of bids.

D. Follow manufacturers' directions in all cases where manufacturers of equipment used in this Contract furnish directions covering points not shown on the Drawings or specified herein.

E. Quiet and vibration-free operation of all equipment is a requirement of this installation. Properly adjust, repair, balance or replace any equipment producing objectionable noise or vibration in any of the occupied areas of the building, including providing additional brackets, bracing, etc., to prevent objectionable noise or vibration.

F. The general arrangement and location of piping, apparatus, etc., is shown on the Drawings or specified herein. Changes may be necessary to accommodate other work and existing building conditions. Should it be necessary to deviate from arrangement or location indicated in order to meet new and/or existing building conditions, mechanical or electrical

work, or due to interference with work of other trades, such deviations as offsets, rises and drops in piping that may be necessary, whether shown or not, shall be made by this Contractor without extra expense to the Owner. Extreme accuracy of data given herein and on Drawings is not guaranteed. The Contractor shall verify locations of existing utilities before making any new connections. The Drawings and Specifications are for the assistance and guidance of this Contractor, and exact locations, distances and elevations will be governed by actual site conditions.

- G. Coordination and Clearance: It is the essence of this Contract that all work be completely coordinated with all other trades and Sections and that all lines, grades, slopes and vertical and horizontal location of pipes be exactly determined in the field and cleared with all other Divisions and Sections before the installation of these items is begun. No extra compensation shall be made for Contractor's failure to observe this clause. Carefully coordinate all work in and around mechanical equipment enclosures with Mechanical Division prior to installation.
- H. The Drawings and Specifications do not undertake to list every item that will be installed. When an item is necessary for the satisfactory operation of the equipment or is required by the equipment manufacturer, law, ordinance or rule, furnish without change in Contract cost. Work called for in the Specifications, but not on the Drawings, or vice versa, shall be done as though required by both. Lack of specific mention of any work necessary for proper completion of the work in the Specifications and/or Drawings shall not lessen the Contractor's responsibility or entail any change in Contract cost.
- I. All saw cutting and patching necessary for the installation of the work and repair of all damage to work under other trades shall be included in the work. No cutting shall be done except with the Architect's approval.
- J. Do not permit or cause any Work to be covered or enclosed until it has been inspected, tested and approved. Should any of the Work be enclosed or covered before inspection and test, the Contractor shall, at his own expense, uncover the Work; and, after it has been inspected, tested and approved, make all repairs with such materials as may be required to restore his Work and that of the other Work to its original and proper condition.
- K. Be responsible for damage to any of this work before acceptance. Securely cover all openings, apparatus, fixtures, and appliances, both before and after setting into place, to prevent obstructions in the pipes and breakage or disfigurement of equipment. Should the equipment become damaged, restore it to its original condition and finish before final acceptance without change in Contract cost.

**PART 2 - MATERIALS**

## 2.1 MATERIALS:

- A. Equipment and Materials: Shall be new.
- B. Substitutions of Materials and Equipment:
  - 1. Specific names used in connection with materials are mentioned as standard, but this implies no right on the part of this Section to substitute other materials or methods without written permission of the Architect. The decision of the Architect shall govern as to what material may be substituted, but the burden of proof as to the quality of any proposed substitution shall be upon the Contractor.
  - 2. Within thirty (30) days after awarding of the Contract, submit to the Architect for approval, five (5) copies of a list of all materials to be used. This list shall include the manufacturer's name, the model, type, number and size of equipment and the capacity of the equipment. All equipment shall be submitted at one time. If the material is not definitely specified, use the product of any manufacturer as listed under the specific material or equipment, or approved equal, if approved in writing. Any material or equipment installed without the approval of the Architect shall be subject to immediate removal if found unsatisfactory.
- C. Pipe and Fittings:
  - 1. Cast Iron Soil Pipe and Fittings: ASTM A74 standard weight hubless cast iron soil pipe and fittings with standard grade and heavy grade stainless steel couplings with neoprene gaskets, as hereinafter indicated.
  - 2. Heavy-Duty Pipe Couplings for Cast Iron Piping: Mission Heavyweight Blue Shield, Clamp-All Hi-Torq 80, Husky SD4000 Orange Shield, or approved equal. Coupling shall be constructed from 304 stainless steel with high torque clamps and neoprene gaskets.
  - 3. Copper Tubing: ANSI H23, Type "K," or "L," hard drawn water service tubing, as hereinafter indicated.
  - 4. Fittings for Copper Tubing: ANSI B16.22, wrought copper sweat type.
  - 5. Unions: For steel pipe shall be galvanized malleable iron or galvanized steel ground joint pattern, 150 PSI. For copper pipe shall be 150 PSI ground joint cast bronze unions with sweat connections.
  - 6. Nipples: Cut from same pipe as specified for the system in which the nipple is used.

7. Solder for Copper Tubing Joints: Shall be 95/5. Charred and collapsed pipe and fittings due to excessive heating will not be permitted and shall be removed from the job site.
  8. Dielectric Insulating Unions: EPCO, or approved equal, dielectric nut-type or flange-type unions with gasket material suitable for service and temperature in which they are required.
  9. Threaded-to-Solder Adapter: As specified for solder-type fittings.
- D. Valves:
1. Ball Valves: Nibco model T-580, or approved equal, bronze valve with teflon seats and rated at 400 PSI WOG.
  2. Reduced Pressure Check Valve: Febco model 825YD, or equal, reduced-pressure double check valve assembly with two in-line spring-loaded check valves, two gate valves, and four test cocks. Unit shall be an all bronze assembly.
- E. Water Pressure Regulator: Watts model #U5B, Zurn, or approved equal, unit with bronze construction, stainless steel seat, stainless steel integral strainer, high temperature diaphragm, union inlet, and built-in thermal expansion bypass equalizer. Verify the water pressure at the building and install a pressure reducing valve as required to reduce the pressure to 65 PSI.
- F. Strainers: Strainers (sediment separators) shall be Watts model 777, Mueller, or Bailey, screwed bronze strainers with 20 mesh stainless steel screen with seat gasket, built for a pressure of 125 PSI at 450°F.
- G. Trap Primers: Shall be Precision Plumbing Products, or approved equal, brass trap primer with vacuum breaker and union connections. Furnish and install as directed by local authorities and as indicated on the Drawings. Trap primers shall be installed in accessible locations behind a chromium-plated steel access panel.
- H. Pipe Hangers and Supports:
1. Superstrut, or approved equal.
  2. Piping Supported from Above: M-750 side beam brackets bolted through wood structural members and U-577 swing connector bolted to wood decks, all with C-711 hangers.
  3. Continuous Span (Parallel Piping) Hangers: Superstrut, 12-gauge, steel channels with nuts, pipe clamps, pipe straps, driven-in end caps, and all supporting devices and accessories.

4. Pipes Supported from Wall or Floor: Superstrut A-1200, 12-gauge channel complete with pipe clamp and all nuts and bolts and end caps. Bolt channel to wall or floor.
  5. Hanger Rods: Shall be sized in accordance with the manufacturer's directions.
  6. Provide 26 gauge x 6" long galvanized steel shields around insulation at all pipe hangers.
  7. See details on drawings. All piping shall be acoustically isolated from their hanger system.
- I. Drains and Cleanouts: Zurn, Josam, or approved equal. Model numbers given are for Zurn.
1. Floor Drains: ZN-415, 3" size, dura-coated cast iron body with 5" x 5" square nickel bronze strainer, and flashing collar, and provide trap primer connection where noted on Drawings.
  2. Wall Cleanouts: Z-1440, polished stainless steel access cover and frame. Install flush with finished wall.
  3. Floor Cleanouts: Z-1400-2 cast iron cleanout with adjustable round heavy duty scoriated nickel-bronze top, and gasketed cover.
  4. Cleanouts to Grade: Z-1420-25, dura-coated cast iron body, neoprene seal with bronze threaded plug and heavy duty tractor top. Set cleanout in 12" x 12" x 6" deep concrete pad.
  5. Cleanouts shall be the same size as the connecting pipe unless otherwise stated.
  6. Furnish suitable wrought iron or steel wrenches for each type of cleanout or plug cap.
  7. If not specifically shown, drains and cleanouts shall be same size as connecting piping.
- J. Plumbing Fixtures:
1. American Standard, Kohler, or approved equal. Model numbers given are American Standard unless otherwise noted. All fixtures are white unless otherwise noted.
  2. Point up joints between fixtures and wall or floor with white mastic. Mastic shall have sufficient resiliency to prevent cracking or pulling away from the wall or floor due to fixture movement.
  3. Select plumbing fixtures for battery installation and for uniformity of lines.

4. Provide tubing supplies, traps, pipe escutcheons, and wastes to wall of not less than #17 "B&S" gauge polished brass, chromium-plated. Cast ironware shall be white acid-resisting enameled. Chinaware shall be twice-fired white vitreous china.
5. Wall Mounted Water Closets: "Afwall", 3351.128, wall hung, siphon jet with elongated bowl, complete with Beneke 527SS/CH white plastic open front seat with self-sustaining check hinge, and Sloan "Optima" model 111-1.28 HWS electrically powered flushometer, 1.28 GPF infrared automatic flushing system with flush valve with infrared and push button activation, vacuum breaker and screwdriver stop with Bak-Chek. Chair carriers shall be Zurn, or approved equal, combination adjustable wall closet fitting and chair carrier as required. Carrier used shall support fixture off floor shall fit within a 17" thick plumbing wall. See mounting heights on Architectural Drawings.
6. Urinals: "Allbrook", 6550.005 wall hung, siphon jet, complete with wall hanger, extended lip (14"), 3/4" top spud, 2" waste connection fitting with gasket, integral trap, Sloan "Optima" model 186-05 ES-S low consumption AC electrical sensing flushometer valve with infra-red and push button activation, vacuum breaker and screwdriver stop with Bak-Check, 0.5 gallons per flush. Carriers shall be Zurn, or approved equal, and shall support fixture off floor. Use the same fixture for the ADA accessible location and the other locations. The only difference is the mounting height. See mounting heights on Architectural Drawings.
7. Lavatories:
  - a. Wall Mounted Lavatories: "Lucerne", 0356, 20 1/2" 1/4" x 18 1/4" with concealed arm hangers complete with American Standard, Selectronic AC powered "Innsbrook" electronic lavatory faucet with temperature thermostatic mixing valve option, ADA accessible faucet, offset waste with open grid strainer, P-trap and wall escutcheon, and Speedway #R-1915-A supply stops. Furnish and install all necessary mounting accessories. Install 0.5 gpm flow restrictor in faucet outlet. Provide drilling tap for soap dispenser.
  - b. Insulate hot water piping, waste piping and P-trap exposed under all lavatories, intended for the use of the handicapped, with 1/2" thick flexible foamed insulation. Insulation shall be Armstrong Armaflex with all seams butted together and glued. Insulation shall have finished looking seams. Paint insulation as directed by the Architect.
  - c. Soap dispensers shall be Bobrick, or approved equal, model B-826 touch-free lavatory mounted barrier-free soap



dispenser complete with model B-826-20 6 volt AC adapter.

- K. Service Sink: American Standard, Floorwell, or approved equal, 28" x 28" x 13" sink complete with model 8344.112 faucet with hose end spout, vacuum breaker, wall support, and supply stops and stainless steel rim guard.
- L. Drinking Fountains (Accessible): Haws 1011MS, or approved equal, barrier-free, wall mounted, dual height, freeze resistant drinking fountains with push button self closing valves, polished chrome plated brass bubbler heads, and perforated strainer with trap. Provide supply stop same as for lavatories.
- M. Tankless Water Heater (WH-1): Steibel Eltron, or approved equal. Unit shall be complete with copper sheathed heating element, fully automatic controls with 100% safety shut-off and high limit switch with manual reset, three year guarantee, and built to a working pressure of 150 psi. Furnish and install ASME temperature and pressure-relief valve. Water heaters shall be as scheduled on the Drawings. Isolate all piping from the structure in order to eliminate the transfer of noise and vibration.
- N. Cold Water and Hot Water Piping Insulation: Insulate all cold water and hot water return piping with Owens-Corning 25 ASJ/SSL, or approved equal, 1" thick U.L. listed, non-combustible fiberglass segmented pipe insulation with an integral vapor barrier jacket. Jacket shall have lap for sealing and shall be additionally sealed with outward clenching staples 6" o.c. Fittings, valves, and couplings shall be insulated with premolded fittings, or segmented insulation covered with molded PVC form. Insulation density shall be between 4 and 7 PCF. Adhere factory furnished 3" wide pressure sealing strips to all butt joints and end joints. Insulation shall be unbroken at all pipe supporting devices. Install 26 gauge x 6" long galvanized sheet metal shields completely around insulation at each pipe supporting device.
- O. Access Panel: Karp, or approved equal, with 14 gauge steel door, 16 gauge steel frame. Door shall have key operated cylinder lock. Door shall be minimum 12" x 12" size, or as noted on Drawings, or as required to provide proper access to valves and equipment and shall be flush with finished surfaces. Paint access door to match wall or ceiling.
- P. Water Hammer Arrestors: Zurn, Jay R. Smith, Josam, or Watts, conforming to ASME A112.26 1M, ASSE 1010, or PDI WH-201, bellows or piston type with pressurized cushioning chamber. Sizes shall be based on water supply fixture units, ASME A112.26 sizes "A" through "F" and PDI WH-201 sizes "A" through "F". The Contractor shall install air chambers where specified hereinafter or water hammer arrestors at each bathroom and where recommended by the manufacturer.
- Q. Escutcheon Plates: Chromium-plated steel floor, wall, and ceiling plates with set-screw to hold firmly in place.

- R. Flashing and Counterflashing: For all pipe penetrations exposed to weather areas shall be furnished and installed by this Section shall be Glenco, or approved equal, 4-lb. sheet lead with 12" skirt.
- S. Pipe Sleeves: Adjust-O-Crete, 24 gauge, electro-galvanized sheet metal adjustable sleeve. Provide at all concrete penetrations. Refer to post tension slab restrictions.

### PART 3 - EXECUTION

#### 3.1 PIPING:

##### A. General:

1. Carry all horizontal lines of pipe on specified hangers properly spaced and set to allow the pipe to adjust for expansion and contraction.
2. Conceal all piping above ceilings, in furred walls and partitions and pipe spaces when possible. Check all piping runs beforehand with all other trades. Run piping to maintain proper clearance for maintenance and access. Run piping in strict coordination with mechanical ducts and equipment, all electrical conduit and equipment, structural, and architectural conditions. Where work of other trades prevents installation of the piping as shown on the Drawings, reroute piping at no extra cost. **Verify all inverts and pitches of lines before starting work.**
3. All piping shall be installed free from traps and air pockets.
4. Support all pipe from the building structure so that there is no apparent deflection in pipe runs. Fit piping with steel sway braces and anchors to prevent vibration and/or horizontal displacement under load when required. Do not support piping from, or brace to, ducts, other pipes, conduit, or any materials except building structure. Piping or equipment shall be rigid and immobile and shall not be supported or hung by wire rope, plumber's tape or blocking of any kind. Double wrap copper pipe with heavy vinyl tape where pipe comes in contact with ferrous materials.
5. Support Piping From Structure By Hangers Spaced As Follows: Horizontal piping shall be supported by pipe hangers as hereinbefore specified. Hangers shall be spaced as indicated in the Uniform Plumbing Code. Each branch over 4 feet long shall have at least one hanger. Vertical piping shall be supported at each floor level with approved pipe clamps. Vertical piping shall have not less than one intermediate support to resist horizontal loads. Provide pipe anchors and sway braces to basic building structure where shown and where required for rigidity. Provide 26 gauge full sheet metal sleeves around outside of insulation at each hanger and support. Provide insulation saddle and sheet

metal sleeve at all pipes over 1 1/2" size. Hangers shall be sized to fit outside of pipe and insulation.

6. Furnish and install dielectric insulating unions or insulating flanges as hereinbefore specified at all connections of ferrous and nonferrous piping.
7. Install unions adjacent to threaded equipment and at other points where required for disassembly.
8. No valve and no piece of equipment or trim shall support the weight of any pipe. Install all valves, vents, traps, cleanouts and other trim in accessible locations.
9. Whenever changes in sizes of piping occur, make such changes with reducing fittings, as the use of face bushings will not, in general, be permitted. Install eccentric reducing fittings where necessary to provide free drainage of lines.
10. Where exposed pipes pass through walls, ceilings, or floors, fit pipes in all finished rooms and conspicuous locations with escutcheon plates. Escutcheon plates must be securely held in position allowing enough clearance to care for expansion and shall be sufficient size to cover the opening around the pipe.
11. Soil, Waste, Vent, Hot and Cold Water Branch Piping: To fixtures shall be as follows, unless otherwise shown on the Drawings and specified herein:

FIXTURE	SIZE WASTE	SIZE VENT	SIZE COLD WATER	SIZE HOT WATER
Water Closets (Flush Valve)	4"	2"	1"	--
Urinals	2"	1 1/2"	3/4"	--
Lavatories	2"	1 1/2"	1/2"	1/2"
Service Sink	3"	2"	1/2"	1/2"
Drinking Fountains	2"	1 1/2"	1/2"	--

Note: 1/2" Diameter piping shall not exceed 5'-0"

- B. Soil, Waste, and Vent Piping:
  1. Piping below grade shall be hubless cast iron soil pipe and fittings with "Mission" heavy gauge stainless steel couplings with neoprene gaskets, or approved equal, couplings which are guaranteed for the life of the connecting pipe.
  2. Piping above grade shall be hubless cast iron soil pipe with standard grade stainless steel fittings and neoprene gaskets.

3. Provide cleanout plugs where shown or required for proper access to system.
4. Where pipes pass through roof, flash and counter-flash with 4-lb. sheet lead, with collar minimum height of 6". Extend flat piece in plane of roof, 12" outside of pipe. Counterflash from top of pipe to roofline. Flashing shall be in accordance with the National Roofing Contractors' Association guidelines.
5. Install vents through roof to keep 10'-0" clear to all air intakes.
6. All fixtures shall be trapped and vented.

C. Hot Water and Cold Water Piping:

1. Piping above grade shall be "L" copper tubing with wrought copper sweat type fittings.
2. Cold water piping below grade shall be type "K" copper tubing and wrought copper sweat type fittings. All copper piping below grade shall be double wrapped with Tapecoat or an approved alternate poly material.
3. Threaded Valves: Shall be installed with threaded-to-solder adapters.
4. Each connection to, faucet, or plumbing fixture shall have an air chamber 18" long placed in a vertical position and shall be one (1) pipe size larger than pipe served.

3.2 EXCAVATING, TRENCHING AND BACKFILLING:

- A. Perform all excavating, trenching, and backfilling required for this section of the Work.
- B. Trenches for underground piping shall have uniform grades same as for the pipe so that pipe will bear on solid backfill material. Over excavate all trenches by a minimum of 6 inches all around the pipe location. Backfill with clean sand below the pipe and on the sides of the pipe. Also backfill up to grade (bottom of slab) with clean sand. Sand backfill shall be tamped solid around sides and top of the pipe and remainder thoroughly compacted to prevent settlement of the surface.
- C. Provide and maintain dewatering pumps as required. After piping has been installed, it shall be inspected and approved before backfilling. Backfill shall not be placed on or around the piping for 24 hours after pipe joints have been made or before lines are properly tested and approved.
- D. Provide shoring and cross bracing of sufficient strength to properly support the walls of all excavations at a depth of four (4) feet or more and as required to protect personnel.

- E. Minimum bury for piping exterior to the building shall be 30" or shall comply with the requirements of the soils report, and specification section 2 whichever is deeper.

**3.3 CLEANING:**

- A. Clean fixtures with soap and water. Remove marks and labels. Clean and polish chrome. Remove paint, concrete, plaster and other foreign materials.
- B. Clean all drains of dirt and debris. Remove shipping paper from cleanout covers and drain strainers and polish.
- C. The intent of this specification is that all equipment and material furnished shall be completely dust and paint free, clean and rust free and freshly painted or polished when the final acceptance inspection is made.
- D. Thoroughly clean and flush all systems of all pipe contaminants such as cuttings, filings, lubricant, rust, scale, grease, solder, flux, welding residue, debris, etc., and thoroughly flush out with clear clean water until clean in the opinion of the inspector. Any piece of equipment or part of any system which malfunctions or is damaged due to failure or neglect to observe this paragraph shall be repaired or replaced to the satisfaction of the Owner, without extra expense.

**3.4 ADJUSTMENTS:**

- A. Adjust all outlets and faucets to their normal working conditions.

**3.5 TESTING:**

- A. Soil, Waste and Vent Piping: Test and prove tight in accordance with the Plumbing Code.
- B. Hot Water and Cold Water Piping: Hydrostatically test and prove tight under a pressure of 125 PSI at the highest point.
- C. All tests shall be maintained for 2 hours or until complete and acceptable in the opinion of the inspector.
- D. After completion, the different systems and pieces of apparatus shall be tested under their normal working conditions and shall be operated for a period as directed by the Owner for the purpose of adjusting and providing the performance of the apparatus.
- E. Furnish all labor, materials, and water for making the tests.

**3.6 STERILIZATION OF HOT AND COLD WATER SYSTEMS:**

- A. Industrial Supply Company (925) 284-1511, Bennett Marine Utility, Inc., or approved equal. At completion of testing and adjusting and before hot and cold water systems are put into use, they shall be sterilized in strict

accordance with AWWA, U.S. Department of Public Health, and local and State requirements. Until sterilization of the water system has been made, all water outlets shall have signs posted at their location stating the water system has not been sterilized and shall not be used for human consumption. Prior to final acceptance, submit a certificate of sterilization together with bacteriological reports to the Architect stating that the work has been done in accordance with the Specifications. At the same time, submit a copy of the final report to the Department of Public Health prior to placing the systems in use.

**3.7 OPERATING INSTRUCTIONS:**

- A. Furnish to the Owner three (3) complete copies, separately bound, of operating instructions including manufacturer's literature of all equipment controls covering all items of instruction, operation and maintenance. Final inspection will not be made until these instructions are received. The following items are suggested and not inclusive.
  - 1. Plumbing Fixtures and Accessories
  - 2. Valves
  - 3. Water Heating Systems and Accessories
  - 4. Trap Primers
- B. Bind these instructions together into Operating Manuals with Index and durable cover, 3-ring McMillan #1516 binder, or approved equal.

**3.8 AS-BUILT DRAWINGS:**

- A. At completion of the work, turn over to the Architect one (1) complete set of reproducible drawings incorporating the original drawings and all changes made to the original drawings. Reproducible prints of the original drawings will be provided by the Architect. Make all changes to these reproducible drawings to provide a complete and accurate description and record of all the work as installed.

**3.9 GUARANTEE:**

- A. At completion, furnish the Owner a written guarantee, in triplicate, that work has been performed in accordance with Plans and Specifications and guarantee to replace or repair, to the satisfaction of the Owner any portion of the new work that fails within a period of one (1) year after final acceptance provided such failure is due to defects in material or workmanship. Also agree to replace or repair, with like workmanship and materials any part of the building system or equipment installed by other trades but damaged by him in installing his work.

**END OF SECTION**

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**SECTION 16010****BASIC ELECTRICAL REQUIREMENTS**

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**PART 1 - GENERAL**

## 1.1 RELATED DOCUMENTS:

- A. The General Conditions, Supplementary Conditions and Division 1 apply to the electrical work.

## 1.2 WORK INCLUDED:

- A. Work included in this section: All materials, labor, equipment, services, and incidentals necessary to install the Electrical Work as shown on the drawings and as specified hereinafter, including, but not limited to the following:
  - 1. Electric service as detailed on the drawings follows:
  - 2. Panelboard and feeders.
  - 3. Branch circuit wiring, wiring devices and connections to all equipment requiring electrical service.
  - 4. Lighting fixtures with lamps, hangers, anchors and supports.
  - 5. Wallbox lighting controls.
  - 6. Electrical equipment grounding system.
  - 7. Mechanical equipment power connections as stated in the mechanical and electrical specifications and as shown on the mechanical and electrical drawings.
  - 8. Sleeves, inserts and blocking in cast concrete as required for work in this section.
  - 9. All required incidental work, such as excavating and backfilling, roof flashing, and testing.
  - 10. Any other electrical work as might reasonably be implied as required, even though not specifically mentioned herein or shown on the drawings.

## 1.3 RELATED WORK:

- A. Division 1 - General Requirements
- B. Division 15 - Mechanical

**1.4 INCORPORATED DOCUMENTS:**

- A. Requirements of the General Conditions, Supplementary Conditions, and Division 1. Sections apply to all work in this Section, unless modified herein.
- B. Published specifications, standard tests or recommended methods of trade, industry or government organizations apply to work of this Section where cited by abbreviations noted below, unless modified herein.
  - 1. National Electrical Code, latest edition, (NEC).
  - 2. NEMA standards
  - 3. Underwriters' Laboratories, Inc. (UL).
  - 4. Local Utility Company regulations.
  - 5. National Fire Protection Association (NFPA)
  - 6. California Administrative Code (CAC)
- C. All State and Municipal Codes and Ordinances.

**1.5 CONDITIONS AT SITE:**

- A. Visit to site is required of all bidders prior to submission of bid. All will be held to have familiarized themselves with all discernible conditions and no extra payment will be allowed for work required because of these conditions, whether specifically mentioned or not.

**1.6 QUALITY ASSURANCE:**

- A. Conformance:
  - 1. All work shall conform to the applicable requirements of Article 1.3 above.
  - 2. The Contractor shall notify the Architect, prior to submission of bid, about any part of the design, which fails to comply with abovementioned requirements.
  - 3. If after contract is awarded, minor changes and additions are required by aforementioned authorities, even though such work is not shown on drawings or covered in specifications, they shall be included at Contractor's expense.
- B. Coordination:
  - 1. The Contractor shall become familiar with the conditions at the job site, and with the drawings and specifications and plan the installation of the electrical work to conform with the existing conditions and that shown and specified so as to provide the best possible assembly of the combined work of all trades.
  - 2. The Contractor shall work out in advance all "tight" conditions, involving all



trades and if found necessary, supplementary drawings shall be prepared by this Contractor, for the Architect's approval, before work proceeds in these areas. No additional costs will be considered for work, which must be relocated due to conflicts with the work of other trades.

**1.7 SUBMITTALS:****A. Product Data:**

1. Comply with the provisions of Section 01340- Submittals.
2. Within 15 days after award of the Contract, submit:
  - a. Complete material list of all items proposed to be furnished and installed under this Section, including but not limited to the following items: Circuit breakers, lighting fixtures, conduit, devices, enclosures, etc.
  - b. Manufacturers' specifications and other data required demonstrating compliance with the specified requirements.
  - c. Manufacturers' recommended installation procedures which, when approved by the Architect, shall become the basis for inspecting and accepting or rejecting actual installation procedures used on the work.
3. Shop Drawings: Furnish shop drawings and/or equipment cuts for the following:
  - a. Light Fixtures
  - b. Panelboards
  - c. Lamps and ballast
  - d. Lighting Controls
4. Test Reports:
  - a. Factory Tests: As specified for specific equipment.
  - b. Field Tests: Performance tests as specified for specific equipment.

**1.8 MATERIALS:**

- A. Materials of the same type or classification, used for the same purpose, shall be the product of the same manufacturer.

**1.9 ACCEPTABLE MANUFACTURERS:**

- A. Materials shall be of make mentioned elsewhere in this specification. All materials shall be the best of their several kinds, perfectly new and approved by the

Underwriters' Laboratories.

- B. Where material, equipment, apparatus or other products are specified by manufacturer, brand name, type or catalog number, such designation is to establish standards of desired quality, style and utility and shall be the basis of the bid. Materials so specified shall be furnished under the contract unless changed by written approval of the Architect. Where two or more designations are listed, choice shall be optional with this Contractor, but this Contractor must submit his choice for final approval.

#### 1.10 DELIVERY, STORAGE AND HANDLING:

- A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the work and materials of all trades.
- B. Delivery and Storage: Deliver all materials to the job site in their original containers with all labels intact and legible at time of use. Store in strict accordance with approved manufacturers' recommendations.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.
- D. This Contractor shall personally, or through an authorized representative, check all materials upon receipt at jobsite for conformance with approved shop drawings and/or plans and specifications.

#### 1.11 SCHEDULING/SEQUENCING:

- A. Place orders for all equipment in time to prevent any delay in construction schedule or completion of project. If any materials or equipment are not ordered in time, additional charges made by equipment manufacturers to complete their equipment in time to meet the construction schedule, together with any special handling charges, shall be borne by this Contractor.

#### 1.12 REQUIREMENTS:

- A. The contract drawings indicate the extent and general arrangements of the conduit wiring systems, etc. If any departures from the contract drawings are deemed necessary by the Contractor, details of such departures and the reasons therefore shall be submitted as soon as practicable, and within 10 days after award of the electrical contract.
- B. UNLESS MATERIAL LIST AND DATA IS RECEIVED AS A COMPLETE AND ALL INCLUSIVE SUBMITTAL WITHIN THE STIPULATED TIME ALL ITEMS SHALL BE PROVIDED AS SPECIFIED- WITH NO DEVIATIONS PERMITTED.
- C. Any and all additional costs incurred by the substitution of electrical material or equipment, or installation thereof, whether architectural, structural, plumbing, mechanical or electrical, shall be borne by the Contractor under this section.

## 1.13 IDENTIFICATION:

- A. Panels, disconnect switches, disconnect switches, cabinets, and other apparatus used for the operation of, or control of circuits, appliances or equipment, shall be properly identified by means of engraved laminated plastic descriptive nameplates mounted on apparatus using stainless steel screws. Nameplates shall have white letters with black background and be submitted to the Architect for approval. Cardholders in any form are not acceptable.
- B. Each branch circuit of panelboards to have a permanently fixed number with one word directory, mounted under celluloid on inside of cabinet door, showing circuit numbers and typewritten description of equipment supplied by breakers.

**PART 2 - PRODUCTS:**

## 2.1 GENERAL:

- A. Materials shall be new, packed in original containers, installed and turned over to the Owner free of defects.
- B. Materials shall bear Underwriters' Laboratory label.
- C. Furnish equipment and materials for any one system by same manufacturer.

## 2.2 MATERIALS:

- A. Conduit:
  - 1. Conduit shall be National Electric Products Corporation, Republic, or Triangle, and shall be delivered to the site of construction in the original bundles. Each length shall bear the label of the National Board of Fire Underwriters. All conduit subjected to rough usage while on the job, before installation, shall be removed from the premises upon notice.
    - a. Rigid Steel: Hot-dipped galvanized, used exposed and in concrete slab, with completely watertight fittings.
    - b. In lieu of rigid steel conduit for power service raceways and branch circuit conduits in soil or in concrete slab, "Schedule 40" PVC with code size minimum bare No. 12 ground wire may be used with "Schedule 80" elbows and stub-ups.
    - c. All rigid steel conduit, couplings and elbows in soil or under membrane to be 1/2 lap wrapped with Scotch #50 tape and threaded ends coated with red lead prior to installation of couplings.
    - d. All conduits shall installed flush using intermediate metal conduit or electrical metallic tubing.

- e. Use flexible conduit for all motor connections; "Seal- tite" type used outdoors and in all wet locations, provide with code size (minimum No. 12) bare ground wire in all flexible conduit.
  - f. Conduit Bends - Long Radius.
  - g. Minimum cover of conduits in ground - 24" unless otherwise noted.
  - h. Provide conduit seals at all concrete slab penetrations - O. Z. series FSK.
2. Conduit Fittings:
- a. Fittings for rigid steel and flexible type conduit shall be of a type as required, malleable iron or steel, galvanized or sherardized, Thomas & Betts, Steel City, National, General Electric, or Appleton.
- B. Outlet Boxes and Junction Boxes:
- 1. National Electric products Company's galvanized one piece steel knockout type, unless otherwise noted, sizes as required for conditions at each outlet or as noted, not smaller than 2 inches wide by 4 inches high, ganged where multiple switch locations are indicated.
  - 2. Outlet boxes located on exterior to be flush type with cast aluminum gasketed covers; spring lid type for receptacles.
  - 3. Surface mounted outlet boxes for wet locations, cast aluminum FS or FD type with gasketed spring lid cover.
  - 4. All connectors from conduit to junction or outlet boxes shall have integral insulated throats.
- C. Wire and Cable: Phelps-Dodge, Triangle, Anaconda or Okonite Company.
- 1. Copper 90% conductivity. Solid copper for conductors smaller than No. 8 AWG. Stranded copper for conductors No. 8 AWG and larger. No conductors smaller than No. 12 AWG, except as noted. White outer coverings on neutral conductor.
  - 2. Insulation type: #12 to #1 AWG: THWN for wet locations and THHN for dry locations. #1/0 through #4/0 AWG: XHHW (55 Mils). 250MCM and larger: XHHW (65 Mils).
  - 3. Conductors No. 8 and larger and as otherwise noted on drawings shall be stranded.
  - 4. Connections to devices from "through-feed" branch circuit conductors to be made with pigtailed, with no interruption of the branch circuit conductors.
  - 5. Neutral conductor identified by white outer braid, with different tracers of "EZ" numbering tags used where more than one neutral conductor is contained in a

single unit.

6. Neatly arrange and "marlin" wired in panels and other equipment with "T and B Ty-rap" or approved equal plastic type strapping.
7. Label each wire of each electrical system in each pull box, junction box, outlet box, terminal cabinet, and panelboard in which it appears with "EZ" numbering tags.
8. All wire and cable shall bear the Underwriters' Label, brought to the job in unbroken packages; wire color-coded as follows:

Voltage	Phasing	A	B		N
120/240	1PH3W	Black	Red		White

- D. Switches: Leviton, or equal, rated 20 amp, 120 volt, quiet type, white color, and specification grade; unless otherwise noted.
  1. Single Pole - No. 5521-W
- E. Receptacles: Leviton, 125 volts, specification grade, conventional style, white color, except as noted:
  1. 20A 3PG 125 volt duplex - No. 5896-W
  2. 20A 3PG 125 volt ground fault receptacle, 3-wire, #8898
  3. Special appliances receptacles: Match NEMA configuration of equipment plug.
- F. Plates: Leviton, or equal, except as noted:
  1. For flush outlet boxes, for switches and receptacles: standard stainless steel, .030" Type 430.
  2. Plates for surface-mounted outlets: galvanized steel unless otherwise noted.
  3. Plates for ground fault interrupter receptacles on building exterior - Sierra No. WPH-GL.
  4. Weatherproof duplex receptacle plates for exterior locations and for all type FS or FD boxes - Hubbell #522I.
- G. Motor Disconnect Switches and Safety Switches: General Electric Company Heavy

Duty Type "THD", cover interlocked with operating handle so that cover cannot be opened with switch in closed position and switch cannot be closed with cover in open position, 240 volt rating, as required or as noted on drawings, in Nema 1 enclosure indoors, 3R enclosure outdoors, or as otherwise noted. All motor circuit fuses shall be dual element type.

- H. Lugs and Connectors: Thomas and Betts "lock-tite", for No. 4 and larger wire; "Scotchlock" with insulator for No. 6 and smaller wire.
- I. Splice Insulation: "Scotch" electrical tape with vinyl plastic backing or rubber tape with protective friction tape for interior work.
- J. Grounding:
  - 1. Provide and install grounding system as noted on the Drawings.
  - 2. Grounding electrode conductor: bare stranded copper type, #4/O minimum.
  - 3. Install ground wires in rigid conduit.
  - 4. All grounding electrode conductor connections "thermite" or "cad-weld" welded.
  - 5. Use approved pressure type solderless connector or use fusion welding for all connections to and bonding of grounding electrode system. All connections shall be visible, readily accessible for testing purposes. Grounding electrode conductor between the grounding electrode and service equipment: Minimum #4/O.
  - 6. Terminate grounding conduits at equipment with ground bushing, with ground wire connected through bushing.
  - 7. Provide No. 12 stranded (green) THHN conductor from outlet box to ground screw of every receptacle.
  - 8. Ground all isolated sections of metallic raceways.
  - 9. Provide #12 minimum stranded (green) THHN conductor sized per NEC, or as noted, connected continuously throughout branch circuit for all circuits, bonded to panel ground bus, and to all electrical devices and equipment enclosures.
  - 10. Grounding electrode installed as follows:
    - a. Place #4/O bare copper cable in foundation trench; tensioned, supported in such a manner that it cannot be less than two (2) inches from bottom or side of concrete when foundation concrete is poured; not less than one hundred feet of conductor. Embed in foundation with a loop at approximate center, brought out at top of foundation adjacent to building service equipment for connection to service equipment and for bonding to other parts of the grounding system.
    - b. Use approved pressure type solderless connector or use fusion welding

for all connections to grounding electrode. Connection visible, readily accessible for testing purposes. Grounding electrode conductor between the grounding electrode and service equipment: Minimum #4/0.

- c. Connect grounding electrode system to metallic water service entry metallic cold water pipe (if available) with nonferrous clamp and 1-#4 B.C. in conduit, connection shall be accessible for inspection.
- d. Connect grounding electrode system to building steel as noted on Drawings. Use exothermic weld, connection shall be accessible for inspection.
- e. After installation, test system, using the three-point fall of potential method only. Record results and submit to Architect for approval. If resistance to ground exceeds three (3) ohms, install additional ground rods, bonded and interconnected to grounding electrode system. Provide additional grounding until resistance is less than three (3) ohms.

K. Meter Main/Panelboard:

1. Surface mounted, with branch circuits as shown on drawings. Meter main shall comply with PG&E requirements.
2. Enclosures: code gauge galvanized sheet steel with welded full flange end pieces; stretcher- leveled steel trim, backpan and door.
3. Bussing of copper with silver-plated contact surfaces.
4. Trims on surface-mounted cabinets secured with nickel-plated screws with cup washers, bottom of all trims to have lugs for resting on cabinet flange.
5. Panelboard to have a permanently fixed number with one word directory, mounted under celluloid on inside of cabinet door, showing circuit numbers and typewritten description of outlets controlled by breakers. Color code mains and each breaker terminal, same as conductor insulation.
6. Each panel shall be equipped with a copper ground bus.

L. Circuit Breakers:

1. General: Circuit breakers shall be molded case rated for 240 volts, multiple or single pole and amperage rating as shown on the drawings.
2. Provide type "SWD" circuit breakers were the circuit breaker is going to be used as a switching device in a panelboard.

M. Motor Connections:

1. Install motor circuits complete for all motors by other trades as shown on drawings.

2. Furnish and install all disconnect switches, outlet boxes, starters, timeswitches etc., where noted.
  3. All motor and temperature control low voltage wiring shall be installed and connected by Division 15 Section of specifications, unless otherwise indicated on electrical and mechanical drawings.
- N. Lighting Fixtures:
1. As listed in fixture schedule, and on drawings as indicated by type letter, completely lamped with new lamps, properly operating at time of acceptance of electrical work.
  2. Submit under provisions of Division 1.
    - a. Manufacturer's literature for every fixture listed on the Fixture Schedule.
    - b. For Any Fixtures Substituted For Those Specified: Independent Testing Laboratories, Inc., or equal, photometric test report for each Luminaire type and lamp combination listed on the Fixture Schedule. Test reports shall be based on Illuminating Engineering Society published test procedures and shall contain polar coordinate candlepower distribution curves in five lateral planes for fixtures with asymmetric distributions and fixture luminance data for vertical angles above 45 degrees from nadir. Test results shall indicate fixture efficiency for the lamp and aperture assembly specified. Fixtures with efficiencies more than 2% below the values of specified fixtures are not acceptable and will be rejected.
  3. Lamps:
    - a. Compact fluorescent lamps shall be 3500 deg. K color temperature, min. CRI 82, twin-tube or quad tube as noted or as required for each fixture. Provide TCLP compliant reduced mercury content lamps whenever such lamps are available.
  4. Ballasts:
    - a. Electronic ballasts for long fluorescent lamps 97% min. power factor, "A" sound-rated, with UL Class P thermal protection, 85% min. ballast factor with specified types and numbers of lamps. Ballasts must operate specified lamps within lamp manufacturer's specifications and have no effect on rated lamp life when run on a three-hour switching cycle (3 hours on and 20 minutes off).
      - (1). Programmed Start operation, with starting voltage and filament current in compliance with applicable ANSI standards for each lamp type. Resistance of the heated lamp filaments (Rh) shall be at least 4.0 times greater than the resistance of the cold lamp filaments (Rc).



- (2). Ballasts with Instant Start operation may be used in fluorescent systems where less than 5 lamp starts per day are anticipated and where occupancy sensors and/or T5 and T5HO lamps are not used.
  - b. Parallel-wired.
  - c. Provide interwiring and number of lamps per ballast as described under "Interwiring" above. Follow manufacturer's recommendations for maximum whip length.
  - d. Light variation 10% maximum with +/- 10% input voltage variation.
  - e. Electromagnetic radiation must not exceed FCC Part 18 regulations.
  - f. Surge and transient protection per IEEE 587, Category A and ANSI C62.1-1984.
  - g. End of life protection.
  - h. Harmonic distortion: Total harmonic distortion (ratio of total harmonic RMS current to fundamental RMS current) must be less than 15% or as required to meet local utility requirements, whichever is lower.
  - i. Acceptable Manufacturers:
    - (1). Electronic: EBT, Universal Lighting Technologies, Osram/Sylvania, Advance, General Electric.
    - (2). Short compact fluorescent: Advance, Robertson, and Universal.
  - j. All ballasts shall be operated without excessive or unusual noise. Noisy or otherwise defective ballasts shall be replaced.
- O. Occupancy Sensors:
  1. Specific Requirements:
    - a. Wall switch sensors shall be capable of detection of occupancy at desktop level up to 300 square feet, and gross motion up to 1000 square feet.
    - b. Wall switch sensors shall accommodate loads from 0 to 800 watts at 120 volts; 0 to 1200 watts at 277 volts and shall have 180° coverage capability.
    - c. Wall switch products shall utilize Zero Crossing Circuitry, which increases relay life, protects from the effects of inrush current, and increases sensor's longevity.
    - d. Wall switch sensors shall have no leakage current to load, in manual or in Auto/Off mode for safety purposes and shall have voltage drop protection.

- e. Passive infrared sensors shall utilize Pulse Count Processing and Digital Signature Analysis to respond only to those signals caused by human motion.
  - f. Passive infrared sensors shall utilize mixed signal ASIC which provides high immunity to false triggering from RFI (hand-held radios) and EMI (electrical noise on the line).
  - g. Passive infrared sensors shall have a multiple segmented Lodif Fresnel lens, in a multiple-tier configuration, with grooves-in to eliminate dust and residue build-up.
  - h. All sensors shall be capable of operating normally with electronic ballasts, PL lamp systems and rated motor loads.
  - i. Coverage of sensors shall remain constant after sensitivity control has been set. No automatic reduction shall occur in coverage due to the cycling of air conditioner or heating fans.
  - j. All sensors shall have readily accessible, user adjustable settings for time delay and sensitivity. Settings shall be located on the sensor (not the control unit) and shall be recessed to limit tampering.
  - k. In the event of failure, a bypass manual override shall be provided on each sensor. When bypass is utilized, lighting shall remain on constantly or control shall divert to a wall switch until sensor is replaced. This control shall be recessed to prevent tampering.
  - l. All sensors shall provide an LED as a visual means of indication at all times to verify that motion is being detected during both testing and normal operation.
  - m. All sensors shall have UL rated, 94V-0 plastic enclosures.
2. Plastic:
- a. Translucent Plastic Components: Translucent plastic shall be made of smooth, white, 100 percent virgin acrylic or polycarbonate material as specified.
  - b. Plastic Lenses: Lenses shall be uncolored 100 percent virgin acrylic plastic.
3. Finish on Metal Parts:
- a. Steel Reflectors: Unless otherwise specified, the reflector surface finish shall be of synthetic white enamel or polyester powder coating.
  - b. Aluminum Reflectors: Reflecting surfaces shall be provided with either a specular or diffuse finish as indicated.

- c. Non-Reflecting Surfaces: Unless otherwise specified, the finish on all non-reflecting exterior surfaces shall be aluminum oxide or aluminum; white, gray or aluminum paint on steel; nickel or chromium plating on copper alloy. Fastening devices shall be nickel, chromium, cadmium or zinc plated.

### PART 3 - EXECUTION

#### 3.1 INSPECTION:

- A. Examine the areas and conditions under which the work of this Section will be installed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.
- B. Electric Service: Coordinate with and arrange with the local electric utility company for electric service to the project. Furnish and install all materials and labor necessary for complete installation as noted on drawings. Submit shop drawings and obtain approval from the utility company prior to fabrication.
- C. Pay all costs chargeable to Owner for installation of new utility services.

#### 3.2 PREPARATION:

- A. Drawings
  - 1. The general arrangement and location of wiring and equipment is shown on the electrical drawings and shall be installed in accordance therewith, except for minor changes required by conflict with the work of other trades.
  - 2. Drawings indicate the circuit and panel, which supplies each device or fixture. Provide and install conduit and conductors to make all connections from panel to nearest device and from first device to additional devices on same circuit. Conduit size and fill shall satisfy NEC requirements. Do not exceed 4 #12 or 3 #10 conductors in a 1/2" conduit, 7 #12 or 5 #10 in a 3/4" conduit, or 11 #12 or 9 #10 in a 1" conduit, unless otherwise noted. If more than three current carrying conductors are installed in one conduit, conductor size shall be increased as required per Note 8 to Table 310-16 of the NEC.
  - 3. Drawings indicate the location of all light switches. Where fixtures in a room are controlled by more than one switch, the same lower case letter is drawn adjacent a switch and each fixture controlled by that switch. Where no lower case letter is adjacent to a switch, all fixtures in the room are controlled by that switch. Provide and install conduit and wire from fixture to switch and between fixtures as required to accomplish switching shown. Do not route branch circuit wiring for light fixtures through switch boxes.
  - 4. Control wiring is generally not shown on the plans. Contractor shall refer to control diagrams and provide and install all wiring and raceways required to make all interconnections.

5. All branch circuit wiring No. 12 or No. 10 as noted, all control wiring No. 14, except as noted next to "slash marks" on drawings, or as noted under "Wire," as specified herein.
6. All dimensions, together with locations of doors, partitions, etc. are to be taken from the Architectural Drawings, verified at site by this Contractor.
7. Maintain "as-built" records at all times, showing the exact location of concealed conduits and feeders installed under this contract, and actual numbering of each circuit. Upon completion of work and before acceptance can be considered, this Contractor must forward to Architect vellums (obtained from the Architect at cost) corrected to show the electrical work as installed.
8. Measurements: Before ordering any material or closing in any work, verify all measurements on the job. Any differences found between dimensions on the drawings and actual measurements shall be brought to the Architect's attention for consideration before proceeding.

### 3.3 FIELD QUALITY CONTROL:

- A. All workmanship shall be first class and carried out in a manner satisfactory to and approved by the Architect.
- B. This Contractor shall personally, or through an authorized and competent representative, constantly supervise the work and so far as possible keep the same foreman and workmen on the job throughout.

### 3.4 INSTALLATION/APPLICATION/ERECTION:

- A. Cutting, repairing and structural reinforcing for the installation of this work shall be done by the General Contractor in conformance with the Architect's requirements.
- B. Provide and place in form work all conduit, inserts and sleeves in time to prevent any delay in the concrete work.
- C. Wall-Mounted Fixtures:
  1. Mounting heights shown on Drawings are measured from finished floor to centerline of outlet box or recessed housing, unless otherwise noted.
  2. Verify fixture weights and provide backing in wall as required. Fixtures must not droop or tilt away from wall.
  3. Wet locations: install sealant between fixture and outlet box.
  4. In circulation areas, wall-mounted fixtures must not project more than 4" from wall if mounted above 27" and below 80".

### 3.5 ADJUSTING AND CLEANING:

- A. Panelboard and all other electrical equipment not "finish painted" under other

sections shall be touched up where finished surface is marred or damaged.

- B. All equipment, lighting fixtures, etc., shall be left in clean condition, with all shipping and otherwise unnecessary labels removed there from.
- C. Excavate and trench as necessary for the electrical installation, and when the work has been installed, inspected and approved, backfill all excavations with imported sandy soil in maximum 8" (eight inch) layers, moisten and machine tamp to 95% compaction, and restore the ground and/or paving or floor surfaces to their original condition. Comply with requirements of Division 2.

### 3.6 SCHEDULES:

- A. Coordination: Coordinate installation of electrical items with the schedule for other work to prevent unnecessary delays in the total Work.

### 3.7 TESTING:

#### A. Grounding System:

- 1. All ground connections shall be checked and the entire system shall be checked for continuity. The resistance of the ground system shall be measured using a 3-point fall-of-potential method.
- 2. Ground tests shall meet the requirements of the National Electric Code.

#### B. Lighting Systems:

- 1. The interior and exterior lighting systems shall be checked for proper local controls and operation of entire installation, including the operation of the low voltage lighting control system.

#### C. Power Distribution System:

- 1. Tests: Test meter main and panelboard for grounds and shorts with mains disconnected from feeders, branch circuits connected and circuit breakers closed, all fixtures in place and permanently connected and grounding jumper to neutral lifted and with all wall switches closed.
- 2. Test each individual circuit at each panelboard with equipment connected for proper operation. Inspect the interior of each panel.
- 3. Check verification of color coding, tagging, numbering, and splice make-up.
- 4. Verify that all conductors associated with each circuit are in same conduit.
- 5. Demonstrate that all lights, jacks, switches, outlets, and equipment operate satisfactorily and as called for.

**END OF SECTION**