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**Caltrans**<sup>®</sup>

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

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**NOTICE TO CONTRACTORS  
INSTRUCTIONS TO BIDDERS  
GENERAL CONDITIONS**

**AND**

**SPECIAL PROVISIONS**

**FOR BUILDING CONSTRUCTION ON STATE FACILITY IN**

**SAN DIEGO COUNTY IN SAN DIEGO AT THE DISTRICT OFFICE HISTORIC BUILDING**

CONTRACT NO. 11-264804

11-SD-5506

Federal Aid Project

ACSTPE-X073(085)E

**Bids Open: August 7, 2008**

**Dated: July 7, 2008**

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# IMPORTANT SPECIAL NOTICES

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- Attention is directed to Division 0.2, "Proposal Requirements and Conditions" of these special provisions, for new requirement concerning a "Small Business Enterprise Goal."
- Attention is directed to Division 0.3, "Award and Execution of Contract" of these special provisions, for new requirement concerning a small business participation report.
- Attention is directed to Division 0.3, "Award and Execution of Contract," of these Special Provisions regarding submittal of insurance documents.

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DEPARTMENT OF TRANSPORTATION

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**NOTICE TO CONTRACTORS**

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**CONTRACT NO. 11-264804**

**11-SD-5506**

Sealed proposals for the work shown on the plans entitled:

**STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROJECT PLANS FOR BUILDING CONSTRUCTION ON STATE FACILITY IN SAN DIEGO COUNTY IN SAN DIEGO AT THE DISTRICT OFFICE HISTORIC BUILDING**

will be received at the Department of Transportation, 3347 Michelson Drive, Suite 100, Irvine, CA 92612-1692, until 2 o'clock p.m. on August 7, 2008, at which time they will be publicly opened and read in Room C - 1116 at the same address.

Proposal forms for this work are included in a separate book entitled:

**STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROPOSAL AND CONTRACT FOR BUILDING CONSTRUCTION ON STATE FACILITY IN SAN DIEGO COUNTY IN SAN DIEGO AT THE DISTRICT OFFICE HISTORIC BUILDING**

General work description: Repair and Remodel of District Building.

No prebid meeting is scheduled for this project.

Bids are required for the entire work described herein.

At the time this contract is awarded, the Contractor shall possess either a Class A license or Class B license or a combination of Class C licenses which constitutes a majority of the work.

The Contractor must also be properly licensed at the time the bid is submitted, except that on a joint venture bid a joint venture license may be obtained by a combination of licenses after bid opening but before award in conformance with Business and Professions Code, Section 7029.1.

This contract is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990.

This project is subject to the State small business preference, non-small business subcontractor preference, and California company reciprocal preference.

Inquiries or questions based on alleged patent ambiguity of the plans, specifications or estimate must be communicated as a bidder inquiry prior to bid opening. Any such inquiries or questions, submitted after bid opening, will not be treated as a bid protest.

Bidder inquiries may be made as follows:

The Department will consider bidder inquiries only when a completed "Bidder Inquiry" form is submitted. A copy of the "Bidder Inquiry" form is available at the Internet address shown below. The bidder inquiry shall include the bidder's name and telephone number. Submit "Bidder Inquiry" forms to :

Contract No. 11-264804

District 11 Construction Duty Senior  
Location address: 4050 Taylor Street, San Diego, CA 92110

Fax Number: (619) 688-6988  
E-mail: Duty\_Senior\_Const\_District11@dot.ca.gov  
Tel. Number: (619) 688-6635

To expedite processing, submittal of "Bidder Inquiry" forms via Fax or E-mail is preferred.

To the extent feasible and at the discretion of the Department, completed "Bidder Inquiry" forms submitted for consideration will be investigated, and responses will be posted on the Internet at:

<http://www.dot.ca.gov/dist11/construc/>

The responses to bidders' inquiries, unless incorporated into formal addenda to the contract, are not a part of the contract, and are provided for the bidder's convenience only. In some instances, the question and answer may represent a summary of the matters discussed rather than a word-for-word recitation. The availability or use of information provided in the responses to bidders' inquiries is not to be construed in any way as a waiver of the provisions Section 1-1.03 of the Instructions to Bidders or any other provision of the contract, the plans, General Conditions, Instructions to Bidders or Special Provisions, nor to excuse the contractor from full compliance with those contract requirements. Bidders are cautioned that subsequent responses or contract addenda may affect or vary a response previously given.

Project plans, special provisions, and proposal forms for bidding this project can only be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, MS #26, Transportation Building, 1120 N Street, Sacramento, California 95814, FAX No. (916) 654-7028, Telephone No. (916) 654-4490. Use FAX orders to expedite orders for project plans, special provisions and proposal forms. FAX orders must include credit card charge number, card expiration date and authorizing signature. Project plans, special provisions, and proposal forms may be seen at the above Department of Transportation office and at the offices of the District Directors of Transportation at Irvine, Oakland, and the district in which the work is situated.

The successful bidder shall furnish a payment bond and a performance bond.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county, or counties, in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project, available at the Labor Compliance Office at the offices of the District Director of Transportation for the district in which the work is situated, and available from the California Department of Industrial Relations' Internet Web Site at: <http://www.dir.ca.gov>. Future effective general prevailing wage rates which have been predetermined and are on file with the Department of Industrial Relations are referenced but not printed in the general prevailing wage rates.

DEPARTMENT OF TRANSPORTATION

Deputy Director Transportation Engineering

Dated July 7, 2008

THM

Contract No. 11-264804

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

**INSTRUCTIONS TO BIDDERS  
AND  
GENERAL CONDITIONS  
FOR  
BUILDING CONSTRUCTION**

April 2008

*Issued by*

DEPARTMENT OF TRANSPORTATION



Contract No. 11-264804

## **INSTRUCTIONS TO BIDDERS**

### **SECTION 1**

#### **PROPOSAL REQUIREMENTS AND CONDITIONS**

##### **1-1.01 GENERAL**

The bidder shall carefully examine the instructions contained herein and shall be satisfied as to the conditions with which the bidder must comply prior to bid and to the conditions affecting the award of contract.

These instructions form a part of the contract documents.

Attention is directed to Section 1-1.01, "General," of the General Conditions regarding the use of masculine gender pronouns in these Instructions to Bidders.

##### **1-1.02 CONTRACTOR'S LICENSING LAWS**

Attention is directed to the provisions of Chapter 9 of Division 3 of the Business and Professions Code concerning the licensing of contractors.

All bidders and contractors shall be licensed in conformance with the laws of this State and any bidder or contractor not so licensed is subject to the penalties imposed by those laws.

Attention is directed to the requirements in Public Contract Code Section 10164. In all projects where Federal funds are involved, the Contractor shall be properly licensed at the time the contract is awarded.

##### **1-1.03 EXAMINATION OF PLANS, SPECIAL PROVISIONS AND SITE OF THE WORK**

The bidder shall examine carefully the site of the work contemplated, the plans and special provisions and these Instructions to Bidders and contract forms therefor. The submission of a bid shall be conclusive evidence that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and scope of work to be performed, the quantities of materials to be furnished, and as to the requirements of these Instructions to Bidders, plans, special provisions, and the contract.

The submission of a bid shall also be conclusive evidence that the bidder is satisfied as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information was reasonably ascertainable from an inspection of the site and the records of exploratory work done by the Department as shown in the bid documents, as well as from the plans and special provisions made a part of the contract.

Where the Department has made investigations of site conditions, including subsurface conditions in areas where work is to be performed under the contract, bidders or contractors may, upon written request, inspect the records of the Department as to those investigations subject to and upon the conditions hereinafter set forth.

Where there has been prior construction by the Department or other public agencies within the project limits, records of the prior construction that are currently in the possession of the Department and which have been used by, or are known to, the designers and administrators of the project will be made available for inspection by bidders or contractors, upon written request, subject to the conditions hereinafter set forth. Those records may include, but are not limited to, as-built drawings, design calculations, foundation and site studies, project reports and other data assembled in connection with the investigation, design, construction and maintenance of those prior projects.

Inspection of the records of investigations and project records may be made at the office of the district in which the work is situated, or in the case of records of investigations related to structure work, at the Transportation Laboratory in Sacramento, California.

When a log of test borings or other record of geotechnical data obtained by the Department's investigation of surface and subsurface conditions is included with the contract plans, it is furnished for the bidders' or Contractor's information and its use shall be subject to the conditions and limitations set forth in this Section 1-1.03.

In some instances, information considered by the Department to be of possible interest to bidders or contractors has been compiled as "Materials Information." The use of the "Materials Information" shall be subject to the conditions and limitations set forth in this Section 1-1.03.

The availability or use of information described in this Section 1-1.03 is not to be construed in any way as a waiver of the provisions of the first paragraph in this Section 1-1.03 and bidders and contractors are cautioned to make independent investigations and examinations as they deem necessary to be satisfied as to conditions to be encountered in the performance of the work.

The Department assumes no responsibility for conclusions or interpretations made by a bidder or contractor based on the information or data made available by the Department. The Department does not assume responsibility for representation made by its officers or agents before the execution of the contract concerning surface or subsurface conditions, unless that representation is expressly stated in the contract.

No conclusions or interpretations made by a bidder or contractor from the information and data made available by the Department will relieve a bidder or contractor from properly fulfilling the terms of the contract.

#### **1-1.04 PROPOSAL FORMS**

The Department will furnish to each bidder a standard proposal form, which, when filled out and executed may be submitted as that bidder's bid. Bids not presented on forms so furnished, and copies or facsimiles of the bidder's completed and executed proposal forms submitted as a bid will be rejected.

The proposal form is bound together with the contract in a book entitled "Proposal and Contract." The proposal shall set forth the bid price, in clearly legible figures, in the space provided, and shall be signed by the bidder, who shall fill out all blanks in the proposal form as therein required.

The proposal shall be submitted as directed in the "Notice to Contractors" under sealed cover plainly marked as a proposal, and identifying the project to which the proposal relates and the date of the bid opening therefor. Proposals which are not properly marked may be disregarded.

All proposal forms other than for "District Opening" projects shall be obtained from the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, California 95814, or as otherwise designated in the "Notice to Contractor."

Proposals for "District Opening" projects shall be made on forms obtained from the District Director of Transportation in whose district the work is to be performed, but in all other respects the provisions in this Section 1-1.04 shall apply.

#### **1-1.05 REQUIRED LISTING OF PROPOSED SUBCONTRACTORS**

Each proposal shall have listed therein the name and address of each subcontractor to whom the bidder proposes to subcontract portions of the work in an amount in excess of one-half of one percent of the total bid, in conformance with the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100 of the Public Contract Code. The bidder's attention is invited to other provisions of the Act related to the imposition of penalties for a failure to observe its provisions by using unauthorized subcontractors or by making unauthorized substitutions.

A sheet for listing the subcontractors, as required herein, is included in the "Proposal and Contract" book.

#### **1-1.06 STATE EMPLOYEES AND DESIGN ENGINEERS MAY NOT BID ON CONSTRUCTION CONTRACTS**

No employee of the State shall be eligible to submit a proposal for, nor to subcontract for any portion of, nor to supply any materials for any contract administered by the Department.

No engineering or architectural firm which has provided design services for a project shall be eligible to submit a proposal for the contract to construct the project nor to subcontract for any portion of the work. The ineligible firms include the prime contractor for design, subcontractors of portions of the design, and affiliates of either. An affiliate is a firm which is subject to the control of the same persons, through joint ownership or otherwise.

#### **1-1.07 PREVIOUS DISQUALIFICATION, REMOVAL OR OTHER PREVENTION OF BIDDING**

Pursuant to Section 10162 of the Public Contract Code the bidder shall complete, under penalty of perjury, the questionnaire in the Proposal relating to previous disqualification, removal or other prevention of bidding of the bidder, or officers or employees of the bidder because of violation of law or a safety regulation.

A bid may be rejected on the basis of a bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, having been disqualified, removed, or otherwise prevented from bidding on, or completing a Federal, State, or local project because of a violation of law or a safety regulation.

#### **1-1.08 PROPOSAL GUARANTY**

All bids shall be presented under sealed cover and accompanied by one of the following forms of bidder's security:

Cash, a cashier's check, a certified check, or a bidder's bond executed by an admitted surety insurer, made payable to the Department.

The security shall be in an amount equal to at least 10 percent of the amount bid. A bid will not be considered unless one of the forms of bidder's security is enclosed with it.

The bidder's bond shall conform to the bond form in the book entitled "Proposal and Contract" for the project and shall be properly filled out and executed. The bidder's bond form included in that book may be used. Upon request, "Bidder's Bond" forms may be obtained from the Department of Transportation.

#### **1-1.09 COMPLIANCE WITH ORDERS OF THE NATIONAL LABOR RELATIONS BOARD**

Pursuant to Public Contract Code Section 10232, the Contractor shall swear by a statement, under penalty of perjury, that no more than one final, unappealable finding of contempt of court by a Federal court has been issued against the Contractor within the immediately preceding 2-year period because of the Contractor's failure to comply with an order of a Federal court which orders the Contractor to comply with an order of the National Labor Relations Board. For purposes of Section 10232 a finding of contempt does not include any finding which has been vacated, dismissed, or otherwise removed by the court because the Contractor has complied with the order which was the basis for the finding. The State may rescind any contract in which the Contractor falsely swears to the truth of the statement required by Section 10232.

The statement required by Public Contract Code Section 10232 is on the page preceding the signature page of the Proposal.

#### **1-1.10 WITHDRAWAL OF PROPOSALS**

Any bid may be withdrawn at any time prior to the date and time fixed for the opening of bids only by written request for the withdrawal of the bid filed at the location at which the bid was received by the Department. The request shall be executed by the bidder or the bidder's duly authorized representative. The withdrawal of a bid does not prejudice the right of the bidder to file a new bid. Whether or not bids are opened exactly at the time fixed for opening bids, a bid will not be received after that time, nor may any bid be withdrawn after the time fixed for the opening of bids.

#### **1-1.11 PUBLIC OPENING OF PROPOSALS**

Proposals will be opened and read publicly at the time and place indicated in the Notice to Contractors. Bidders or their authorized agents are invited to be present.

#### **1-1.12 REJECTION OF PROPOSALS**

Proposals may be rejected if they have been transferred to another bidder, or if they show any alterations of form, additions not called for, conditional bids, incomplete bids, erasures, or irregularities of any kind.

When proposals are signed by an agent, other than the officer or officers of a corporation authorized to sign contracts on its behalf or a member of a partnership, a "Power of Attorney" must be on file with the Department prior to opening bids or shall be submitted with the proposal; otherwise, the proposal may be rejected as irregular and unauthorized.

#### **1-1.13 COMPETITIVE BIDDING**

If more than one proposal be offered by any individual, firm, copartnership, corporation, association, or any combination thereof, under the same or different names, all of those proposals may be rejected. A party who has quoted prices on materials or work to a bidder is not thereby disqualified from quoting prices to other bidders, or from submitting a bid directly for the materials or work.

All bidders are put on notice that any collusive agreement to control or affect the awarding of this contract is in violation of the competitive bidding requirements of the State Contract Act and the Business and Professions Code and may render void any contract let under those circumstances.

#### **1-1.14 RELIEF OF BIDDERS**

Attention is directed to the provisions of Public Contract Code Sections 5100 to 5107, inclusive, concerning relief of bidders and in particular to the requirement therein, that if the bidder claims a mistake was made in the bid presented, the bidder shall give the Department written notice within 5 days after the opening of the bids of the alleged mistake, specifying in the notice in detail how the mistake occurred.

#### **1-1.15 INELIGIBILITY TO CONTRACT**

Public Contract Code Section 10285.1 provides as follows:

Any State agency may suspend, for a period of up to three years from the date of conviction, any person from bidding upon, or being awarded, a public works or services contract with the agency under this part or from being a subcontractor at any tier upon the contract, if that person, or any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, has been convicted by a court of competent jurisdiction of any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any State or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Section 1101, with any public entity, as defined in Section 1100, including, for the purposes of this article, the Regents of the University of California or the Trustees of the California State University. A State agency may determine the eligibility of any person to enter into a contract under this article by requiring the person to submit a statement under penalty of perjury declaring that neither the person nor any subcontractor to be engaged by the person has been convicted of any of the offenses referred to in this section within the preceding three years.

A form for the statement required by Section 10285.1 is included in the Proposal.

## **SECTION 2**

### **AWARD AND EXECUTION OF CONTRACT**

#### **2-1.01 AWARD OF CONTRACT**

The right is reserved to reject any and all proposals. The award of the contract, if it be awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed. The award, if made, will be made within 30 days after the opening of the proposals. This period will be subject to extension for any further period as may be agreed upon in writing between the Department and the bidder concerned.

#### **2-1.02 RETURN OF PROPOSAL GUARANTIES**

The proposal guaranties accompanying the proposals of the first, second and third lowest responsible bidders will be retained until the contract has been finally executed, after which all those proposal guaranties, except bidders' bonds and any guaranties which have been forfeited, will be returned to the respective bidders whose proposals they accompany. The proposal guaranties, other than bidder's bonds, submitted by all other unsuccessful bidders will be returned upon determination, by the Department, of the first, second and third lowest responsible bidders.

#### **2-1.03 CONTRACT BONDS**

The successful bidder shall furnish the 2 bonds required by the State Contract Act. One bond shall secure the payment of the claims of laborers, mechanics or materialmen employed on the work under the contract and the other bond shall guarantee the faithful performance of the contract. The bond forms will be furnished to the successful bidder by the Department.

Except as otherwise provided in Section 3248 of the Civil Code and Section 30154 of the Streets and Highways Code, the payment bond shall be in a sum equal to the contract price and the performance bond shall be in a sum equal to at least one-half of the contract price.

All alterations, extensions of time, extra and additional work, and other changes authorized by the General Conditions, the special provisions or any part of the contract may be made without securing the consent of the surety or sureties on the contract bonds.

#### **2-1.04 INSURANCE POLICIES**

The successful bidder shall submit:

1. Copy of its commercial general liability policy and its excess policy or binder until such time as a policy is available, including the declarations page, applicable endorsements, riders, and other modifications in effect at the time of contract execution. Standard ISO form No. CG 0001 or similar exclusions are allowed if not inconsistent with Section 5-1.03, "Indemnification and Insurance." Allowance of additional exclusions is at the discretion of the Department.
2. Certificate of insurance showing all other required coverages. Certificates of insurance, as evidence of required insurance for the auto liability and any other required policy, shall set forth deductible amounts applicable to each policy and all exclusions that are added by endorsement to each policy. The evidence of insurance shall provide that no cancellation, lapse, or reduction of coverage will occur without 10 days prior written notice to the Department.

3. A declaration under the penalty of perjury by a certified public accountant certifying the accountant has applied Generally Accepted Accounting Principles (GAAP) guidelines confirming the successful bidder has sufficient funds and resources to cover any self-insured retentions if the self-insured retention is \$50,000 or higher.

If the successful bidder uses any form of self-insurance for workers compensation in lieu of an insurance policy, it shall submit a certificate of consent to self-insure in accordance with the provisions of Section 3700 of the Labor Code.

#### **2-1.05 EXECUTION OF CONTRACT**

The contract shall be signed by the successful bidder and returned, together with the contract bonds and the documents identified in Section 2-1.04, "Insurance Policies," within 10 business days of receiving the contract for execution.

#### **2-1.06 FAILURE TO EXECUTE CONTRACT**

Failure of the lowest responsible bidder, the second lowest responsible bidder, or the third lowest responsible bidder to execute the contract as required in Section 2-1.05, "Execution of Contract," within 10 business days of receiving the contract for execution shall be just cause for the forfeiture of the proposal guaranty. The successful bidder may file with the Department a written notice, signed by the bidder or the bidder's authorized representative, specifying that the bidder will refuse to execute the contract if it is presented. The filing of this notice shall have the same force and effect as the failure of the bidder to execute the contract and furnish acceptable bonds within the time specified.

#### **2-1.07 RETURN OF PROPOSAL GUARANTIES**

The Department keeps the proposal guaranties of the 1st, 2nd and 3rd lowest responsible bidders until the contract has been executed. The other bidders' guaranties, other than bidders' bonds, are returned upon determination of the 1st, 2nd, and 3rd apparent lowest bidders, and their bidders' bonds are of no further effect.

### **GENERAL CONDITIONS**

#### **SECTION 1**

#### **DEFINITIONS AND TERMS**

##### **1-1.01 GENERAL**

Unless the context otherwise requires, wherever in the specifications and other contract documents the following abbreviations and terms, or pronouns in place of them, appear in the contract documents, the intent and meaning shall be interpreted as provided in this Section 1.

Working titles having a masculine gender, such as "workman" and "journeyman" and pronouns, such as "he" and "himself", are utilized in these General Conditions, the Instructions to Bidders and the special provisions for the sake of brevity, and are intended to refer to persons of either gender.

The Department is gradually changing the style and language of the specifications. The new style and language includes:

1. Use of:
  - 1.1. Imperative mood
  - 1.2. Introductory modifiers
  - 1.3. Conditional clauses
2. Elimination of:
  - 2.1. Language variations
  - 2.2. Definitions for industry-standard terms
  - 2.3. Redundant specifications
  - 2.4. Needless cross-references

The use of this new style does not change the meaning of a specification not yet using this style.

The specifications are written to the Bidder before award and the Contractor after. Before award, interpret sentences written in the imperative mood as starting with "The Bidder must" and interpret "you" as "the Bidder" and "your" as "the Bidder's." After award, interpret sentences written in the imperative mood as starting with "The Contractor must" and interpret "you" as "the Contractor" and "your" as "the Contractor's."

Unless an object or activity is specified to be less than the total, the quantity or amount is all of the object or activity.

All items in a list apply unless the items are specified as choices.

Interpret terms as defined in the Contract documents. A term not defined in the Contract documents has the meaning defined in Means Illustrated Construction Dictionary, Condensed Version, Second Edition.

#### **1-1.02 ACCEPTANCE**

The formal written acceptance by the Director of Transportation of an entire contract which has been completed in all respects in conformance with the contract documents and any modifications thereof previously approved.

#### **1-1.03 ADDENDUM**

A document or written communication issued by the Department during the bidding period which modifies, supersedes, or supplements the original contract documents.

#### **1-1.04 BIDDER**

Any individual, firm, partnership, corporation, or combination thereof, submitting a proposal for the work contemplated, acting directly, or through a duly authorized representative.

#### **1-1.05 BUSINESS DAY**

Day on the calendar except Saturday or holiday.

#### **1-1.06 CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES**

The California Manual on Uniform Traffic Control Devices for Streets and Highways (California MUTCD) is issued by the Department of Transportation and is the Federal Highway Administration's MUTCD 2003 Edition, as amended for use in California. Part 6 of the California MUTCD, "Temporary Traffic Control," supersedes the Department's Manual of Traffic Controls.

#### **1-1.07 CONTRACT**

The written agreement covering the performance of the work and the furnishing of labor, materials, tools and equipment in the construction of the work. The contract shall include the notice to contractors, Instructions to Bidders, proposal, plans, General Conditions, special provisions and contract bonds; also any and all supplemental agreements amending or extending the work contemplated and which may be required to complete the work in a substantial and acceptable manner. Supplementary agreements are written agreements covering alterations, amendments, or extensions to the contract and include contract change orders.

#### **1-1.08 CONTRACTOR**

The person or persons, firm, partnership, corporation, or combination thereof, private or municipal, who have entered into a contract with the Department of Transportation, as party or parties of the second part or their legal representatives.

#### **1-1.09 DAYS**

Unless otherwise designated, days as used in the contract documents will be understood to mean calendar days.

#### **1-1.10 DEDUCTION**

Amount of money permanently taken from progress payment and final payment. Deductions are cumulative and are not retentions under Pub Cont Code § 7107.

#### **1-1.11 DEPARTMENT**

The Department of Transportation of the State of California, as created by law.

### **1-1.12 DIRECTOR**

The executive officer of the Department of Transportation, as created by law.

### **1-1.13 ENGINEER**

The Chief Engineer, Department of Transportation, acting either directly or through properly authorized agents, the agents acting within the scope of the particular duties delegated to them.

### **1-1.14 FEDERAL-AID CONTRACT**

Contract that has a Federal-aid project number on the cover of the Notice to Contractors, Instruction to Bidders and General Conditions and Special Provisions.

### **1-1.15 GENERAL NOTES**

The written instructions, provisions, conditions or other requirements appearing on the plans, and so identified thereon, which pertain to the performance of the work.

### **1-1.16 HOLIDAY**

1. Every Sunday
2. January 1st, New Year's Day
3. 3rd Monday in January, Birthday of Martin Luther King, Jr.
4. February 12th, Lincoln's Birthday
5. 3rd Monday in February, Washington's Birthday
6. March 31st, Cesar Chavez Day
7. Last Monday in May, Memorial Day
8. July 4th, Independence Day
9. 1st Monday in September, Labor Day
10. 2nd Monday in October, Columbus Day
11. November 11th, Veterans Day
12. 4th Thursday in November, Thanksgiving Day
13. Day after Thanksgiving Day
14. December 25th, Christmas Day

• If January 1st, February 12th, March 31st, July 4th, November 11th, or December 25th falls on a Sunday, the Monday following is a holiday. If November 11th falls on a Saturday, the preceding Friday is a holiday. Interpret "legal holiday" as "holiday."

### **1-1.17 LABORATORY**

The Division of Engineering Services - Materials Engineering and Testing Services and the Division of Engineering Services - Geotechnical Services of the Department of Transportation, or established laboratories of the various Districts of the Department, or other laboratories authorized by the Department to test materials and work involved in the contract. When a reference is made in the specifications to the "Transportation Laboratory," the reference shall mean the Division of Engineering Services - Materials Engineering and Testing Services and the Division of Engineering Services - Geotechnical Services, located at 5900 Folsom Boulevard, Sacramento, CA 95819, Telephone (916) 227-7000.

### **1-1.18 LIQUIDATED DAMAGES**

The amount prescribed in the special provisions, pursuant to the authority of Public Contract Code Section 10226, to be paid to the State or to be deducted from any payments due or to become due the Contractor for each day's delay in completing the whole or any specified portion of the work beyond the time allowed in the special provisions.

### **1-1.19 OFFICES OF STRUCTURE DESIGN**

The Offices of Structure Design of the Department of Transportation. When the specifications require working drawings to be submitted to the Offices of Structure Design, the drawings shall be submitted to: Offices of Structure Design, Documents Unit, Mail Station 9-4/4I, 1801 30th Street, Sacramento, CA 95816, Telephone (916) 227-8252.

### **1-1.20 PLANS**

The official drawings including plans, elevations, sections, detail drawings, diagrams, plates, general notes, information and schedules thereon, or exact reproductions thereof, approved by the Engineer, which show the location, character, dimensions and details of the work to be performed. The plans include any drawings or plates bound within the special provisions.

### **1-1.21 PREMISES**

The area of State-owned property which surrounds the work site, limited by the property lines thereof. In some cases the premises may coincide with the work site.

### **1-1.22 PROPOSAL**

The offer of the bidder for the work when made out and submitted on the prescribed proposal form, properly signed and guaranteed.

### **1-1.23 PROPOSAL FORM**

The approved form upon which the Department of Transportation requires formal bids be prepared and submitted for the work.

### **1-1.24 PROPOSAL GUARANTY**

The cash, cashier's check, certified check, or bidder's bond accompanying the proposal submitted by the bidder, as a guaranty that the bidder will enter into a contract with the Department of Transportation for the performance of the work if the contract is awarded to the bidder.

### **1-1.25 SPECIAL PROVISIONS**

The special provisions are specific clauses setting forth conditions or requirements of the work and supplementary to these General Conditions and the Instructions to Bidders. The Department of Transportation publication entitled Labor Surcharge And Equipment Rental Rates is to be considered as a part of the special provisions.

### **1-1.26 STATE**

The State of California, including its agencies, departments, or divisions, whose conduct or action is related to the work.

### **1-1.27 STATE CONTRACT ACT**

An act to regulate contracts for the erection, construction, alteration, repair or improvement of any state structure, building, road, or other State improvements of any kind, to be found in Chapter 1, Division 2 of the Public Contract Code.

### **1-1.28 WITHHOLD**

Money temporarily or permanently taken from progress payment. Withholds are cumulative and are not retentions under Pub Cont Code § 7107.

### **1-1.29 WORK**

The furnishing of all labor, and the furnishing and installing of all materials, articles, supplies and equipment as specified, designated, or required by the contract.

### **1-1.30 WORK SITE**

The area of actual construction and the areas immediately adjacent thereto.

### **1-1.31 ABBREVIATIONS**

AAMA	Architectural Aluminum Manufacturers' Association
AAN	American Association of Nurserymen
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association

AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Movement and Control Association
ANSI	American National Standards Institute
APA	American Plywood Association
APHA	American Public Health Association
API	American Petroleum Institute.
AREMA	American Railway Engineering and Maintenance-of-Way Association
ARI	American Refrigeration Institute
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWG	American Wire Gage
AWPA	American Wood Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
CBC	California Building Code
CEC	California Electrical Code
CMC	California Mechanical Code
CPC	California Plumbing Code
CS	Commercial Standards (US Department of Commerce)
EIA	Electronic Industries Association
ESO	Electrical Safety Orders
FGMA	Flat Glass Marketing Association
FM	Factory Mutual
FS	Federal Specification
IEEE	Institute of Electrical and Electronics Engineers
ICBO	International Conference of Building Officials
NAAMM	National Association of Architectural Metal Manufacturers
NBFU	National Board Fire Underwriters
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NFPA	National Fire Protection Association
NPCA	National Precast Concrete Association
PEI	Porcelain Enamel Institute
PS	Product Standard (US Department of Commerce)
RIS	Redwood Inspection Service
SCPI	Structural Clay Products Institute
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SSPC	The Society for Protective Coatings
TCA	Tile Council of America
TPI	Truss Plate Institute
UBC	Uniform Building Code
UL	Underwriters' Laboratory
UPC	Uniform Plumbing Code
WCLB	Grade Stamp for WCLIB
WCLIB	West Coast Lumber Inspection Bureau (Grade Stamped WCLB)
WIC	Woodwork Institute of California
WWPA	Western Wood Products' Association

### **Units of Measurement**

Some of the symbols for units of measurement used in the specifications are defined as follows. The symbols for other units of measurement used in the specifications are as defined in ASTM Designation: E-380, or in the various specifications and test referenced in the specifications.

Symbols as used in the Specifications	Definitions
A	amperes
feet	feet
g	gram
kg	kilogram
ha	hectare (10 000 m <sup>2</sup> )
h	hour
J	joule
ksi	kips per square inch
L	liter
m	meter
km	kilometer
mm	millimeter
μm	micrometer
nm	nanometer
m <sup>2</sup>	square meter
m <sup>3</sup>	cubic meter
N	newton
N·m	newton meter
Ω	ohm
pcf	pounds per cubic foot
Pa	pascal
kPa	kilopascal
MPa	megapascal
s	second
ton	2,000 pounds
tonne	metric ton (1000 kg)
W	watt
V	volt

## SECTION 2

### CONTROL AND SCOPE OF THE WORK

#### 2-1.005 General

Failure to comply with any specification part is a breach of the contract and a waiver of your right to time or payment adjustment.

After contract approval, submit documents and direct questions to the Engineer. Orders, approvals, and requests to the Contractor are by the Engineer.

The Engineer furnishes the following in writing:

1. Approvals
2. Notifications
3. Orders

The Contractor must furnish the following in writing:

1. Assignments
2. Notifications
3. Proposals

4. Requests, sequentially numbered
5. Subcontracts
6. Test results

The Department rejects a form if it has any error or any omission.

Convert foreign language documents to English.

Use contract administration forms available at the Department's Web site.

If the last day for submitting a document falls on a Saturday or holiday, it may be submitted on the next business day with the same effect as if it had been submitted on the day specified.

#### **2-1.015 RECORD RETENTION, INSPECTION, COPYING, AND AUDITING**

Retain project records and make them available for inspection, copying, and auditing by State representatives from bid preparation through:

1. Final payment
2. Resolution of claims, if any

For at least 3 years after the later of these, retain and make available for inspection, copying, and auditing cost records by State representatives including:

1. Records pertaining to bid preparation
2. Overhead
3. Payroll records and certified payroll
4. Payments to suppliers and subcontractors
5. Cost accounting records
6. Records of subcontractors and suppliers

Maintain the records in an organized way in the original format, electronic and hard copy, conducive to professional review and audit.

Before contract acceptance, the State representative notifies the Contractor, subcontractor, or supplier 5 days before inspection, copying, or auditing.

If an audit is to start more than 30 days after contract acceptance, the State representative notifies the Contractor, subcontractor, or supplier when the audit is to start.

#### **2-1.01 AUTHORITY OF ENGINEER**

The Engineer shall decide all questions which may arise as to the quality or acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of the work; all questions which may arise as to the interpretation of the plans and special provisions; all questions as to the acceptable fulfillment of the contract on the part of the Contractor; and all questions as to compensation. The Engineer's decision shall be final, and the Engineer shall have authority to enforce and make effective those decisions and orders which the Contractor fails to carry out promptly. Failure to enforce a contract provision does not waive enforcement of any contract provision.

#### **2-1.02 INTENT OF PLANS AND SPECIAL PROVISIONS**

The intent of the plans and special provisions is to prescribe the details for the construction and completion of the work which the Contractor undertakes to perform in conformance with the terms of the contract. Where the plans or special provisions describe portions of the work in general terms, but not in complete detail, it is understood that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used. Unless otherwise specified, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals, and do all the work involved in executing the contract in a satisfactory and workmanlike manner. Nothing in the specifications voids the Contractor's public safety responsibilities.

#### **2-1.03 CONTRACT COMPONENTS**

A component in one contract part applies as if appearing in each. The parts are complementary and describe and provide for a complete work.

If a discrepancy exists:

1. The governing ranking of contract parts in descending order is:
  - 1.1. Special provisions
  - 1.2. Project drawings
  - 1.3. Amendments to the Instructions to Bidders and to the General Conditions
  - 1.4. Instructions to Bidders and General Conditions
  - 1.5. Project information
2. Written numbers and notes on a drawing govern over graphics
3. A detail drawing governs over a general drawing
4. A detail specification governs over a general specification
5. A specification in a section governs over a specification referenced by that section

If a discrepancy is found or confusion arises, request correction or clarification.

#### **2-1.04 SHOP DRAWINGS, DESCRIPTIVE DATA, SAMPLES, AND ALTERNATIVES**

It shall be the Contractor's responsibility to submit, so as to cause no delay in the work, all shop drawings, descriptive data, samples for the various trades as required by the special provisions, and offers of alternatives, if any. The submittals shall be checked and coordinated by the Contractor with the work of other trades involved before they are submitted to the Engineer for examination.

Submittals shall be delivered to the locations indicated in the special provisions.

Work requiring the submittal of shop drawings, descriptive data or samples shall not begin prior to approval of that submittal by the Engineer. Fifteen working days shall be allowed for approval or return for correction of each submittal or resubmittal. Approval of submittals shall not operate to waive any of the requirements of the plans and specifications or relieve the Contractor of any obligation thereunder, and defective work, materials and equipment may be rejected notwithstanding the approval of that submittal. Should the Engineer fail to complete his review within the time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in review, an extension of time commensurate with the delay in completion of the work thus caused will be granted pursuant to the provisions in Section 6-1.08, "Liquidated Damages," of these General Conditions, and no additional compensation will be allowed for the delay.

Submittals shall be made by a letter of transmittal which shall contain a list of all matter submitted and identification of all variations from the plans and special provisions contained in the submittal. The letter and all items accompanying the same shall be fully identified as to project name and location, Contractor's name, district, county, and contract number, with ample cross references to the contract documents, to facilitate identification of items and their location in the work. Additional specific requirements shall be as follows:

##### **Shop Drawings**

The Contractor shall submit at least 5 copies of all shop drawings required by the special provisions. Two copies will be returned to the Contractor either approved for use or returned for correction and resubmittal. Shop drawings include any drawing which requires execution by a draftsman as distinguished from printed matter. The size of shop drawings shall be 22 inches x 34 inches (559 mm x 864 mm) or 11 inches x 17 inches (279 mm x 432 mm) in size.

##### **Descriptive Data**

The Contractor shall submit 5 copies of each set of manufacturer's brochures or other data required by the special provisions. The State will examine the submittals and return 2 copies either approved for use or returned for correction and resubmittal.

##### **Samples**

The Contractor shall submit samples of articles, materials or equipment as required by the special provisions. The work shall be in conformance with the approved samples. Samples shall be removed from State property when directed or may be incorporated in the work if approved by the Engineer. Samples not removed by the Contractor will become the property of the State or, at the State's option, will be removed or disposed of by the State at the Contractor's expense.

## **Alternatives**

A reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. You may use a product that is equal to or better than the specified brand or trade name if approved.

Submit a substitution request within a time period that:

1. Follows Contract award
2. Allows 30 days for review
3. Causes no delay

Include substantiating data with the substitution request that proves the substitution:

1. Is of equal or better quality and suitability
2. Causes no delay in product delivery and installation

Approval of submittals by the Engineer shall not relieve the Contractor from responsibility for the successful completion of the work, nor shall it relieve the Contractor from responsibility for errors in the submittals. A failure by the Contractor to identify in the letter of transmittal, material deviations from the plans or specifications shall void the submittal and any action taken thereon by the Engineer. When specifically requested by the Engineer, the Contractor shall resubmit the shop drawings, descriptive data and samples as may be required.

If any mechanical, electrical, structural, or other changes are required for the proper installation and fit of alternative materials, articles, or equipment, or because of deviations from the contract plans and special provisions, the changes shall not be made without the approval of the Engineer and shall be made without additional cost to the State.

## **2-1.05 DIFFERING SITE CONDITIONS (23 CFR 635.109)**

### **2-1.051 Contractor's Notification**

- Promptly notify the Engineer if you find either of the following:
  1. Physical conditions differing materially from either of the following:
    - 1.1. Contract documents
    - 1.2. Job site examination
  2. Physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract
- Include details explaining the information you relied on and the material differences you discovered.
- If you fail to notify the Engineer promptly, you waive the differing site condition claim for the period between your discovery of the differing site condition and your notification to the Engineer.
- If you disturb the site after discovery and before the Engineer's investigation, you waive the differing site condition claim.

### **2-1.052 Engineer's Investigation and Decision**

- Upon your notification, the Engineer investigates job site conditions and:
  1. Notifies you whether to resume affected work
  2. Decides whether the condition differs materially and is cause for an adjustment of time, payment, or both

### **2-1.053 Protests**

- You may protest the Engineer's decision by:
  1. Submitting an Initial Notice of Potential Claim within 5 business days after receipt of the Engineer's notification
  2. Complying with claim procedures

- The Initial Notice of Potential Claim must detail the differences in your position from the Engineer's determination and support your position with additional information, including additional geotechnical data. Attach to the Initial Notice of Potential Claim a certification stating that you complied with Section 1-1.03, "Examination of Plans, Special Provisions and Site of the Work," of the Instructions to Bidders.
- Promptly submit supplementary information when obtained.

#### **2-1.06 PRESERVATION AND CLEANING**

The Contractor shall clean up the work at frequent intervals and at other times when directed by the Engineer. While finish work is being accomplished, floors shall be kept clean, free of dust, construction debris and trash. Upon completion of the work, the Contractor shall remove from the premises the Contractor's construction equipment and any waste materials not previously disposed of, leaving the premises thoroughly clean and ready for final inspection.

#### **2-1.07 LIMITATIONS ON WORK SITE AND PREMISES**

The Contractor shall limit the Contractor's construction operations to the work site unless otherwise shown on the plans or specified. The Contractor shall perform no operations of any nature over or on the premises except those operations as are authorized by the plans or special provisions, or as authorized by the Engineer.

#### **2-1.08 SUPERINTENDENCE**

The Contractor shall designate in writing before starting work, an authorized representative who shall have the authority to represent and act for the Contractor.

When the Contractor is comprised of 2 or more persons, firms, partnerships, or corporations functioning on a joint venture basis, the Contractor shall designate in writing before starting work, the name of one authorized representative who shall have the authority to represent and act for the Contractor.

The authorized representative shall be present at the site of the work at all times while work is actually in progress on the contract. When work is not in progress and during periods when work is suspended, arrangements acceptable to the Engineer shall be made for any emergency work which may be required.

Whenever the Contractor or the Contractor's authorized representative is not present on any particular part of the work where it may be desired to give direction, orders will be given by the Engineer, which shall be received and obeyed by the superintendent or foreman who may have charge of the particular work in reference to which the orders are given.

Any order given by the Engineer, not otherwise required by the specifications to be in writing, will on request of the Contractor, be given or confirmed by the Engineer in writing.

#### **2-1.09 CHARACTER OF WORKMEN**

If any subcontractor or person employed by the Contractor shall appear to the Engineer to be incompetent or to act in a disorderly or improper manner, they shall be discharged immediately on the request of the Engineer, and that person shall not again be employed on the work.

#### **2-1.10 INSPECTION**

The Contractor shall at all times permit the Engineer and the Engineer's authorized agents to inspect the work or any part thereof. The Contractor shall maintain proper facilities and provide safe access for inspection by the Engineer to all parts of the work, and to the shops where the work is in preparation. Work shall not be covered up until authorized by the Engineer and the Contractor shall be solely responsible for notifying the Engineer where and when the work is in readiness for inspection and testing. Should any work be covered without authorization, it shall, if so ordered, be uncovered at the Contractor's expense.

Whenever the Contractor intends to perform work on Saturday or holiday, the Contractor shall give notice to the Engineer of the Contractor's intention 48 hours prior to performing that work, or a longer period as may be specified so that the Engineer may make necessary arrangements.

#### **2-1.11 FINAL INSPECTION**

When the work has been completed, the Engineer will make the final inspection.

#### **2-1.12 REMOVAL OF REJECTED AND UNAUTHORIZED WORK**

All work which has been rejected shall be remedied, or removed and replaced by the Contractor in a manner acceptable to the Engineer and no compensation will be allowed to the Contractor for the removal, replacement, or remedial work.

Any work done beyond the lines shown on the plans or established by the Engineer, or any work done without written authority will be considered as unauthorized work and will not be paid for. Upon order of the Engineer, unauthorized work shall be remedied, removed, or replaced at the Contractor's expense.

Upon failure of the Contractor to comply promptly with any order of the Engineer made under this Section 2-1.12, the Department may cause rejected or unauthorized work to be remedied, removed, or replaced, and the costs thereof will be deducted from any moneys due or to become due the Contractor.

### **2-1.13 COST REDUCTION INCENTIVE**

The Contractor may submit to the Engineer, in writing, proposals for modifying the plans, special provisions or other requirements of the contract for the sole purpose of reducing the total cost of construction. The cost reduction proposal shall not impair, in any manner, the essential functions or characteristics of the project, including but not limited to service life, economy of operation, ease of maintenance, desired appearance, or design and safety standards.

Prior to preparing a cost reduction proposal, the Contractor shall request a meeting with the Engineer to discuss the proposal in concept and to determine the merit of the cost reduction proposal. Items of discussion will also include permit issues, impact on other projects, impact on the project schedule, peer reviews, and review times required by the Department and other agencies.

Cost reduction proposals shall contain the following information:

1. A description of both the existing contract requirements for performing the work and the proposed changes.
2. An itemization of the contract requirements that must be changed if the proposal is adopted.
3. A detailed estimate of the cost of performing the work under the existing contract and under the proposed change. The estimates of cost shall be determined in the same manner as if the work were to be paid for as a change in the work as provided in Section 3, "Changes in the Work," of these General Conditions.
4. A statement of the time within which the Engineer must make a decision thereon.
5. The contract work affected by the proposed changes, including any quantity variation attributable thereto.

The provisions of this Section 2-1.13 shall not be construed to require the Engineer to consider any cost reduction proposal which may be submitted hereunder; proposed changes in basic design will not be considered as an acceptable cost reduction proposal; and the Department will not be liable to the Contractor for failure to accept or act upon any cost reduction proposal submitted pursuant to this section nor for any delays to the work attributable to any cost reduction proposal. If a cost reduction proposal is similar to a change in the plans or special provisions, under consideration by the Department for the project, at the time the proposal is submitted or if the proposal is based upon or similar to standard special provisions adopted by the Department after the advertisement for the contract, the Engineer will not accept the proposal, and the Department reserves the right to make the changes without compensation to the Contractor under the provisions of this section.

The Contractor shall continue to perform the work in conformance with the requirements of the contract until an executed change order, incorporating the cost reduction proposal has been issued. If an executed change order has not been issued by the date upon which the Contractor's cost reduction proposal specifies that a decision thereon should be made, or such other date as the Contractor may subsequently have specified in writing, the cost reduction proposal shall be deemed rejected.

The Engineer shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings in construction costs from the adoption of all or any part of the proposal. In determining the estimated net savings, the right is reserved to disregard the schedules of values if, in the judgment of the Engineer, the schedule does not represent a fair measure of the value of work to be performed or to be deleted.

The Department reserves the right where it deems action is appropriate, to require the Contractor to share in the Department's costs of investigating a cost reduction proposal submitted by the Contractor as a condition of considering the proposal. Where this condition is imposed, the Contractor shall indicate acceptance thereof in writing, and that acceptance shall constitute full authority for the Department to deduct amounts payable to the Department from any moneys due or that may become due to the Contractor under the contract.

If the Contractor's cost reduction proposal is accepted in whole or in part the acceptance will be by a contract change order, which shall specifically state that it is executed pursuant to this Section 2-1.13. The change order shall incorporate the changes in the plans and special provisions which are necessary to permit the cost reduction proposal or that part of it as has been accepted to be put into effect, and shall include any conditions upon which the Department's approval thereof is based if the approval of the Department is conditional. The change order shall also set forth the estimated net savings in construction costs attributable to the cost reduction proposal effectuated by the change order, and shall further provide that the Contractor

be paid 50 percent of that estimated net savings amount. The Contractor's cost of preparing the cost reduction incentive proposal and the Department's costs of investigating a cost reduction incentive proposal, including any portion thereof paid by the Contractor, shall be excluded from consideration in determining the estimated net savings in construction costs.

If a cost reduction proposal submitted by the Contractor, and subsequently approved by the Engineer, provides for a reduction in contract time, 50 percent of that contract time reduction shall be credited to the State by reducing the contract working days. Attention is directed to "Beginning of Work, Time of Completion and Liquidated Damages" of these special provisions regarding the working days.

Acceptance of the cost reduction proposal and performance of the work thereunder shall not extend the time of completion of the contract unless specifically provided for in the contract change order authorizing the use of the cost reduction proposal.

The amount specified to be paid to the Contractor in the change order which effectuates a cost reduction proposal shall constitute full compensation to the Contractor for the cost reduction proposal and the performance of the work thereof pursuant to the change order.

The Department expressly reserves the right to adopt a cost reduction proposal for general use on contracts administered by the Department when it determines that the proposal is suitable for application to other contracts. When an accepted cost reduction proposal is adopted for general use, only the Contractor who first submitted that proposal will be eligible for compensation pursuant to this section, and in that case, only as to those contracts awarded to that Contractor prior to submission of the accepted cost reduction proposal and as to which the cost reduction proposal is also submitted and accepted. Cost reduction proposals identical or similar to previously submitted proposals will be eligible for consideration and compensation under the provisions of this Section 2-1.13 if the identical or similar previously submitted proposals were not adopted for general application to other contracts administered by the Department. Subject to the provisions contained herein, the State or any other public agency shall have the right to use all or any part of any submitted cost reduction proposal without obligation or compensation of any kind to the Contractor.

This Section 2-1.13 shall apply only to contracts awarded to the lowest bidder pursuant to competitive bidding.

### **SECTION 3**

#### **CHANGES IN THE WORK**

##### **3-1.01 CHANGES**

The Department reserves the right to order changes in the contract at any time prior to the acceptance of the work by the Director, and the Contractor shall comply with the ordered changes. Changes or deviations from the contract shall not be made without authority in writing from the Engineer, and changes to the work without the Engineer's written approval will be considered unauthorized work and will not be paid for.

On the basis set forth in this Section 3, the contract lump sum price will be adjusted for any ordered change which results in a change in the cost of the work.

When ordered by the Engineer, the Contractor shall halt work in the area affected by a proposed change. Whenever it appears to the Contractor that a change is necessary, the Contractor shall immediately notify the Engineer of the reasons for that change; however, work in the area affected shall not be discontinued unless ordered by the Engineer.

For any approved change in the work, the Contractor shall be entitled to an adjustment in time equal to the number of working days which completion of the entire work is delayed due to the changed work, and the State will be entitled to an adjustment in time equal to the number of working days which completion of the entire work is advanced due to the changed work. For ordinary changes, the Contractor's cost estimate for the changed work shall state the amount of extra time, if any, that the Contractor considers should be allowed for making the requested change. Failure to request additional time when submitting the estimate, or failure to submit the estimate, shall constitute a waiver of the right to later claim any adjustment in time based upon changed work. For ordinary changes which decrease the amount of work and for indeterminate type changes, an adjustment in time commensurate with the changed work will be determined by the Engineer. Disagreement as to time adjustments shall not affect contract price adjustments, nor shall it be cause for not proceeding with the changed work when ordered by the Engineer. The Contractor shall have the right, however, to further pursue a time adjustment in the event agreement is not reached.

### **3-1.01A Ordinary Changes**

The Engineer will notify the Contractor in writing of any proposed changes and describe the intended change. Within 15 days after receipt of a written request, the Contractor shall submit his proposed price to be added or deducted from the contract price due to the change. The Contractor's proposed price to be added to or deducted from the contract price shall be supported by detailed estimates of cost prepared by the Contractor. The Contractor shall also provide information to support any request for an adjustment in contract time which is directly attributable to the changed work. The Contractor shall, upon request by the Engineer, permit inspection of his original contract estimate, subcontract agreements or purchase orders relating to the change.

If agreement is reached on the adjustment in compensation as provided in Section 3-1.01C, "Agreed Cost for Changes," of these General Conditions, the Contractor shall proceed with the work at the agreed price.

If the Contractor and the Engineer fail to agree as to the adjustment in compensation for the performance of the changed work, the Contractor, upon written order from the Engineer, shall proceed immediately with the changed work and the contract price will be adjusted in conformance with the provisions in Section 3-1.01D, "Failure to Agree to the Cost of Changes," of these General Conditions.

If the Contractor fails to submit his cost estimate within the specified 15 day period, the specified period may be extended in writing by the Engineer. If the Engineer does not so extend the specified period, or if the Contractor fails to submit his cost estimate within the extended time period, the Contractor shall commence the work immediately upon receipt of written order from the Engineer and the contract price will be adjusted in conformance with the provisions in Section 3-1.01D, "Failure to Agree to the Cost of Changes," of these General Conditions.

### **3-1.01B Indeterminate Type Changes**

Changes in the work of a kind where the cost of the work cannot be determined until completed, may be authorized by the Engineer in writing. The written order shall state that it is issued pursuant to this Section 3-1.01B. Upon receipt of a written order from the Engineer, the Contractor shall proceed with the ordered work and the contract price will be adjusted in conformance with the provisions in Section 3-1.01D, "Failure to Agree to the Cost of Changes," of these General Conditions.

### **3-1.01C Agreed Cost For Changes**

If the Engineer and the Contractor agree as to the adjustment in compensation for the performance of changed work on the basis of the Contractor's proposed cost estimate of the work, the contract lump sum price will be adjusted accordingly. The adjustment in compensation shall be agreed to in writing and executed by both parties.

### **3-1.01D Failure To Agree To The Cost Of Changes**

When a proposed change order decreases the cost of the work and the Engineer and the Contractor fail to agree upon the decreased cost thereof, the Engineer's estimated decrease in cost will be deducted from the contract price. The Contractor will be allowed 15 days after receipt of a contract change order approved by the Engineer, in which to file a written protest setting forth in what respects the Contractor differs from the Engineer's estimate of decreased cost, otherwise the decision of the Engineer to deduct the Engineer's estimate of decreased cost shall be deemed to have been accepted by the Contractor as correct.

In the event the Engineer and the Contractor fail to agree on the cost of a change order which increases the cost of the work, the Engineer will maintain a daily job record containing a detailed summary of all labor, materials and equipment required by the ordered change. At the end of each day's work, the Contractor shall review the Engineer's daily job record comparing with the Contractor's own records, and after agreement is reached, the daily job record shall be signed by both the Engineer and the Contractor and shall become the basis for payment for the changed work. Upon completion of the work under the change order, the Contractor shall submit an invoice listing only those items of labor, materials and equipment that were agreed to by both the Engineer and the Contractor to be in addition to the requirements of the contract, together with allowable markups.

When there is a failure to agree as to cost, no payment for the changed work will be made to the Contractor until all work called for in the change order has been completed, except that progress payments may be made on those portions of the changed work which the Contractor and the Engineer agree as to cost.

### **3-1.01E Allowable Costs For Changes**

The only costs which will be allowed because of changed work and the manner in which these costs shall be computed are set forth in Sections 3-1.01E(1) through 3-1.01E(5) of these General Conditions. Where the term "actual cost" is used in the aforesaid sections, it shall be deemed to mean "estimated cost" where the adjustment in compensation is of a necessity based upon estimated costs.

#### **3-1.01E(1) Labor**

The Contractor will be paid an amount based on the actual cost for labor and supervision directly required for the performance of the changed work, including payments, assessment of benefits required by lawful labor union collective bargaining agreements; compensation insurance payments; contributions made to the State pursuant to the Unemployment Insurance Code, and for taxes paid to the Federal Government pursuant to the Social Security Act of August 14, 1935, as amended. No labor cost will be recognized at a rate in excess of the wages prevailing in the locality at the time the work is performed, nor will the use of a labor classification which would increase the cost be permitted unless the Contractor establishes to the complete satisfaction of the Engineer the necessity for payment at a higher rate.

#### **3-1.01E(2) Materials**

The Contractor will be paid an amount based on the actual cost of the materials directly required for the performance of the changed work. The cost of materials may include the costs of procurement, transportation and delivery if necessarily incurred. If a cash or trade discount by the actual supplier is available to the Contractor, it shall be credited to the State. If the materials are obtained from a supply or source owned wholly or in part by the Contractor, payment therefor will not exceed the current wholesale price for the materials. If, in the opinion of the Engineer, the cost of materials is excessive, or if the Contractor fails to furnish satisfactory evidence of the cost to the Engineer from the actual supplier, the cost of the materials shall be deemed to be the lowest current wholesale price at which similar materials are available in the quantities required. The Department reserves the right to furnish the materials required by the change order as it deems advisable, and the Contractor shall have no claim for cost or markups on material furnished by the Department.

#### **3-1.01E(3) Equipment**

The Contractor will be paid an amount based on the actual cost for the use of equipment directly required and approved by the Engineer in the performance of the changed work. No payment will be made for time while equipment is inoperative due to breakdowns or on days when no work is performed. In addition, the rental time shall include the time required to move the equipment to the work from the nearest available source of the required equipment, and to return it to the source. If the equipment is not moved by its own power, then loading and transportation costs will be paid. Moving time, loading and transportation costs will only be paid if the equipment is used exclusively on the changed work during the time between move in and move out. Individual pieces of equipment having a replacement value of \$500 or less shall be considered to be tools or small equipment, and no payment will be made therefor. For equipment owned, furnished, or rented by the Contractor, no cost therefor shall be recognized in excess of the rental rates established by distributors or equipment rental agencies in the locality where the work is performed.

#### **3-1.01E(4) Markups**

When a change order increases the cost of the work, the Contractor may add the following maximum markups to the actual costs of labor, materials, or equipment rental:

- 33 percent for labor;
- 15 percent for materials; and
- 15 percent for equipment rental.

The above markups include full compensation for bonds, profit and overhead.

When a change order decreases the cost of the work, the reduction in cost shall include a 5 percent markup on the estimated cost for furnishing the labor, materials and equipment which would have been used on the work had the change order not been issued.

When a change order involves both added work and deleted work, the markup or markups to be used shall be as follows:

The actual costs of labor, materials, and equipment rental for added and deleted work shall be calculated separately without adding markups. If the difference between the calculated costs for labor results in an increased cost, a markup of 33 percent shall be applied to the increased cost. If the difference between the calculated costs of materials or equipment rental results in an increased cost, a markup of 15 percent shall be applied to the increased costs of materials or equipment rental, as the case may be. If the difference between the calculated costs for labor, materials or equipment rental results in a decreased cost, a markup of 5 percent shall be applied to the decreased costs of labor, materials or equipment rental, as the case may be.

When added or deleted work is performed by an authorized subcontractor, approved in conformance with the provisions in Section 1-1.05, "Required Listing of Proposed Subcontractors," of the Instructions to Bidders, an additional 5 percent will be added to the total cost of the work including all markups specified in this Section 3-1.01E(4). The additional 5 percent markup shall reimburse the Contractor for additional administrative costs, and no other additional payment will be made by reason of performance of the work by a subcontractor.

### **3-1.01E(5) General Limitation**

In no event shall any actual cost for added work be recognized in excess of market values prevailing at the time of the change, unless the Contractor can establish to the satisfaction of the Engineer that the Contractor investigated all possible means of obtaining the added work at prevailing market values and that the excess cost could not be avoided by the Contractor. The Engineer will determine the necessity for incurring the costs enumerated above, and as to whether they are directly required for the performance of the changed work. Lump sum quotations may be accepted at the option of the Engineer. When a change order deletes work from the contract, the computation of the cost thereof shall be the values which prevailed at the time bids for the work were opened.

When work under this Section 3 is performed by forces other than the Contractor's organization, no additional payment will be made by the State by reason of the performance of the work by a subcontractor or other forces, except as provided elsewhere in this Section 3.

## **SECTION 4 CONTROL OF MATERIALS**

### **4-1.01 MATERIALS**

The Contractor shall furnish all materials required to complete the work, except materials that are designated in the special provisions to be furnished by the State and materials furnished by the State in conformance with Section 3, "Changes in the Work," of these General Conditions.

Unless otherwise specified in the special provisions, materials furnished by the Contractor for incorporation into the work shall be new. When the quality or kind of materials, articles, or equipment is not specifically indicated, then the quality or kind thereof shall be similar to those which are indicated.

Materials to be used in the work will be subject to inspection and tests by the Engineer or the Engineer's designated representative. The Engineer may inspect, sample or test materials at the source of supply or other locations, but the inspection, sampling or testing will not be undertaken until the Engineer is assured by the Contractor of the cooperation and assistance of both the Contractor and the supplier of the material. The Contractor shall assure that the Engineer or the Engineer's authorized representative has free access at all times to the material to be inspected, sampled or tested. It is understood that the inspections and tests if made at any point other than the point of incorporation in the work in no way shall be considered as a guaranty of acceptance of the material nor of continued acceptance of material presumed to be similar to that upon which inspections and tests if made, and that inspection and testing performed by the State shall not relieve the Contractor or the Contractor's suppliers of responsibility for quality control.

Articles or materials to be incorporated in the work shall be stored in such a manner as to insure the preservation of their quality and fitness for the work, and to facilitate inspection.

All materials which do not conform to the requirements of the plans and special provisions, as determined by the Engineer, will be rejected whether in place or not. Rejected material shall be removed immediately from the site of the work, unless otherwise permitted by the Engineer. No rejected material, the defects of which have been subsequently corrected, shall be used in the work, unless approval in writing has been given by the Engineer. Upon failure of the Contractor to comply promptly with any order of the Engineer made under these provisions, the Engineer shall have authority to cause the

removal and replacement of rejected material and to deduct the cost thereof from any moneys due or to become due the Contractor.

Manufacturers' warranties, guaranties, instruction sheets and parts lists, which are furnished with certain materials incorporated in the work, shall be delivered to the Engineer before acceptance of the contract.

Unless otherwise designated in the special provisions, materials furnished by the State will be delivered to the job site. Materials furnished by the State that are designated in the special provisions as available at locations other than the job site shall be hauled to the site of the work by the Contractor at his expense, including any necessary loading and unloading that may be involved.

The Contractor will be held responsible for all materials furnished to him, and he shall pay all demurrage and storage charges. State-furnished materials lost or damaged from any cause whatsoever shall be replaced by the Contractor. The Contractor will be liable to the Department for the cost of replacing State-furnished material and those costs may be deducted from any moneys due or to become due the Contractor.

#### **4-1.02 PRODUCT AND REFERENCE STANDARDS**

When descriptive catalog designations, including manufacturer's name, product brand name, or model number are referred to in the contract documents, those designations shall be considered as being those found in industry publications in effect on the day the Notice to Contractors for the work is dated.

When standards or test designations are referred to in the contract documents by specific date of issue, they shall be considered a part of the contract. When those references do not bear a date of issue, the edition in effect on the day the Notice to Contractors for the work is dated shall be considered as part of the contract.

#### **4-1.03 SAMPLING AND TESTING OF MATERIALS**

Whenever the provisions of Section 4-1.03, "Sampling and Testing of Materials," of the General Conditions refer to tests or testing, it shall mean tests to assure the quality and to determine the acceptability of the materials and work.

Unless otherwise specified, all tests shall be performed in conformance with the methods used by the Department of Transportation and shall be made by the Engineer or his designated representative.

The Department has developed methods for testing the quality of materials and work. These methods are identified by number and are referred to as California Test. Up to five copies of individual California Tests are available at the Division of New Technology, Materials and Research, located at 5900 Folsom Boulevard, (P.O. Box 19128), Sacramento, CA 95819, and will be furnished to interested persons upon request. If a complete set of California Test Methods is desired, it can be purchased from the Department's Office of Business Management, Materiel Operations Branch, 1900 Royal Oaks Drive, Sacramento, CA 95815.

Whenever a reference is made in the special provisions to a California Test by number, it shall mean the California Test in effect on the day the Notice to Contractors for the work is dated.

Whenever the special provisions provide an option between 2 or more tests, the Engineer will determine the test method to be used.

Whenever a specification, manual, or test designation provides for test reports (such as certified mill test reports) from the manufacturer, copies of those reports, identified as to the lot of material, shall be furnished to the Engineer. The manufacturer's test reports shall supplement the inspection, sampling and testing provisions of this Section 4-1.03 and shall not constitute a waiver of the State's right to inspect. When material which cannot be identified with specific test reports is proposed for use, the Engineer may, at his discretion, select random samples from the lot for testing. Testing specimens from the random samples, including those required for retest, shall be prepared in conformance with the referenced specification and furnished by the Contractor at his expense. The number of samples and test specimens shall be entirely at the discretion of the Engineer.

When requested by the Engineer, the Contractor shall furnish, without charge, samples of all materials entering into the work, and no material shall be used prior to approval by the Engineer, except as provided in Section 4-1.04, "Certificates of Compliance," of these General Conditions.

The Engineer will deduct the costs for testing of materials and work found to be unacceptable, as determined by the tests performed by the Department, and the costs for testing of material sources identified by the Contractor which are not used for the work, from moneys due or to become due to the Contractor. The amount deducted will be determined by the Engineer.

#### **4-1.035 TESTING BY CONTRACTOR**

The Contractor shall be responsible for controlling the quality of the material entering the work and of the work performed, and shall perform testing as necessary to ensure quality control. The test methods used for quality control testing by the Contractor shall be as determined by the Contractor. The results of those quality control tests shall be made available to the Engineer upon request. Contractor performed quality control tests are for the Contractor's use in controlling the work and will not be accepted for use as acceptance tests.

#### **4-1.04 CERTIFICATES OF COMPLIANCE**

A Certificate of Compliance shall be furnished prior to the use of any materials for which the special provisions require that a Certificate of Compliance be furnished. In addition, the Engineer may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance. The certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the special provisions. A Certificate of Compliance shall be furnished with each lot of such materials delivered to the work and the lot so certified shall be clearly identified in the certificate.

Materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material in the work which conforms to the requirements of the plans and special provisions and any material not conforming to those requirements will be subject to rejection whether in place or not.

The Department reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.

The form of the Certificate of Compliance and its disposition shall be as directed by the Engineer.

## **SECTION 5**

### **LEGAL RELATIONS AND RESPONSIBILITIES**

#### **5-1.01 LAWS TO BE OBSERVED**

Comply with laws, regulations, orders, decrees, and permits applicable to the project. Indemnify and defend the State against any claim or liability arising from the violation of a law, regulation, order, decree, or permit by you or your employees. Immediately report to the Engineer in writing a discrepancy or inconsistency between the contract and a law, regulation, order, decree, or permit.

#### **5-1.01A Hours of Labor**

Eight hours labor constitutes a legal day's work. The Contractor or any subcontractor under the Contractor shall forfeit, as a penalty to the State of California, \$25 for each worker employed in the execution of the contract by the respective Contractor or subcontractor for each calendar day during which that worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of the Labor Code, and in particular, Section 1810 to Section 1815, thereof, inclusive, except that work performed by employees of Contractors in excess of 8 hours per day, and 40 hours during any one week, shall be permitted upon compensation for all hours worked in excess of 8 hours per day at not less than one and one-half times the basic rate of pay, as provided in Section 1815 thereof.

#### **5-1.01B Labor Nondiscrimination**

Attention is directed to Section 1735 of the Labor Code, which reads as follows:

"No discrimination shall be made in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, or sex of such persons, except as provided in Section 12940 of the Government Code and every contractor for public works violating this section is subject to all the penalties imposed for a violation of this chapter."

Attention is directed to the following "Nondiscrimination Clause" that is required by Chapter 5 of Division 4 of Title 2, California Code of Regulations:

## **NONDISCRIMINATION CLAUSE**

1. During the performance of this contract, contractor and its subcontractors shall not unlawfully discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, medical condition, marital status, age (over 40) or sex. Contractors and subcontractors shall ensure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination. Contractors and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Gov. Code, Section 12990 et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12990, set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations are incorporated into this contract by reference and made a part hereof as if set forth in full. Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.
2. This Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

### **STANDARD CALIFORNIA NONDISCRIMINATION CONSTRUCTION CONTRACT SPECIFICATIONS (GOVERNMENT CODE, SECTION 12990)**

These specifications are applicable to all nonexempt State contracts and subcontracts, and to the "Standard California Nondiscrimination Construction Contract Specifications" set forth herein. The specifications are applicable to all nonexempt State construction contracts and subcontracts of \$5,000 or more.

1. As used in the specifications:
  - a. "Administrator" means Administrator, Office of Compliance Programs, California Department of Fair Employment and Housing, or any person to whom the Administrator delegates authority;
  - b. "Minority" includes:
    - (i) Black (all persons having primary origins in any of the black racial groups of Africa, but not of Hispanic origin);
    - (ii) Hispanic (all persons of primary culture or origin in Mexico, Puerto Rico, Cuba, Central or South America or other Spanish derived culture or origin regardless of race);
    - (iii) Asian/Pacific Islander (all persons having primary origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent or the Pacific Islands); and
    - (iv) American Indian/Alaskan Native (all persons having primary origins in any of the original peoples of North America and who maintain culture identification through tribal affiliation or community recognition).
2. Whenever the contractor or any subcontractor subcontracts a portion of the work, it shall physically include in each subcontract of \$5,000 or more the nondiscrimination clause in this contract directly or through incorporation by reference. Any subcontract for work involving a construction trade shall also include the Standard California Construction Contract Specifications, either directly or through incorporation by reference.
3. The contractor shall implement the specific nondiscrimination standards provided in paragraphs 6(a) through (e) of these specifications.
4. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the contractor's obligations under these specifications, Government Code, Section 12990, or the regulations promulgated pursuant thereto.
5. In order for the nonworking training hours of apprentices and trainees to be counted, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor or the California Department of Industrial Relations.

6. The contractor shall take specific actions to implement its nondiscrimination program. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor must be able to demonstrate fully its efforts under Steps a. through e. below:
  - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and at all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the contractor's obligations to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
  - b. Provide written notification within seven days to the director of DFEH when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
  - c. Disseminate the Contractor's equal employment opportunity policy by providing notice of the policy to unions and training, recruitment and outreach programs and requesting their cooperation in assisting the Contractor to meet its obligations; and by posting the company policy on bulletin boards accessible to all employees at each location where construction work is performed.
  - d. Ensure all personnel making management and employment decisions regarding hiring, assignment, layoff, termination, conditions of work, training, rates of pay or other employment decisions, including all supervisory personnel, superintendents, general foremen, on-site foremen, etc., are aware of the Contractor's equal employment opportunity policy and obligations, and discharge their responsibilities accordingly.
  - e. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the equal employment opportunity policy and the Contractor's obligations under these specifications are being carried out.
7. Contractors are encouraged to participate in voluntary associations which assist in fulfilling their equal employment opportunity obligations. The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's.
8. The Contractor is required to provide equal employment opportunity for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Fair Employment and Housing Act (Gov. Code, Section 12990 et seq.) if a particular group is employed in a substantially disparate manner.
9. Establishment and implementation of a bona fide affirmative action plan pursuant to Section 8104 (b) of this Chapter shall create a rebuttal presumption that a contractor is in compliance with the requirements of Section 12990 of the Government Code and its implementing regulations.
10. The Contractor shall not use the nondiscrimination standards to discriminate against any person because of race, color, religion, sex, national origin, ancestry, physical handicap, medical condition, marital status or age over 40.
11. The Contractor shall not enter into any subcontract with any person or firm decertified from state contracts pursuant to Government Code Section 12990.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and the nondiscrimination clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Government Code Section 12990 and its implementing regulations by the awarding agency. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Government Code Section 12990.

13. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company equal employment opportunity policy is being carried out, to submit reports relating to the provisions hereof as may be required by OCP and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status, (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in any easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

NOTE: Authority cited: Sections 12935(a) and 12990(d), Government Code. Reference: Section 12990, Government Code.

#### **5-1.01C Prevailing Wage**

The Contractor and any subcontractor under the Contractor shall comply with Labor Code Sections 1774 and 1775. Pursuant to Section 1775, the Contractor and any subcontractor under the Contractor shall forfeit to the State or political subdivision on whose behalf the contract is made or awarded a penalty of not more than fifty dollars (\$50) for each calendar day, or portion thereof, for each worker paid less than the prevailing rates as determined by the Director of Industrial Relations for the work or craft in which the worker is employed for any public work done under the contract by the Contractor or by any subcontractor under the Contractor in violation of the provisions of the Labor Code and in particular, Labor Code Sections 1770 to 1780, inclusive. The amount of this forfeiture shall be determined by the Labor Commissioner and shall be based on consideration of the mistake, inadvertence, or neglect of the Contractor or subcontractor in failing to pay the correct rate of prevailing wages, or the previous record of the Contractor or subcontractor in meeting their respective prevailing wage obligations, or the willful failure by the Contractor or subcontractor to pay the correct rates of prevailing wages. A mistake, inadvertence, or neglect in failing to pay the correct rate of prevailing wages is not excusable if the Contractor or subcontractor had knowledge of their obligations under the Labor Code. In addition to the penalty and pursuant to Labor Code Section 1775, the difference between the prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by the Contractor or subcontractor. If a worker employed by a subcontractor on a public works project is not paid the general prevailing per diem wages by the subcontractor, the prime contractor of the project is not liable for the penalties described above unless the prime contractor had knowledge of that failure of the subcontractor to pay the specified prevailing rate of wages to those workers or unless the prime contractor fails to comply with all of the following requirements:

1. The contract executed between the contractor and the subcontractor for the performance of work on the public works project shall include a copy of the provisions of Sections 1771, 1775, 1776, 1777.5, 1813, and 1815 of the Labor Code.
2. The contractor shall monitor the payment of the specified general prevailing rate of per diem wages by the subcontractor to the employees, by periodic review of the certified payroll records of the subcontractor.
3. Upon becoming aware of the subcontractor's failure to pay the specified prevailing rate of wages to the subcontractor's workers, the Contractor must diligently take corrective action to stop or rectify the failure, including withholding sufficient funds due the subcontractor for work performed on the public works project.
4. Prior to making final payment to the subcontractor for work performed on the public works project, the contractor shall obtain an affidavit signed under penalty of perjury from the subcontractor that the subcontractor has paid the specified general prevailing rate of per diem wages to the subcontractor's employees on the public works project and any amounts due pursuant to Section 1813 of the Labor Code.

Pursuant to Section 1775 of the Labor Code, the Division of Labor Standards Enforcement must notify the Contractor on a public works project within 15 days of the receipt by the Division of Labor Standards Enforcement of a complaint of the failure of a subcontractor on that public works project to pay workers the general prevailing rate of per diem wages. If the Division of Labor Standards Enforcement determines that employees of a subcontractor were not paid the general prevailing rate of per diem wages and if the Department did not withhold sufficient money under the contract to pay those employees the balance of wages owed under the general prevailing rate of per diem wages, the Contractor must withhold an amount of moneys due the subcontractor sufficient to pay those employees the general prevailing rate of per diem wages if requested by the Division of Labor Standards Enforcement. The Contractor must pay any money withheld from and owed to a subcontractor upon receipt of notification by the Division of Labor Standards Enforcement that the wage complaint has been

resolved. If notice of the resolution of the wage complaint has not been received by the Contractor within 180 days of the filing of a valid notice of completion or acceptance of the public works project, whichever occurs later, the Contractor must pay all moneys withheld from the subcontractor to the Department. The Department withholds these moneys pending the final decision of an enforcement action.

Pursuant to the provisions of Section 1773 of the Labor Code, the Department has obtained the general prevailing rate of wages (which rate includes employer payments for health and welfare, pension, vacation, travel time, and subsistence pay as provided for in Section 1773.8 of the Labor Code, apprenticeship or other training programs authorized by Section 3093 of the Labor Code, and similar purposes) applicable to the work to be done, for straight time, overtime, Saturday, Sunday and holiday work. The holiday wage rate listed shall be applicable to all holidays recognized in the collective bargaining agreement of the particular craft, classification or type of workmen concerned. The general prevailing wage rates and any applicable changes to these wage rates are available at the Labor Compliance Office at the offices of the District Director of Transportation for the district in which the work is situated. For work situated in District 9, the wage rates are available at the Labor Compliance Office at the offices of the District Director of Transportation for District 6, located at Fresno. General prevailing wage rates are also available from the California Department of Industrial Relations' internet web site at: <http://www.dir.ca.gov>.

The wage rates determined by the Director of Industrial Relations for the project refer to expiration dates. Prevailing wage determinations with a single asterisk after the expiration date are in effect on the date of advertisement for bids and are good for the life of the contract. Prevailing wage determinations with double asterisks after the expiration date indicate that the wage rate to be paid for work performed after this date has been determined. If work is to extend past this date, the new rate shall be paid and incorporated in the contract. The Contractor shall contact the Department of Industrial Relations as indicated in the wage rate determinations to obtain predetermined wage changes.

Pursuant to Section 1773.2 of the Labor Code, general prevailing wage rates shall be posted by the Contractor at a prominent place at the site of the work.

Changes in general prevailing wage determinations which conform to Labor Code Section 1773.6 and Title 8 California Code of Regulations Section 16204 shall apply to the project when issued by the Director of Industrial Relations at least 10 days prior to the date of the Notice to Contractors for the project.

The State will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the prevailing wage rate set forth in the contract. The possibility of wage increases is one of the elements to be considered by the Contractor in determining the bid, and will not under any circumstances be considered as the basis of a claim against the State on the contract.

#### **5-1.01D Travel And Subsistence Payments**

Attention is directed to the requirements in Section 1773.8 of the Labor Code. The Contractor shall make travel and subsistence payments to each workman, needed to execute the work, in conformance with the requirements in Labor Code Section 1773.8.

#### **5-1.01E Payroll Records**

Attention is directed to the provisions of Labor Code Section 1776, a portion of which is quoted below. Regulations implementing Labor Code Section 1776 are located in Sections 16016 through 16019 and Sections 16207.10 through 16207.19 of Title 8, California Code of Regulations.

"1776. (a) Each contractor and subcontractor shall keep accurate payroll records, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the public work. Each payroll record shall contain or be verified by a written declaration that it is made under penalty of perjury, stating both of the following:

- (1) The information contained in the payroll record is true and correct.
- (2) The employer has complied with the requirements of Sections 1771, 1811, and 1815 for any work performed by his or her employees on the public works project.

"(b) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the contractor on the following basis:

- (1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request.
- (2) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.
- (3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the contractor, subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of the contractor.

- "(c) The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the division.
- "(d) A contractor or subcontractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested the records within 10 days after receipt of a written request.
- "(e) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated in a manner so as to prevent disclosure of an individual's name, address, and social security number. The name and address of the contractor awarded the contract or the subcontractor performing the contract shall not be marked or obliterated.
- "(f) The contractor shall inform the body awarding the contract of the location of the records enumerated under subdivision (a), including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address.
- "(g) The contractor or subcontractor shall have 10 days in which to comply subsequent to receipt of a written notice requesting the records enumerated in subdivision (a). In the event that the contractor or subcontractor fails to comply within the 10-day period, he or she shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars (\$25) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. A contractor is not subject to a penalty assessment pursuant to this section due to the failure of a subcontractor to comply with this section."

The Department withholds the penalties specified in subdivision (g) of Labor Code § 1776 for noncompliance with the requirements in Section 1776.

A copy of all payrolls shall be submitted weekly to the Engineer. Payrolls shall contain the full name, address and social security number of each employee, the employee's correct classification, rate of pay, daily and weekly number of hours worked, itemized deductions made and actual wages paid. They shall also indicate apprentices and ratio of apprentices to journeymen. The employee's address and social security number need only appear on the first payroll on which that name appears. The payroll shall be accompanied by a "Statement of Compliance" signed by the employer or the employer's agent indicating that the payrolls are correct and complete and that the wage rates contained therein are not less than those required by the contract. The "Statement of Compliance" shall be on forms furnished by the Department or on any form with identical wording. The Contractor shall be responsible for the submission of copies of payrolls of all subcontractors.

The Department withholds for delinquent or inadequate payroll records (Labor Code § 1771.5). If the Contractor has not submitted an adequate payroll record by the month's 15th day for the period ending on or before the 1st of that month, the Department withholds 10 percent of the monthly progress estimate, exclusive of mobilization. The Department does not withhold more than \$10,000 or less than \$1,000.

#### **5-1.01F Trench Safety**

Attention is directed to the provisions of Section 6705 of the Labor Code concerning trench excavation safety plans.

The Construction Safety Orders of the Division of Occupational Safety and Health shall apply to all excavations. For all excavations 5 feet (1.5 m) or more in depth, the Contractor shall submit to the Engineer a detailed plan showing the design and details of the protective systems to be provided for worker protection from the hazard of caving ground during

excavation. The detailed plan shall include any tabulated data and any design calculations used in the preparation of the plan. Excavation shall not begin until the detailed plan has been reviewed and approved by the Engineer.

Detailed plans of protective systems for which the Construction Safety Orders require design by a registered professional engineer shall be prepared and signed by an engineer who is registered as a Civil Engineer in the State of California, and shall include the soil classification, soil properties, soil design calculations that demonstrate adequate stability of the protective system, and any other design calculations used in the preparation of the plan.

No plan shall allow the use of a protective system less effective than that required by the Construction Safety Orders.

If the detailed plan includes designs of protective systems developed only from the allowable configurations and slopes, or Appendices, contained in the Construction Safety Orders, the plan shall be submitted at least 5 days before the Contractor intends to begin excavation. If the detailed plan includes designs of protective systems developed from tabulated data, or designs for which design by a registered professional engineer is required, the plan shall be submitted at least 3 weeks before the Contractor intends to begin excavation.

In addition to these provisions detailed plans of the protective systems for excavations on or affecting railroad property will be reviewed for adequacy of protection provided for railroad facilities, property, and traffic. These plans for excavations on or affecting railroad property shall be submitted at least 9 weeks before the Contractor intends to begin excavation requiring the protective systems. Approval by the Engineer of the detailed plans for the protective systems will be contingent upon the plans being satisfactory to the railroad company involved.

#### **5-1.01G Apprentices**

Attention is directed to Sections 1777.5, 1777.6 and 1777.7 of the California Labor Code and Title 8, California Code of Regulations Section 200 et seq. To ensure compliance and complete understanding of the law regarding apprentices, and specifically the required ratio thereunder, each contractor or subcontractor should, where some question exists, contact the Division of Apprenticeship Standards, 455 Golden Gate Avenue, San Francisco, CA 94102, or one of its branch offices prior to commencement of work on the public works contract. Responsibility for compliance with this section lies with the prime Contractor.

It is State policy to encourage the employment and training of apprentices on public works contracts as may be permitted under local apprenticeship standards.

#### **5-1.01H Fair Labor Standards Act**

The attention of bidders is invited to the fact that the State of California, Department of Transportation, has been advised by the Wage and Hour Division, U.S. Department of Labor, that contractors engaged in construction work are required to meet the provisions of the Fair Labor Standards Act of 1938 and as amended (52 Stat. 1060).

#### **5-1.01I (Blank)**

#### **5-1.01J Air Pollution Control**

The Contractor shall comply with all air pollution control rules, regulations, ordinances and statutes which apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances and statutes, specified in Section 11017 of the Government Code.

Unless otherwise provided in the special provisions, material to be disposed of shall not be burned, either inside or outside the premises.

#### **5-1.01K Use Of Pesticides**

The Contractor shall comply with all rules and regulations of the Department of Food and Agriculture, the Department of Health, the Department of Industrial Relations and all other agencies which govern the use of pesticides required in the performance of the work on the contract.

Pesticides shall include but shall not be limited to herbicides, insecticides, fungicides, rodenticides, germicides, nematocides, bactericides, inhibitors, fumigants, defoliant, desiccants, soil sterilants, and repellents.

Any substance or mixture of substances intended for preventing, repelling, mitigating, or destroying weeds, insects, diseases, rodents, or nematodes and any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant shall be considered a pesticide.

### **5-1.01L Sound Control Requirements**

The Contractor shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract.

Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without the muffler.

### **5-1.01M Environmental Clearances**

The Department will obtain all environmental clearances and authorizations necessary for the project as set forth in the plans and specifications. The Contractor shall comply with the provisions, including giving notices during construction when required, of these authorizations. In the event the obtaining of these authorizations delays completion of all or any portion of the work, an extension of time determined pursuant to the provisions in Section 6-1.08, "Liquidated Damages," of these General Conditions will be granted and the Contractor shall not be entitled to any additional compensation because of the delays.

### **5-1.01N Permits And Licenses**

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work.

The Environmental Quality Act (Public Resources Code, Sections 21000 to 21176, inclusive) may be applicable to permits, licenses and other authorizations which the Contractor must obtain from local agencies in connection with performing the work of the contract. The Contractor shall comply with the provisions of those statutes in obtaining the permits, licenses and other authorizations and they shall be obtained in sufficient time to prevent delays to the work.

In the event that the Department has obtained permits, licenses or other authorizations, applicable to the work, in conformance with the requirements in the Environmental Quality Act, the Contractor shall comply with the provisions of those permits, licenses and other authorizations.

### **5-1.01O Assignment Of Antitrust Actions**

The Contractor's attention is directed to the following requirements in Public Contract Code 7103.5 and Government Code Sections 4553 and 4554, which shall be applicable to the Contractor and the Contractor's subcontractors:

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

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

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

### **5-1.01P Safety And Health Provisions**

The Contractor shall conform to all applicable occupational safety and health standards, rules, regulations and orders established by the State of California.

Working areas utilized by the Contractor to perform work during the hours of darkness, shall be lighted to conform to the minimum illumination intensities established by California Division of Occupational Safety and Health Construction Safety Orders.

All lighting fixtures shall be mounted and directed in a manner precluding glare to approaching traffic.

### **5-1.01Q Suits To Recover Penalties And Forfeitures**

Attention is directed to Sections 1730 to 1733, inclusive, of the Labor Code concerning suits to recover amounts withheld from payment for failure to comply with requirements of the Labor Code or contract provisions based on those laws.

Those sections provide that a suit on the contract for alleged breach thereof in not making the payment is the exclusive remedy of the Contractor or the Contractor's assignees with reference to amounts withheld for those penalties or forfeitures; and that the suit must be commenced and actual notice thereof received by the awarding authority prior to 90 days after completion of the contract and the formal acceptance of the job.

Submission of a claim under Section 7-1.07, "Final Payment and Claims," of these General Conditions for the amounts withheld from payment for those penalties and forfeitures is not a prerequisite for those suits and these claims will not be considered.

### **5-1.01R Water Pollution**

The Contractor shall exercise every reasonable precaution to protect streams, lakes, reservoirs, bays, and coastal waters from pollution with fuels, oils, bitumens, calcium chloride and other harmful materials and shall conduct and schedule operations so as to avoid or minimize muddying and silting of streams, lakes, reservoirs, bays and coastal waters. Care shall be exercised to preserve roadside vegetation beyond the limits of construction.

Water pollution control work is intended to provide prevention, control, and abatement of water pollution to streams, waterways, and other bodies of water, and shall consist of constructing those facilities which may be shown on the plans, specified herein or in the special provisions, or directed by the Engineer.

In order to provide effective and continuous control of water pollution it may be necessary for the Contractor to perform the contract work in small or multiple units, on an out of phase schedule, and with modified construction procedures. The Contractor shall provide temporary water pollution control measures, including but not limited to, dikes, basins, ditches, and applying straw and seed, which become necessary as a result of the Contractor's operations. The Contractor shall coordinate water pollution control work with all other work done on the contract.

Before starting any work on the project, the Contractor shall submit, for acceptance by the Engineer, a program to control water pollution effectively during construction of the project. The program shall show the schedule for the erosion control work included in the contract and for all water pollution control measures which the Contractor proposes to take in connection with construction of the project to minimize the effects of the operations upon adjacent streams and other bodies of water. The Contractor shall not perform any clearing and grubbing or earthwork on the project, other than that specifically authorized in writing by the Engineer, until the program has been accepted.

If the measures being taken by the Contractor are inadequate to control water pollution effectively, the Engineer may direct the Contractor to revise the operations and the water pollution control program. The directions will be in writing and will specify the items of work for which the Contractor's water pollution control measures are inadequate. No further work shall be performed on those items until the water pollution control measures are adequate and, if also required, a revised water pollution control program has been accepted.

The Engineer will notify the Contractor of the acceptance or rejection of any submitted or revised water pollution control program in not more than 5 working days.

The State will not be liable to the Contractor for failure to accept all or any portion of an originally submitted or revised water pollution control program, nor for any delays to the work due to the Contractor's failure to submit an acceptable water pollution control program.

The Contractor may request the Engineer to waive the requirement for submission of a written program for control of water pollution when the nature of the Contractor's operation is such that erosion is not likely to occur. Waiver of this requirement will not relieve the Contractor from responsibility for compliance with the other provisions of this section. Waiver of the requirement for a written program for control of water pollution will not preclude requiring submittal of a written program at a later time if the Engineer deems it necessary because of the effect of the Contractor's operations.

Unless otherwise approved by the Engineer in writing, the Contractor shall not expose a total area of erodible earth material, which may cause water pollution, exceeding 750,000 ft<sup>2</sup> (70 000 m<sup>2</sup>) for each separate location, operation, or spread of equipment before either temporary or permanent erosion control measures are accomplished.

Where erosion which will cause water pollution is probable due to the nature of the material or the season of the year, the Contractor's operations shall be so scheduled that permanent erosion control features will be installed concurrently with or immediately following grading operations.

Nothing in the terms of the contract nor in the provisions in this Section 5-1.01R shall relieve the Contractor of the responsibility for compliance with Sections 5650 and 12015 of the Fish and Game Code, or other applicable statutes relating to prevention or abatement of water pollution.

When borrow material is obtained from other than commercially operated sources, erosion of the borrow site during and after completion of the work shall not result in water pollution. The material source shall be finished, where practicable, so that water will not collect or stand therein.

The requirements of this section shall apply to all work performed under the contract and to all non-commercially operated borrow or disposal sites used for the project.

The Contractor shall also conform to the following provisions:

1. Where working areas encroach on live streams, barriers adequate to prevent the flow of muddy water into streams shall be constructed and maintained between working areas and streams, and during construction of the barriers, muddying of streams shall be held to a minimum.
2. Removal of material from beneath a flowing stream shall not be commenced until adequate means, such as a bypass channel, are provided to carry the stream free from mud or silt around the removal operations.
3. Should the Contractor's operations require transportation of materials across live streams, the operations shall be conducted without muddying the stream. Mechanized equipment shall not be operated in the stream channels of the live streams except as may be necessary to construct crossings or barriers and fills at channel changes.
4. Water containing mud or silt from aggregate washing or other operations shall be treated by filtration, or retention in a settling pond, or ponds, adequate to prevent muddy water from entering live streams.
5. Oily or greasy substances originating from the Contractor's operations shall not be allowed to enter or be placed where they will later enter a live stream.
6. Portland cement or fresh portland cement concrete shall not be allowed to enter flowing water of streams.
7. When operations are completed, the flow of streams shall be returned as nearly as possible to a meandering thread without creating possible future bank erosion, and settling pond sites shall be graded so they will drain and will blend in with the surrounding terrain.
8. Material derived from roadway work shall not be deposited in a live stream channel where it could be washed away by high stream flows.
9. Where there is possible migration of anadromous fish in streams affected by construction on the project, the Contractor shall conduct work operations so as to allow free passage of the migratory fish.

Compliance with the requirements of this section shall in no way relieve the Contractor from the responsibility to comply with the other provisions of the contract, in particular the responsibility for damage and for preservation of property.

#### **5-1.01S REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES**

When the presence of asbestos or hazardous substances are not shown on the plans or indicated in the specifications and the Contractor encounters materials which the Contractor reasonably believes to be asbestos or a hazardous substance as defined in Section 25914.1 of the Health and Safety Code, and the asbestos or hazardous substance has not been rendered harmless, the Contractor may continue work in unaffected areas reasonably believed to be safe. The Contractor shall immediately cease work in the affected area and report the condition to the Engineer in writing.

In conformance with Section 25914.1 of the Health and Safety Code, removal of asbestos or hazardous substances including exploratory work to identify and determine the extent of the asbestos or hazardous substance will be performed by separate contract.

If performance of the Contractor's current controlling operation is delayed in the area, and the delay could not be avoided by the judicious handling of forces, equipment, and plant, an extension of time determined in conformance with the provisions in Section 6-1.08, "Liquidated Damages," of the General Conditions will be granted. Compensation for the delay will be made only for the Contractor's actual losses due to idle time of equipment, necessary payments for idle time of workers, and cost of extra moving of equipment, in conformance with the provisions in Section 3-1.01E, "Allowable Costs for Changes," of the General Conditions, except that no markups will be added.

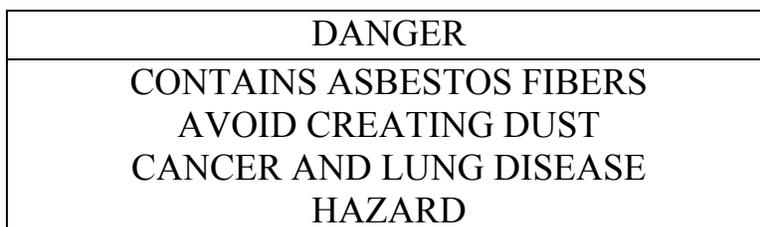
#### **5-1.01T SOLID WASTE DISPOSAL AND RECYCLING REPORT**

This work shall consist of reporting disposal and recycling of construction solid waste, as specified in these special provisions. For the purposes of this section, solid waste includes construction and demolition waste debris, but not hazardous waste.

Annually by the fifteenth day of January, the Contractor shall complete and certify Form CEM-4401, "Solid Waste Disposal and Recycling Report," which quantifies solid waste generated by the work performed and disposed of in landfills or recycled during the previous calendar year. The amount and type of solid waste disposed of or recycled shall be reported in either tons (tonne) or cubic feet (cubic meter.) The Contractor shall also complete and certify Form CEM-4401 within 5 days following contract acceptance.

The contractor shall submit a waste shipment record (WSR) for disposal of materials containing asbestos that is not classified as a hazardous waste..

Properly label containers as shown:



Form CEM-4401, "Solid Waste Disposal and Recycling Report" can be downloaded at:

<http://www.dot.ca.gov/hq/construc/manual2001>

If the Contractor has not submitted Form CEM-4401, by the dates specified above, the Department will withhold the amount of \$10,000 for each missing or incomplete report. The moneys withheld will be released for payment on the next monthly estimate for partial payment following the date that a complete and acceptable Form CEM-4401 is submitted to the Engineer. Upon completion of all contract work and submittal of the final Form CEM-4401, remaining withheld funds associated with this section, "Solid Waste Disposal and Recycling Report," will be released for payment. Withheld funds in conformance with this section shall be in addition to other moneys withheld provided for in the contract. No interest will be due the Contractor on withheld amounts.

#### **5-1.01U ARCHAEOLOGICAL DISCOVERIES**

If archaeological materials, including but not limited to human skeletal material and disarticulated human bone, are discovered at the job site, protect and leave undisturbed and in place archaeological materials in accordance with the following codes and these special provisions:

1. California Public Resources Code, Division 5, Chapter 1.7 § 5097.5
2. California Public Resources Code, Division 5, Chapter 1.75 § 5097.98 and § 5097.99
3. California Administrative Code, Title 14 § 4308
4. California Penal Code, Part 1, Title 14 § 622-1/2
5. California Health and Safety Code, Division 7, Part 1, Chapter 2, § 7050.5

Archaeological materials are the physical remains of past human activity and include historic-period archaeological materials and prehistoric Native American archaeological materials. Nonhuman fossils are not considered to be archaeological except when showing direct evidence of human use or alteration or when found in direct physical association with archaeological materials as described in these special provisions.

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Historic-period archaeological materials include cultural remains beginning with initial European contact in California, but at least 50 years old. Historical archaeological materials include:

1. Trash deposits or clearly defined disposal pits containing tin cans, bottles, ceramic dishes, or other refuse indicating previous occupation or use of the site
2. Structural remains of stone, brick, concrete, wood, or other building material found above or below ground or
3. Human skeletal remains from the historic period, with or without coffins or caskets, including any associated grave goods

Prehistoric Native American archaeological materials include:

1. Human skeletal remains or associated burial goods such as beads or ornaments
2. Evidence of tool making or hunting such as arrowheads and associated chipping debris of fine-grained materials such as obsidian, chert, or basalt
3. Evidence of plant processing such as pestles, grinding slabs, or stone bowls
4. Evidence of habitation such as cooking pits, stone hearths, packed or burnt earth floors or
5. Remains from food processing such as concentrations of discarded or burnt animal bone, shellfish remains, or burnt rocks used in cooking

Immediately upon discovery of archaeological materials, stop all work within a 60-foot (18 m) radius of the archaeological materials and immediately notify the Engineer. Archaeological materials found during construction are the property of the State. Do not resume work within the 60-foot (18 m) radius of the find until the Engineer gives you written approval. If, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of an archeological find or investigation or recovery of archeological materials, you will be compensated for resulting losses and an extension of time will be granted.

The Department may use other forces to investigate and recover archaeological materials from the location of the find. When ordered by the Engineer furnish labor, material, tools and equipment, to secure the location of the find, and assist in the investigation or recovery of archaeological materials.

#### **5-1.02 PROTECTION AND USE OF PROPERTY**

The Contractor shall be responsible for and provide and maintain all proper temporary walks, roads, guards, railings, lights, warning signs, and take precaution at all times to avoid injury or damage to any person or any property, and upon completion of the work, or at other times as directed, restore premises and adjacent property to a proper condition.

The Contractor shall protect adjoining property and nearby buildings, including State buildings, State roads, and public streets or roads, from dust, dirt, debris, or other nuisance arising out of the Contractor's operations or storage practices, and, if ordered by the Engineer, the Contractor shall provide and install suitable safeguards, approved by the Engineer, to protect objects from damage. If any objects are injured or damaged by reason of the Contractor's operations, they shall be replaced or restored at the Contractor's expense. The facilities shall be replaced or restored to a condition as good as when the Contractor entered upon the work, or as good as required by the specifications accompanying the contract, if any of the objects are a part of the work being performed under the contract.

If the Contractor damages any buildings, roads or other property which belong to the State, or any department or agency thereof, then the Engineer, at his option, may retain from the money due under the contract an amount sufficient to insure repair of the damage.

The Engineer may make or cause to be made those temporary repairs that are necessary to restore to service any damaged highway facility. The cost of the repairs must be borne by the Contractor and will be deducted.

The fact that any underground facility is not shown upon the plans shall not relieve the Contractor of the responsibility of protecting underground improvements or facilities. It shall be the Contractor's responsibility, pursuant thereto, to ascertain the location of those underground improvements or facilities, which may be subject to damage by reason of the Contractor's operations.

#### **5-1.03 INDEMNIFICATION AND INSURANCE**

- The Contractor's obligations regarding indemnification of the State of California and the requirements for insurance shall conform to the provisions in Section 2-1.04, "Insurance Policies," of the Instructions to Bidders, and Section 5-1.031, "Indemnification," and Section 5-1.032, "Insurance," of this Section 5-1.03.

### **5-1.031 Indemnification**

- The Contractor shall defend, indemnify, and save harmless the State, including its officers, employees, and agents (excluding agents who are design professionals) from any and all claims, demands, causes of action, damages, costs, expenses, actual attorneys' fees, losses or liabilities, in law or in equity (Section 5-1.031 Claims) arising out of or in connection with the Contractor's performance of this contract for:

1. Bodily injury including, but not limited to, bodily injury, sickness or disease, emotional injury or death to persons, including, but not limited to, the public, any employees or agents of the Contractor, the State, or any other contractor; and
2. Damage to property of anyone including loss of use thereof; caused or alleged to be caused in whole or in part by any negligent or otherwise legally actionable act or omission of the Contractor or anyone directly or indirectly employed by the Contractor or anyone for whose acts the Contractor may be liable.

- Except as otherwise provided by law, these requirements apply regardless of the existence or degree of fault of the State. The Contractor is not obligated to indemnify the State for Claims arising from conduct delineated in Civil Code Section 2782 and to Claims arising from any defective or substandard condition of the highway that existed at or before the start of work, unless this condition has been changed by the work or the scope of the work requires the Contractor to maintain existing highway facilities and the Claim arises from the Contractor's failure to maintain. The Contractor's defense and indemnity obligation shall extend to Claims arising after the work is completed and accepted if the Claims are directly related to alleged acts or omissions by the Contractor that occurred during the course of the work. State inspection is not a waiver of full compliance with these requirements.

- The Contractor's obligation to defend and indemnify shall not be excused because of the Contractor's inability to evaluate liability or because the Contractor evaluates liability and determine that the Contractor is not liable. The Contractor shall respond within 30 days to the tender of any Claim for defense and indemnity by the State, unless this time has been extended by the State. If the Contractor fails to accept or reject a tender of defense and indemnity within 30 days, in addition to any other remedy authorized by law, the Department may withhold such funds the State reasonably considers necessary for its defense and indemnity until disposition has been made of the Claim or until the Contractor accepts or rejects the tender of defense, whichever occurs first.

- With respect to third-party claims against the Contractor, the Contractor waives all rights of any type to express or implied indemnity against the State, its officers, employees, or agents (excluding agents who are design professionals).

- Nothing in the Contract is intended to establish a standard of care owed to any member of the public or to extend to the public the status of a third-party beneficiary for any of these indemnification specifications.

### **5-1.032 Insurance**

#### **5-1.032A General**

- Nothing in the contract is intended to establish a standard of care owed to any member of the public or to extend to the public the status of a third-party beneficiary for any of these insurance specifications.

#### **5-1.032B Casualty Insurance**

- The Contractor shall procure and maintain insurance on all of its operations with companies acceptable to the State as follows:

1. The Contractor shall keep all insurance in full force and effect from the beginning of the work through contract acceptance.
2. All insurance shall be with an insurance company with a rating from A.M. Best Financial Strength Rating of A- or better and a Financial Size Category of VII or better.
3. The Contractor shall maintain completed operations coverage with a carrier acceptable to the State through the expiration of the patent deficiency in construction statute of repose set forth in Code of Civil Procedure Section 337.1.

#### **5-1.032C Workers' Compensation and Employer's Liability Insurance**

- In accordance with Labor Code Section 1860, the Contractor shall secure the payment of worker's compensation in accordance with Labor Code Section 3700.

- In accordance with Labor Code Section 1861, the Contractor shall submit to the Department the following certification before performing the work:

I am 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 I will comply with such provisions before commencing the performance of the work of this contract.

- Contract execution constitutes certification submittal.
- The Contractor shall provide Employer's Liability Insurance in amounts not less than:
  1. \$1,000,000 for each accident for bodily injury by accident
  2. \$1,000,000 policy limit for bodily injury by disease
  3. \$1,000,000 for each employee for bodily injury by disease

- If there is an exposure of injury to the Contractor's employees under the U.S. Longshoremen's and Harbor Workers' Compensation Act, the Jones Act, or under laws, regulations, or statutes applicable to maritime employees, coverage shall be included for such injuries or claims.

**5-1.032D Liability Insurance**

**5-1.032D(1)General**

- The Contractor shall carry General Liability and Umbrella or Excess Liability Insurance covering all operations by or on behalf of the Contractor providing insurance for bodily injury liability and property damage liability for the following limits and including coverage for:

1. Premises, operations, and mobile equipment
2. Products and completed operations
3. Broad form property damage (including completed operations)
4. Explosion, collapse, and underground hazards
5. Personal injury
6. Contractual liability

**5-1.032D(2) Liability Limits/Additional Insureds**

- The limits of liability shall be at least the amounts shown in the following table:

Total Bid	For Each Occurrence <sup>1</sup>	Aggregate for Products/Completed Operation	General Aggregate <sup>2</sup>	Umbrella or Excess Liability <sup>3</sup>
≤\$1,000,000	\$1,000,000	\$2,000,000	\$2,000,000	\$5,000,000
>\$1,000,000				
≤\$5,000,000	\$1,000,000	\$2,000,000	\$2,000,000	\$10,000,000
>\$5,000,000				
≤\$25,000,000	\$2,000,000	\$2,000,000	\$4,000,000	\$15,000,000
>\$25,000,000	\$2,000,000	\$2,000,000	\$4,000,000	\$25,000,000
1. Combined single limit for bodily injury and property damage. 2. This limit shall apply separately to the Contractor's work under this contract. 3. The umbrella or excess policy shall contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.				

- The Contractor shall not require certified Small Business subcontractors to carry Liability Insurance that exceeds the limits in the table above. Notwithstanding the limits specified herein, at the option of the Contractor, the liability insurance limits for certified Small Business subcontractors of any tier may be less than those limits specified in the table. For Small Business subcontracts, "Total Bid" shall be interpreted as the amount of subcontracted work to a certified Small Business.

- The State, including its officers, directors, agents (excluding agents who are design professionals), and employees, shall be named as additional insureds under the General Liability and Umbrella Liability Policies with respect to liability arising out of or connected with work or operations performed by or on behalf of the Contractor under this contract. Coverage for such additional insureds does not extend to liability:

1. Arising from any defective or substandard condition of the roadway which existed at or before the time the Contractor started work, unless such condition has been changed by the work or the scope of the work requires the Contractor to maintain existing roadway facilities and the claim arises from the Contractor's failure to maintain;
2. For claims occurring after the work is completed and accepted unless these claims are directly related to alleged acts or omissions of the Contractor that occurred during the course of the work; or
3. To the extent prohibited by Insurance Code Section 11580.04

- Additional insured coverage shall be provided by a policy provision or by an endorsement providing coverage at least as broad as Additional Insured (Form B) endorsement form CG 2010, as published by the Insurance Services Office (ISO), or other form designated by the Department.

#### **5-1.032D(3) Contractor's Insurance Policy is Primary**

- The policy shall stipulate that the insurance afforded the additional insureds applies as primary insurance. Any other insurance or self-insurance maintained by the State is excess only and shall not be called upon to contribute with this insurance.

#### **5-1.032E Automobile Liability Insurance**

- The Contractor shall carry automobile liability insurance, including coverage for all owned, hired, and nonowned automobiles. The primary limits of liability shall be not less than \$1,000,000 combined single limit each accident for bodily injury and property damage. The umbrella or excess liability coverage required under Section 5-1.032D(2) also applies to automobile liability.

#### **5-1.032F Policy Forms, Endorsements, and Certificates**

- The Contractor shall provide its General Liability Insurance under Commercial General Liability policy form No. CG0001 as published by the Insurance Services Office (ISO) or under a policy form at least as broad as policy form No. CG0001.

#### **5-1.032G Deductibles**

- The State may expressly allow deductible clauses, which it does not consider excessive, overly broad, or harmful to the interests of the State. Regardless of the allowance of exclusions or deductions by the State, the Contractor is responsible for any deductible amount and shall warrant that the coverage provided to the State is in accordance with Section 5-1.032, "Insurance."

#### **5-1.032H Enforcement**

- The Department may assure the Contractor's compliance with its insurance obligations. Ten days before an insurance policy lapses or is canceled during the contract period, the Contractor shall submit to the Department evidence of renewal or replacement of the policy.

- If the Contractor fails to maintain any required insurance coverage, the Department may maintain this coverage and withhold or charge the expense to the Contractor or terminate the Contractor's control of the work in accordance with Section 6-1.09, "Termination," of the General Conditions.

- The Contractor is not relieved of its duties and responsibilities to indemnify, defend, and hold harmless the State, its officers, agents, and employees by the Department's acceptance of insurance policies and certificates.

- Minimum insurance coverage amounts do not relieve the Contractor for liability in excess of such coverage, nor do they preclude the State from taking other actions available to it, including the withholding of funds under this contract.

#### **5-1.032I Self-Insurance**

- Self-insurance programs and self-insured retentions in insurance policies are subject to separate annual review and approval by the State.

- If the Contractor uses a self-insurance program or self-insured retention, the Contractor shall provide the State with the same protection from liability and defense of suits as would be afforded by first-dollar insurance. Execution of the contract is the Contractor's acknowledgement that the Contractor will be bound by all laws as if the Contractor were an insurer as defined under Insurance Code Section 23 and that the self-insurance program or self-insured retention shall operate as insurance as defined under Insurance Code Section 22.

#### **5-1.04 OCCUPANCY BY THE DEPARTMENT PRIOR TO ACCEPTANCE**

The Department reserves the right to occupy all or any part of the project prior to completion of the entire contract, upon written order therefor. In that event, the Contractor will be relieved of responsibility for any injury or damage to that part as results from the Department's occupancy and use by the Department. If the Contractor carries insurance against damage to the premises or against liability to third persons covering the premises so used and occupied by the Department, and if the occupancy results in increased premiums for insurance, the Department will pay to the Contractor the added cost for insurance during the period of occupancy.

This occupancy does not constitute acceptance by the Director either of the complete work or of any portion thereof, nor will it relieve the Contractor of full responsibility for correcting defective work or materials found at any time before the formal written acceptance of the entire contract by the Director or during the full guarantee period after project acceptance, as provided in Section 7-1.09, "Guarantee," of these General Conditions.

#### **5-1.05 CONTRACTOR'S RESPONSIBILITY FOR THE WORK**

Except as otherwise provided herein, the Contractor shall have the charge and care of the work and shall bear the risk of injury or damage to any part of the work by the action of the elements or from any other cause whether arising from the execution or from the nonexecution of the work until the acceptance of the contract by the Director. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any cause before its completion and acceptance, and shall bear the expense thereof. In case of suspension of work from any cause whatever, the Contractor shall be responsible for the work and shall also be responsible for all materials, and shall properly store them if necessary, and shall provide suitable drainage and erect temporary structures where necessary.

The Contractor will be relieved of responsibility for any injury or damage to the work caused by the following:

- (1) An earthquake in excess of a magnitude of 3.5 on the Richter Scale or a tidal wave, when the effect of that event has been proclaimed a disaster or state of emergency by the Governor of the State of California or by the President of the United States, or was of such magnitude at the site of the work as to have been sufficient to have caused a proclamation of disaster or state of emergency, had it occurred in a populated area.
- (2) Occupancy and use by the Department or the public prior to the completion of the entire project.
- (3) Acts of the Federal Government or the public enemy.

#### **5-1.06 RESPONSIBILITY FOR UTILITIES**

The Contractor shall be responsible for the cost for any and all work, expense or special precautions caused or required by the existence or proximity of utilities encountered in performing the work, including without limitation thereon, repair of any or all damage and all hand or exploratory excavation required. The Contractor is cautioned that the utilities may include communication cables or electrical cables which may be high voltage, and when working or excavating in the vicinity of any cables, or the ducts enclosing cables, the Contractor shall observe any special precautions required and the cost of these special precautions. Suitable warning signs, barricades, and safety devices shall be erected as necessary or required.

However, if during the course of the work the Contractor encounters utility installations which are not shown or indicated on the plans or in the special provisions, or which are found in a location substantially different from that shown, and the utilities are not reasonably apparent from visual examination, then the Contractor shall promptly notify the Engineer in writing. Where necessary for the work of the contract, the Engineer shall issue a written order to the Contractor to make adjustment, rearrangement, repair, removal, alteration, or special handling of the utility, including repair of utility if damaged. The Contractor shall perform the work described in the written order, and compensation therefor will be made in conformance with the provisions in Section 3, "Changes in the Work," of these General Conditions, relating to changes in the work. Except for the items of cost specified in Section 3, "Changes in the Work," of these General Conditions, the Contractor shall receive no compensation for any other cost, damage, delay, interference, or hindrance to him due to the presence of these utilities. If the Contractor fails to give the notice specified above and thereafter acts without instructions from the Engineer, then the Contractor shall be liable for any or all damage to these utilities or other work of the contract

which arises from the Contractor's operations subsequent to discovery thereof, and the Contractor shall repair and make good any damage at the Contractor's expense.

#### **5-1.07 PROPERTY RIGHTS IN MATERIALS**

Nothing in the contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or soil or after partial payment has been made as provided in Section 7-1.05, "Partial Payments," of these General Conditions for material delivered on the ground or stored subject to or under the control of the State and unused. These material shall become the property of the State of California upon being so attached or affixed or upon payment for materials delivered on the ground or stored subject to or under the control of the State and unused, as provided in Section 7-1.05, "Partial Payments," of these General Conditions.

#### **5-1.08 LEGAL ACTIONS AGAINST THE DEPARTMENT**

If, pursuant to court order, the Department temporarily suspends performance of all or any portion of the work, an extension of time determined pursuant to the provisions in Section 6-1.08, "Liquidated Damages," of these General Conditions will be granted, and the Contractor shall not be entitled to any additional compensation because of the suspension.

#### **5-1.09 NO PERSONAL LIABILITY**

Neither the Director, the Engineer, nor any other officer or authorized employee of the Department of Transportation shall be personally responsible for any liability arising under the contract.

#### **5-1.10 PATENTS**

The Contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless the State of California, the Director, the Engineer, and their duly authorized representatives, from all suits at law, or actions of every nature for, or on account of the use of any patented materials, equipment, devices, or processes.

#### **5-1.11 PAYMENT OF TAXES**

The contract price paid for the work shall include full compensation for all taxes which the Contractor is required to pay, whether imposed by Federal, State or local government, including, without being limited to, Federal excise tax. No tax exemption certificate nor any document designed to exempt the Contractor from payment of any tax will be furnished to the Contractor by the Department, as to any tax on labor, services, materials, transportation, or any other items furnished pursuant to the contract.

#### **5-1.12 COOPERATION**

Should construction be under way by State forces or other forces or by other contractors within or adjacent to the limits of the work or should work of any other nature be under way by other forces within or adjacent to those limits, the Contractor shall cooperate with all the other contractors or other forces to the end that any delay, interference or hindrance to their work will be avoided. The right is reserved to perform other or additional work at or near the site at any time, by the use of other forces.

### **SECTION 6**

#### **PROSECUTION AND PROGRESS**

##### **6-1.01 SUBLETTING AND SUBCONTRACTING**

The Contractor shall be responsible for all work performed under the contract. All persons engaged in the work will be considered as employees of the Contractor. The Contractor shall give personal attention to the fulfillment of the contract and shall keep the work under the Contractor's control. When any subcontractor fails to prosecute a portion of the work in a manner satisfactory to the Engineer, the Contractor shall remove that subcontractor immediately upon written request of the Engineer, and the subcontractor shall not again be employed on the work. Although the sections of the contract may be arranged according to various trades, or general grouping of the work, the Contractor is not obligated to sublet the work in the same manner. The State will not arbitrate disputes among subcontractors or between the Contractor and one or more subcontractors concerning responsibility for performing any part of the work.

Subcontracts shall include provisions that the contract between the State and the Contractor is part of the subcontract, and that all terms and provisions of the contract are incorporated in the subcontract. Subcontracts shall also contain certification by the subcontractor that the subcontractor is experienced in and qualified to do, and knowledgeable about, the subcontracted work. Copies of subcontracts shall be available to the Engineer upon written request, and shall be provided to the Engineer at the time any litigation against the State concerning the project is filed.

Pursuant to the provisions of Section 6109 of the Public Contract Code, the Contractor shall not perform work on a public works project with a subcontractor who is ineligible to perform work on the public works project pursuant to Section 1777.1 or 1777.7 of the Labor Code.

The Contractor shall not substitute any person as subcontractor in place of a subcontractor listed on the Contractor's bid proposal without the written approval of the Engineer. Substitutions must be in conformance with the provisions of the "Subletting and Subcontracting Fair Practices Act" beginning with Section 4100 of the Public Contract Code. Violations of this Act by the Contractor may subject him to penalties which may include cancellation of contract, assessment of 10 percent of the subcontractor's bid, and disciplinary action by the Contractors' State License Board.

#### **6-1.02 ASSIGNMENT**

The performance of the contract may not be assigned, except upon the written consent of the Director. Consent will not be given to any proposed assignment which would relieve the original Contractor or the Contractor's surety of their responsibilities under the contract nor will the Director consent to any assignment of a part of the work under the contract.

If the Contractor assigns the right to receive contract payments, the Department accepts the assignment upon the Engineer's receipt of a notice. Assigned payments remain subject to deductions and withholds described in the contract. The Department may use withheld payments for work completion whether payments are assigned or not.

#### **6-1.03 BEGINNING OF WORK**

The Contractor shall begin work within 15 calendar days after receiving notice that the contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department, and shall diligently prosecute the same to completion within the time limit provided in the special provisions.

The Contractor shall notify the Engineer, in writing, of the Contractor's intent to begin work at least 72 hours before work is begun. The notice shall be delivered to the Office of the District Director of Transportation in the district in which the work is situated and shall specify the date the Contractor intends to start. If the project has more than one location of work, a separate notice shall be given for each location.

Should the Contractor begin work in advance of receiving notice that the contract has been approved as above provided, any work performed by the Contractor in advance of the date of approval shall be considered as having been done by the Contractor at the Contractor's own risk and as a volunteer unless the contract is approved.

The delivery to the State for execution and approval of the contract properly executed on behalf of the Contractor and surety and the minimum 72 hours advance written notice as required above shall constitute the Contractor's authority to enter upon the site of the work and to begin operations, subject to the Contractor's assumption of the risk of the disapproval of the contract, as above provided, and subject also to the following:

- (1) The Contractor shall, on commencing operations, take all precautions required for public safety and shall observe all the provisions in these General Conditions and the special provisions.
- (2) In the event of disapproval, the Contractor shall at the Contractor's expense do that work that is necessary to leave the site in a neat condition to the satisfaction of the Engineer.
- (3) All work done according to the contract prior to its approval, will, when the contract is approved, be considered authorized work and will be paid for as provided in the contract.
- (4) The Contractor shall not be entitled to any additional compensation or an extension of time for any delay, hindrance or interference caused by or attributable to commencement of work prior to the date on which the contract was approved by the Attorney General or the attorney appointed and authorized to represent the Department, except to the extent the delay, hindrance or interference would have been compensable hereunder had work been commenced on the date of the approval and the progress thereof been the same as that actually made.

#### **6-1.04 PROGRESS SCHEDULE**

The Contractor shall submit to the Engineer a practicable progress schedule within 15 days of approval of the contract, and within 7 days of the Engineer's written request at any other time.

The Contractor may furnish the schedule on a form of the Contractor's choice or, if requested, the Engineer will furnish a form for the Contractor's use. If the Engineer furnishes a form, the Engineer will also furnish to the Contractor, on request, on or before the last day of each month a copy of the form showing the status of work actually completed during the preceding estimate period.

The schedule shall show the order in which the Contractor proposes to carry out the work, the dates on which the Contractor will start the several salient features of the work, and the contemplated dates for completing those salient features.

The progress schedules submitted shall be consistent in all respects with the time and order of work requirements of the contract.

Subsequent to the time that submittal of a progress schedule is required in conformance with these General Conditions, no progress payment will be made for any work until a satisfactory schedule has been submitted to the Engineer.

#### **6-1.05 SCHEDULE OF VALUES**

The Contractor shall submit to the Engineer a schedule of values for each lump sum item. The sum of the items listed in the schedule of values shall equal the contract lump sum prices. Overhead and profit shall not be listed as separate items. The schedule of values shall be approved by the Engineer before any partial payment estimate is prepared.

#### **6-1.06 TEMPORARY SUSPENSION OF WORK**

The Engineer shall have the authority to suspend the work wholly or in part, for any time period as the Engineer deems necessary, due to unsuitable weather, or to such other conditions as are considered unfavorable for the suitable prosecution of the work, or for any time period as the Engineer deems necessary due to the failure on the part of the Contractor to carry out orders given, or to perform any provision of the contract.

The Contractor shall immediately comply with the written order of the Engineer to suspend the work wholly or in part. The suspended work shall be resumed when conditions are favorable and methods are corrected, as ordered or approved in writing by the Engineer.

If the Engineer orders a suspension of all of the work or a portion of the work which is the current controlling operation or operations, due to unsuitable weather or to such other conditions as are considered unfavorable to the suitable prosecution of the work, the days on which the suspension is in effect shall not be considered working days as defined in Section 6-1.07, "Time of Completion," of these General Conditions. If a portion of work at the time of the suspension is not a current controlling operation or operations, but subsequently does become the current controlling operation or operations, the determination of working days will be made on the basis of the then current controlling operation or operations.

If a suspension of work is ordered by the Engineer, due to the failure on the part of the Contractor to carry out orders given or to perform any provision of the contract, the days on which the suspension order is in effect shall be considered working days if those days are working days within the meaning of the definition set forth in Section 6-1.07, "Time of Completion," of these General Conditions.

In the event of a suspension of work under any of the conditions set forth in this Section 6-1.06, the suspension of work shall not relieve the Contractor of the Contractor's legal responsibilities as set forth in these General Conditions.

The Contractor shall have no claim for damage or compensation for any delay, interference or hindrance resulting from an ordered temporary suspension of the work.

In addition to the requirements specified above, the following shall apply:

If the performance of all or any portion of the work is suspended or delayed by the Engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the Contractor believes that additional compensation or contract time or additional compensation and contract time is due as a result of the suspension or delay, the Contractor shall submit to the Engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for the adjustment.

Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost or time or cost and time required for the performance of the contract has increased as a result of the suspension and the suspension was caused by conditions beyond the control of and not the fault of the Contractor, the Contractor's suppliers, or subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The Engineer will notify the Contractor of the Engineer's determination whether or not an adjustment of the contract is warranted.

No contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.

No contract adjustment will be allowed under the provisions specified in this section to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any term or condition of this contract.

#### **6-1.07 TIME OF COMPLETION**

The Contractor shall complete all or any designated portion of the work called for under the contract in all parts and requirements within the time set forth in the special provisions.

A working day is defined as any day, except Saturdays and holidays and days on which the Contractor is specifically required by the special provisions to suspend construction operations, and except days on which the Contractor is prevented by inclement weather or conditions resulting immediately therefrom adverse to the current controlling operation or operations, as determined by the Engineer, from proceeding with at least 75 percent of the normal labor and equipment force engaged on the controlling operation or operations for at least 60 percent of the total daily time being currently spent on the controlling operation or operations.

Should the Contractor prepare to begin work at the regular starting time in the morning of any day on which inclement weather, or the conditions resulting from the weather, or the condition of the work, prevents the work from beginning at the usual starting time and the crew is dismissed as a result thereof and the Contractor does not proceed with at least 75 percent of the normal labor and equipment force engaged in the current controlling operation or operations for at least 60 percent of the total daily time being currently spent on the controlling operation or operations, the Contractor will not be charged for a working day whether or not conditions should change thereafter during that day and the major portion of the day could be considered to be suitable for those construction operations.

The current controlling operation or operations is to be construed to include any feature of the work which, if delayed, will delay the time of completion of the contract.

Determination that a day is a nonworking day by reason of inclement weather or conditions resulting immediately therefrom shall be made and agreed upon during that day by conference between the Engineer and the Contractor. In the event of failure to agree, the Contractor will be allowed 15 days from the issuance of the weekly statement of working days in which to file a written protest setting forth in what respects the Contractor differs from the Engineer, otherwise the decision of the Engineer shall be deemed to have been accepted by the Contractor as correct. The Engineer will furnish the Contractor a weekly statement showing the number of working days charged to the contract for the preceding week, the number of working days of time extensions being considered or approved, the number of working days originally specified for the completion of the contract and the number of working days remaining to complete the contract and the extended date for completion thereof, except when working days are not being charged in conformance with the provisions in Section 6-1.06, "Temporary Suspension of Work," of these General Conditions.

#### **6-1.08 LIQUIDATED DAMAGES**

It is agreed by the parties to the contract that in case all the work called for under the contract in all parts and requirements is not finished or completed within the number of working days as set forth in the special provisions, damage will be sustained by the State of California, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the State will sustain in the event of and by reason of the delay; and it is therefore agreed that the Contractor will pay to the State of California, the sum set forth in the special provisions per day for each and every calendar day's delay in finishing the work in excess of the number of working days prescribed; and the Contractor agrees to pay the liquidated damages herein provided for, and further agrees that the Department may deduct the amount thereof from any moneys due or that may become due the Contractor under the contract.

It is further agreed that in case the work called for under the contract is not finished and completed in all parts and requirements within the number of working days specified, the Director shall have the right to increase the number of working days or not, as the Director may deem best to serve the interest of the State, and if the Director decides to increase the number of working days, the Director shall further have the right to charge to the Contractor, the Contractor's heirs, assigns or sureties and to deduct from the final payment for the work all or any part, as the Director may deem proper, of the actual cost of engineering, inspection, superintendence, and other overhead expenses which are directly chargeable to the contract, and which accrue during the period of the extension, except that cost of final surveys and preparation of final statement shall not be included in the charges.

The Contractor will be granted an extension of time and will not be assessed with liquidated damages or the cost of engineering and inspection for any portion of the delay in completion of the work beyond the time named in the special provisions for the completion of the work caused by acts of God or of the public enemy, fire, floods, tsunamis, earthquakes, epidemics, quarantine restrictions, strikes, labor disputes, shortage of materials and freight embargoes, provided, that the Contractor shall notify the Engineer in writing of the causes of delay within 15 days from the beginning of that delay. The Engineer shall ascertain the facts and the extent of the delay, and the Engineer's findings thereon shall be final and conclusive.

No extension of time will be granted for a delay caused by a shortage of materials unless the Contractor furnishes to the Engineer documentary proof that the Contractor has made every effort to obtain the materials from all known sources within reasonable reach of the work in a diligent and timely manner, and further proof in the form of supplementary progress schedules, as required in Section 6-1.04, "Progress Schedule," of these General Conditions that the inability to obtain the materials when originally planned, did in fact cause a delay in final completion of the entire work which could not be compensated for by revising the sequence of the Contractor's operations. The term "shortage of materials," as used in this section, shall apply only to materials, articles, parts or equipment which are standard items and are to be incorporated in the work. The term "shortage of materials," shall not apply to materials, parts, articles, or equipment which are processed, made, constructed, fabricated or manufactured to meet the specific requirements of the contract. Only the physical shortage of material will be considered under these provisions as a cause for extension of time. Delays in obtaining materials due to priority in filling orders will not constitute a shortage of materials.

If the Contractor is delayed in completion of the work by reason of changes made under Section 3, "Changes in the Work," of these General Conditions or by any act of the Engineer or of the Department, not contemplated by the contract, an extension of time commensurate with the delay in completion of the work thus caused will be granted and the Contractor shall be relieved from any claim for liquidated damages, or engineering and inspection charges or other penalties for the period covered by that extension of time; provided that the Contractor shall notify the Engineer in writing of the causes of delay within 15 days from the beginning of the delay. The Engineer shall ascertain the facts and the extent of the delay, and the Engineer's findings thereon shall be final and conclusive.

Except as provided in Public Contract Code Section 7102, the Contractor shall have no claim for damage or compensation for any delay or hindrance whether or not contemplated by the contract.

It is the intention of the above provisions that the Contractor shall not be relieved of liability for liquidated damages or engineering and inspection charges for any period of delay in completion of the work in excess of that expressly provided for in this Section 6-1.08.

## **6-1.09 TERMINATION**

### **6-1.09A Termination Of Contract - "Convenience Of State"**

The Department reserves the right to terminate the contract at any time if the Director determines that to do so would be in the best interest of the State.

Termination of the contract and the total compensation payable to the Contractor in the event of termination shall be governed by the following:

- (1) The Engineer will issue the Contractor a written notice signed by the Director, specifying that the contract is to be terminated. Upon receipt of that written notice and, except as otherwise directed in writing by the Engineer, the Contractor shall:
  - (a) Stop all work under the contract except that specifically directed to be completed prior to acceptance.
  - (b) Perform work the Engineer deems necessary to secure the project for termination.
  - (c) Remove equipment from the site of the work.
  - (d) Take the required action as is necessary to protect materials from damage.
  - (e) Notify all subcontractors and suppliers that the contract is being terminated and that their contracts or orders are not to be further performed unless otherwise authorized in writing by the Engineer.
  - (f) Provide the Engineer with an inventory list of all materials previously produced, purchased or ordered from suppliers for use in the work and not yet used in the work, including its storage location, and any other information as the Engineer may request.
  - (g) Dispose of materials not yet used in the work as directed by the Engineer. It shall be the Contractor's responsibility to provide the State with good title to all materials purchased by the State hereunder, including materials for which partial payment has been made as provided in Section 7-1.05, "Partial Payments," of these General Conditions and with bills of sale or other documents of title for the materials.

- (h) Subject to the prior written approval of the Engineer, settle all outstanding liabilities and all claims arising out of subcontracts or orders for materials terminated hereunder. To the extent directed by the Engineer, the Contractor shall assign to the Department all the right, title and interest of the Contractor under subcontracts or orders for materials terminated hereunder.
  - (i) Furnish the Engineer with the documentation required to be furnished by the Contractor under the provisions of the contract including, on projects as to which Federal funds are involved, all documentation required under the Federal requirements included in the contract.
  - (j) Take other actions as the Engineer may direct.
- (2) Acceptance of the contract as hereinafter specified shall not relieve the Contractor of responsibility for damage to materials except as follows:

The Contractor's responsibility for damage to materials for which partial payment has been made as provided in Section 7-1.05, "Partial Payments," of these General Conditions and for materials furnished by the State for use in the work and unused shall terminate when the Engineer certifies that the materials have been stored in the manner and at the locations the Engineer has directed.

The Contractor's responsibility for damage to materials purchased by the State subsequent to the issuance of the notice that the contract is to be terminated shall terminate when title and delivery of those materials has been taken by the State.

When the Engineer determines that the Contractor has completed the work under the contract directed to be completed prior to termination and all other work as may have been ordered to secure the project for termination, the Engineer will recommend that the Director formally accept the contract, and immediately upon and after the acceptance by the Director, the Contractor will not be required to perform any further work thereon and shall be relieved of contractual responsibilities for injury to persons or damage to property which occurs after the formal acceptance of the project by the Director.

- (3) The total compensation to be paid to the Contractor shall be determined by the Engineer on the basis of the following:
- (a) The reasonable cost to the Contractor, without profit, for all work performed under the contract, including mobilization, demobilization and work done to secure the project for termination.  
When in the opinion of the Engineer the cost of the work is excessively high due to costs incurred to remedy or replace defective or rejected work, the reasonable cost to be allowed will be the estimated reasonable cost of performing that work in compliance with the requirements of the plans and special provisions and the excessive actual cost shall be disallowed.
  - (b) A reasonable allowance for profit on the cost of work performed as determined under Subsection (a), provided the Contractor establishes to the satisfaction of the Engineer that it is reasonably probable that the Contractor would have made a profit had the contract been completed and provided further, that the profit allowed shall in no event exceed 4 percent of the cost.
  - (c) The reasonable cost to the Contractor of handling material returned to the vendor, delivered to the Department or otherwise disposed of as directed by the Engineer.
  - (d) A reasonable allowance for the Contractor's administrative costs in determining the amount payable due to termination of the contract.

All records of the Contractor and subcontractors, necessary to determine compensation in conformance with the provisions of this Section shall be open to inspection or audit by representatives of the Department at all times after issuance of the notice that the contract is to be terminated and for a period of 3 years, and these records shall be retained for that period.

After acceptance of the work by the Director, the Engineer may make payments on the basis of interim estimates pending issuance of the Final Statement, when in the Engineer's opinion the amount thus paid, together with all amounts previously paid or allowed, will not result in total compensation in excess of that to which the Contractor will be entitled. All payments, including payment upon the Final Statement, shall be subject to deduction for prior payments and amounts, if any, to be kept or retained under the provisions of the contract.

The provisions of this Section shall be included in all subcontracts.

**6-1.09B Termination Of Control - "Default Of Contractor"**

Failure to supply an adequate working force, or material of proper quality, or failure to comply with Section 10262 of the State Contract Act, or in any other respect to prosecute the work with the diligence and force specified by the contract, is grounds for termination of the Contractor's control over the work and for taking over the work by the State. The procedures for termination, completion of the work, and the rights and obligations of the parties are provided for in the State Contract Act (Public Contract Code Sections 10253-10260).

If the Contractor's control of the work is terminated or the Contractor abandons the work and the contract work is completed in conformance with the provisions in Section 10255 of the State Contract Act, any dispute concerning the amount to be paid by the State to the Contractor or the Contractor's surety or to be paid to the State by the Contractor or the Contractor's surety, under the provisions in Section 10258 of the State Contract Act, shall be subject to arbitration in conformance with the provisions in Section 7-1.10, "Arbitration," of these General Conditions. The surety shall be bound by the arbitration award and is entitled to participate in the arbitration proceedings.

**SECTION 7**

**ACCEPTANCE AND PAYMENT**

**7-1.01 ACCEPTANCE**

The contract will be accepted in writing by the Director when the whole shall have been completed in all respects in conformance with the provisions of the contract to the full satisfaction of the Department.

**7-1.02 SCOPE OF PAYMENT**

The Contractor shall accept the compensation provided in the contract as full payment for furnishing all labor, materials, tools, equipment, and incidentals necessary to the completed work and for performing all work contemplated and embraced under the contract; also for loss or damage arising from the nature of the work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the work until the acceptance by the Director and for all risks of every description connected with the prosecution of the work, also for all expenses incurred in consequence of the suspension or discontinuance of the work as provided in the contract; and for completing the work according to the contract. Neither the payment of any estimate nor of any retained percentage or withhold relieves the Contractor of any obligation to make good any defective work or material.

No compensation will be made in any case for loss of anticipated profits.

**7-1.03 NOTICE OF POTENTIAL CLAIM**

It is the intention of this section that disputes between the parties arising under and by virtue of the contract be brought to the attention of the Engineer at the earliest possible time in order that the matters may be resolved, if possible, or other appropriate action promptly taken.

Disputes will not be considered unless the Contractor has first complied with specified notice or protest requirements, including Section 3, "Changes in the Work," the notice provisions in Section 2-1.045, "Differing Site Conditions," Section 6-1.07, "Time of Completion," Section 6-1.08, "Liquidated Damages," and Section 5-1.06, "Responsibility for Utilities," of these General Conditions.

For disputes arising under and by virtue of the contract, including an act or failure to act by the Engineer, the Contractor shall provide a signed written initial notice of potential claim to the Engineer within 5 days from the date the dispute first arose. The initial notice of potential claim shall provide the nature and circumstances involved in the dispute which shall remain consistent through the dispute. The initial notice of potential claim shall be submitted on Form CEM-6201A furnished by the Department and shall be certified with reference to the California False Claims Act, Government Code Sections 12650-12655. The Contractor shall assign an exclusive identification number for each dispute, determined by chronological sequencing, based on the date of the dispute.

The exclusive identification number for each dispute shall be used on the following corresponding documents:

1. Initial notice of potential claim
2. Supplemental notice of potential claim
3. Full and final documentation of potential claim
4. Corresponding claim included in the Contractor's written statement of claims

The Contractor shall provide the Engineer the opportunity to examine the site of work within 5 days from the date of the initial notice of potential claim. The Contractor shall proceed with the performance of contract work unless otherwise specified or directed by the Engineer.

Throughout the disputed work, the Contractor shall maintain records that provide a clear distinction between the incurred direct costs of disputed work and that of undisputed work. The Contractor shall allow the Engineer access to the Contractor's project records deemed necessary by the Engineer to evaluate the potential claim within 20 days of the date of the Engineer's written request.

Within 15 days of submitting the initial notice of potential claim, the Contractor shall provide a signed supplemental notice of potential claim to the Engineer that provides the following information:

1. The complete nature and circumstances of the dispute which caused the potential claim
2. The contract provisions that provide the basis of claim
3. The estimated cost of the potential claim, including an itemized breakdown of individual costs and how the estimate was determined
4. A time impact analysis of the project schedule that illustrates the effect on the scheduled completion date due to schedule changes or disruptions where a request for adjustment of contract time is made

The information provided in items 1 and 2 above shall provide the Contractor's complete reasoning for additional compensation or adjustments.

The supplemental notice of potential claim shall be submitted on Form CEM-6201B furnished by the Department and shall be certified with reference to the California False Claims Act, Government Code Sections 12650-12655. The Engineer will evaluate the information presented in the supplemental notice of potential claim and provide a written response to the Contractor within 20 days of its receipt. If the estimated cost or effect on the scheduled completion date changes, the Contractor shall update information in items 3 and 4 above as soon as the change is recognized and submit this information to the Engineer.

Within 30 days of the completion of work related to the potential claim, the Contractor shall provide the full and final documentation of potential claim to the Engineer that provides the following information:

1. A detailed factual narration of events fully describing the nature and circumstances that caused the dispute, including, but not limited to, necessary dates, locations, and items of work affected by the dispute
2. The specific provisions of the contract that support the potential claim and a statement of the reasons these provisions support and provide a basis for entitlement of the potential claim
3. When additional monetary compensation is requested, the exact amount requested calculated in conformance with Section 3, "Changes in the Work," including an itemized breakdown of individual costs. These costs shall be segregated into the following cost categories:
  - 3.1. Labor – A listing of individuals, classifications, regular hours and overtime hours worked, dates worked, and other pertinent information related to the requested reimbursement of labor costs
  - 3.2. Materials – Invoices, purchase orders, location of materials either stored or incorporated into the work, dates materials were transported to the project or incorporated into the work, and other pertinent information related to the requested reimbursement of material costs
  - 3.3. Equipment – Listing of detailed description (make, model, and serial number), hours of use, dates of use and equipment rates. Equipment rates shall be at the applicable State rental rate as listed in the Department of Transportation publication entitled "Labor Surcharge and Equipment Rental Rates," in effect when the affected work related to the dispute was performed.
  - 3.4. Other categories as specified by the Contractor or the Engineer
4. When an adjustment of contract time is requested the following information shall be provided:
  - 4.1. The specific dates for which contract time is being requested
  - 4.2. The specific reasons for entitlement to a contract time adjustment
  - 4.3. The specific provisions of the contract that provide the basis for the requested contract time adjustment

- 4.4. A detailed time impact analysis of the project schedule. The time impact analysis shall show the effect of changes or disruptions on the scheduled completion date to demonstrate entitlement to a contract time adjustment.
5. The identification and copies of the Contractor's documents and the substance of oral communications that support the potential claim

The full and final documentation of the potential claim shall be submitted on Form CEM-6201C furnished by the Department and shall be certified with reference to the California False Claims Act, Government Code Sections 12650-12655.

Pertinent information, references, arguments, and data to support the potential claim shall be included in the full and final documentation of potential claim. Information submitted subsequent to the full and final documentation submittal will not be considered. Information required in the full and final documentation of potential claim, as listed in items 1 to 5 above, that is not applicable to the dispute may be exempted as determined by the Engineer. No full and final documentation of potential claim will be considered that does not have the same nature and circumstances, and basis of claim as those specified on the initial and supplemental notices of potential claim.

The Engineer will evaluate the information presented in the full and final documentation of potential claim and provide a written response to the Contractor within 30 days of its receipt unless otherwise specified. The Engineer's receipt of the full and final documentation of potential claim shall be evidenced by postal receipt or the Engineer's written receipt if delivered by hand. If the full and final documentation of potential claim is submitted by the Contractor after acceptance of the work by the Director, the Engineer need not provide a written response.

Provisions in this section shall not apply to those claims for overhead costs and administrative disputes that occur after issuance of the proposed final estimate. Administrative disputes are disputes of administrative deductions or withholds, contract item quantities, contract item adjustments, interest payments, protests of contract change orders as provided in Section 3-1.01D, "Failure To Agree To The Cost Of Changes" and protests of the Weekly Statement of Working Days as provided in Section 6-1.07, "Time of Completion." Administrative disputes that occur prior to issuance of the proposed final estimate shall follow applicable requirements of this section. Information listed in the supplemental notice and full and final documentation of potential claim that is not applicable to the administrative dispute may be exempted as determined by the Engineer.

Unless otherwise specified in the special provisions, the Contractor may pursue the administrative claim process pursuant to Section 7-1.07, "Final Payment and Claims," for any potential claim found by the Engineer to be without merit.

Failure of the Contractor to conform to specified dispute procedures shall constitute a failure to pursue diligently and exhaust the administrative procedures in the contract, and is deemed as the Contractor's waiver of the potential claim and a waiver of the right to a corresponding claim for the disputed work in the administrative claim process in conformance with Section 7-1.07, "Final Payment and Claims," and shall operate as a bar to arbitration pursuant to Section 10240.2 of the California Public Contract Code.

#### **7-1.04 STOP NOTICE WITHHOLDS**

The Department may withhold payments to cover claims filed under Civ Code § 3179 et seq.

#### **7-1.043 PERFORMANCE FAILURE WITHHOLDS**

During each estimate period you fail to comply with a contract part, including submittal of a document as specified, the Department withholds a part of the progress payment. The documents include quality control plans, schedules, traffic control plans, and water pollution control submittals.

For 1 performance failure, the Department withholds 25 percent of the progress payment but does not withhold more than 10 percent of the total bid.

For multiple performance failures, the Department withholds 100 percent of the progress payment but does not withhold more than 10 percent of the total bid.

The Department returns performance-failure withholds in the progress payment following the correction of noncompliance.

#### **7-1.045 PENALTY WITHHOLDS**

Penalties include fines and damages that are proposed, assessed, or levied against you or the Department by a governmental agency or citizen lawsuit. Penalties are also payments made or costs incurred in settling alleged permit violations of Federal, State, or local laws, regulations, or requirements. The cost incurred may include the amount spent for mitigation or correcting a violation.

If you or the Department is assessed a penalty, the Department may withhold the penalty amount until the penalty disposition has been resolved. The Department may withhold penalty funds and notify you within 15 days of the withhold. If the penalty amount is less than the amount being withheld from progress payments for retentions, the Department will not withhold the penalty amount.

If the penalty is resolved for less than the amount withheld, the Department pays interest at a rate of 6 percent per year on the excess withhold. If the penalty is not resolved, the withhold becomes a deduction.

Instead of the withhold, you may provide a bond payable to the Department of Transportation equal to the highest estimated liability for any disputed penalties proposed.

#### **7-1.047 PROGRESS WITHHOLDS FOR FEDERAL-AID CONTRACTS**

Section 7-1.047, "Progress Withholds for Federal-Aid Contracts," applies to a Federal-aid contract.

The Department withholds 10 percent of a partial payment for noncompliant progress. Noncompliant progress occurs when:

1. Total days to date exceed 75 percent of the revised contract working days
2. Percent of working days elapsed exceeds the percent of value of work completed by more than 15 percent

The Engineer determines the percent of working days elapsed by dividing the total days to date by the revised contract working days and converting the quotient to a percentage.

The Engineer determines the percent of value of work completed by summing payments made to date and the amount due on the current progress estimate, dividing this sum by the current total estimated value of the work, and converting the quotient to a percentage. These amounts are shown on the Progress Payment Voucher.

When the percent of working days elapsed minus the percent of value of work completed is less than or equal to 15 percent, the Department returns the withhold in the next progress payment.

#### **7-1.05 PARTIAL PAYMENTS**

The Department, once in each month upon request of the Contractor for partial payments, shall cause an estimate in writing to be made by the Engineer. The estimate shall include the total amount of work done and acceptable materials furnished to the time of the estimate, and the value thereof. The acceptable materials shall include materials that are furnished and delivered to the work site and are not incorporated in the work.

For a non-Federal-aid project, the Department retains 10 percent of the estimated value of the work done and 10 percent of the value of materials estimated to have been furnished and delivered and unused or furnished and stored as part security for the fulfillment of the contract by the Contractor, except that at any time after 20 percent of the work has been completed, if the Engineer finds that satisfactory progress is being made, the Department may reduce the total amount being retained from payment pursuant to the above requirements to 5 percent of the total estimated value of the work and materials and may also reduce the amount retained from any of the remaining partial payments to 5 percent of the estimated value of the work and materials. In addition, on any partial payment made after 95 percent of the work has been completed, the Department may reduce the amount retained from payment pursuant to the requirements of this Section 7-1.05, to such lesser amount as the Department determines is adequate security for the fulfillment of the balance of the work and other requirements of the contract, but in no event is that amount reduced to less than 125 percent of the estimated value of the work yet to be completed as determined by the Engineer. The reduction is made only upon the request of the Contractor and must be approved in writing by the surety on the performance bond and by the surety on the payment bond. The approval of the surety must be submitted to the Disbursing Officer of the Department; the signature of the person executing the approval for the surety must be properly acknowledged and the power of attorney authorizing the person to give that consent must either accompany the document or be on file with the Department. The retentions specified in this paragraph are those defined in Pub Cont Code § 7107(b).

The Department shall pay monthly to the Contractor, while carrying on the work, the balance not retained, as aforesaid, after deducting therefrom all previous payments and all sums to be deducted or withheld under the provisions of the contract. No monthly estimate or payment shall be required to be made when, in the judgment of the Engineer, the work is not proceeding in conformance with the provisions of the contract.

No monthly estimate or payment shall be construed to be an acceptance of any defective work or improper materials.

Attention is directed to the prohibitions and penalties pertaining to unlicensed contractors as provided in Business and Professions Code Sections 7028.15(a) and 7031.

#### **7-1.055 PROMPT PROGRESS PAYMENT TO SUBCONTRACTORS**

Attention is directed to the provisions in Sections 10262 and 10262.5 of the Public Contract Code and Section 7108.5 of the Business and Professions Code concerning prompt payment to subcontractors.

#### **7-1.06 RELEASE OF RETAINED FUNDS**

The Department releases retained funds if you:

1. Request release of the retention (Pub Cont Code § 10263) in writing
2. Deposit securities equivalent to the funds you want released into escrow with the State Treasurer or with a bank acceptable to the Department
3. Are the beneficial owner of and receive interest on the deposited securities substituted for the retained funds

Alternatively, upon the Contractor's request, the Department will make payment of retentions earned directly to the escrow agent. The Contractor may direct the investment of the payments into securities and the Contractor shall receive the interest earned on the investments upon the same terms provided for securities deposited by the Contractor. Upon satisfactory completion of the contract, the Contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the Department, pursuant to the terms in Section 10263 of the Public Contract Code.

Alternatively, and subject to the approval of the Department, the payment of retentions earned may be deposited directly with a person licensed under Division 6 (commencing with Section 17000) of the Financial Code as the escrow agent. Upon written request of an escrow agent that has not been approved by the Department under subdivision (c) of Section 10263 of the Public Contract Code, the Department will provide written notice to that escrow agent within 10 business days of receipt of the request indicating the reason or reasons for not approving that escrow agent. The payments will be deposited in a trust account with a Federally chartered bank or savings association within 24 hours of receipt by the escrow agent. The Contractor shall not place any retentions with the escrow agent in excess of the coverage provided to that escrow agent pursuant to subdivision (b) of Section 17314 of the Financial Code. In all respects not inconsistent with subdivision (c) of Section 10263 of the Public Contract Code, the remaining provisions of Section 10263 of the Public Contract Code shall apply to escrow agents acting pursuant to subdivision (c) of Section 10263 of the Public Contract Code.

Securities eligible for investment shall include those listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and the Department.

The escrow agreement used pursuant to this Section 7-1.06 shall be substantially similar to the "Escrow Agreement for Security Deposits In Lieu of Retention" in Section 10263 of the Public Contract Code, deemed as incorporated herein by reference.

The Contractor shall obtain the written consent of the surety to the agreement.

#### **7-1.07 FINAL PAYMENT AND CLAIMS**

After acceptance by the Director, the Engineer makes a proposed final estimate of the total amount payable to the Contractor, including an itemization of the total amount, segregated by contract item quantities, extra work, and other basis for payment, and shows each deduction made or to be made for prior payments and amounts to be deducted, withheld, or retained under the provisions of the contract. Prior estimates and payments are subject to correction in the proposed final estimate. The Contractor must submit written approval of the proposed final estimate or a written statement of claims arising under or by virtue of the contract so that the Engineer receives the written approval or statement of claims no later than close of business of the 30th day after receiving the proposed final estimate. The Contractor's receipt of the proposed final estimate must be evidenced by postal receipt. The Engineer's receipt of the Contractor's written approval or statement of claims must be evidenced by postal receipt or the Engineer's written receipt if delivered by hand.

On the Contractor's approval, or if the Contractor files no claim within the specified period of 30 days, the Engineer will issue a final estimate in writing in conformance with the proposed final estimate submitted to the Contractor, and within 30 days thereafter the State will pay the entire sum so found to be due. That final estimate and payment thereon shall be conclusive and binding against both parties to the contract on all questions relating to the amount of work done and the compensation payable therefor, except as otherwise provided in Section 7-1.08, "Clerical Errors."

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If the Contractor within the specified period of 30 days files claims, the Engineer will issue a semifinal estimate in conformance with the proposed final estimate submitted to the Contractor and within 30 days thereafter the State will pay the sum found to be due. The semifinal estimate and corresponding payment shall be conclusive and binding against both parties to the contract on each question relating to the amount of work done and the compensation payable therefor, except insofar as affected by the claims filed within the time and in the manner required hereunder and except as otherwise provided in Section 7-1.08, "Clerical Errors."

Except for claims for overhead costs and administrative disputes that occur after issuance of the proposed final estimate, the Contractor shall only provide the following two items of information for each claim:

1. The exclusive identification number that corresponds to the supporting full and final documentation of potential claim
2. The final amount of requested additional compensation

If the final amount of requested additional compensation is different than the amount of requested compensation included in the full and final documentation of potential claim, the Contractor shall provide in the written statement of claims the reasons for the changed amount, the specific provisions of the contract which support the changed amount, and a statement of the reasons the provisions support and provide a basis for the changed amount. If the Contractor's claim fails to provide an exclusive identification number or if there is a disparity in the provided exclusive identification number, the Engineer will notify the Contractor of the omission or disparity. The Contractor shall have 15 days after receiving notification from the Engineer to correct the omission or disparity. If after the 15 days has elapsed, there is still an omission or disparity of the exclusive identification number assigned to the claim, the Engineer will assign the number. No claim will be considered that has any of the following deficiencies:

1. The claim does not have the same nature, circumstances, and basis as the corresponding full and final documentation of potential claim.
2. The claim does not have a corresponding full and final documentation of potential claim.
3. The claim was not included in the written statement of claims.
4. The Contractor did not comply with applicable notice or protest requirements of Sections 3, "Changes in the Work," 2-1.045, "Differing Site Conditions," 6-1.07, "Time of Completion," 6-1.08, "Liquidated Damages," 5-1.06, "Responsibility for Utilities," and 7-1.03, "Notice of Potential Claim" of these General Conditions.

Administrative disputes that occur after issuance of the proposed final estimate shall be included in the Contractor's written statement of claims in sufficient detail to enable the Engineer to ascertain the basis and amounts of those claims.

The Contractor shall keep full and complete records of the costs and additional time incurred for work for which a claim for additional compensation is made. The Engineer or designated claim investigators or auditors shall have access to those records and any other records as may be required by the Engineer to determine the facts or contentions involved in the claims. Failure to permit access to those records shall be sufficient cause for denying the claims.

The written statement of claims submitted by the Contractor shall be accompanied by a notarized certificate containing the following language:

Under the penalty of law for perjury or falsification and with specific reference to the California False Claims Act, Government Code Section 12650 et. seq., the undersigned,

\_\_\_\_\_  
(name) \_\_\_\_\_ of  
(title) \_\_\_\_\_  
\_\_\_\_\_  
(company)

hereby certifies that the claim for the additional compensation and time, if any, made herein for the work on this contract is a true statement of the actual costs incurred and time sought, and is fully documented and supported under the contract between parties.

Dated \_\_\_\_\_  
/s/ \_\_\_\_\_  
Subscribed and sworn before me this \_\_\_\_\_ day  
of \_\_\_\_\_

\_\_\_\_\_  
(Notary Public)  
My Commission  
Expires \_\_\_\_\_

Failure to submit the notarized certificate will be sufficient cause for denying the claim.

Any claim for overhead, in addition to being certified as stated above, shall be supported and accompanied by an audit report of an independent Certified Public Accountant. Omission of a supporting audit report of an independent Certified Public Accountant shall result in denial of the claim and shall operate as a bar to arbitration, as to the claim, in conformance with the requirements in Section 10240.2 of the California Public Contract Code. Any claim for overhead shall be subject to audit by the State at its discretion. The costs of performing an audit examination and submitting the report shall be borne by the Contractor. The Department will deduct an offset amount for field and home office overhead paid on all added work from any claim for overhead as appropriate, as determined by the Department. The value of the added work equals the value of the work completed minus the total bid. The home office overhead offset equals 5 percent of the added work. The field office overhead offset equals 5-1/2 percent of the added work. The Certified Public Accountant's audit examination shall be performed in conformance with the requirements of the American Institute of Certified Public Accountants Attestation Standards. The audit examination and report shall depict the Contractor's project and company-wide financial records and shall specify the actual overall average daily rates for both field and home office overhead for the entire duration of the project, and whether the costs have been properly allocated. The rates of field and home office overhead shall exclude unallowable costs as determined in Title 48 of the Federal Acquisition Regulations, Chapter 1, Part 31. The audit examination and report shall determine if the rates of field and home office overhead are:

1. Allowable in conformance with the requirements in Title 48 of the Federal Acquisition Regulations, Chapter 1, Part 31.
2. Adequately supported by reliable documentation.
3. Related solely to the project under examination.

Costs or expenses incurred by the State in reviewing or auditing claims that are not supported by the Contractor's cost accounting or other records shall be deemed to be damages incurred by the State within the meaning of the California False Claims Act.

If the Engineer determines that a claim requires additional analysis, the Engineer will schedule a board of review meeting. The Contractor shall meet with the review board or person and make a presentation in support of the claim. Attendance by the Contractor at the board of review meeting shall be mandatory.

The District Director of the District that administered the contract will make the final determination of any claims which remain in dispute after completion of claim review by the Engineer or board of review meeting.

The final determination of claims will be sent to the Contractor by hand delivery or deposit in the U.S. mail. The Engineer will then make and issue the Engineer's final estimate in writing and within 30 days thereafter the State will pay the entire sum, if any, found due thereon. That final estimate shall be conclusive and binding against both parties to the contract on all questions relating to the amount of work done and the compensation payable therefor, except as otherwise provided in Section 7-1.08, "Clerical Errors."

Failure of the Contractor to conform to the specified dispute procedures shall constitute a failure to pursue diligently and exhaust the administrative procedures in the contract and shall operate as a bar to arbitration in conformance with the requirements in Section 10240.2 of the California Public Contract Code.

#### **7-1.075 INTEREST ON PAYMENTS**

Interest shall be payable on progress payments, payments after acceptance, final statement, ordered changes in the work payments, and claim payments as follows:

1. Unpaid progress payments, payment after acceptance, and final statements shall begin to accrue interest 30 days after the Engineer prepares the payment estimate.
2. Unpaid ordered changes in work bills shall begin to accrue interest 30 days after preparation of the first pay estimate following receipt of a properly submitted and undisputed bill for ordered changes in the work. To be properly submitted, the bill must be submitted within 7 days of the performance of the ordered change in the work and in conformance with the provisions in Section 3, "Changes in the Work," and Section 7-1.05, "Partial Payments," of the General Conditions. An undisputed ordered change in the work bill not submitted within 7 days of performance of the ordered change in the work will begin to accrue interest 30 days after the preparation of the second pay estimate following submittal of the bill.
3. The rate of interest payable for unpaid progress payments, payments after acceptance, final payments, and ordered change in the work payments shall be 10 percent per annum.
4. The rate of interest payable on a claim, protest or dispute ultimately allowed under this contract shall be 6 percent per annum. Interest shall begin to accrue 61 days after the Contractor submits to the Engineer information in sufficient detail to enable the Engineer to ascertain the basis and amount of that claim, protest or dispute.

The rate of interest payable on any award in arbitration shall be 6 percent per annum if allowed under the provisions of Civil Code Section 3289.

#### **7-1.08 CLERICAL ERRORS**

Notwithstanding the provisions in Section 7-1.07, "Final Payment And Claims," of these General Conditions, for a period of 3 years after acceptance of the work, all estimates and payments made pursuant to Section 7-1.07, including the final statement and payment, shall be subject to correction and adjustment for clerical errors in the calculations involved in the determination of quantities and payments. The Contractor and the Department agree to pay to the other any sum due under the provisions of this Section 7-1.08, provided, however, if the total sum to be paid is less than \$200, no payment shall be made.

#### **7-1.09 GUARANTEE**

The Contractor hereby unconditionally guarantees that the work will be done in conformance with the requirements of the contract, and further guarantees the work of the contract to be and remain free of defects in workmanship and materials for a period of one year from the date of acceptance of the contract, unless a longer guarantee period is required by the special provisions. The Contractor hereby agrees to repair or replace any and all work, together with any other adjacent work which may be displaced in so doing, that may prove to be not in conformance with the requirements of the contract or that may be defective in its workmanship or material within the guarantee period specified, without any expense whatsoever to the Department, ordinary wear and tear and unusual abuse or neglect excepted.

Contract bonds shall remain in full force and effect during the guarantee period.

The Contractor further agrees, that within 10 calendar days after being notified in writing by the Department of any work not in conformance with the requirements of the contract or any defects in the work, the Contractor shall commence and prosecute with due diligence all work necessary to fulfill the terms of this guarantee, and shall complete the work within a reasonable period of time, and, in the event the Contractor fails to comply, the Contractor does hereby authorize the Department to proceed to have the work done at the Contractor's expense and the Contractor shall honor and pay the cost and charges therefor upon demand. The Department shall be entitled to all costs and expenses, including reasonable attorney's fees, necessarily incurred upon the Contractor's refusal to honor and pay the above costs and charges.

### **7-1.10 ARBITRATION**

Sections 10240-10240.13, inclusive of the Public Contract Code provides for the resolution of contract claims by arbitration.

Claims (demands for monetary compensation or damages) arising under or related to performance of the contract shall be resolved by arbitration unless the Department and the Contractor agree in writing, after the claim has arisen, to waive arbitration and to have the claim litigated in a court of competent jurisdiction. Arbitration shall be pursuant to Public Contract Code Sections 10240-10240.13, inclusive, and applicable regulations (see Subchapter 3 [Sections 301-382, inclusive] of Chapter 2 of Title 1 of the California Code of Regulations). The arbitration decision shall be decided under and in conformance with the law of this State, supported by substantial evidence and, in writing, contain the basis for the decision, findings of fact, and conclusions of law.

Arbitration shall be initiated by a Complaint in Arbitration made in compliance with the requirements of those regulations. A Complaint in Arbitration by the Contractor shall be made not later than 90 days after the date of service in person or by mail on the Contractor of the final written decision by the Department on the claim.

**STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION**

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**SPECIAL PROVISIONS**

**Annexed to Contract No. 11-264804**

**DIVISION 0 BIDDING AND CONTRACT REQUIREMENTS**

**0.1 INSTRUCTIONS TO BIDDERS AND GENERAL CONDITIONS**

The work embraced herein shall conform to the provisions in the Instructions to Bidders and General Conditions for Building Construction of the Department of Transportation, dated April 2008, a single publication attached hereto and referred to herein as "Instructions to Bidders" and "General Conditions", and the following special provisions.

In case of conflict between the Instructions to Bidders or the General Conditions and these special provisions, the special provisions shall take precedence over and be used in lieu of the conflicting portions.

**0.2 PROPOSAL REQUIREMENTS AND CONDITIONS**

The bidder's attention is directed to the provisions in Section 1, "Proposal Requirements and Conditions," of the Instructions to Bidders, and these special provisions for the requirements and conditions which the bidder must observe in the preparation of the proposal form and the submission of the bid.

The Bidder's Bond form mentioned in the last paragraph in Section 1-1.08, "Proposal Guaranty," of the Instructions to Bidders will be found following the signature page of the Proposal.

In conformance with Public Contract Code Section 7106, a Noncollusion Affidavit is included in the Proposal. Signing the Proposal shall also constitute signature of the Noncollusion Affidavit.

The Contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of title 49, part 26, Code of Federal Regulations (49 CFR 26) in the award and administration of USDOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate. Each subcontract signed by the bidder must include this assurance.

Failure of the bidder to fulfill the requirements of the Special Provisions for submittals required to be furnished after bid opening, including but not limited to escrowed bid documents, where applicable, may subject the bidder to a determination of the bidder's responsibility in the event it is the apparent low bidder on a future public works contracts.

**0.215 FEDERAL LOBBYING RESTRICTIONS**

Section 1352, Title 31, United States Code prohibits Federal funds from being expended by the recipient or any lower tier subrecipient of a Federal-aid contract to pay for any person for influencing or attempting to influence a Federal agency or Congress in connection with the awarding of any Federal-aid contract, the making of any Federal grant or loan, or the entering into of any cooperative agreement.

If any funds other than Federal funds have been paid for the same purposes in connection with this Federal-aid contract, the recipient shall submit an executed certification and, if required, submit a completed disclosure form as part of the bid documents.

A certification for Federal-aid contracts regarding payment of funds to lobby Congress or a Federal agency is included in the Proposal. Standard Form - LLL, "Disclosure of Lobbying Activities," with instructions for completion of the Standard Form is also included in the Proposal. Signing the Proposal shall constitute signature of the Certification.

The above-referenced certification and disclosure of lobbying activities shall be included in each subcontract and any lower-tier contracts exceeding \$100,000. All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the Engineer.

The Contractor, subcontractors and any lower-tier contractors shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by the Contractor, subcontractors and any lower-tier contractors. An event that materially affects the accuracy of the information reported includes:

1. A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or
2. A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or,
3. A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

## **0.22 DISADVANTAGED BUSINESS ENTERPRISE (DBE)**

This project is subject to title 49, part 26, Code of Federal Regulations (49 CFR 26) entitled "Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs." In order to ensure the Department achieves its federally mandated statewide overall DBE goal, the Department encourages the participation of Disadvantaged Business Enterprises (DBEs), as defined in 49 CFR 26 in the performance of contracts financed in whole or in part with Federal Funds. The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of subcontracts.

Bidders shall be fully informed respecting the requirements of the Regulations. The Regulations in their entirety are incorporated herein by this reference. Attention is directed to the following matters:

1. A DBE must be a small business concern as defined pursuant to Section 3 of U.S. Small Business Act and relevant regulations promulgated pursuant thereto.
2. A DBE may participate as a prime contractor, subcontractor, joint venture partner with a prime or subcontractor, vendor of material or supplies, or as a trucking company.
3. A DBE joint venture partner must be responsible for specific contract items of work, or clearly defined portions thereof. Responsibility means actually performing, managing and supervising the work with its own forces. The DBE joint venture partner must share in the capital contribution, control, management, risks and profits of the joint venture commensurate with its ownership interest.
4. A DBE must perform a commercially useful function, i.e., must be responsible for the execution of a distinct element of the work and must carry out its responsibility by actually performing, managing and supervising the work.
5. DBEs must be certified by the California Unified Certification Program (CUCP). Listings of DBEs certified by the CUCP are available from the following sources:
  - 5.1. The Department's web site at <http://www.dot.ca.gov/hq/bep>.
  - 5.2. The Department's DBE Directory. This Directory may be obtained from the Department of Transportation, Materiel Operations Branch, Publication Distribution Unit, 1900 Royal Oaks Drive, Sacramento, California 95815, Telephone: (916) 445-3520.
6. When reporting DBE participation, bidders may count the cost of materials or supplies purchased from DBEs as follows:
  - 6.1. If the materials or supplies are obtained from a DBE manufacturer, count 100 percent of the cost of the materials or supplies. A DBE manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.

- 6.2. If the materials or supplies are purchased from a DBE regular dealer, count 60 percent of the cost of the materials or supplies. A DBE regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a DBE regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A person may be a DBE regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business as provided in this paragraph 6.2. if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an ad hoc or contract-by-contract basis. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not DBE regular dealers within the meaning of this paragraph 6.2.
  - 6.3. If the DBE is neither a manufacturer nor a regular dealer, count only the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, provided the fees are reasonable and not excessive as compared with fees charged for similar services.
7. When reporting DBE participation, bidders may count the participation of DBE trucking companies as follows:
    - 7.1. The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract.
    - 7.2. The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
    - 7.3. The DBE receives credit for the total value of the transportation services it provides on the contract using trucks its owns, insures, and operates using drivers it employs.
    - 7.4. The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.
    - 7.5. The DBE may also lease trucks from a Non-DBE firm, including an owner-operator. The DBE who leases trucks from a Non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total value of the transportation services provided by the lessee, since these services are not provided by a DBE.
    - 7.6. For the purposes of this paragraph 7, a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.
  8. Bidders are encouraged to use services offered by financial institutions owned and controlled by DBEs.

### **0.23 SMALL BUSINESS ENTERPRISE GOAL**

The Department has established an overall 25 percent small business participation goal. To determine if the goal is achieved, the Department is tracking small business participation on all contracts.

Contractors, subcontractors, suppliers, and service providers who qualify as small business are encouraged to apply for certification as a small business by submitting their application to:

Office of Small Business and DVBE Services  
Department of General Services  
707 Third Street  
West Sacramento, CA 95605  
(916) 375-4940 or (800) 559-5529

### **0.3 AWARD AND EXECUTION OF CONTRACT**

The bidder's attention is directed to the provisions in Section 2, "Award and Execution of Contract," of the Instructions to Bidders and these special provisions for the requirements and conditions concerning award and execution of contract.

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Requests for relief of bid and bid protests are to be delivered to the following address: Department of Transportation, MS 43, Attn: Office Engineer, 1727 30th Street, Sacramento, CA 95816 or by facsimile to the Office Engineer at (916) 227-6282.

The contract will be awarded to the lowest responsible bidder meeting the contract requirements.

The contract shall be executed by the successful bidder and shall be returned, together with the contract bonds and the documents identified in Section 2-1.04, "Insurance Policies," of the Instructions to bidders, to the Department so that it is received within 10 business days after the bidder has received the contract for execution. Failure to do so shall be just cause for forfeiture of the proposal guaranty. The executed contract documents shall be delivered to the following address: Department of Transportation MS 43, Attn: Office Engineer, 1727 30th Street, Sacramento, CA 95816.

A "CALTRANS BIDDER - DBE INFORMATION" form will be included in the contract documents to be executed by the successful bidder. The purpose of the form is to collect data required under 49 CFR 26. Even if no DBE participation will be reported, the successful bidder must execute and return the form.

The bidder's "CALTRANS BIDDER - DBE INFORMATION" form should include the names, addresses and phone numbers of DBE firms that will participate, with a complete description of work or supplies to be provided by each, and the dollar value of each DBE transaction. When 100 percent of a contract item of work is not to be performed or furnished by a DBE, a description of the exact portion of that work to be performed or furnished by that DBE should be included in the DBE information, including the planned location of that work. A bidder certified as a DBE should describe the work it has committed to performing with its own forces as well as any other work that it has committed to be performed by DBE subcontractors, suppliers and trucking companies.

The bidder is encouraged to provide written confirmation from each DBE that the DBE is participating in the contract. A copy of a DBE's quote will serve as written confirmation that the DBE is participating in the contract. If a DBE is participating as a joint venture partner, the bidder is encouraged to submit a copy of the joint venture agreement.

The "CALTRANS BIDDER - DBE INFORMATION" form should be returned to the Department by the successful bidder with the executed contract, contract bonds and the documents identified in Section 2-1.04, "Insurance Policies," of the Instructions to bidders.

A small business participation report will be included in the contract documents to be executed by the successful bidder. The purpose of this form is to collect small business participation data. Even if no small business participation is reported, the successful bidder must execute and return the form.

A "Payee Data Record" form will be included in the contract documents to be executed by the successful bidder. The purpose of the form is to facilitate the collection of taxpayer identification data. The form shall be completed and returned to the Department by the successful bidder with the executed contract, contract bonds and the documents identified in Section 2-1.04, "Insurance Policies," of the Instructions to bidders. For the purposes of the form, payee shall be deemed to mean the successful bidder. The form is not to be completed for subcontractors or suppliers. Failure to complete and return the "Payee Data Record" form to the Department as provided herein will result in the retention of 31 percent of payments due the Contractor and penalties of up to \$20,000. This retention of payments for failure to complete the "Payee Data Record" form is in addition to any other retention of payments due the Contractor.

#### **0.4 BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES**

The first working day is the fifteenth day after contract approval.

The work shall be diligently prosecuted to completion before the expiration of 125 WORKING DAYS.

The Contractor shall pay to the State of California the sum of \$750 per day for each day's delay in finishing the work.

#### **0.5 GENERAL - MISCELLANEOUS**

##### **0.541 BUY AMERICA (23 CFR 635.410)**

For a Federal-aid contract, furnish steel and iron materials to be incorporated into the work that are produced in the United States except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials [60 Fed Reg 15478 (03/24/1995)]
2. If the total combined cost of the materials does not exceed the greater of 0.1 percent of the total bid or \$2,500, material produced outside the United States may be used

Production includes:

1. Processing steel and iron materials, including smelting or other processes that alter the physical form or shape (such as rolling, extruding, machining, bending, grinding, and drilling) or chemical composition
2. Coating application, including epoxy coating, galvanizing, and painting, that protects or enhances the value of steel and iron materials

For steel and iron materials to be incorporated into the work, submit a Certificate of Compliance under Section 4-1.04,

#### **0.561 UNSATISFACTORY PROGRESS**

Attention is directed to the provisions in Section 6, "Prosecution and Progress," of the General Conditions.

If the number of working days charged to the contract exceeds 75 percent of the working days in the current time of completion and the percent working days elapsed exceeds the percent work completed by more than 15 percentage points, the Department will withhold 10 percent of the amount due on the current monthly estimate.

The percent working days elapsed will be determined from the number of working days charged to the contract divided by the number of contract working days in the current time of completion, expressed as a percentage. The number of contract working days in the current time of completion shall consist of the original contract working days increased or decreased by time adjustments approved by the Engineer.

The percent work completed will be determined by the Engineer from the sum of payments made to date plus the amount due on the current monthly estimate, divided by the current total estimated value of the work, expressed as a percentage.

When the percent of working days elapsed minus the percent of work completed is less than or equal to 15 percentage points, the funds withheld shall be returned to the Contractor with the next monthly progress payment.

Funds kept or withheld from payment, due to the failure of the Contractor to comply with the provisions of the contract, will not be subject to the requirements of Public Contract Code 7107 or to the payment of interest pursuant to Public Contract Code Section 10261.5.

#### **0.581 SUBCONTRACTOR AND DBE RECORDS**

The Contractor shall maintain records showing the name and business address of each first-tier subcontractor. The records shall also show the name and business address of every DBE subcontractor, DBE vendor of materials and DBE trucking company, regardless of tier. The records shall show the date of payment and the total dollar figure paid to all of these firms. DBE prime contractors shall also show the date of work performed by their own forces along with the corresponding dollar value of the work.

Upon completion of the contract, a summary of these records shall be prepared on Form CEM-2402 (F) and certified correct by the Contractor or the Contractor's authorized representative, and shall be furnished to the Engineer. The form shall be furnished to the Engineer within 90 days from the date of contract acceptance. \$10,000 will be withheld from payment until the Form CEM-2402 (F) is submitted. The amount will be returned to the Contractor when a satisfactory Form CEM-2402 (F) is submitted.

Prior to the fifteenth of each month, the Contractor shall submit documentation to the Engineer showing the amount paid to DBE trucking companies. The Contractor shall also obtain and submit documentation to the Engineer showing the amount paid by DBE trucking companies to all firms, including owner-operators, for the leasing of trucks. If the DBE leases trucks from a non-DBE, the Contractor may count only the fee or commission the DBE receives as a result of the lease arrangement.

The Contractor shall also obtain and submit documentation to the Engineer showing the truck number, owner's name, California Highway Patrol CA number, and if applicable, the DBE certification number of the owner of the truck for all trucks used during that month. This documentation shall be submitted on Form CEM-2404 (F).

#### **0.582 DBE CERTIFICATION STATUS**

If a DBE subcontractor is decertified during the life of the project, the decertified subcontractor shall notify the Contractor in writing with the date of decertification. If a subcontractor becomes a certified DBE during the life of the project, the subcontractor shall notify the Contractor in writing with the date of certification. The Contractor shall furnish the written documentation to the Engineer.

Upon completion of the contract, Form CEM-2403 (F) indicating the DBE's existing certification status shall be signed and certified correct by the Contractor. The certified form shall be furnished to the Engineer within 90 days from the date of contract acceptance.

### **0.583 PERFORMANCE OF SUBCONTRACTORS**

The subcontractors listed by the Contractor in conformance with Section 1-1.05, "Required Listing of Proposed Subcontractors," of the Instructions to Bidders shall perform the work and supply the materials for which they are listed, unless the Contractor has received prior written authorization to perform the work with other forces or to obtain the materials from other sources.

The Contractor should notify the Engineer in writing of any changes to its anticipated DBE participation. This notice should be provided prior to the commencement of that portion of the work.

### **0.584 SUBCONTRACTING**

Attention is directed to the provisions in Section 6-1.01, "Subletting and Subcontracting," of the General Conditions, and these special provisions.

Each subcontract and lower tier subcontracts that may in turn be made shall include the "Required Contract Provisions Federal-Aid Construction Contracts" in Section 14 of these special provisions. Noncompliance shall be corrected. Payment for subcontracted work involved will be withheld from progress payments due, or to become due, until correction is made. Failure to comply may result in termination of the contract.

Pursuant to the provisions of Section 1777.1 of the Labor Code, the Labor Commissioner publishes and distributes a list of contractors ineligible to perform work as a subcontractor on a public works project. This list of debarred contractors is available from the Department of Industrial Relations web site at:

<http://www.dir.ca.gov/DLSE/Debar.html>.

### **0.592 EXCLUSION OF RETENTION**

In conformance with 49 CFR, Part 26, Subpart B, Section 26.29 (b)(1), the retention of proceeds required by Public Contract Code Section 10261 shall not apply. In conformance with Public Contract Code 7200 (b), in subcontracts between the Contractor and a subcontractor and in subcontracts between a subcontractor and any subcontractor thereunder, retention proceeds shall not be withheld, and the exceptions provided in Public Contract Code 7200 (c) shall not apply. At the option of the Contractor, subcontractors may be required to furnish payment and performance bonds issued by an admitted surety insurer.

The second paragraph of Section 7-1.05, "Partial Payments," of the General Conditions, and Section 7-1.06, "Payment of Withheld Funds," of the General Conditions shall not apply.

## **DIVISION 1. GENERAL REQUIREMENTS**

### **1.01 SCOPE**

The building work described herein and as shown on the plans shall conform to the requirements of the General Conditions and these special provisions.

The building work to be done consists, in general, of repair and remodel of exterior and interiors of a historic building located at 4024 Taylor Street, San Diego, California 92110, adjacent to Caltrans District 11 offices (4050 Taylor Street, San Diego, California 92110) and such other items or details, not mentioned above, that are required by the plans, General Conditions, or these special provisions to be performed, placed, constructed or installed.

### **1.02 FIRST ORDER OF WORK**

Attention is directed to "Water Pollution Control" of these special provisions regarding the submittal and approval of the Water Pollution Control Plan prior to performing work having potential to cause water pollution.

### **1.03 AREAS FOR CONTRACTOR'S USE**

No area is available within the contract limits for the exclusive use of the Contractor. The Contractor shall arrange with the Engineer for areas to store equipment and materials within the work area.

Security shall be provided by the Contractor through the use of temporary fencing in order to protect the area of work. At Contractor's option, an on-site security guard may also be included.

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#### **1.04 COOPERATION**

Attention is directed to Sections 5-1.06, "Responsibility for Utilities," and 5-1.12, "Cooperation," of the General Conditions and these special provisions.

The Contractor shall comply with all security policies and normal working hours of the State concerning the Caltrans District 11 Office Complex, 4050 Taylor Street, San Diego, CA 92110.

The Contractor shall plan his work to minimize interference with State forces and the public. Interruptions to any services for the purpose of making or breaking a connection shall be made only after consultation with and for such time periods as directed by the Engineer.

#### **1.05 MEASUREMENT AND PAYMENT**

The contract lump sum price paid for building work shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the building work, complete in place, as shown on the plans, as specified in the General Conditions and these special provisions, and as directed by the Engineer

Full compensation for any incidental materials and labor, not shown on the plans or specified, which are necessary to complete the building work shall be considered as included in the contract lump sum price paid for building work and no additional compensation will be allowed therefore.

#### **1.06 SUBMITTALS**

Shop drawings, material lists, descriptive data, samples and other submittals specified in these special provisions shall be submitted for approval in accordance with the provisions in Section 2-1.04, "Shop Drawings, Descriptive Data, Samples, and Alternatives," of the General Conditions and these special provisions.

Unless otherwise permitted in writing by the Engineer and except submittals for "Alternatives" in conformance with the provisions of said Section 2-1.04 of the General Conditions, all submittals required by these special provisions shall be submitted within 35 days after the contract has been approved.

Attention is directed to the provisions in Section 2-1.01, "Authority of Engineer," of the General Conditions. The Engineer may request submittals for materials or products where submittals have not been specified in these special provisions, or may request that additional information be included in specified submittals, as necessary to determine the quality or acceptability of such materials or products.

Submittals shall be delivered to Rudy Medina, Caltrans District 11, Landscape Architecture, 4050 Taylor Street, San Diego, CA 92110.

#### **1.07 SCHEDULE OF VALUES**

The Contractor shall prepare and submit to the Engineer for approval 2 copies of a Schedule of Values within 15 working days of approval of the contract. The Engineer shall be allowed 15 working days for approval or return for correction of each submittal or resubmittal. Should the Engineer fail to complete the review within the time specified and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in review, an extension of time commensurate with the delay in completion of the work thus caused will be granted as provided in Section 6-1.08, "Liquidated Damages," of the General Conditions.

The Schedule of Values shall cover each lump sum item for building work and shall be accurately divided into sections representing the cost of each separate building or structure. Any site work that is not part of a separate building or structure shall be included under a specific section as General Work and not included in the building or structure cost. Indirect costs and general condition items are to be listed as a separate line item of work. The sections representing each building or structure must be identified as to the building or structure they represent and be broken down to show the corresponding value of each craft, trade or other significant portion of the work. A sub-total for each section shall be provided.

The Schedule of Values shall be approved by the Engineer before any partial payment estimate is prepared.

The sum of the items listed in the Schedule of Values shall equal the contract lump sum price for building work. Overhead and profit shall not be listed as separate items, but shall be appropriately distributed across all line items of cost.

## **1.08 OBSTRUCTIONS**

Attention is directed to Sections 5-1.02, "Protection and Use of Property," 5-1.03, "Indemnification and Insurance," and 5-1.06, "Responsibility for Utilities," of the General Conditions and these special provisions.

The Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least 5 working days prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire or other structure. Regional notification center includes but is not limited to the following:

Underground Service Alert  
Southern California (USA)  
Telephone: 1(800)422-4133

## **1.09 PRESERVATION OF PROPERTY**

Attention is directed to Sections 5-1.02, "Protection and Use of Property," 5-1.03, "Responsibility for Damage," 5-1.05, "Contractor's Responsibility for the Work," and 5-1.06, "Responsibility for Utilities," of the General Conditions.

Operations shall be conducted in such a manner that existing facilities, surfacing, installations, and utilities which are to remain in place will not be damaged. Temporary surfacing, facilities, utilities and installations shall also be protected until they are no longer required. The Contractor, at his expense shall furnish and install piling, sheet piling, cribbing, bulkheads, shores, or whatever means may be necessary to adequately support material carrying such facilities, or to support the facilities themselves and shall maintain such support until they are no longer needed.

## **1.10 RELATIONS WITH CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**

This project lies within the boundaries of the San Diego Regional Water Quality Control Board (RWQCB).

The Contractor shall know and comply with provisions of Federal, State, and local regulations and requirements that govern the Contractor's operations and storm water and non-storm water discharges from the project site and areas of disturbance outside the project limits during construction. Attention is directed to Sections 5-1.01, "Laws to be Observed," 5-1.02, "Protection and Use of Property," and 5-1.03, "Responsibility for Damage," of the General Conditions.

The Contractor shall be responsible for penalties assessed on the Contractor or the Department as a result of the Contractor's failure to comply with the provisions in "Water Pollution Control" of these special provisions or with the applicable provisions of the Federal, State, and local regulations and requirements.

Penalties as used in this section shall include fines, penalties, and damages, whether proposed, assessed, or levied against the Department or the Contractor, including those levied under the Federal Clean Water Act and the State Porter-Cologne Water Quality Control Act, by governmental agencies or as a result of citizen suits. Penalties shall also include payments made or costs incurred in settlement for alleged violations of applicable laws, regulations, or requirements. Costs incurred could include sums spent instead of penalties, in mitigation or to remediate or correct violations.

## **WITHHOLDS**

The Department will withhold money due the Contractor, in an amount estimated by the Department, to include the full amount of penalties and mitigation costs proposed, assessed, or levied as a result of the Contractor's violation of the permits, or Federal or State law, regulations, or requirements. Funds will be withheld by the Department until final disposition of these costs has been made. The Contractor shall remain liable for the full amount until the potential liability is finally resolved with the entity seeking the penalties. Instead of the withhold, the Contractor may provide a suitable bond in favor of the Department to cover the highest estimated liability for any disputed penalties proposed as a result of the Contractor's violation of the permits, law, regulations, or requirements.

If a regulatory agency identifies a failure to comply with the permits and modifications thereto, or other Federal, State, or local requirements, the Department will withhold money due the Contractor, subject to the following:

- A. The Department will give the Contractor 30 days notice of the Department's intention to withhold funds from payments which may become due to the Contractor before acceptance of the contract. Funds withheld after acceptance of the contract will be made without prior notice to the Contractor.
- B. No withholds of additional amounts out of payments will be made if the amount to be withheld does not exceed the amount being withheld from partial payments in accordance with Section 9-1.06, "Partial Payments," of the Standard Specifications.
- C. If the Department has withheld funds and it is subsequently determined that the State is not subject to the entire amount of the costs and liabilities assessed or proposed in connection with the matter for which the withhold was made, the Department will return the excess amount withheld to the Contractor in the progress payment following the determination. If the matter is resolved for less than the amount withheld, the Department will pay interest at a rate of 6 percent per year on the excess withhold.

The Contractor shall notify the Engineer immediately upon request from the regulatory agencies to enter, inspect, sample, monitor, or otherwise access the project site or the Contractor's records pertaining to water pollution control work. The Contractor and the Department shall provide copies of correspondence, notices of violation, enforcement actions, or proposed fines by regulatory agencies to the requesting regulatory agency.

## **1.11 WATER POLLUTION CONTROL**

### **GENERAL**

Water pollution control work shall conform to the provisions in Section 5-1.01R, "Water Pollution," of the General Conditions, section of these special provisions entitled "Relations With California Regional Water Quality Control Board," and these special provisions.

The Contractor shall perform water pollution control work in conformance with the requirements in the "Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual" and its addenda in effect on the day the Notice to Contractors is dated. This manual is referred to as the "Preparation Manual." Copies of the Preparation Manual may be obtained from:

Office of the Duty Senior for Construction  
Department of Transportation  
4050 Taylor Street  
San Diego, California 92110  
Telephone: (619)688-6635

The Preparation Manual and other references for performing water pollution control work are available from the Department's Construction Storm Water and Water Pollution Control web site at:

<http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm>

Before the start of job site activities, the Contractor shall provide training for project managers, supervisory personnel, and employees involved with water pollution control work. The training shall include:

- A. Rules and regulations
- B. Implementation and maintenance for:

1. Temporary Soil Stabilization
2. Temporary Sediment Control
3. Tracking Control
4. Wind Erosion Control

The Contractor shall designate in writing a Water Pollution Control Manager (WPCM). The Contractor shall submit a statement of qualifications describing the training, work history, and expertise of the proposed WPCM. The qualifications shall include either:

- A. A minimum of 24 hours of Department approved storm water management training described at Department's Construction Storm Water and Water Pollution Control web site.
- B. Certification as a Certified Professional in Erosion and Sediment Control (CPESC).

The WPCM shall be:

- A. Responsible for water pollution control work.
- B. The primary contact for water pollution control work.
- C. Have authority to mobilize crews to make immediate repairs to water pollution control practices.

The Contractor may designate one manager to prepare the WPCP and a different manager to implement the plan. The WPCP preparer shall meet the training requirements for the WPCM.

#### **WATER POLLUTION CONTROL PROGRAM**

The Contractor shall submit a Water Pollution Control Program (WPCP) to the Engineer for approval. The WPCP shall conform to the requirements in the Preparation Manual and these special provisions.

The WPCP shall include water pollution control practices:

- A. For storm water and non-storm water from areas outside of the job site related to construction activities for this contract such as:
  1. Staging areas.
  2. Storage yards.
  3. Access roads.
- B. Appropriate for each season as described in "Implementation Requirements" of these special provisions.

The WPCP shall include a schedule that:

- A. Describes when work activities that could cause water pollution will be performed.
- B. Identifies soil stabilization and sediment control practices for disturbed soil area.
- C. Includes dates when these practices will be 25, 50, and 100 percent complete.
- D. Shows 100 percent completion of these practices before the rainy season.

The WPCP shall include the following temporary water pollution control practices and their associated work as shown on the plans or specified in these special provisions:

- A. Wind Erosion Control
  1. Construction Site Management
- B. Non-Storm Water Management
  1. Construction Site Management

## C. Waste Management and Materials Pollution Control

1. Construction Site Management
2. Temporary Concrete Washout (Portable)

Within 7 days after contract approval, the Contractor shall submit 2 copies of the WPCP to the Engineer. The Contractor shall allow 15 days for the Engineer's review. If revisions are required, the Engineer will provide comments and specify the date that the review stopped. The Contractor shall revise and resubmit the WPCP within 7 days of receipt of the Engineer's comments. The Engineer's review will resume when the complete WPCP is resubmitted. When the Engineer approves the WPCP, the Contractor shall submit 3 copies of the approved WPCP to the Engineer. The Contractor may proceed with construction activities if the Engineer conditionally approves the WPCP while minor revisions are being completed. If the Engineer fails to complete the review within the time allowed and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay, the Contractor will be compensated for resulting losses, and an extension of time will be granted, as provided for in Section 6-1.08, "Liquidated Damages," of the General Conditions.

The Contractor shall not perform work that may cause water pollution until the WPCP has been approved by the Engineer. The Engineer's review and approval shall not waive any contract requirements and shall not relieve the Contractor from complying with Federal, State and local laws, regulations, and requirements.

If there is a change in construction schedule or activities, the Contractor shall prepare an amendment to the WPCP to identify additional or revised water pollution control practices. The Contractor shall submit the amendment to the Engineer for review within a time agreed to by the Engineer not to exceed the number of days specified for the initial submittal of the WPCP. The Engineer will review the amendment within the same time allotted for the review of the initial submittal of the WPCP.

If directed by the Engineer or requested in writing by the Contractor and approved by the Engineer, changes to the water pollution control work specified in these special provisions will be allowed. Changes may include addition of new water pollution control practices. The Contractor shall incorporate these changes in the WPCP. Additional water pollution control work will be paid for in accordance with Section 3, "Changes in the Work," of the General Conditions.

The Contractor shall keep a copy of the approved WPCP at the job site. The WPCP shall be made available when requested by a representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency, or the local storm water management agency. Requests from the public shall be directed to the Engineer.

### **IMPLEMENTATION REQUIREMENTS**

The Contractor's responsibility for WPCP implementation shall continue throughout any temporary suspension of work ordered in conformance with the provisions in Section 6-1.06, "Temporary Suspension of Work," of the General Conditions.

If the Contractor or the Engineer identifies a deficiency in the implementation of the approved WPCP, the deficiency shall be corrected immediately, unless an agreed date for correction is approved in writing by the Engineer. The deficiency shall be corrected before the onset of precipitation. If the Contractor fails to correct the deficiency by the agreed date or before the onset of precipitation, the Department may correct the deficiency and deduct the cost of correcting deficiencies from payments.

#### **Year-Round**

The Contractor shall monitor the National Weather Service weather forecast on a daily basis during the contract. The Contractor may use an alternative weather forecasting service if approved by the Engineer. Appropriate water pollution control practices shall be in place before precipitation.

The Contractor may discontinue earthwork operations for a disturbed area for up to 21 days and the disturbed soil area will still be considered active. When earthwork operations in the disturbed area have been completed, the Contractor shall implement appropriate water pollution control practices within 15 days or before predicted precipitation, whichever occurs first.

#### **Rainy Season**

Soil stabilization and sediment control practices conforming to these special provisions shall be in place during the rainy season between October 1 and May 1.

## **INSPECTION AND MAINTENANCE**

The WPCM shall inspect the water pollution control practices identified in the WPCP as follows:

- A. Before a forecasted storm,
- B. After precipitation that causes site runoff,
- C. At 24-hour intervals during extended precipitation,
- D. On a predetermined schedule, a minimum of once every 2 weeks outside of the defined rainy season, and
- E. On a predetermined schedule, a minimum of once a week during the defined rainy season.

The WPCM shall oversee the maintenance of the water pollution control practices.

The WPCM shall use the Storm Water Quality Construction Site Inspection Checklist provided in the Preparation Manual or an alternative inspection checklist provided by the Engineer. A copy of the completed site inspection checklist shall be submitted to the Engineer within 24 hours of finishing the inspection.

## **REPORTING REQUIREMENTS**

If the Contractor identifies discharges into surface waters or drainage systems causing or potentially causing pollution or if the project receives a written notice or order from a regulatory agency, the Contractor shall immediately inform the Engineer. The Contractor shall submit a written report to the Engineer within 3 days of the discharge, notice, or order. The report shall include the following information:

- A. The date, time, location, and nature of the operation, type of discharge and quantity, and the cause of the notice or order.
- B. The water pollution control practices used before the discharge, or before receiving the notice or order.
- C. The date of placement and type of additional or altered water pollution control practices placed after the discharge or after receiving the notice or order.
- D. A maintenance schedule for affected water pollution control practices.

## **PAYMENT**

During each estimate period the Contractor fails to conform to the provisions in this section, "Water Pollution Control," or fails to implement the water pollution control practices shown on the plans or specified elsewhere in these special provisions, the Department will withhold 25 percent of the progress payment.

Withholds for failure to perform water pollution control work will be in addition to all other withholds provided for in the contract. The Department will return performance-failure withholds in the progress payment following the correction for noncompliance.

Except as provided herein, full compensation for water pollution control shall be considered as included in the contract lump sum price paid for building work and no additional compensation will be allowed therefor.

Payments for prepare water pollution control program will be made as follows:

- A. After the WPCP has been approved by the Engineer, up to 75 percent of the price for prepare water pollution control program shown in the Schedule of Values will be included in the monthly progress estimate.
- B. After acceptance of the contract in conformance with the provisions in Section 7-1.07, "Final Payment and Claims," of the General Conditions, payment for the remaining percentage of the price for prepare water pollution control program will be made.

Implementation of water pollution control practices in areas outside the highway right of way not specifically provided for in the WPCP or in these special provisions will not be paid for.

### **1.12 CONSTRUCTION SITE MANAGEMENT**

Construction site management shall consist of controlling potential sources of water pollution before they come in contact with storm water systems or watercourses. The Contractor shall control material pollution and manage waste and non-storm water existing at the construction site by implementing effective handling, storage, use, and disposal practices.

Attention is directed to "Water Pollution Control" of these special provisions regarding the Contractor's appointment of a water pollution control manager (WPCM) for the project.

The Contractor shall train all employees and subcontractors regarding:

- A. Material pollution prevention and control;
- B. Waste management;
- C. Non-storm water management;
- D. Identifying and handling hazardous substances; and
- E. Potential dangers to humans and the environment from spills and leaks or exposure to toxic or hazardous substances.

Training shall take place before starting work on this project. New employees shall receive the complete training before starting work on this project. The Contractor shall have regular meetings to discuss and reinforce spill prevention and control; material delivery, storage, use, and disposal; waste management; and non-storm water management procedures.

Instructions for material and waste handling, storage, and spill reporting and cleanup shall be posted at all times in an open, conspicuous, and accessible location at the construction site.

Nonhazardous construction site waste and excess material shall be recycled when practical or disposed of away from the premises. Such disposal shall conform to the laws, rules, and regulations of all agencies having jurisdiction at the disposal site.

Vehicles and equipment at the construction site shall be inspected by the WPCM on a frequent, predetermined schedule, and by the operator each day of use. Leaks shall be repaired immediately, or the vehicle or equipment shall be removed from the construction site.

### **SPILL PREVENTION AND CONTROL**

The Contractor shall implement spill and leak prevention procedures when chemicals or hazardous substances are stored. Spills of petroleum products; substances listed under CFR Title 40, Parts 110, 117, and 302; and sanitary and septic waste shall be contained and cleaned up as soon as is safe.

Minor spills involve small quantities of oil, gasoline, paint, or other material that can be controlled by the first responder upon discovery of the spill. Cleanup of minor spills includes:

- A. Containing the spread of the spill,
- B. Recovering the spilled material using absorption,
- C. Cleaning the contaminated area, and
- D. Disposing of contaminated material promptly and properly.

Semi-significant spills are those that can be controlled by the first responder with the help of other personnel. Cleanup of semi-significant spills shall be immediate. Cleanup of semi-significant spills includes:

- A. Containing the spread of the spill;
- B. Recovering the spilled material using absorption if the spill occurs on paved or an impermeable surface;
- C. Containing the spill with an earthen dike and digging up contaminated soil for disposal if the spill occurs on dirt;
- D. Covering the spill with plastic or other material to prevent contaminating runoff if the spill occurs during precipitation; and
- E. Disposing of contaminated material promptly and properly.

Significant or hazardous spills are those that cannot be controlled by construction personnel. Notifications of these spills shall be immediate. The following steps shall be taken:

- A. Construction personnel shall not attempt to cleanup the spill until qualified staff have arrived;
- B. Notify the Engineer and follow up with a written report;
- C. Obtain the services of a spills contractor or hazardous material team immediately;
- D. Notify the local emergency response team by dialing 911 and county officials at the emergency phone numbers kept on the construction site;
- E. Notify the Governor's Office of Emergency Services Warning Center at (805) 852-7550;
- F. Notify the National Response Center at (800) 424-8802 regarding spills of Federal reportable quantities in conformance with CFR Title 40, Parts 110, 119, and 302;
- G. Notify other agencies as appropriate, including:

1. Fire Department,
2. Public Works Department,
3. Coast Guard,
4. Highway Patrol,
5. City Police or County Sheriff Department,
6. Department of Toxic Substances,
7. California Division of Oil and Gas,
8. Cal OSHA, or
9. Regional Water Resources Control Board.

The WPCM shall oversee and enforce proper spill prevention and control measures. Minor, semi-significant, and significant spills shall be reported to the Contractor's WPCM who shall notify the Engineer immediately.

The Contractor shall prevent spills from entering storm water runoff before and during cleanup. Spills shall not be buried or washed with water.

The Contractor shall keep material or waste storage areas clean, well organized, and equipped with enough cleanup supplies for the material being stored. Plastic shall be placed under paving equipment when not in use to catch drips.

### **MATERIAL MANAGEMENT**

Material shall be delivered, used, and stored for this contract in a manner that minimizes or eliminates discharge of material into the air, storm drain systems, or watercourses.

The Contractor shall implement the practices described in this section when taking delivery of, using, or storing the following materials:

A. Hazardous chemicals including:

1. Acids,
2. Lime,
3. Glues,
4. Adhesives,
5. Paints,
6. Solvents, and
7. Curing compounds;

B. Soil stabilizers and binders;

C. Fertilizers;

D. Detergents;

E. Plaster;

F. Petroleum products including:

1. Fuel,
2. Oil, and
3. Grease;

G. Asphalt components and concrete components; and

H. Pesticides and herbicides.

The Contractor shall supply the Material Safety Data Sheet to the Engineer for material used or stored. The Contractor shall keep an accurate inventory of material delivered and stored at the construction site.

Employees trained in emergency spill cleanup procedures shall be present when hazardous materials or chemicals are unloaded.

The Contractor shall use recycled or less hazardous products when practical.

## **Material Storage**

The Contractor shall store liquids, petroleum products, and substances listed in CFR Title 40, Parts 110, 117, and 302 in containers or drums approved by the United States Environmental Protection Agency, and place them in secondary containment facilities.

Secondary containment facilities shall be impervious to the materials stored there for a minimum contact time of 72 hours.

Throughout the rainy season secondary containment facilities shall be covered during non-working days and when precipitation is predicted. Secondary containment facilities shall be adequately ventilated.

The Contractor shall keep the secondary containment facility free of accumulated rainwater or spills. After precipitation, or in the event of spills or leaks, accumulated liquid shall be collected and placed into drums within 24 hours. These liquids shall be handled as hazardous waste in accordance with the provisions in "Hazardous Waste" of these special provisions, unless testing determines them to be nonhazardous.

Incompatible materials, such as chlorine and ammonia, shall not be stored in the same secondary containment facility.

Materials shall be stored in the original containers with the original product labels maintained in legible condition. Damaged or illegible labels shall be replaced immediately.

The secondary containment facility shall have the capacity to contain precipitation from a 24-hour-long, 25-year storm; and 10 percent of the aggregate volume of all containers, or all of the volume of the largest container within the facility, whichever is greater.

The Contractor shall store bagged or boxed material on pallets. Throughout the rainy season, bagged or boxed material shall be protected from wind and rain during non-working days and when precipitation is predicted.

The Contractor shall provide sufficient separation between stored containers to allow for spill cleanup or emergency response access. Storage areas shall be kept clean, well organized, and equipped with cleanup supplies appropriate for the materials being stored.

The Contractor shall repair or replace perimeter controls, containment structures, covers, and liners as needed. Storage areas shall be inspected before and after precipitation, and at least weekly during other times.

## **Stockpile Management**

The Contractor shall reduce or eliminate potential air and water pollution from stockpiled material including soil, paving material, or pressure treated wood. Stockpiles shall be located out of floodplains when possible, and at least 50 feet from concentrated flows of storm water, drainage courses, or inlets unless written approval is obtained from the Engineer.

The Contractor may discontinue adding or removing material for up to 21 days and a stockpile will still be considered active.

The Contractor shall protect active stockpiles with plastic or geotextile cover, soil stabilization measures, or with linear sediment barrier when precipitation is predicted. Active stockpiles of cold mix asphalt concrete shall be placed on an impervious surface and covered with plastic when precipitation is predicted.

The Contractor shall protect inactive soil stockpiles with a plastic or geotextile cover, or with soil stabilization measures at all times during the rainy season. A linear sediment barrier around the perimeter of the stockpile shall also be used. During the non-rainy season soil stockpiles shall be covered and protected with a linear sediment barrier when precipitation is predicted. The Contractor shall control wind erosion during dry weather.

Stockpiles of portland cement concrete rubble, asphalt concrete (AC), hot mix asphalt (HMA), AC and HMA rubble, aggregate base, or aggregate subbase shall be covered with plastic or geotextile, or protected with a linear sediment barrier at all times during the rainy season, and when precipitation is predicted during the non-rainy season.

Stockpiles of cold mix asphalt concrete shall be placed on and covered with impermeable material at all times during the rainy season, and when precipitation is predicted during the non-rainy season.

Stockpiles of pressure treated wood shall be covered with impermeable material and placed on pallets at all times during the rainy season, and when precipitation is predicted during the non-rainy season.

The Contractor shall repair or replace linear sediment barriers and covers as needed or as directed by the Engineer to keep them functioning properly. Sediment shall be removed when it accumulates to 1/3 of the linear sediment barrier height.

## **WASTE MANAGEMENT**

### **Solid Waste**

The Contractor shall not allow litter or debris to accumulate anywhere on the construction site, including storm drain grates, trash racks, and ditch lines. The Contractor shall pick up and remove trash and debris from the construction site at least once a week. The WPCM shall monitor solid waste storage and disposal procedures on the construction site. The Contractor shall provide enough dumpsters of sufficient size to contain the solid waste generated by the project. Dumpsters shall be emptied when refuse reaches the fill line. Dumpsters shall be watertight. The Contractor shall not wash out dumpsters on the construction site. The Contractor shall provide additional containers and more frequent pickup during the demolition phase of construction.

Solid waste includes:

- A. Brick,
- B. Mortar,
- C. Timber,
- D. Metal scraps,
- E. Sawdust,
- F. Pipe,
- G. Electrical cuttings,
- H. Non-hazardous equipment parts,
- I. Styrofoam and other packaging materials,
- J. Vegetative material and plant containers from highway planting, and
- K. Litter and smoking material, including litter generated randomly by the public.

Trash receptacles shall be provided and used in the Contractor's yard, field trailers, and locations where workers gather for lunch and breaks.

### **Hazardous Waste**

The Contractor shall implement hazardous waste management practices when waste is generated on the construction site from the following substances:

- A. Petroleum products,
- B. Asphalt products,
- C. Concrete curing compound,
- D. Pesticides,
- E. Acids,
- F. Paints,
- G. Stains,
- H. Solvents,
- I. Wood preservatives,
- J. Roofing tar, and
- K. Materials classified as hazardous by California Code of Regulations, Title 22, Division 4.5; or listed in CFR Title 40, Parts 110, 117, 261, or 302.

Nothing in these special provisions shall relieve the Contractor of the responsibility for compliance with Federal, State, and local laws regarding storage, handling, transportation, and disposal of hazardous wastes.

Hazardous material existing on the construction site before mobilization shall be handled and disposed of in accordance with "Asbestos Abatement" and "Lead Related Construction Work " in Division 2, "Sitework" of these special provisions.

The WPCM shall oversee and enforce hazardous waste management practices. Production of hazardous materials and hazardous waste on the construction site shall be kept to a minimum. Perimeter controls, containment structures, covers, and liners shall be repaired or replaced when damaged.

The Contractor shall have a laboratory certified by the Department of Health Services (DHS) sample and test waste when hazardous material levels are unknown to determine safe methods for storage and disposal.

The Contractor shall segregate potentially hazardous waste from nonhazardous waste at the construction site. Hazardous waste shall be handled, stored, and disposed of as required in California Code of Regulations, Title 22, Division 4.5, Section 66262.34; and in CFR Title 49, Parts 261, 262, and 263.

The Contractor shall store hazardous waste in sealed containers constructed and labeled with the contents and date accumulated as required in California Code of Regulations, Title 22, Division 4.5; and in CFR Title 49, Parts 172, 173, 178, and 179. Hazardous waste containers shall be kept in temporary containment facilities conforming to the provisions in "Material Storage" of these special provisions.

There shall be adequate storage volume and containers shall be conveniently located for hazardous waste collection. Containers of hazardous waste shall not be overfilled and hazardous wastes shall not be mixed. Containers of dry waste that are not watertight shall be stored on pallets. The Contractor shall not allow potentially hazardous waste to accumulate on the ground. Hazardous waste shall be stored away from storm drains, watercourses, moving vehicles, and equipment.

The Contractor shall clean water based or oil based paint from brushes or equipment within a contained area and shall not contaminate soil, watercourses, or storm drain systems. Paints, thinners, solvents, residues, and sludges that cannot be recycled or reused shall be disposed of as hazardous waste. When thoroughly dry, latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths shall be disposed of as solid waste.

The Contractor shall dispose of hazardous waste within 90 days of being generated. Hazardous waste shall be disposed of by a licensed hazardous waste transporter using uniform hazardous waste manifest forms and taken to a Class I Disposal Site. A copy of the manifest shall be provided to the Engineer.

### **Contaminated Soil**

The Contractor shall identify contaminated soil from spills or leaks by noticing discoloration, odors, or differences in soil properties. Soil with evidence of contamination shall be sampled and tested by a laboratory certified by DHS. If levels of contamination are found to be hazardous, the soil shall be handled and disposed of as hazardous waste.

The Contractor shall prevent the flow of water, including ground water, from mixing with contaminated soil by using one or a combination of the following measures:

- A. Berms,
- B. Cofferdams,
- C. Grout curtains,
- D. Freeze walls, or
- E. Concrete seal course.

If water mixes with contaminated soil and becomes contaminated, the water shall be sampled and tested by a laboratory certified by the DHS. If levels of contamination are found to be hazardous, the water shall be handled and disposed of as hazardous waste.

### **Concrete Waste**

The Contractor shall implement practices to prevent the discharge of portland cement concrete, AC, or HMA waste into storm drain systems or watercourses.

Portland cement concrete, AC, or HMA waste shall be collected at the following locations and disposed of:

- A. Where concrete material, including grout, is used;
- B. Where concrete dust and debris result from demolition;
- C. Where sawcutting, coring, grinding, grooving, or hydro-concrete demolition of portland cement concrete, AC, or HMA creates a residue or slurry; or
- D. Where concrete trucks or other concrete-coated equipment is cleaned at the construction site.

### **Sanitary and Septic Waste**

Wastewater from sanitary or septic systems shall not be discharged or buried within the Department right of way. The WPCM shall inspect sanitary or septic waste storage and monitor disposal procedures at least weekly. Sanitary facilities that discharge to the sanitary sewer system shall be properly connected and free from leaks.

The Contractor shall obtain written approval from the local health agency, city, county, and sewer district before discharging from a sanitary or septic system directly into a sanitary sewer system, and provide a copy to the Engineer. The Contractor shall comply with local health agency requirements when using an on-site disposal system.

## **Liquid Waste**

The Contractor shall not allow construction site liquid waste, including the following, to enter storm drain systems or watercourses:

- A. Drilling slurries or fluids,
- B. Grease-free or oil-free wastewater or rinse water,
- C. Dredgings,
- D. Liquid waste running off a surface including wash or rinse water, or
- E. Other non-storm water liquids not covered by separate permits.

The Contractor shall hold liquid waste in structurally sound, leak proof containers such as:

- A. Sediment traps,
- B. Roll-off bins, or
- C. Portable tanks.

Liquid waste containers shall be of sufficient quantity and volume to prevent spills and leaks. The containers shall be stored at least 50 feet from storm drains, watercourses, moving vehicles, and equipment.

The Contractor shall remove and dispose of deposited solids from sediment traps as provided in "Solid Waste" of these special provisions, unless determined infeasible by the Engineer.

Liquid waste may require testing to determine hazardous material content before disposal.

Drilling fluids and residue shall be disposed of outside the highway right of way. If the Engineer determines that an appropriate location is available, fluids and residue exempt under California Code of Regulations, Title 23, Section 2511(g) may be dried by infiltration and evaporation in a leak proof container. The remaining solid waste may be disposed of as provided in "Solid Waste" of these special provisions.

## **NON-STORM WATER MANAGEMENT**

### **Water Control and Conservation**

The Contractor shall prevent erosion or the discharge of pollutants into storm drain systems or watercourses by managing the water used for construction operations. The Contractor shall obtain the Engineer's approval before washing anything on the construction site with water that could discharge into a storm drain system or watercourse. Discharges shall be reported to the Engineer immediately.

The Contractor shall implement water conservation practices when water is used on the construction site. Irrigation areas shall be inspected and watering schedules shall be adjusted to prevent erosion, excess watering, or runoff. The Contractor shall shut off the water source to broken lines, sprinklers, or valves, and they shall be repaired as soon as possible. When possible, water from waterline flushing shall be reused for landscape irrigation. Paved areas shall be swept and vacuumed, not washed with water.

Construction water runoff, including water from water line repair, shall be directed to areas to infiltrate into the ground and shall not be allowed to enter storm drain systems or watercourses. Spilled water shall not be allowed to escape water truck filling areas. When possible, the Contractor shall direct water from off-site sources around the construction site, or shall minimize contact with the construction site.

### **Illegal Connection and Discharge Detection and Reporting**

The Contractor shall inspect the construction site and the site perimeter before beginning work for evidence of illegal connections, discharges, or dumping. Subsequently, the construction site and perimeter shall be inspected on a frequent, predetermined schedule.

The Contractor shall immediately notify the Engineer when illegal connections, discharges, or dumping are discovered. The Contractor shall take no further action unless directed by the Engineer. Unlabeled or unidentifiable material shall be assumed to be hazardous.

The Contractor shall look for the following evidence of illegal connections, discharges, or dumping:

- A. Debris or trash piles,
- B. Staining or discoloration on pavement or soils,
- C. Pungent odors coming from drainage systems,

- D. Discoloration or oily sheen on water,
- E. Stains or residue in ditches, channels or drain boxes,
- F. Abnormal water flow during dry weather,
- G. Excessive sediment deposits,
- H. Nonstandard drainage junction structures, or
- I. Broken concrete or other disturbances near junction structures.

#### **Vehicle and Equipment Cleaning**

The Contractor shall limit vehicle and equipment cleaning or washing on the construction site to that necessary to control vehicle tracking or hazardous waste. Vehicles and equipment shall not be cleaned on the construction site with soap, solvents, or steam until the Engineer has been notified. The resulting waste shall be contained and recycled, or disposed of as provided in "Liquid Waste" or "Hazardous Waste" of these special provisions, whichever is applicable. The Contractor shall not use diesel to clean vehicles or equipment, and shall minimize the use of solvents.

The Contractor shall clean or wash vehicles and equipment in a structure equipped with disposal facilities. If using a structure is not possible, vehicles and equipment shall be cleaned or washed in an outside area with the following characteristics:

- A. Located at least 50 feet from storm drainage systems or watercourses,
- B. Paved with AC, HMA, or portland cement concrete,
- C. Surrounded by a containment berm, and
- D. Equipped with a sump to collect and dispose of wash water.

When washing vehicles or equipment with water, the Contractor shall use as little water as possible. Hoses shall be equipped with a positive shutoff valve.

Wash racks shall discharge to a recycle system or to another system approved by the Engineer. Sumps shall be inspected regularly, and liquids and sediments shall be removed as needed.

#### **Vehicle and Equipment Fueling and Maintenance**

The Contractor shall fuel or perform maintenance on vehicles and equipment off the construction site whenever practical. When fueling or maintenance must be done at the construction site, the Contractor shall designate a site, or sites, and obtain approval from the Engineer before using. The fueling or maintenance site shall be protected from storm water, shall be on level ground, and shall be located at least 50 feet from drainage inlets or watercourses. The WPCM shall inspect the fueling or maintenance site regularly. Mobile fueling or maintenance shall be kept to a minimum.

The Contractor shall use containment berms or dikes around the fueling and maintenance area. Adequate amounts of absorbent spill cleanup material and spill kits shall be kept in the fueling and maintenance area and on fueling trucks. Spill cleanup material and kits shall be disposed of immediately after use. Drip pans or absorbent pads shall be used during fueling or maintenance unless performed over an impermeable surface.

Fueling or maintenance operations shall not be left unattended. Fueling nozzles shall be equipped with an automatic shutoff control. Vapor recovery fueling nozzles shall be used where required by the Air Quality Management District. Nozzles shall be secured upright when not in use. Fuel tanks shall not be topped-off.

The Contractor shall recycle or properly dispose of used batteries and tires.

#### **Material and Equipment Used Over Water**

Drip pans and absorbent pads shall be placed under vehicles or equipment used over water, and an adequate supply of spill cleanup material shall be kept with the vehicle or equipment. Drip pans or plastic sheeting shall be placed under vehicles or equipment on docks, barges, or other surfaces over water when the vehicle or equipment will be idle for more than one hour.

The Contractor shall provide watertight curbs or toe boards on barges, platforms, docks, or other surfaces over water to contain material, debris, and tools. Material shall be secured to prevent spills or discharge into water due to wind.

### **Structure Removal Over or Adjacent to Water**

The Contractor shall not allow demolished material to enter storm water systems or watercourses. The Contractor shall use covers and platforms approved by the Engineer to collect debris. Attachments shall be used on equipment to catch debris on small demolition operations. Debris catching devices shall be emptied regularly and debris shall be handled as provided in "Waste Management" of these special provisions.

The WPCM shall inspect demolition sites within 50 feet of storm water systems or watercourses every day.

### **Paving, Sealing, Sawcutting, and Grinding Operations**

The Contractor shall prevent the following material from entering storm drain systems or water courses:

- A. Cementitious material,
- B. Asphaltic material,
- C. Aggregate or screenings,
- D. Grinding or sawcutting residue,
- E. Pavement chunks, or
- F. Shoulder backing.

The Contractor shall cover drainage inlets and use linear sediment barriers to protect downhill watercourses until paving, sealing, sawcutting, or grinding operations are completed and excess material has been removed. Drainage inlets and manholes shall be covered during the application of seal coat, tack coat, slurry seal, or fog seal.

During the rainy season or when precipitation is predicted, paving, sawcutting, and grinding operations shall be limited to places where runoff can be captured. Seal coat, tack coat, slurry seal, or fog seal operations shall not begin if precipitation is predicted for the application or the curing period. The Contractor shall not excavate material from existing roadways during precipitation.

The Contractor shall vacuum up slurry from sawcutting operations immediately after the slurry is produced. Slurry shall not be allowed to run onto lanes open to public traffic or off the pavement.

The Contractor shall collect residue from portland cement concrete grinding operations with a vacuum attachment on the grinding machine. The residue shall not be left on the pavement or allowed to flow across the pavement.

Material excavated from existing roadways may be stockpiled as provided in "Stockpile Management" of these special provisions if approved by the Engineer. AC or HMA chunks used in embankment shall be placed above the water table and covered by at least one foot of material.

Substances used to coat asphalt trucks and equipment shall not contain soap, foaming agents, or toxic chemicals.

### **Thermoplastic Striping and Pavement Markers**

Thermoplastic striping and preheating equipment shutoff valves shall work properly at all times when on the construction site. The Contractor shall not preheat, transfer, or load thermoplastic within 50 feet of drainage inlets or watercourses. The Contractor shall not fill the preheating container to more than 6 inches from the top. Truck beds shall be cleaned daily of scraps or melted thermoplastic.

The Contractor shall not unload, transfer, or load bituminous material for pavement markers within 50 feet of drainage inlets or watercourses. All pressure shall be released from melting tanks before removing the lid to fill or service. Melting tanks shall not be filled to more than 6 inches from the top.

The Contractor shall collect bituminous material from the roadway after marker removal.

### **Pile Driving**

The Contractor shall keep spill kits and cleanup material at pile driving locations. Pile driving equipment shall be parked over drip pans, absorbent pads, or plastic sheeting where possible. When not in use, pile driving equipment shall be stored at least 50 feet from concentrated flows of storm water, drainage courses, or inlets. The Contractor shall protect pile driving equipment by parking it on plywood and covering it with plastic when precipitation is predicted. The WPCM shall inspect the pile driving area every day for leaks and spills.

The Contractor shall use vegetable oil instead of hydraulic fluid when practical.

### **Concrete Curing**

The Contractor shall not overspray chemical curing compound. Drift shall be minimized by spraying as close to the concrete as possible. Drainage inlets shall be covered before applying curing compound.

The Contractor shall minimize the use and discharge of water by using wet blankets or similar methods to maintain moisture when curing concrete.

### **Concrete Finishing**

The Contractor shall collect and dispose of water and solid waste from high-pressure water blasting. Drainage inlets within 50 feet shall be covered before sandblasting. The nozzle shall be kept as close to the surface of the concrete as possible to minimize drift of dust and blast material. Blast residue may contain hazardous material.

Containment structures for concrete finishing operations shall be inspected for damage before each day of use and before predicted precipitation. Liquid and solid waste shall be removed from the containment structure after each work shift.

#### **1.13 TEMPORARY CONCRETE WASHOUT (PORTABLE)**

A portable temporary concrete washout shall be furnished, maintained, and removed as specified in the approved Water Pollution Control Plan in conformance with "Water Pollution Control" of these special provisions and as directed by the Engineer.

A portable temporary concrete washout shall consist of a commercially available drum at a minimum size of 55 gallons or alternate container upon written approval from the Engineer. The drum shall be stenciled "Concrete Waste Material." The letters shall be black and 4 inches in height on a white background. The top of the stenciling shall be 12 inches from the top of the barrel.

#### **PLACEMENT**

A portable temporary concrete washout shall be as follows:

- A. A portable temporary concrete washout shall be in place prior to placement of concrete and shall be located in the immediate area of the concrete work as approved by the Engineer. The temporary concrete washout shall be located away from construction traffic or public access areas. After initial placement, temporary concrete washout shall be moved as needed for concrete construction work. When the temporary concrete washout is no longer required, as determined by the Engineer, it shall become the property of the Contractor and shall be disposed of away from the premises. Such disposal shall conform to the laws, rules, and regulations of all agencies having jurisdiction at the disposal site.
- B. A sign shall be installed adjacent to each washout at a location determined by the Contractor and approved by the Engineer. Each portable sign shall consist of a base, framework and a sign panel. The sign panel shall be made out of plywood and shall have a minimum size of 48" x 24". The sign panel shall read "Concrete Washout" with black letters, 6 inches in height, on a white background.
- C. The Contractor shall provide sufficient temporary concrete washout capacity to contain liquid and concrete waste generated by washout operations without seepage or spills.

Maintaining the portable temporary concrete washout shall include removing and disposing of concrete waste. Concrete waste material generated shall be removed each day and disposed of away from the premises. Such disposal shall conform to the laws, rules, and regulations of all agencies having jurisdiction at the disposal site.

The Contractor shall provide the name and location of the disposal facility to the Engineer before disposal of solid and liquid concrete waste. The Contractor shall provide verification that the off-site commercial or noncommercial disposal site has a permit issued by the California Regional Water Quality Control Board (RWQCB). If the disposal site is located outside of the State of California, the Contractor shall provide a copy of the permit issued by the state or local agency having jurisdiction over the disposal site.

When relocating or transporting a portable temporary concrete washout, the portable washout shall be properly secured to prevent spilling of concrete waste material.

#### **1.14 UTILITY CONNECTION**

The Contractor shall make all arrangements and obtain all permits and licenses required for the extension of and connection to each utility service applicable to this project, shall furnish all labor and materials necessary for such extensions which are not performed or provided by the utility, and shall furnish and install any intermediate equipment required by the serving utilities.

Upon written request by the Contractor, the State will pay all utility permits, licenses, connection charges, and excess length charges directly to the utility. Such request shall be submitted not less than 45 days before service connections are required.

The costs incurred by the Contractor for the extension of utilities beyond the limits shown on the plans, and in furnishing and installing any intermediate equipment required by the serving utilities, will be paid for as an ordered change as provided in Section 3, "Changes in the Work," of the General Conditions.

Full compensation for any costs incurred by the Contractor to obtain the permits and licenses shall be considered as included in the contract lump sum price paid for building work and no additional compensation will be allowed therefore.

### **1.15 TEMPORARY UTILITIES**

The Contractor may obtain electrical power and water from existing State outlets within the contract limits free of charge for contract operations where such utilities exist, provided that such utility services are in service and are not required by the State for other purposes and subject to the provisions in "Cooperation" of these special provisions.

The Contractor, at his own expense, shall obtain any additional electrical power and water or other utilities required for his operations and shall make and maintain the necessary service connections.

The Contractor shall provide and pay for telephone service he may require. State telephone facilities shall not be used.

The Contractor shall provide adequate temporary lighting to perform the work and allow the Engineer to inspect the project as each portion is completed.

### **1.16 SANITARY FACILITIES**

Separate toilet facilities shall be provided for Contractor personnel. Facilities shall include the periodic flushing, waste removal and cleaning of such facilities. Units shall be maintained in a clean and sanitary condition, including a supply of toilet tissue, toilet seat covers, paper towels and paper cups. Waste material shall be disposed of off site in a lawful manner. Temporary toilet units shall be single occupant units of the chemical, aerated recirculation or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.

### **1.17 REFERENCES**

Attention is directed to Section 1-1.31, "Abbreviations," of the General Conditions.

### **1.18 PROJECT INFORMATION**

The information in this section has been compiled specifically for this project and is made available for bidders and Contractors. Other information referenced in the Instructions to Bidders and General Conditions for Building Construction and these special provisions do not appear in this section. The information is subject to the conditions and limitations set forth in Section 1-1.03, "Examination of Plans, Special Provisions and Site of the Work," of the Instructions to Bidders. Bidders and Contractors shall be responsible for knowing the procedures for obtaining information.

Information included in the Information Handout provided to bidders and Contractors is as follows:

- A. Lead Paint Inspection Report.
- B. Asbestos Survey

Cross sections are not available for this project.

The District Office in which the work is situated is located at 4050 Taylor Street, San Diego, CA 92110.

Plans of the existing buildings may be requested by fax from the Office of Structure Maintenance and Investigations, 1801 30th Street, Sacramento, CA, Fax (916) 227-8357, and are available at the Office of Structure Maintenance and Investigations, Los Angeles, CA, Telephone (213) 897-0877.

Plans of the existing buildings available to bidders and Contractors are reproductions of the original contract plans, with significant changes noted, and working drawings, and do not necessarily show normal construction tolerances and variances. Where dimensions of new construction required by this contract are dependent on the dimensions of the existing buildings, the Contractor shall verify the controlling field dimensions and shall be responsible for adjusting dimensions of the work to fit existing conditions.

### **1.19 PROJECT RECORD DRAWINGS**

The Contractor shall prepare and maintain one set of project record drawings, using an unaltered set of original project plans, to clearly show all as-constructed information for the project. As a minimum, the information to be shown shall include 1) any plan clarifications or change orders, 2) locations of any underground utilities, or 3) the location, size, type, and manufacturer of all major products or components selected by the Contractor for use in the work.

All markings shall be placed on the project record drawings using red ink or red pencil. Original figures shall not be eradicated nor written over and superseded material shall be neatly lined out. Additional drawings shall be submitted if the required information cannot be clearly shown on the original set of project plans. The additional drawings shall be not less than 11" x 17" in size and shall have the contract number on each sheet. The Contractor shall sign and date each sheet of the project record drawings to verify that all as-constructed information shown on the drawings is correct.

The Contractor shall periodically review the set of project record drawings with the Engineer during the progress of the work to assure that all changes and other required information are being recorded.

Before completion of the work, the Contractor shall request a review of the project record drawings to determine the completeness and adequacy of them. If the project record drawings are unacceptable, the Contractor shall inspect, measure, and survey the project as necessary to record the required additional information.

The set of completed project record drawings shall be delivered to the Engineer prior to acceptance of the contract.

### **1.20 FIELD ENGINEERING**

This section specifies administrative and procedural requirements for field engineering services to be performed by the Contractor.

Lines and Grades:

Such stakes or marks will be set by the Engineer as he determines to be necessary to establish the lines and grades required for the completion of the work shown on the plans and as specified in these special provisions. In general, these will consist of the primary vertical and horizontal control points.

Stakes and marks set by the Engineer shall be carefully preserved by the Contractor. In case such stakes and marks are destroyed or damaged they will be replaced at the Engineer's earliest convenience. The Contractor will be charged for the cost of necessary replacement or restoration of such stakes and marks which in the judgment of the Engineer were carelessly or willfully destroyed or damaged by the Contractor's operations. This charge will be deducted from any moneys due or to become due the Contractor.

All other stakes or marks required to establish the lines and grades required for the completion of the work shall be the responsibility of the Contractor.

Existing utilities and equipment:

The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, the Contractor shall investigate and verify the existence and location of underground utilities and other construction.

Prior to construction, the Contractor shall verify the location and invert elevation at points of connection of sanitary and septic sewers, storm sewer, and water or fire service piping.

Surveys for layout and performance:

The Contractor shall perform all surveys for layout and performance, reduce field notes, and make all necessary calculations and drawings necessary to carry out the work.

The Contractor shall locate and layout site improvements, and other work requiring field engineering services, including pavements, stakes for grading, fill and topsoil placement, utility slopes and invert elevations by instrumentation and similar appropriate means.

Batter boards shall be located and laid out for structures, building foundations, column grids and locations, floor levels and, control lines and levels required for mechanical and electrical work.

Survey accuracy and tolerances:

The tolerances generally applicable in setting survey stakes for foundations, slabs, and underground work shall not exceed the following:

Survey Stakes or Markers	Tolerance
Rough grading or excavation	0.10-foot
Trimming or preparation of subgrade for roadways	0.05-foot
Roadway surfacing, steel or concrete pipe	0.02-foot
Structures or building construction	0.01-foot

Such tolerance shall not supersede stricter tolerances required by the plans or special provisions, and shall not otherwise relieve the Contractor of responsibility for measurements in compliance therein.

**1.21 HISTORIC TREATMENT PROCEDURES**

**PART 1 - GENERAL**

**SUMMARY**

Scope: This Section includes special procedures for historic treatment on Project including, but not limited to, the following:

1. Storage and protection of existing historic materials.
2. Temporary protection of historic materials during construction.
3. Protection during application of chemicals.
4. Protection during use of heat-generating equipment
5. Historic treatment procedures.

## **DEFINITIONS**

"Preservation": To apply measures necessary to sustain the existing form, integrity, and materials of a historic property. Work may include preliminary measures to protect and stabilize the property.

"Rehabilitation": To make possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

"Protect and Maintain": To remove deteriorating corrosion, reapply protective coatings, and install protective measures to provide the least degree of intervention.

"Repair": To stabilize, consolidate, or conserve; to retain existing materials and features while employing as little new material as possible. Repair includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials. Repair also includes limited replacement in kind, rehabilitation, and reconstruction, with compatible substitute materials for deteriorated or missing parts of features when there are surviving prototypes.

"Replace": To duplicate and replace entire features with new material in kind. Replacement includes the following conditions:

Duplication: Includes replacing elements damaged beyond repair or missing. Original material is indicated as the pattern for creating new duplicated elements.

Replacement with Substitute Materials: Includes replacement with compatible substitute materials. Substitute materials are not allowed, unless otherwise indicated.

"Remove": To detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

"Remove and Salvage": To detach items from existing construction and deliver them to the Department ready for reuse.

"Remove and Reinstall": To detach items from existing construction, repair and clean them for reuse, and reinstall them where indicated.

"Existing to Remain" or "Retain": Existing items of construction that are not to be removed and that are not otherwise indicated to be removed and salvaged, or removed and reinstalled.

"Material in Kind": Material that matches existing materials, as much as possible, in species, cut, color, grain, and finish.

## **SUBMITTALS**

Historic Treatment Program: Submit a written plan for each phase or process including protection of surrounding materials during operations. Describe in detail materials, methods, and equipment to be used for each phase of work.

Alternative Methods and Materials: If alternative methods and materials to those indicated are proposed for any phase of work, provide a written description including evidence of successful use on other, comparable projects, and program of testing to demonstrate effectiveness for use on this Project.

Qualification Data: For historic treatment specialists and supervisory personnel. Include list of completed projects with the scope of work and budget for each.

Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by historic treatment operations. Submit before work begins.

## **QUALITY ASSURANCE**

Historic Treatment Specialist Qualifications: A firm that employs personnel, including supervisory personnel, experienced and skilled in the processes and operations indicated.

Historic Treatment Preconstruction Conference: Conduct conference at Project. Review manufacturer's written instructions for precautions and effects of products and procedures on building materials, components, and vegetation. Record procedures established as a result of the review and distribute to affected parties.

## **STORAGE AND PROTECTION OF HISTORIC MATERIALS**

Removed and Salvaged Historic Materials: Clean salvaged historic items; pack or crate items after cleaning, identify contents of containers; store items in a secure area until delivery to the Department; Transport items to the Department's storage area designated by the Engineer; protect items from damage during transport and storage; do not dispose of list items removed from existing construction without prior written consent of the Engineer.

Removed and Reinstalled Historic Materials: Clean and repair historic items to functional condition adequate for intended reuse; pack or crate items after cleaning and repairing, identify contents of containers; protect items from damage during transport and storage; reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling during historic treatment. When permitted by the Engineer, items may be removed to a suitable, protected storage location during historic treatment and cleaned and reinstalled in their original locations after historic treatment operations are complete.

Storage and Protection: When removed from their existing location, store historic materials within a weathertight enclosure where they are protected from wetting by rain, snow, or ground water, and temperature variations. Secure stored materials to protect from theft. Identify removed items with an inconspicuous mark indicating their original location.

## **PROJECT-SITE CONDITIONS**

Exterior Repair: Proceed with the work only when forecasted weather conditions are favorable.

Wet Weather: Do not attempt repair during rainy or foggy weather. Do not apply primer, paint, putty, or epoxy when the relative humidity is above 80 percent. Do not remove exterior elements of structures when rain is forecast or in progress.

Do not perform exterior wet work when the air temperature is below 40 deg F (5 deg C).

Do not begin patching or repairing when there is any likelihood of frost or freezing.

## **PART 2 – PRODUCTS – (Not Used)**

## **PART 3 - EXECUTION**

### **PROTECTION, GENERAL**

Comply with manufacturer's written instructions for precautions and effects of products and procedures on adjacent building materials, components, and vegetation.

Ensure that supervisory personnel are present when work begins and during its progress.

Temporary Protection of Historic Materials during Construction: Protect existing materials during installation of temporary protections and construction, do not deface or remove existing materials; attachments of temporary protection to existing construction shall be approved by the Engineer prior to installation.

Protection of landscape work adjacent to or within work areas: Provide barriers to protect tree trunks; bind spreading shrubs; use coverings that allow plants to breathe and remove coverings at the end of each day, do not cover plant materials with a waterproof membrane for more than eight hours at a time; set scaffolding and ladder legs away from plants.

Existing Drains: Prior to the start of work or any cleaning operations, test drains and other water removal systems to ensure that drains and systems are functioning properly. Notify the Engineer immediately of drains or systems that are stopped or blocked. Do not begin Work of this Section until the drains are in working order.

Provide a method to prevent solids including stone or mortar residue from entering the drains or drain lines. Clean out drains and drain lines that become blocked or filled by sand or any other solids because of work performed under this Contract.

Protect storm drains from pollutants. Block drains or filter out sediments allowing only clean water to pass.

### **PROTECTION DURING APPLICATION OF CHEMICALS**

Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm or damage resulting from applications of chemical cleaners and paint removers.

Cover adjacent surfaces with materials that are proven to resist chemical cleaners selected for Project unless chemicals being used will not damage adjacent surfaces. Use covering materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.

Do not clean surfaces during winds of sufficient force to spread cleaning solutions to unprotected surfaces.

Neutralize and collect alkaline and acid wastes and dispose of off the State's property.

Dispose of runoff from chemical operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

### **PROTECTION DURING USE OF HEAT-GENERATING EQUIPMENT**

Comply with the following procedures while performing work with heat-generating equipment, including welding, cutting, soldering, brazing, paint removal with heat, and other operations where open flames or implements utilizing heat are used:

Obtain Engineer's approval for operations involving use of open-flame or welding equipment; Notification shall be given for each occurrence and location of work with heat-generating equipment.

As far as practical, use heat-generating equipment in shop areas or outside the building.

Before work with heat-generating equipment commences, furnish personnel to serve as a fire watch (or watches) for location(s) where work is to be performed.

Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.

Remove and keep the area free of combustibles, including rubbish, paper, waste, etc., within area of operations. If combustible material cannot be removed, provide fireproof blankets to cover such materials.

Where possible, furnish and use baffles of metal or gypsum board to prevent the spraying of sparks or hot slag into surrounding combustible material.

Prevent the extension of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.

Inspect each location of the day's work not sooner than 30 minutes after completion of operations to detect hidden or smoldering fires and to ensure that proper housekeeping is maintained.

## **HISTORIC TREATMENT PROCEDURES**

The principal aim of preservation work is to halt the process of deterioration and stabilize the item's condition unless otherwise indicated. Repair is required where specifically indicated. The following procedures shall be followed.

Retain as much existing material as possible; repair and consolidate rather than replace.

Use additional material or structure to reinforce, strengthen, prop, tie, and support existing material or structure.

Use reversible processes wherever possible.

Use traditional replacement materials and techniques.

Prohibit smoking by personnel performing work on or near historic structures.

Obtain Engineer's review and written approval through a written request for information before making changes or additions to construction or removing historic materials.

Notify the Engineer of visible changes in the integrity of material or components whether due to environmental causes including biological attack, UV degradation, or due to structural defects including cracks, movement, or distortion. Do not proceed with the work in question until directed by the Engineer.

Where Work requires existing features to be removed, cleaned, and reused, perform these operations without damage to the material itself, to adjacent materials, or to the substrate.

Identify new or replacement materials and features with inconspicuous, permanent marks to distinguish them from original materials. Record the legend of identification marks and the locations of these marks on Record Drawings.

## **DIVISION 2. SITEWORK**

### **2.01 REMOVING PORTIONS OF EXISTING FACILITIES**

#### **PART 1 - GENERAL**

Scope: This work shall consist of removing portions of the existing facilities, including removal of existing work to gain access to or for new work, in accordance with the details shown on the plans and these special provisions.

#### **PART 2 - PRODUCTS (Not applicable)**

#### **PART 3 - EXECUTION**

## **PREPARATION**

The limits of removal shall be located and identified. Items to be removed and the interface of items to be removed and items to remain intact shall be identified and marked.

Prior to removing concrete, a saw cut approximately one inch deep shall be made along the limits of removal on all faces that will be visible in the completed work.

## **REMOVAL**

Removal shall be to the limits shown on the plans and as directed by the Engineer. Removal shall be done carefully to minimize damage to the portions to remain. Remaining portions that are damaged by the Contractor's operation shall be restored to original condition at the Contractor's expense.

Assemblies to be salvaged which require dismantling for removal shall be matchmarked before dismantling.

Existing apparatuses, devices, or accessories which would be functionally impaired by new construction or remodeling shall be moved, brought out to new surfaces, or provided with new access covers, as necessary to restore apparatuses, devices, or accessories to their original usefulness.

Piping and conduits to be abandoned shall be capped or plugged.

Surfaces that are exposed to view at the limits of removal work shall be patched, bumps shall be removed and depressions filled, and the surface shall be finished to match the existing surrounding surfaces. Depressions in concrete less than one inch deep shall be deepened to one inch minimum depth before filling with cement mortar.

Anchor bolts and reinforcement shall be removed at least one inch below the surrounding surfaces, and the resulting hole shall be patched with cement mortar.

Existing reinforcement that is to be incorporated into the new work shall be protected from damage and thoroughly cleaned before being embedded in new concrete.

## **DISPOSAL**

Materials that are to be removed, shall become the property of the Contractor and shall be disposed of away from the premises. Such disposal shall conform to the laws, rules, and regulations of all agencies having jurisdiction at the disposal site.

## **SALVAGE**

Materials or equipment shown on the plans to be salvaged shall remain the property of the State and shall be removed, cleaned and stockpiled at a location at the project site designated by the Engineer.

## **2.02 RELOCATING MATERIALS AND EQUIPMENT**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of relocating existing materials and equipment in accordance with the details shown on the plans and these special provisions.

## **PART 2 - PRODUCTS (Not applicable)**

## **PART 3 - EXECUTION**

### **RELOCATION**

Materials or equipment to be relocated shall be removed carefully to avoid damage to the materials or equipment or to the materials or equipment which are to remain. Assemblies to be relocated which require dismantling for removal shall be matchmarked before dismantling.

The Contractor shall notify the Engineer prior to the relocation work in order that the materials or equipment may be inspected for existing damage.

Materials or equipment to be relocated shall have all adhering concrete, mastics, earth or other deleterious materials removed and shall have all exterior surfaces cleaned.

Materials or equipment which are damaged by the Contractor's operations shall be replaced or restored to match the condition of the materials or equipment prior to the beginning of the Contractor's operations. Replacement or restoration of damaged materials or equipment shall be at the Contractor's expense.

Connections, anchorages and fasteners for relocated materials and equipment shall match existing and shall be furnished and installed by the Contractor. Assemblies which have been dismantled shall be reassembled to match the existing installation. Relocated materials and equipment shall be installed as required for new work.

Modifications to wiring and plumbing to accommodate relocated items shall be as shown on the plans. Ends of piping and conduits to be abandoned shall be capped.

Surfaces that are exposed to view upon removal or relocation of materials or equipment shall be patched. Bumps shall be removed and depressions filled, and the surface finished to match the existing surfaces. Depressions in concrete less than one inch deep shall be deepened to one-inch minimum depth before filling with cement mortar.

### **DISPOSAL**

Material from existing facilities to be reused in the work which, in the opinion of the Engineer, is unsuitable for use shall become the property of the Contractor and disposed of away from the premises. Such disposal shall conform to the laws, rules, and regulations of all agencies having jurisdiction at the disposal site. The unsuitable material shall be replaced as ordered by the Engineer and will be paid for as provided in Section 3, "Changes in the Work," of the General Conditions.

## **2.03 ABANDON PORTIONS OF WASTE DISPOSAL SYSTEM**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of abandoning portions of the existing waste disposal system in accordance with the details shown on the plans and these special provisions.

Codes and Standards: Attention is directed to Section 5-1.01, "Laws to be Observed," of the General Conditions.

## **PART 2 - PRODUCTS (Not applicable)**

## **PART 3 - EXECUTION**

Staging of Work: Work that will curtail the use of the waste disposal system shall not be done until the facilities utilizing the system are closed and are no longer required.

Disposal: Sewage facilities to be abandoned shall be pumped out and the sewage and sediment removed from such facilities shall be disposed of away from the premises. Disposal shall conform to the laws, rules and regulations of the agency having jurisdiction of the disposal site.

Abandoning Facilities:

Each pipe entering or exiting the sewage disposal system to be abandoned shall be closed by a tight fitting plug or wall of concrete not less than 0.5 foot thick. Such concrete shall be commercial quality concrete and shall contain not less than 470 pounds of cement per cubic yard of concrete.

The top cover of the structure shall be removed and the bases shall be broken to prevent entrapment of water. The sewage structures to be abandoned shall be backfilled with sand, unless otherwise shown on the plans. Sand backfill shall be consolidated by vibrating or other methods.

### **2.04 ASBESTOS ABATEMENT**

#### **GENERAL**

This work includes removal, clean up and disposal of the below listed asbestos containing material (ACM) and asbestos containing construction material (ACCM) to the extent necessary for the building and structure demolition work of this project. The Contractor shall review all demolition plans, survey reports and field verify location and extent of materials containing asbestos related work.

#### **REFERENCES**

Codes, regulations and references applicable to asbestos abatement work include but are not limited to the following:

1. American National Standards Institute (ANSI) publications;  
  
Z9.2-79 Fundamentals Governing the Design and Operation of Local Exhaust Systems.  
  
A10.6-2006. Safety Requirements For Demolition Operations
2. American Society for Testing and Materials (ASTM) publications;  
  
D1331-89 (Re-approved 2001) Surface and Interfacial Tensions of Solutions of Surface Active Agents.  
  
E1494-92 (Re-approved 2002) Specifications for Encapsulants for Friable Asbestos-Containing Building Materials.  
  
E1368.90 Standard Practices For Visual Inspection of Asbestos Abatement Projects.
3. Code of Federal Regulations (CFR);  
  
29 CFR 1926.1101 "Asbestos."  
  
40 CFR 61 Subpart A and Subpart M, USEPA, "National Emission Standards for Hazardous Air Pollutants (NESHAPS)."
4. National Fire Protection Association (NFPA):  
  
No. 70.2005 National Electrical Code.

5. California Code of Regulations (CCR):

Title 8, Division 1, Chapter 3.2, Subchapter 2, "Regulations of the Division of Occupational Safety and Health;" Article 2.5, Section 341.6 to 341.14; "Registration-Asbestos-Related Work."

Title 8, Division 1, Chapter 4, Subchapter 7, "General Industry Safety Orders," Group 16, Article 110, Section 5203; "Carcinogen Report of Use Requirements."

Title 8, Division 1, Chapter 4, Subchapter 4, "Construction Safety Orders," Article 4, Section 1529: "Asbestos"

Title 22, Division 4.5, Chapter 10, "Hazardous Waste Management System: General."

6. Local Air Pollution Control District Regulations

**EXISTING SITE CONDITIONS**

A hazardous material survey report by JMR Environmental Services, Inc. Project No. 1-878 sated April 13, 2005, is included as an information handout. Location of asbestos containing materials and presumed asbestos containing materials from survey reports where work is performed include:

<b>ASBESTOS CONTAINING MATERIALS</b>				
<b>Location</b>	<b>Description</b>	<b>Asbestos Concentration</b>	<b>Approximate Amount</b>	<b>Category</b>
<b>Existing General Building</b>	Mastic	3%cryostile	throughout	ACM
<b>Offices 4,5,6,entrance</b>	Floor Tile	2%cryostile	1000 square feet	ACM
<b>Roof</b>	Vent pipes	18%crocidolite/cryostile	15 linear feet	PACM

TSI-Thermal System Insulation

PACM-Presumed Asbestos Containing Material

This work includes all plans, permits and the removal, transportation, storage, and disposal of all material containing asbestos as specified or shown on the plans.

Furniture and portable equipment will be removed from the area of work by the Department before any work begins.

**PRECONSTRUCTION MEETING**

At least 7 days before asbestos removal work commences, a preconstruction meeting shall be held at a location designated by the Engineer. Attendees shall include the Engineer, Department's Observation Service, Contractor's Competent Person; the Contractor's Project Superintendent, and others as necessary. The agenda shall include a review of project safety requirements, the Contractor's written asbestos compliance work plan, emergency contacts and notification plan, containment and work area design, facility requirements, submittals, and any other issues pertinent to the safe execution of the asbestos abatement work.

Work shall not commence until the Engineer has approved submittals and plans for asbestos abatement work.

**EQUIPMENT AND MEDICAL SURVEILLANCE**

Personnel protective equipment, training, and medical surveillance required by the Contractor's Health and Safety Plan shall be provided to State personnel by the Contractor. The number of State personnel will be 4. The Contractor shall comply with all Federal State and local requirements for safety which shall include providing employees with coveralls (preferably disposable plastic coated), rubber gloves (to be discarded after use), rubber boots (to be washed thoroughly after use) and appropriate respirators (to cover nose and mouth). The Contractor shall be responsible for verifying that all employees, who are involved in asbestos removal operations, wear the protective devices enumerated herein during removal operations.

## SUBMITTALS

### **Product data**

A list of manufacturer's product data, specifications, samples and application instructions and other pertinent information as necessary shall be submitted for approval.

### **Abatement Procedure Plans**

The Contractor shall submit the following detailed plan of the work procedures for abatement of asbestos materials:

1. Federal, State and Local agencies that require notification.
2. Personal monitoring procedures.
3. Phasing of abatement work indicating daily roster of workers for each phase.
4. Security system warning signs locations.
5. Detailed plans for decontamination facilities, toilets, and systems providing intraroom and Work Area to outside communication showing connections to existing building.
6. Standard procedures for protecting workers, visitors, and employees and protection of spaces outside Work Area from contamination.
7. Engineering systems exposure control indicating number, location, and capacity of supply and exhaust systems, the expected direction of flow, and the range of expected differential pressure in each area.
8. Safety precautions such as lockout, tagout, fall protection, and confined space entry procedures and equipment and work procedures to be used in the encapsulation, removal and demolition of materials containing asbestos.

The plan shall be prepared, signed and stamped by a certified asbestos consultant.

**Waste Transportation.**--Submit the method of transport of hazardous waste including name, address, EPA I.D. number and telephone number of transporter.

**Hazardous Waste Site.**--Submit for approval the name, class, address, EPA I.D. number and telephone number of hazardous waste site(s) to be utilized for disposal.

**Waste Manifest.**--For Waste Manifest purposes the Generator is the facility of the subject work. Obtain necessary information for this purpose from the Engineer. Give a copy of the Waste Manifest to the State's Observation Service for each shipment of material containing asbestos. The Contractor shall submit a non hazardous waste manifest or waste shipment record (WSR) for disposal of material containing asbestos that is not classified as a hazardous waste.

**Qualifications.**--The following documents shall be submitted:

Registration: Submit copy of the registration for Asbestos-Related work from the Division of Occupational Safety and Health in accordance with Title 8, Article 2.5 of the California Code of Regulations.

Medical Examination: Submit proof that personnel who will be entering regulated asbestos areas have had medical examinations, and furnish the results of said exam to the Engineer and signed by the medical examiner.

Submit an employee roster to the Engineer for each Work Shift and confirm in writing within 24 hours of commencement of shift.

**Land Disposal Restrictions:** Submit a copy of the completed Notice and Certification with each Hazardous Waste Manifest for wastes intended for land disposal pursuant to Section 67740 of 22 CCR, Division 4.5, Chapter 45, to the Engineer and signed by the generator.

For HEPA-filtration systems exhausting externally within 50 feet of the building's air intake or entry, submit the results of on-site DOP or Portacount testing of required efficiency.

## **NOTIFICATIONS, COMMUNICATIONS AND POSTINGS**

The Contractor shall notify the Engineer 15 working days prior to the start of any abatement work.

Prior to performing operations involving the removal of material containing asbestos, the Contractor shall provide written notification to all Federal, State and local agencies that regulate the handling and disposal of material containing asbestos.

The Division of Occupational Safety and Health (CAL OSHA) shall be notified 24 hours prior to performing removal operations of materials containing asbestos.

Notification shall be in accordance with the NESHAP, 40 CFR, Part 61, Subpart M and Section 341.9 of Title 8 of California Code of Regulations.

In addition to detailed requirements of this Specification, comply with laws, ordinances, rules, and regulations of federal, state, regional, and local authorities regarding handling, storing, transporting, and disposing of material containing asbestos. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where requirements of this Specification and reference documents vary, the most stringent requirement shall apply.

## **FIELD AIR SAMPLING**

Personnel monitoring and other monitoring which is required by law or considered necessary by the Contractor for worker protection shall be the responsibility of the Contractor and performed by the Contractor's Competent Person. The Contractor shall disclose any interest in the firm or laboratory performing the Field Air Sampling or analysis.

## **EXECUTION**

### **PROJECT PROCEDURES**

#### **GENERAL**

Asbestos abatement work shall not commence until:

Arrangements have been made for disposal of material containing asbestos at an acceptable site.

Arrangements have been made for containing and disposal of waste water containing asbestos resulting from wet stripping.

Work areas and decontamination enclosure systems and parts of the building required to remain in use are effectively segregated.

Tools, equipment and material waste receptacles are on hand.

Arrangements have been made for building security.

Preparatory steps have been taken and applicable notices posted and permits obtained.

Differential pressure systems are installed and operating, where applicable.

The Contractor's submittal for the isolating of non-asbestos work areas has been reviewed and approved by the Engineer.

#### **WORK AREAS—**

#### **WORK AREA REQUIREMENTS**

All asbestos abatement shall be performed in regulated areas with access limited to the asbestos removal contractor's employees, regulating officials and Engineer until cleared.

All regulated areas require clearance testing by the Department's observation service using the Transmission Electron Microscopy (TEM) analysis method.

Mini-enclosure's shall have clearance testing in accordance with the TEM analysis method.

The department will pay for all laboratory tests necessary for clearance testing.

When performing removal work on wall or ceiling areas with unknown asbestos analysis reports, a full containment, negative pressure enclosure, 3 stage decontamination area will be required.

Shut down electric power. Provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements and provide ground-fault interrupter circuits as power source for electrical equipment.

Shut down and isolate heating, cooling, and ventilation air systems to prevent contamination and fiber dispersal to other areas of the structure. Isolate and depressurize steam, compressed gas, hydraulics, and other pressurized systems prior to work involving piping or components in such systems. During the work, vents within the work area shall be sealed with 2 layers of 6 mil fire rated plastic sheeting sealed with tape.

Do not begin work until area is free of loose equipment.

Pre-clean fixed objects within the proposed Work Areas, using HEPA filtered vacuum equipment or wet cleaning methods, as appropriate, and enclose with protective barriers of plywood covered with minimum 6 mil fire rated plastic sheeting sealed with tape.

All stationary equipment will be pre-cleaned with a HEPA filtered vacuum and protected with a water-tight double 6 mil fire rated plastic sheeting.

Clean the proposed Work Areas using HEPA filtered vacuum equipment or wet cleaning methods as necessary to maintain fiber levels at or below 0.01 f/cc. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters shall not be used.

Seal off openings, including but not limited to corridors, doorways, ducts, grills, diffusers, and any other penetrations of the Work Areas, with 2 layers of 6 mil fire rated plastic sheeting sealed with tape. Doorways and corridors which will not be used for passage during work shall be sealed with barriers.

Cover floor and wall surfaces with plastic sheeting sealed with tape. Use a minimum of two layers of 6 mil fire rated plastic on floors. Cover floors first so that plastic extends at least 1 foot up on walls, then cover walls with a minimum of 6 mil fire rated plastic sheeting to the floor level, thus overlapping the floor material by a minimum of 1 foot. The Contractor may use additional layers to assist in protection during the replacement of materials.

Install Decontamination Enclosure System or equivalent prefabricated portable decontamination units as approved.

Maintain emergency and fire exits from work areas.

#### **MAINTENANCE OF CONTAINMENT/NEGATIVE PRESSURE ENCLOSURE SYSTEMS**

Ensure that barriers and plastic linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

Visually inspect enclosures at the beginning of each work period.

Use smoke methods to test effectiveness of barriers prior to implementing asbestos removal and when directed by the Engineer. Ensure that the integrity of the enclosure system is not breached during the duration of its use.

#### **DISPOSAL**

Containers to be loaded for transportation from the holding area shall be removed by workers who have entered from unregulated areas, dressed in clean overalls. Workers shall not enter from the holding area into the wash room or the work area.

The sealed asbestos containers shall be delivered to the Contractor's pre-designated approved Hazardous Waste Site for burial; in accordance with Title 22, CCR, EPA guidelines and 40 CFR 61.156 and local Air Pollution Control District Regulations.

Notify the Engineer 48 hours in advance of the time when materials containing asbestos are to be removed from the site.

The Contractor shall be responsible for safe handling and transportation of hazardous waste generated by this Contract to the designated Hazardous Waste Site.

The Contractor shall hold the State harmless for claims, damages, losses, and expenses against the State, including attorney's fees arising out of or resulting from asbestos spills on the site or spills enroute to the disposal site.

#### **DECONTAMINATION OF WORK AREA (GROSS REMOVAL TECHNIQUE)**

After visual inspection and written notification to proceed from the State's Observation Service and after visual inspection by the State's observation Service, encapsulate surfaces where asbestos material has been removed.

Surfaces from which asbestos have been removed shall be sealed with a clear encapsulant after the surface is clean and dry. Post abatement lockdown encapsulant shall be applied using airless spray equipment.

Prepare and apply encapsulant according to the manufacturer's specifications.

Upon completion of encapsulation work, notify the Engineer in writing that encapsulation surfaces are ready for review. The State's Observation Service shall determine that a clearance fiber count is at or below 70 s/mm<sup>2</sup> by TEM analysis following Asbestos Hazard Emergency Response Act (AHERA) protocol.

Upon proper notification, the Engineer and the State's Observation Service will review encapsulated surfaces for conformance with Specifications. Non-conformance of work shall be remedied until work is in compliance.

Upon successful compliance with review of the Engineer, and after written notification from the State's Observation Service, remove outer layer of plastic floors. Inner plastic layer and isolation barriers, vents, grilles, diffuser, etc. shall remain in place.

Wet clean or clean with HEPA vacuum equipment, surfaces within the work area. Equipment used in the work area shall be included in the clean-up and shall be removed from the work area. Decontamination enclosure system(s) shall remain during the cleaning sequence until after final air clearance.

After final cleaning operation or removal procedure notify the Engineer that the work area is ready for review and "Clearance Testing". If "Clearance Testing" shows the work area has not been decontaminated, repeat cleaning or application of encapsulant, or both, until the work area is in compliance.

After written notification from the Engineer accepting decontamination of the work area, remove inner plastic layer isolation barriers and proceed with any remaining repairs or refinish work and reestablishment of objects and systems as specified.

#### **AIR MONITORING.—**

##### **PERIMETER AREA AIR MONITORING.—**

Throughout the abatement process perimeter area air monitoring may be conducted by the State's Observation Service to ensure work is done in conformance with fiber concentration limits of these Specifications.

If perimeter area air monitoring outside the work area is in excess of 0.01 fibers/cc the Contractor shall make modifications in work procedures to assure compliance with minimum standards. Unsatisfactory results are fiber counts in excess of 0.01 fibers/cc by Phase Contract Microscopy (PCM) NIOSH 7400 method measured outside the work area as Perimeter Area Air Monitoring.

The State's Observation Service will report perimeter area air monitoring results collected outside the work area to the Engineer on the following day prior to start of work.

The Contractor shall submit the laboratory analysis report and chain of custody (COC) to the State's Observation Service of the Contractor's personal monitoring results within 48 hours following completion of that work shift. Personal air monitoring results shall not exceed the maximum use level (MUL) of the respiratory protection factor (PF) in use for asbestos.

##### **CLEARANCE TESTING**

The State's Observation Service upon completion of the visual inspection and encapsulation review form (Form A) will conduct final air clearance sampling for each work area. For the purpose of this work, clearance shall be defined as an air sample showing fiber counts at or below 70s/mm<sup>2</sup> by Transmission Electron Microscopy (TEM) analysis following the Asbestos Hazard Emergency Response Act (AHERA) 40 CFR Part 763 Appendix A to Subpart E (Transmission Electron Microscopy Analytical Method). The Contractor will be given a Clearance Testing and Asbestos Air Monitoring Notification (Form B) by the State's Observation Service.

##### **RE-ESTABLISHMENT OF SYSTEMS.—**

When clean-up is complete:

1. Re-establish HVAC including installation of new filters and disposal of used filters, and insure mechanical and electrical systems are in proper working order.

##### **REPAIR AND PAINTING.--**

Damage to finishes and other items, not scheduled for demolition or removal, as a result of work under this section shall be repaired or replaced, painted, or cleaned to match existing adjacent surfaces to satisfaction of the Engineer. Painting shall comply with the requirements under "Painting" in Division 9, "Finishes," of these special provisions.

**VISUAL INSPECTION AND ENCAPSULATION REVIEWS**

**FORM A**

PROJECT:  
LOCATION:  
WORK AREA (if applicable):  
CONTRACTOR:

WORK ORDER NO.:  
BUILDING NAME:

**VISUAL INSPECTION REVIEW**

In accordance with the Contract Specifications, for the referenced project, Contractor hereby certifies that all surfaces in the referenced building work area are free from all visible material and residue, and notifies the Engineer or Observation Service that the referenced area is ready for visual inspection review.

By:  
(Signature)

Date:

(Print Name)

Title:

Observation Service hereby certifies that Observation Service has performed the visual inspection review of the referenced work area, and verifies that this inspection has been thorough and that all surfaces in the work area are free from all visible material and residue. Observation Service hereby notifies Contractor to proceed with the encapsulation of the abated surfaces and decontamination of the work area.

By:  
(Signature)

Date:

(Print Name)

Title:

**ENCAPSULATION REVIEW**

Contractor hereby notifies the Engineer or Observation Service that the work area encapsulated surfaces are ready for review.

By:  
(Signature)

Date:

(Print Name)

Title:

Observation Service certifies the review of the work area encapsulated surfaces was acceptable and found them to be in conformance with the Specifications.

By:  
(Signature)

Date:

(Print Name)

Title:

**CLEARANCE TESTING & ASBESTOS AIR MONITORING NOTIFICATION FORM B**

PROJECT:  
LOCATION:  
WORK AREA (if applicable):  
CONTRACTOR:

WORK ORDER NO.:  
BUILDING NAME:

**CLEARANCE TESTING CERTIFICATION**

Observation Service hereby certifies that Observation Service has taken an air sample "Clearance Test" upon completion of each Work Area. Observation Service further certifies that the decontamination of the Work Area has complied with the Specifications and the air samples indicated a fiber count of at or below 70 s/mm<sup>2</sup> by TEM analysis as per AHERA protocol.

By:  
(Signature)

Date:

(Print Name)

Title:

**ASBESTOS AIR MONITORING NOTIFICATION**

To: (Name of Facility CPO)

(Name & Location of Facility)

(Department)

In accordance with Asbestos Notification Law, health and Safety Code Section 25915, and for the above referenced project Building (Work Area, if applicable), the Real Estate Services Division (RES D) is transmitting the information herein above related to the air monitoring results conducted pursuant to Section 1529 of Title 8 of the California Code of Regulations. RES D has logged this transmittal as a part of Asbestos Program records.

If you have any questions regarding this information, contact the Project Manager.

From:

Date:

Signature of RES D Construction Supervisor

(Print Name)

## 2.05 LEAD RELATED CONSTRUCTION WORK

### GENERAL

#### SUMMARY

The work shall consist of procedures for removal, repair, and disposal of lead based materials which are designated on the plans or specified in these special provisions to be removed and disposed of.

The Contractor shall take special precautions for that part of the work which involves the demolition and handling of materials which may contain lead, either during demolition or construction. Abate all lead-based paint, do not remove historic substrate unless otherwise noted or indicated.

Attention is directed to "Repair of Historic Steel Windows" in Division 8, "Doors and Windows" of these special provisions.

#### SITE CONDITIONS

The building areas to be removed are known to contain lead containing materials. A hazardous material survey report by JMR Environmental Services, Inc. Project No. 1-496 dated April 13, 2005, is included as an Information Handout. The following items tested positive for Lead Based Paint material:

Lead-based paint		
Location	Description	Total Lead (mg/kg)
Interior	Baseboards	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Interior	Cabinets	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Interior	Doors & Door Frames	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Interior	Fire Extinguisher Box	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Interior	Windows & Window Components	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Interior	Vents on walls	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Interior	Steel Beams and Painted Wood In Attic	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Exterior	Doors & Door Frames	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Exterior	Eaves	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Exterior	Gutters & Gutter Drains	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Exterior	Handrails	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Exterior	Wood Beams	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Exterior	Windows & Window Components	> 5000 mg/kg or 1 mg/cm <sup>2</sup>
Exterior	Trim	> 5000 mg/kg or 1 mg/cm <sup>2</sup>

Where existing lead based materials are to be removed during demolition, construction or alterations, such material may need to be treated as hazardous waste, and shall be removed, hauled and disposed of in accordance with all applicable Federal, State and local laws and ordinances.

#### SUBMITTALS

The Contractor shall submit to the Engineer a lead compliance plan, abatement procedure plan and debris containment and collection plan. No work shall be done on any portion of the work which contains or may contain lead based materials until the Engineer has review and approved the submittals. The Contractor shall allow 15 days for the review of the submittals.

These plans shall be submitted as specified in Section 2-1.04, "Shop Drawings, Descriptive Data, Samples, and Alternatives," of the General Conditions

#### Lead Compliance Plan

The Contractor shall prepare a project specific lead compliance plan to prevent or minimize worker exposure to lead.

The lead compliance plan shall contain the elements listed in Title 8, California Code of Regulations, Section 1532.1(e)(2)(B). The lead compliance plan shall be prepared, signed and stamped by an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

### **Abatement Procedure Plans**

The abatement procedure plan prepared, signed and stamped by a lead project monitor or lead project designer currently certified by the California Department of Health Services. The plan shall address but not be limited to the following abatement procedures:

1. Personal monitoring procedures.
2. Phasing of abatement work indicating daily roster of workers for each phase.
3. Security system warning signs locations.
4. Detailed plans for decontamination facilities, toilets, and systems providing anteroom and work area to outside communication showing connections to the existing building.
5. Standard procedures for protecting workers, visitors, and employees and protection of spaces outside work area from contamination.
6. Engineering systems exposure control indicating number, location, and capacity of supply and exhaust systems, the expected direction of flow, and the range of expected differential pressure in each area.
7. Safety precautions such as lockout, tagout, fall protection, confined space entry procedures and equipment and work procedures to be used in the encapsulation, removal and disposal of lead based paint..
8. Final clearance inspection criteria.

### **Debris Containment and Collection Plan**

The debris containment and collection plan shall be prepared, signed and stamped by a lead project monitor or lead project designer currently certified by the California Department of Health Services. The plan shall identify materials, equipment, and methods to be used when the existing paint system is disturbed and shall include working drawings of containment systems, and provisions for ventilation and air movement for visibility and worker safety.

### **REFERENCES**

Codes which govern removal and disposal of materials containing lead include, but are not limited to the following:

1. California Health and Safety Code, Division 20, Chapter 6.5, "Hazardous Waste Control."
2. California Code of Regulations, Title 17, Division 1, Chapter 11, "Occupational Lead Poisoning Prevention Program."
3. California Code of Regulations, Title 22, Division 4.5, Chapter 10, "Hazardous Waste Management System: General."."
4. California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 4, Article 4, "Lead."
5. Occupational Safety and Health Administration (OSHA), 29 Code of Federal Regulation (CFR) Part 1926.62, "Lead."

### **NOTIFICATION**

The Contractor shall notify the Engineer 3 business days in advance of the start of removal operations of lead based material.

Prior to performing operations involving the removal of lead based material, the Contractor shall provide written notification to all Federal, State and local agencies that regulate the removal, handling, transporting and disposal of lead in construction.

The Contractor shall notify the Division of Occupational Safety and Health (CAL OSHA) 24 hours prior to performing removal operations of materials containing lead or lead based materials.

## **QUALITY ASSURANCE**

The lead related construction work shall be supervised by a California Department of Health Services Certified Lead Supervisor. The supervisor shall be on-site during abatement work preparation and post-abatement clean-up and be readily available as required by Title 17 California Code of Regulations 36100 (A1). Personnel for lead related construction work shall be California Department of Health Services Lead Worker Certified.

## **REGULATORY REQUIREMENTS**

If measures being taken by the Contractor are inadequate to provide for worker safety and the containment and collection of residue from existing paint systems, the Engineer will direct the Contractor to revise his operations and the compliance plans. Such directions will be in writing and will specify the items of work for which the Contractor's compliance plans are inadequate. No further work shall be performed on said items until the compliance plans are adequate and, if required, a revised compliance plan has been approved.

If inadequate measures are taken to provide for the containment and collection of debris produced when the existing paint system is disturbed, the Engineer will direct the Contractor to revise the operations and the debris containment and collection plan. The directions will be in writing and will specify the items of work for which the debris containment and collection plan is inadequate. No further work shall be performed on the items until the debris containment and collection plan is adequate and, if required, a revised plan has been approved for the containment and collection of debris produced when the existing paint system is disturbed.

The State will not be liable to the Contractor for failure to approve all or any portion of an originally submitted or revised compliance program for worker safety and the containment and collection of residue from existing paint systems, nor for any delays to the work due to the Contractor's failure to submit an acceptable compliance program.

## **SAFETY**

Construction activities (including demolition) that disturb materials or paints containing any amount of lead are subject to certain requirements of the in Title 8, California Code of Regulations Section 1532.1.

Any work that disturbs the existing paint system will expose workers to health hazards and will:

1. Produce debris containing heavy metal in amounts that may exceed the thresholds established in Titles 8 and 22 of the California Code of Regulations.
2. Produce toxic fumes when heated.

The Contractor shall be responsible for verifying that all employees, who are involved in removal operations, wear the required protective devices during removal operations.

Personal protective equipment, training, and washing facilities, required by the Contractor's health and safety plan shall be supplied to State personnel by the Contractor. The number of State personnel will be 4.

## **TRAINING**

State personnel shall complete a safety training program provided by the Contractor, that meets the requirements of Title 8, California Code of Regulations, Section 1532.1, "Lead," and the Contractor's lead compliance program.

## **MATERIALS.**

**Not Used**

## **CONSTRUCTION**

## **REMOVAL**

Painted materials shall be removed using the wet process, vacuum blasting process or other acceptable processes that contain paint debris. Use removal equipment as necessary to remove all paint and provide clean substrate suitable for a new finish.

Removed material and water used for removal shall be collected. Removed material shall be separated from water using approved filters.

### **HANDLING**

The Contractor shall comply with all Federal, State, and local regulations for the removal of material containing lead prior to demolition, shall place such removed material in approved plastic containers (double ply, 0.15 mm minimum thickness, plastic bags) with caution labels affixed to said bags. Such caution labels shall have conspicuous, legible lettering which spells out the following, or equivalent warning:

### **CAUTION CONTAINS LEAD**

Temporary storage on the ground of material and residue produced when the existing paint system is disturbed will not be permitted. Material and residue shall be stored in leak proof containers and shall be handled in such a manner that no spillage will occur.

At the option of the Contractor, the removed lead based materials may be placed directly into a roll off or drop box which shall have the same caution label affixed on all sides.

### **TRANSPORTING**

The debris shall be hauled by a transporter currently registered with the California Department of Toxic Substances Control using correct manifesting procedures and vehicles displaying current certification of compliance. The Contractor shall make all arrangements with the operator of the disposal facility and perform any testing of the debris required by the operator. All vehicles used to transport hazardous waste material shall have affixed to the vehicle a valid Certificate of Compliance issued by United States Department of Transportation. If a roll off or drop box is utilized, both the drop box and the transporting vehicle shall have a valid Certificate of Compliance issued by the United States Department of Transportation.

### **DISPOSAL**

The Engineer will obtain the required EPA generator identification numbers, and will sign the hazardous waste manifests.

All material and residue produced during removal operations shall be tested and profiled to determine hazardous waste characteristics. Dispose of residue and waste at an approved disposal facility in accordance with the requirements of the disposal facility operator.

The Contractor shall notify the proper authorities at the disposal site in advance of delivery of hazardous waste containing lead to the disposal site.

### **FINAL CLEARANCE INSPECTION**

Final clearance inspection wipe testing will be performed after clean-up activities are completed following Department of Health Services criteria in the California Code of Regulations Title 17.

## **2.06 EARTHWORK FOR BUILDING WORK**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of performing earthwork for building work in accordance with the details shown on the plans and these special provisions.

Earthwork for building work shall consist of structure excavation and structure backfill. Structure excavation shall include excavation for footings, foundations, walls, slabs, tanks, drywells, manholes, oil/water separators, clarifiers, and trenches. Structure backfill shall include backfilling under slabs; backfilling under and around footings; backfilling for walls, backfilling for pipes and conduits; backfilling holes resulting from removal of existing facilities. In addition to structure excavation and structure backfill, earthwork for building work shall include any other earthwork, not mentioned, but necessary to complete the building work.

Attention is directed to the requirements of "Field Engineering" in Division 1, "General Requirements," of these special provisions.

## **QUALITY ASSURANCE**

Samples: Samples of sand, pea gravel, or crushed stone, weighing not less than 25 pounds, shall be submitted to the Engineer at the jobsite for approval.

## **SITE CONDITIONS**

Existing Underground Piping and Conduit: The location of existing underground piping and conduit is based on the best records available. Before beginning work, the Contractor shall accurately locate the piping and conduit involved in the work. If the location of the existing piping or conduit deviates from the location shown on the plans by more than 5 feet, or, if no elevations are indicated and the piping or conduit is more than 3 feet below grade, the cost of the additional excavation, backfill, piping or conduit, and removal and replacement of concrete, if any, will be paid for as an ordered change in accordance with the requirements specified in Section 3, "Changes in the Work," of the General Conditions.

Existing Surfaced or Planted Areas:

Existing surfaced or planted areas that are removed, broken or damaged by the Contractor's operations shall be restored to their original condition except as otherwise shown on the plans or specified herein.

Restoration materials shall be equal to or better than the original materials. Surfacing shall be replaced to match the material thickness, grades, and finish of the adjacent surrounding surfaces.

## **PART 2 - PRODUCTS**

### **BACKFILL MATERIALS**

Structure Backfill: Structure and trench backfill shall be free of organic and other deleterious material and shall be suitable for the required compaction. Gravel without sand matrix shall not be used except as free draining granular material beneath slabs and footings.

Sand: Sand shall be clean, washed sand, free from clay or organic material graded such that 100 percent passes the 1/4-inch sieve, 90 percent to 100 percent passes the No. 4 sieve and not more than 5 percent passes the No. 200 sieve size.

Pea Gravel (Naturally Rounded):

Pea gravel (naturally rounded) shall be clean, washed, dry density of not less than 95 pounds per cubic foot, free from clay or organic material and shall conform to the following grading as determined by California Test 202:

Sieve or Screen Size	Percentage Passing
3/4"	100
1/2"	90-100
3/8"	40-70
No. 4	0-15
No. 8	0-3

Pea gravel shall conform to the following requirements:

Test	California Test No.	Test Requirements
Durability Index	229	35 Min.

Crushed Stone:

Crushed stone shall be clean, washed, dry density of not less than 95 pounds per cubic foot, crushed stone or crushed gravel with an angular particle size not less than 1/8 inch or more than 1/2 inch.

Sieve or Screen Size	Percentage Passing
1/2"	100
3/8"	85-100
No. 4	10-30
No. 8	0-3

Crushed stone shall conform to the following requirements:

Test	California Test No.	Test Requirements
Durability Index	229	35 Min.

### **PART 3 - EXECUTION**

#### **PREPARATION AND RESTORATION**

Sawcutting: Prior to excavation or trenching, existing surfacing shall be removed to saw cut lines, or to existing wood dividers or expansion joints, if any. The saw cut shall be to a neat line and have a depth not less than one inch.

Restoration: Surfacing shall be replaced to match the thickness, grades and finish of the adjacent surrounding surfaces.

#### **STRUCTURE EXCAVATION**

Unless otherwise noted, all excavation for building work shall be classified as structure excavation.

Footing Excavation: The bottom of excavations shall not be disturbed. The contractor shall excavate by hand to the final grade. The bottom of concrete footings shall be poured against undisturbed material. Unless otherwise noted, compaction of the bottom of footing excavation is not required unless the material is disturbed. The footing depths shown on the plans shall be changed to suit field conditions when directed by the Engineer. Solid rock at or near required depths shall not be disturbed. Unsuitable material shall be excavated down to firm bearing as directed by the Engineer. Work and materials required because of excavation in excess of the depths shown on the plans, when such excavation has been ordered by the Engineer, will be paid for as an ordered change in accordance with the requirements in Section 3, "Changes in the Work," of the General Conditions.

Excavate to the elevations and dimensions within a tolerance of  $\pm 1/2$  inch. Limits of the excavation shall allow for adequate working space for installing materials and as required for safety of personnel. Such working space excavation shall be replaced in kind and compacted at the Contractor's expense.

Overdepth excavation for footings shall be backfilled with concrete or such other material recommended by the Contractor and approved by the Engineer. Relative compaction shall be not less than 95 percent.

At locations and to the limits shown on the plans, material below the bottom of the foundation or footing shall be removed and replaced with select backfill in accordance with the placing and compacting requirements for backfill.

#### Excavation for Pipes and Conduits:

Pipes or conduits in the same trench shall have a minimum clear distance between pipes or conduits of 6 inches. Pipes or conduits shall have not less than  $2\frac{1}{2}$  feet of cover from top of pipes or conduits to finished grade unless otherwise shown on the plans or specified.

Trenching shall be of sufficient depth to permit placing a minimum depth of 4 inches of compacted sand under all pipes and conduits.

Excavation adjacent to trees shall be performed by hand methods where necessary to avoid injury to trees and roots. Roots 2 inches in diameter and larger shall be protected with heavy burlap. Roots smaller than 2 inches in diameter adjacent to trees shall be hand trimmed. Cuts through roots  $1/2$  inch in diameter and larger shall be sealed with tree trimmers' asphaltic emulsion. If trenches remain open more than 24 hours, the side of the trench adjacent to the tree shall be shaded with burlap and kept damp. Materials shall not be stockpiled within the drip line of trees.

Dewatering: Excavations shall be kept clear of standing water. Water shall be removed by pumping if necessary. Water removed from excavation shall be carried away from the building site and disposed of in a manner that will not harm State or adjacent property.

### **STRUCTURE BACKFILLING**

Unless otherwise noted, all backfill for building work shall be classified as structure backfill. Backfill shall be placed and compacted in horizontal layers, not more than 6 inches thick prior to compaction, and to the lines and grades shown on the plans or to original ground.

Structure Backfill: After structures are in place and forms are removed, wood and other debris shall be removed from excavations before placing structure backfill.

#### Backfilling Pipes and Conduits:

Backfill placed under pipe and conduits shall be compacted sand, 4 inches minimum depth. Backfill material placed to a level 6 inches above tops of pipes and conduits shall be sand or fine earth and particles shall not exceed  $1/2$  inch in greatest dimension. For wrapped, coated, or plastic pipe or conduits, sand shall be used for backfill. Backfill material placed higher than 6 inches above tops of pipes or conduits shall consist of material free of stones or lumps exceeding 4 inches in greatest dimension except:

1. The top 12 inches of backfill under roads, walks or paving shall consist of aggregate base material.
2. The top 6 inches of backfill in planted areas shall consist of topsoil.

Unless otherwise shown on the plans, pipe under roads, with less than 2½ feet of cover over the top of pipe, shall be backfilled with concrete to a level 4 inches above the top of pipe. Concrete for backfill shall be commercial quality concrete containing not less than 564 pounds of cement per cubic yard.

## **COMPACTION**

Relative compaction shall be determined in accordance with California Test 216 or 231.

Unless otherwise noted below, all backfill shall be compacted to a minimum relative compaction of 90 percent.

Unless approved in writing by the Engineer, compaction by jetting or ponding will not be permitted.

Compact Original Ground: Original ground surface under fill with surfacing of concrete and asphalt concrete shall be compacted to a relative compaction of not less than 95 percent for a minimum depth of 6 inches.

Subgrade Preparation:

Preparation of subgrade material for placing aggregate base, surfacing, or slabs thereon shall include fine grading, compaction, reworking as necessary. The upper 6 inches of the subgrade shall have the same compaction as the fill to be placed over it.

The prism of backfill directly underneath the building foundation and sloping downward at 1:1 shall be compacted to 95 percent.

Structure Backfill: Structure backfill shall be compacted to not less than 95 percent relative compaction.

Trench Backfill: Trench backfill placed beneath slabs or paved areas shall be compacted to a relative compaction of not less than 95 percent.

## **DISPOSAL**

Surplus Material: Surplus material from the excavation shall be disposed of away from the premises.

## **FIELD QUALITY CONTROL**

Inspection: When the excavation is substantially completed to grade, the Contractor shall notify the Engineer. No concrete shall be placed until the foundation has been approved by the Engineer.

Testing: The State will conduct compaction tests during the backfilling and compacting operations.

## **2.07 AGGREGATE BASE**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of furnishing, spreading and compacting aggregate base in accordance with the details shown on the plans and these special provisions.

**PART 2 - PRODUCTS**

Aggregate base:

Aggregate base shall be commercial quality aggregates consisting of broken stone; crushed gravel; natural, clean, rough-surfaced gravel and sand; or a combination thereof.

Aggregate base shall conform to the following grading as determined by California Test 202:

Sieve or Screen Size	Percentage Passing
1"	100
3/4"	90 - 100
No. 4	35 - 60
No. 30	10 - 30
No. 200	2 - 9

Aggregate base shall also conform to the following quality requirements:

Tests	California Test No.	Test Requirements
Durability Index	229	35 Min.
Resistance (R-Value)	301	78 Min.
Sand Equivalent	217	22 Min.

**PART 3 - EXECUTION**

**SPREADING AND COMPACTING**

Spreading:

Aggregate base shall be placed and compacted to the lines and grades shown on the plans.

Spreading and compacting shall be performed by methods that will produce a uniform base, free from pockets of coarse or fine material.

Compaction: Relative compaction of each layer of compacted base material shall be not less than 95 percent, as determined by California Test 216 or 231.

**2.08 RESET CONCRETE PAVERS**

**PART 1 - GENERAL**

Scope: This work shall consist of salvaging, cleaning, inspecting, grading and installing existing concrete pavers in accordance with the details shown on the plans and these special provisions.

The existing concrete pavers to be reset shall be stored on site after removal. Prior to installing the salvaged concrete pavers, the pavers shall be cleaned and inspected for damage. Pavers with visible cracks greater than 1 inch in length or chips creating a variation in surface texture greater than 1/8 inch shall not be installed and shall be removed and disposed of.

The areas to receive concrete pavers shall be graded smooth to a uniform depth in accordance with the details shown on the plans.

Excavated material, damaged concrete pavers, and surplus pavers that are not used in the work shall be disposed of according to the general provisions.

## **PART 2 - PRODUCTS**

**Geotextile Filter Fabric:** Geotextile filter fabric shall be lightweight, continuous, non-woven, geo-textile polypropylene filament material, UV resistant, engineered to allow water permeability and deter soil permittivity per ASTM D-4491. Geotextile filter fabric shall be inert to biological degradation and resistant to naturally encountered chemicals, alkalis and acids.

**Sand for Leveling/Bedding Course:** Sand shall be clean, washed with 100% passing through a #4 sieve and less than 5% passing through a #200 sieve. Thickness shall be uniform and as shown on the drawings.

**Sand for Joints:** Sand shall be clean, washed with 100% passing through a #4 sieve and less than 5% passing through a #200 sieve.

**Aggregate Base:** Aggregate base shall conform to the requirements of "Aggregate Base" in Division 2, "Sitework" of these special provisions.

## **PART 3 - EXECUTION**

Place sand for concrete paver setting bed over geotextile filter fabric and screed to a uniform thickness of 2" maximum., taking care that moisture content remains constant and density is loose and constant until concrete pavers are set and compacted.

Placement of concrete pavers shall start from corner, straight edge, or existing set concrete pavers and proceed over undisturbed sand leveling base. Paving work shall be plumb, level and true to line and grade. Paving shall be installed to properly coincide and align with adjacent work and elevations. All edges must be restrained to secure perimeter stones.

Pavers shall be placed in patterns consistent with exiting concrete pavers.

Install concrete pavers hand tight and level on undisturbed sand leveling base.

Joint sand shall be spread over installed concrete pavers so that it can be vibrated into joints.

Use roller vibrator or plate vibrator to compact concrete pavers and to vibrate sand into joints between stones.

Sweep sand on surface area into joints after each pass of vibrator. Excess sand from surface area shall be disposed of.

Completed concrete paver installation shall be washed and cleaned.

## **2.09 PAINTED PAVEMENT MARKINGS**

### **PART 1 - GENERAL**

Scope: This work shall consist of furnishing and applying paint for pavement markings in conformance with the details shown on the plans and these special provisions.

Pavement markings include, but are not limited to, word and symbol markings, and parking stall markings.

## **PART 2 - PRODUCTS**

Paint:

Paint shall be commercial quality for pavement marking, formulated for the use intended, and manufactured by a nationally recognized manufacturer of coating products.

Traffic paint shall conform to the rules for control of volatile organic compound (VOC) emissions adopted by the air quality control district in the air basin in which the coatings are applied.

## **PART 3 - EXECUTION**

Alignment and Layout:

All necessary alignment and layout work shall be performed by the Contractor, in a manner that will not damage the pavement.

Painted lines and markings on pavement denoting accessible parking access aisle shall be 3" minimum wide and blue in color to Color No. 15090 per Federal Standard 595B. Accessible parking spaces shall be marked according to CBC Section 1129B.4. Tactile warning lines shall be in conformance to CBC Sections 1133B.8.3 and 1133B.8.4.

All striping denoting standard parking stalls shall be 3" minimum wide and white in color.

Equipment and Operation:

Mechanical means shall be used to paint pavement markings.

All equipment used in the application of paint shall produce pavement markings of uniform quality.

All spray equipment shall be the proper type and of adequate capacity for the work involved.

Air atomized spray equipment shall be equipped with oil and water extractors and pressure regulators, and shall have adequate air volume and compressor recovery capacity. Spray gun tip needle assemblies and orifices shall be the proper size.

Stencils and hand spray equipment shall be used to paint word and symbol markings. Stencils shall be furnished by the Contractor. The stencil layout shall conform to the dimensions shown on the plans.

Surface Preparation: Surfaces to receive paint, temporary striping, or pavement marking tape shall be cleaned of all dirt and loose material.

Application:

Paint shall be applied only on dry surfaces, and only during periods of favorable weather, in conformance with the manufacturer's recommendations.

On new surfacing, paint shall be applied in 2 coats. The first coat shall be dry before application of the second coat is applied.

On existing surfacing, paint shall be applied in one coat.

Completed pavement markings shall have clean and well-defined edges, and shall conform to the dimensions shown on the plans or as specified in these special provisions.

Drips, oversprays, improper markings, and paint material tracked by traffic shall be immediately removed from the pavement by methods approved by the Engineer. All such removal shall be at the Contractor's expense.

Application Rates: Each application of paint shall be applied at the rates recommended by the paint manufacturer for the type of surface involved.

Protection: Newly placed pavement markings shall be protected from damage by traffic or other causes until the paint is thoroughly dry.

Each Accessible Parking Stall access aisle shall be marked with the words "NO PARKING" painted on the pavement within the aisle in white letters no less than 12 inches high, and located so that the words are visible to traffic enforcement officials, per the requirements of the California Building Code, Chapter 11.

### **DIVISION 3. CONCRETE AND REINFORCEMENT**

#### **3.01 CAST-IN-PLACE CONCRETE**

##### **PART 1 - GENERAL**

###### **SUMMARY**

Scope: This work shall consist of constructing cast-in-place concrete facilities in accordance with the details shown on the plans and these special provisions.

Whenever the 28-day compressive strength shown on the plans is 3,000 psi or greater, the concrete shall be considered to be designated by compressive strength.

Related Work: Compressive strength concrete shall conform to the requirements in "Compressive Strength Concrete," elsewhere in this Division 3.

###### **SUBMITTALS**

Product Data:

Manufacturer's descriptive data for admixtures, expansion joint material, vapor barrier, hardener, and sealer shall be submitted for approval.

Descriptive data shall be delivered to the Engineer at the jobsite.

###### **QUALITY ASSURANCE**

Certificates of Compliance:

Certificates of Compliance shall be furnished for cement, reinforcement, epoxy products, and admixtures in accordance with the requirements specified in Section 4-1.04, "Certificates of Compliance," of the General Conditions.

A Certificate of Compliance shall be furnished for each shipment of epoxy-coated reinforcing bars certifying that the coated bars conform to the requirements of ASTM Designation: D 3963. Said Certificate of Compliance shall include all certifications specified in ASTM Designation: D 3963 and a statement that the coating material has been prequalified by acceptance testing performed by the National Bureau of Standards or by the Valley Forge Laboratories, Inc., Devon, Pennsylvania.

Samples:

Prior to coating, the Contractor shall furnish to the Engineer a representative 4-ounce sample from each batch of epoxy coating material used. The sample shall be packaged in an airtight container identified with the manufacturer's name and batch number.

After coating, two 30-inch long samples of epoxy-coated reinforcing steel from each size and from each load shipped to the jobsite shall be submitted to the Engineer. The samples shall be representative of the material furnished. The samples, as well as any additional random samples taken by the Engineer, may be tested for specification compliance. Such additional sampling, and all tests performed by the Engineer, may be performed at any location deemed appropriate by the Engineer. Failure of any sample to meet the requirements of the specification will be cause for rejection of all reinforcing bars represented by the sample.

## **PART 2 - PRODUCTS**

### **CONCRETE MIXES**

Concrete (Structural Work):

Commercial quality concrete shall be proportioned to provide a workable mix suitable for the intended use; shall have not less than 615 pounds of cement per cubic yard; 0 to 2-inch penetration, inclusive, as determined by California Test 533.

The air content of the freshly mixed concrete shall be  $3 \pm 1\frac{1}{2}$  percent, as determined by California Test 504.

Concrete (Minor Work):

Commercial quality concrete for concrete curbs, sidewalks, driveways, gutter depressions, new door openings, equipment pads and collars shall be proportioned to provide a workable mix suitable for the intended use; shall have not less than 470 pounds of cement per cubic yard; 0 to 2-inch penetration, inclusive, as determined by California Test 533.

The air content of the freshly mixed concrete shall be  $6 \pm 1\frac{1}{2}$  percent, as determined by California Test 504.

### **CONCRETE MATERIALS**

Cement: Cement shall conform to ASTM Designation: C 150, Type II portland cement.

Aggregates:

Aggregates shall be free from deleterious coatings, clay balls and other extraneous materials.

Aggregates proposed for use shall conform to the requirements for freezing and thawing shall as determined by California Test 528.

A list of sources of aggregates which have previously passed the freeze-thaw test is available in the District Office at Caltrans District 11 Office Complex, 4050 Taylor Street, San Diego, California 92110.

Admixtures: Admixtures used in portland cement concrete shall be included on the Department's current list of approved admixtures, and shall conform to ASTM Designation: C 494, Types A, B, D, F or G for chemical admixtures; ASTM Designation: C 260 for air-entraining admixtures; and ASTM Designation: C 618 for mineral admixtures, except loss on ignition shall not exceed 4 percent. Properties of admixtures shall be uniform in each lot.

Coloring for Concrete: Coloring for portland cement concrete shall be chemically inert, fade resistant mineral oxide or synthetic type.

## **FORM MATERIALS**

Forms for Exposed Finish Concrete:

Forms for exposed surfaces shall be plywood, metal or other panel type materials. Plywood shall be not less than 5/8 inch thick and without scars, dents, and delaminations. Forms shall be furnished in largest practical pieces to minimize number of joints.

Plywood shall conform to the requirements of U. S. Product Standard PS-1 for Exterior B-B (Concrete Form) Class I.

Forms for edges of slabs shall be nominal 2-inch solid stock lumber, plywood, or metal forms.

Forms for Unexposed Finish Concrete: Forms for unexposed finish concrete surfaces shall be plywood, lumber, metal or other acceptable material.

Forms for Cylindrical Columns or Supports: Forms for cylindrical columns shall be metal, fiberglass reinforced plastic, paper or fiber tubes. Paper or fiber tubes shall be constructed of laminated plies using water-resistant adhesive with wax-impregnated exterior for protection against weather or moisture.

Form Ties: Form ties shall be factory fabricated, removable or snapoff metal ties for use as necessary to prevent spreading of forms during concrete placement.

Form Oil: Form oil shall be commercial quality form oil which will permit the ready release of the forms and will not discolor the concrete.

## **REINFORCING MATERIALS**

Bar Reinforcement: Bar reinforcement shall conform to ASTM Designation: A 615/A 615M, Grade 60 [420], or ASTM Designation: A 706/A 706M.

Welded Wire Fabric: Welded wire fabric shall conform to ASTM Designation: A 185.

Bar Supports: Bar supports for reinforcement shall be precast mortar blocks or ferrous metal chairs, spacers, metal hangers, supporting wires, and other approved devices of sufficient strength to resist crushing under applied loads.

## **EPOXY**

Epoxy shall be furnished as 2 components which shall be mixed together at the site of the work.

Epoxy Resin Adhesive: Epoxy resin adhesive shall conform to State of California Specification No. 8040-21M-08 or other epoxy suitable for bonding new concrete to old.

Epoxy Mortars: Epoxy mortar and epoxy mortar surface treatment shall consist of a commercial quality, trowelable mixture consisting of epoxy and sand. Epoxy shall have a pull-off strength of not less than 1,000 psi and a 90-percent cure in 24 hours. Epoxy shall be of the type that requires no primer as a bonding agent.

Sand:

Sand for use in epoxy mortars shall be clean and shall have a moisture content of not more than 0.50-percent when tested in accordance with California Test 226.

Sand for epoxy mortar surface treatment shall be graded such that 100-percent passes the No. 100 sieve.

## **RELATED MATERIALS**

Anchor Bolts, Nuts, and Washers:

Nonheaded anchor bolts shall conform to ASTM Designation: A 36/A 36M, with a minimum hook length of 6.2 diameters.

Headed anchor bolts shall conform to ASTM Designation: A 307.

Threaded rods shall conform to ASTM Designation: A 572.

Nuts shall conform to ASTM Designation: A 563, Grade A.

Washers for anchor bolts shall be commercial quality.

Exposed anchor bolts, nuts, and washers shall be hot dipped galvanized.

Expansion Joint Material: Expansion joint material shall be commercial quality asphalt impregnated pressed fiber sheets, ½-inch minimum thickness.

Vapor Barrier: Vapor barrier shall be commercial quality polyethylene sheets not less than 6 mils thick.

Bond Breaker: Bond breaker shall be Type I asphalt saturated organic felt or such other material approved by the Engineer.

Nonskid Abrasive Aggregate: Nonskid abrasive aggregate shall be commercial quality aluminum oxide, silicon carbide, or almandite garnet grit particles; screen size 12-30 or 14-36.

Type A Control Joints: Type A control joints shall be commercial quality, preformed, T-shaped plastic strips with detachable top flange.

Keyed Construction Joint Forms: Keyed construction joint forms shall be commercial quality, galvanized metal or plastic, factory fabricated construction joint forms. Forms shall produce a rabbeted key type joint.

Divider and Edger Strips: Divider and edger strips shall be foundation grade redwood.

Mortar: Mortar shall consist of one part cement to 2 parts clean sand and only enough water to permit placing and packing.

Curing Compound: Curing compound shall be a non-pigmented curing compound with fugitive dye conforming to the requirements of ASTM Designation: C 309, Type 1-D, Class A.

Splash Block: Splash blocks shall be precast concrete splash blocks with depressed runoff trough. Splash blocks shall be 12" x 24" x 3½" in size unless otherwise shown on the plans.

## **ADMIXTURES**

Admixtures shall be used when specified or ordered by the Engineer and may be used at the Contractor's option to conserve cement or to facilitate any construction operation.

Calcium chloride shall not be used in any concrete.

Admixtures shall be combined with concrete materials by methods that produce uniform properties throughout the concrete.

If more than one admixture is used, said admixtures shall be compatible with each other so that the desirable effects of all admixtures will be realized.

Mineral admixtures may be used to replace up to 15 percent of Type II portland cement provided the weight of mineral admixture used is not less than the weight of cement replaced. . Chemical admixtures may be used to reduce up to 5 percent of the portland cement except that the cement content shall not be less than 470 pounds per cubic yard. When both chemical and mineral admixtures are used with Type II cement, the weight of cement replaced by mineral admixture may be considered as cement in determining the resulting cement content.

Mineral admixtures will be required in the manufacture of concrete containing aggregates that are determined to be "deleterious" or "potentially deleterious" when tested in accordance with ASTM Designation: C 289. The use of mineral admixture in such concrete shall conform to the requirements in this section except that the use of set retarding admixtures will not be permitted.

When the use of a chemical admixture is specified or is ordered by the Engineer, the admixture shall be used at the rate specified or ordered. If no rate is specified or ordered, or if the Contractor uses a chemical admixture for his own convenience, the admixture shall be used at the dosage normally recommended by the admixture manufacturer.

When air-entrainment is specified or is ordered by the Engineer, the air-entraining admixture shall be used in amounts to produce concrete having the specified or ordered air content as determined by California Test 504. If the Contractor uses air-entrainment for his own convenience, the average air content shall not exceed 4 percent and no single test shall exceed 5½ percent.

Chemical admixtures and air-entraining admixtures shall be dispensed in liquid form. Dispensers shall have sufficient capacity to measure at one time the total quantity required for each batch. If more than one liquid admixture is used in the concrete, a separate measuring unit shall be provided for each liquid admixture and dispensing shall be such that the admixtures are not mixed at high concentrations. When air-entraining admixtures are used with other liquid admixtures, the air-entraining admixtures shall be the first to be incorporated into the mix. Unless liquid admixtures are added to premeasured water for the batch, they shall be discharged to flow into the stream of water so that the admixtures are well dispersed throughout the batch.

## **BAR REINFORCING STEEL**

Bending:

Reinforcing steel bars shall accurately conform to the dimensions shown on the plans.

Bars shall be bent or straightened in a manner that will not crack or break the material. Bars with kinks or improper bends shall not be used.

Hooks, bends and splices shall conform to the provisions of the Building Code Requirements for Reinforced Concrete of the American Concrete Institute.

## **MIXING AND TRANSPORTING CONCRETE**

When a truck mixer or agitator is used for transporting concrete to the delivery point, discharge shall be complete within 1½ hours, or before 250 revolutions of the drum or blades, whichever comes first, after the introduction of cement to the aggregates.

The temperature of mixed concrete, immediately before placing, shall be not less than 50°F nor more than 90°F.

Truck mixers or agitator shall be equipped with electrically or mechanically actuated revolution counters by which the number of revolutions of the drum or blades may readily be verified. The counters shall be of the continuous-registering type, which accurately register the number of revolutions and shall be mounted on the truck so that the Engineer may safely and conveniently inspect them from alongside the truck. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 86°F or above, a time less than 1½ hours may be required.

When non-agitating hauling equipment is used for transporting concrete to the delivery point, discharge shall be complete within one hour after the introduction of cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 86°F, or above, the time between the introduction of cement to the aggregates and discharge shall not exceed 45 minutes.

Each load of concrete for the work shall be accompanied by a trip ticket, a copy of which shall be delivered to the Engineer at the jobsite. The trip ticket shall show volume of concrete, weight of cement and aggregates, quantity of each admixture, quantity of water including water added at the jobsite, time of day the concrete is batched, and revolution counter readings on transit mix trucks at the times the truck is charged and unloaded.

## **PART 3 - EXECUTION**

### **PREPARATION**

Existing Concrete Construction:

Where fresh concrete joins existing or previously placed concrete or masonry, the contact surfaces of the existing or previously placed material shall be roughened, cleaned, flushed with water and allowed to dry to a surface dry condition immediately prior to placing the fresh concrete. The roughened surface shall be no smoother than a wood trowelled surface. Cleaning of the contact surfaces shall remove laitance, curing compounds, debris, dirt and such other substances or materials which would prevent bonding of the fresh concrete.

Abrasive blast methods shall be used to clean horizontal construction joints to the extent that clean aggregate is exposed.

Exposed reinforcing steel located at the contact surfaces which is to be encased in the fresh concrete shall be cleaned to remove any substance or material that would prevent bonding of the fresh concrete.

Forms:

Forms shall be mortar tight, true to the dimensions, lines, and grades shown on the plans, securely fastened and supported, and of adequate rigidity to prevent distortion during placing of concrete.

Forms for exposed surfaces shall be constructed with triangular fillets not less than 3/4" x 3/4" attached so as to prevent mortar runs and to produce smooth straight chamfers at all sharp edges of the concrete.

Form fasteners shall be removable without chipping, spalling, heating or otherwise damaging the concrete surface. Form ties shall be removed to a depth of at least one inch below the surface of the concrete.

The inside surfaces of forms shall be cleaned of all dirt, mortar and foreign material. Forms shall be thoroughly coated with form oil prior to use.

Forms shall not be stripped until at least 40 hours after placing concrete, except soffit forms and supports shall not be released or removed until at least 10 days after placing concrete.

Anchorage and embedded items shall be placed and rigidly secured at their planned locations prior to placing concrete.

Reglets or embedded flashing shall be installed on concrete forms before the concrete is placed.

Redwood dividers shall have 16d galvanized nails partially driven into both vertical faces at 18 inches on center.

#### Vapor Barrier:

Vapor barrier shall be lapped 6 inches and securely taped at splices. Vapor barrier shall be protected with a 3-inch layer of clean uncompacted sand cover.

Unless otherwise shown on the plans, vapor barrier shall be placed under portions of the floor slab scheduled to receive finish flooring.

#### Placing Reinforcing Steel:

Reinforcing steel bars shall be accurately placed to the dimensions shown on the plans.

Bar reinforcement conforming to ASTM Designation: A 615/A 615M, Grade 60 [420] shall be lapped at least 45 diameters.

Bars shall be firmly and securely held in position by means of wiring and approved bar supports. The spacing of supports and ties shall prevent displacement of the reinforcing or crushing of supports.

Tie wire shall be clear of concrete formwork and concrete surfaces.

All reinforcing steel shall be in place and inspected before concrete placement begins. Placing of bars on fresh layers of concrete will not be permitted.

Within areas where epoxy-coated reinforcement is required, tie wire and bar chairs or other metallic devices used to secure or support the reinforcement shall be plastic-coated or epoxy-coated to prevent corrosion of the devices or damage to the coated reinforcement.

### **PLACING CONCRETE**

Concrete shall be placed and consolidated by means of internal vibrators to form dense, homogeneous concrete free of voids and rock pockets.

Forms and subgrade shall be thoroughly moistened with water immediately before placing concrete.

Concrete shall be placed as nearly as possible to its final location and the use of vibrators for extensive shifting of the concrete will not be permitted.

Concrete shall be deposited and consolidated in a continuous operation within limits of construction joints, until the placing of the panel or section is completed.

When concrete is to be placed in large areas requiring more than two pours, concrete shall be placed in alternate long strips between construction joints and the final slab infilled.

Vibrators used to consolidate concrete containing epoxy-coated bar reinforcement shall have a resilient covering to prevent damage to such reinforcement.

## **FINISHING CONCRETE SURFACES**

### Finishing Unformed Surfaces:

Slabs shall be placed full thickness to finish elevation and leveled to screeds by use of long straightedges. The screeds shall be set to grade at approximately 6-foot centers. After leveling, screeds shall be removed and the surface shall be floated with wooden floats.

Type A control joint strips shall be inserted into the floated concrete so that the bottom of the top flange is flush with the finish elevation. Strips shall be standard manufactured lengths and shall be placed on an approximate straight line. The top flange of the strips shall be removed after the concrete has set and cured.

The floated surface shall be trowelled with steel trowels. Troweling shall form a dense, smooth and true finish. Walkways, pedestrian ramps, stairs and outdoor slabs for pedestrian traffic shall be given a non-slip broom finish unless a different finish is called for on the plans or in these special provisions.

The application of cement dust coat will not be permitted.

Steel trowel finish and broom finish will not be required for slabs to receive exposed aggregate finish nor for slabs to be covered with ceramic tile.

Concrete floor surfaces to receive ceramic tile shall be floated to grade and then, before final set of the concrete, the floated surfaces shall be roughened with stiff bristled brushes or rakes.

Finished surfaces of floor slabs shall not deviate more than 1/8 inch from the lower edge of a 10-foot long straight edge.

### Finishing Formed Surfaces:

Formed concrete surfaces shall be finished by filling holes or depressions in the surface, repairing all rock pockets, and removing fins. All surfaces of formed concrete exposed to view shall have stains and discolorations removed, unsightly bulges removed, and all areas which do not exhibit the required smooth, even surface of uniform texture and appearance shall be sanded with power sanders or other approved abrasive means until smooth, even surfaces of uniform texture and appearance are obtained.

Cement mortar, patching and finishing materials used to finish exposed surfaces of concrete shall closely match the color of surrounding surfaces.

**Nonskid Abrasive Aggregate Finish:** Where shown on the plans, walkways shall receive a nonskid abrasive aggregate (grit) finish. The grit shall be applied uniformly at the rate of not less than 0.3 pound per square foot and tamped into the floated concrete surface while the concrete is plastic. The grit shall be buried about 0.7 diameter of each particle into the concrete.

Portland cement concrete paving shall have a medium salt (medium broom) finish on all surfaces less than 6% and slip resistant (heavily broom finish) on all surfaces greater than 6%.

## **CURING CONCRETE**

Freshly placed concrete shall be protected from premature drying and excessive cold or hot temperatures.

Initial curing of floor slabs shall start as soon as free water has disappeared from the concrete surface. The concrete shall be kept continuously wet by application of water for not less than 10 days after the concrete has been placed.

Cotton mats, rugs, carpets, or sand blankets may be used as a curing medium to retain the moisture during the curing period. Curing materials that will stain or discolor concrete shall not be used on surfaces exposed to view.

Prior to placing the curing medium, the entire surface of the concrete shall be kept damp by applying water with a nozzle that so atomizes the flow that a mist and not a spray is formed, until the surface of the concrete is covered with the curing medium. At the expiration of the curing period, the concrete surfaces shall be cleared of all curing mediums.

Concrete surfaces, other than floor slabs, shall be kept moist for a period of at least 5 days by leaving the forms in place or by covering the exposed surfaces using moist rugs, cotton mats or other curing materials approved by the Engineer.

Concrete curbs, sidewalks, collars, and gutter depressions may be cured with a curing compound.

### **PROTECTING CONCRETE**

Concrete shall not be placed on frozen or frost covered surfaces.

Concrete shall be protected from damage due to rain, freezing or inclement weather, and shall be maintained at a temperature of not less than 40°F for 72 hours. When required by the Engineer, the Contractor shall provide a written outline of his proposed methods of protecting concrete.

Vehicles, equipment, or concentrated loads weighing more than 300 pounds individually and material stockpiles weighing more than 50 pounds per square foot will not be permitted on the concrete within 10 calendar days after placing.

### **SPECIAL TREATMENTS**

Epoxy Resin Adhesive: Epoxy resin adhesive shall be applied to concrete surfaces shown on the plans. Epoxy resin adhesive shall be mixed and applied in accordance with the manufacturer's recommendations.

Epoxy Mortars:

Epoxy for use as a binder in epoxy mortars shall be thoroughly mixed together before the aggregate is added, and unless otherwise specified, the mix proportions shall consist of one part binder to approximately 4 parts of aggregate, by volume.

All surfaces against which epoxy mortars are to be applied shall be free of rust, paint, grease, asphalt, and loose or deleterious material.

## **3.02 COMPRESSIVE STRENGTH CONCRETE**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work consist of furnishing and testing compressive strength portland cement concrete in accordance with the details shown on the plans and these special provision.

Whenever the 28-day design strength shown on the plans is 3000 psi or greater, the concrete shall be considered to be designated by compressive strength.

Concrete designated by compressive strength shall be proportioned such that the concrete will conform to the strength shown on the plans or specified in these special provisions.

Related Work: The requirements of this special provision are in addition to the applicable requirements for concrete (structural work) in "Cast-in-Place Concrete," elsewhere in this Division 3.

## **SUBMITTALS**

Mix Design: Before using compressive strength concrete, the Contractor shall submit in writing to the Engineer a copy of the mix design.

Quality Control Submittals:

When concrete is specified by compressive strength, prequalification of materials, mix proportions, mixing equipment, and procedures proposed for use, will be required prior to the placement of such concrete. Prequalification shall be accomplished by the submission of acceptable certified test data or trial batch reports by the Contractor. Prequalification data shall be based on the use of materials, mix proportions, mixing equipment, procedures and size of batch proposed for use in the work.

The certified test data and trial batch test reports shall include the following information:

1. Date of mixing.
2. Mixing equipment and procedures used.
3. The size of batch in cubic meters and weight, type and source of all ingredient used.
4. Penetration of the concrete.
5. The air content of the concrete if an air-entraining admixture is used.
6. The age at time of testing and strength of all concrete cylinders tested.

All certified test data and trial batch reports shall be signed by an official of the firm which performed the tests.

When approved by the Engineer, concrete from trial batches may be used in the work at locations where concrete of a lower quality is required.

Certified Test Data: Certified test data, in order to be acceptable, must indicate that not less than 90 percent of at least 20 consecutive 28-day tests exceed the specified strength, and none of said tests are less than 95 percent of the specified strength. Strength tests included in such data shall be the most recent tests made on concrete of the proposed mix design and all shall have been made within one year of the proposed use of the concrete.

Trial Batch Reports:

Trial batch test reports, in order to be acceptable, must indicate that the average compressive strength of 5 consecutive concrete cylinders, taken from a single batch at not more than 28 days after molding shall be at least 500 psi greater than the specified 28-day compressive strength, and no individual cylinder shall have a strength less than the specified strength.

Data contained in the report shall be from trial batches which were produced within one year of the proposed use of the specified strength concrete in the project. Whenever air-entrainment is required, the air content of trial batches shall be equal to or greater than the air content specified for the concrete without reduction due to tolerances.

All tests shall be performed in accordance with either the appropriate California Test methods or the comparable ASTM test methods. All equipment employed in testing shall be in good condition and shall be properly calibrated. If test are performed during the life of the contract, the Engineer shall be notified sufficiently in advance of performing the tests in order to witness the test procedures.

## **PART 2 - PRODUCTS (Not applicable)**

## **PART 3 - EXECUTION**

## **FIELD QUALITY CONTROL**

### Testing:

The Contractor shall engage an independent testing agency to conduct field quality control testing in accordance with these special provisions.

The compressive strength of concrete will be determined from test cylinders which have been fabricated from concrete sampled in accordance with California Test 539. Test cylinders shall be molded and initial field cured in accordance with California Test 540. Test cylinders shall be cured and tested after receipt at the testing laboratory in accordance with California Test 521. A strength test shall consist of the average strength of 2 cylinders fabricated from material taken from a single load of concrete, except that, if any cylinder should show evidence of improper sampling, molding or testing, said cylinder shall be discarded and the strength test shall consist of the strength of the remaining cylinder.

When the concrete is designated by 28-day compressive strength rather than by cement content, the concrete strength to be used as a basis for acceptance will be determined from cylinders cured in accordance with Method 1 of California Test 540. If the result of a single 28-day compressive strength is below the specified strength but is 95 percent or more of the specified strength, the Contractor shall, at his expense, make corrective changes, subject to approval of the Engineer, in the mixing proportions or in the concrete fabrication procedures, before placing additional concrete, and shall pay to the State \$10.00 for each in-place cubic yard of concrete represented by the deficient test. If the result of a single 28-day test is below 95 percent of the specified strength but is 85 percent or more of the specified strength, the Contractor shall make the aforementioned corrections and pay to the State \$15.00 for each in-place cubic yard of concrete represented by the deficient test. In addition, such corrective changes shall be made when the compressive strength of the concrete tested at 7 days indicates, in the judgment of the Engineer, that the concrete will not attain the required compressive strength at 28 days. All such concrete represented by a single test which indicates a compressive strength of less than 85 percent of the specified 28-day compressive strength shall be removed in accordance with the provisions in Section 2-1.10, "Removal of Rejected or Unauthorized Work," of the General Conditions.

If the test result indicates a 28-day strength below the specified strength, but 85 percent or more of the specified strength, payments to the State as required above shall be made, unless the Contractor, at his expense obtains and submits sufficient evidence acceptable to the Engineer that the strength of the concrete placed in the work meets or exceeds the specified strength 28-day compressive strength. If the test result indicates a 28-day compressive strength below 85 percent, the concrete represented by such test will be rejected, unless the Contractor, at his expense, obtains and submits evidence acceptable to the Engineer that the strength and quality of the concrete placed in the work are acceptable. If such evidence consists of cores taken from the work, the cores shall be obtained and tested in accordance with specifications of ASTM Designation: C 42.

No single 28-day strength test shall represent more than 300 cubic yards.

### **DIVISION 4. (BLANK)**

### **DIVISION 5. METALS**

#### **5.01 STRUCTURAL STEEL FOR BUILDINGS**

##### **PART 1 - GENERAL**

###### **SUMMARY**

Scope: This work shall consist of fabricating, assembling, furnishing, and erecting structural steel in accordance with the details shown on the plans and these special provisions.

Structural steel shall consist of the elements of the structural-steel frame, as classified by American Institute of Steel Construction (AISC) 303, "Code of Standard Practice for Steel Buildings and Bridges."

Source Quality Control: Materials and fabrication procedures are subject to inspection and tests in mill, shop and field, conducted by the Engineer or a qualified inspection agency. The Contractor or fabricator shall provide access to the Engineer or testing agency to places where the structural steel work is being fabricated or produced so that the required inspection and testing can be accomplished. Such inspections and tests will not relieve the Contractor of responsibility for providing materials and fabrication procedures in compliance with specified requirements. The testing agency may inspect the structural steel at the plant before shipment; however, the Engineer reserves the right, at any time before final acceptance to reject the material that does not conform to the contract requirements.

## **REFERENCES**

Structural steel shall be fabricated, assembled, and erected in accordance with AISC, "Steel Construction Manual."

Welding shall be in accordance with American Welding Society (AWS) D1.1, "Structural Welding Code - Steel."

## **SUBMITTALS**

Product Data: Product data for items to be incorporated into the work, including structural steel, high strength bolts, nuts and washers and alternative connectors, shall be submitted for approval.

Shop Drawings:

Shop drawings and calculations shall be submitted for approval.

Shop drawings shall show any changes proposed in the work, details of connections and joints exposed to the weather, details for connections not dimensioned on the plans, the sequence of shop and field assembly and erection, welding sequences and procedures. If required, the location of butt welded splices on a layout drawing of the entire structure, and the location and details of any temporary supports that are to be used.

Calculations and shop drawings for falsework to be used for the erection of structural steel shall be submitted for approval. The falsework shall be designed and constructed to provide the necessary rigidity and to support loads which will be applied. Shop drawings and design calculations shall be stamped and signed by an engineer who is registered as a Civil or Structural Engineer in the State of California. The expiration date of the registration shall be shown.

## **CLOSEOUT SUBMITTALS**

Final Drawings:

At the completion of each building on the contract, one set of reduced prints on 60-pound (minimum) bond paper, 11 inches x 17 inches in size, of the corrected original tracings of all approved drawings for each building shall be furnished to the Engineer. An index prepared specifically for the drawings for each building containing sheet numbers and titles shall be included on the first reduced print in the set for each building. Reduced prints for each building shall be arranged in the order of drawing numbers shown in the index.

The edge of the corrected original tracing image shall be clearly visible and visually parallel with the edges of the page. A clear, legible symbol shall be provided on the upper left side of each page to show the amount of reduction and a horizontal and vertical scale shall be provided on each reduced print to facilitate enlargement to original scale.

## **QUALITY ASSURANCE**

Qualifications for Welding: A certified copy of qualification test record for welders shall be submitted to the Engineer at the jobsite. Descriptive data for equipment for field welding structural steel, including type and electric power requirements, shall be submitted for approval.

Certificates of Compliance: Certificate of Compliance shall be furnished for structural steel products in accordance with the requirements specified in Section 4-1.04, "Certificates of Compliance," of the General Conditions. Certificate of Compliance shall include mill test certificates for each heat number used in the work.

## **DELIVERY, HANDLING AND STORAGE**

Structural materials shall be loaded, transported, unloaded, and stored so that they are kept clean and undamaged. Material shall be stored above ground on platforms, skids, or other supports. Covers and protection shall be provided to protect the materials from corrosion.

Anchorage and anchor bolts, which are to be embedded in concrete or masonry, shall be delivered in ample time to not delay the work.

## **PART 2 - PRODUCTS**

### **MATERIALS**

Steel Bars, Plates, Channels, Angles, and Shapes (other than W-shapes): Steel bars, plates, channels, angles, and shapes shall conform to the following for each yield stress shown on the plans:

1. ASTM A 36/A 36M, when minimum yield stress is 36 ksi.

W-shapes: W-shapes shall conform to ASTM A 992/A 992M.

Pipe: Pipe shall conform to ASTM A 53/A 53M, Grade B, standard weight, unless otherwise shown on the plans.

Hollow Structural Sections: Hollow structural sections shall conform to the following for each yield stress shown on the plans:

1. ASTM A 500/A 500M, Grade B, when minimum yield stress is 42 ksi for round shapes, and when minimum yield stress is 46 ksi for square and rectangular shapes.

Stud Connectors: Stud connectors shall conform to ASTM A 108, Grades 1018 through 1020, cold drawn, either semi- or fully kilned.

Anchor Bolts and Anchor Rods, Nuts and Washers:

Headed and unheaded anchor bolts and anchor rods shall conform to ASTM F 1554, Grade 36, when the grade is not shown on the plans.

Nuts shall conform to ASTM A 563.

Washers bearing on wood surfaces shall be commercial quality. Washers bearing on steel surfaces shall conform to ASTM F 436.

Exposed anchor bolts and anchor rods, nuts and washers shall be hot-dipped galvanized.

Machine Bolts, Nuts, and Washers:

Machine bolts shall conform to ASTM A 307.

Nuts shall conform to ASTM A 563.

Washers for machine bolts shall be commercial quality.

High Strength (HS) Bolts, Nuts, and Washers:

High strength (HS) bolts shall conform to ASTM A 325 , as shown on the plans.

Nuts shall conform to ASTM A 563.

Washers shall conform to ASTM F 436.

Direct Tension Indicators: Direct tension indicators shall conform to ASTM F 959.

Tension Control Fasteners: Tension control bolts shall have a splined end extending beyond the threaded portion of the bolt and which shears off when the specified bolt tension is attained. Tension control fasteners shall conform to ASTM F 1852.

Mortar: Mortar shall consist of one part cement, measured by volume, to 2 parts clean sand and only enough water to permit placing and packing.

Grout: Grout shall conform to ASTM Designation: C 1107. Grout shall consist of factory-packaged, noncorrosive, nonstaining, nonmetallic aggregate grout mixed with water to a consistency suitable for application and a 30-minute working time.

## **FABRICATION**

Shop Fabrication and Assembly:

Workmanship and finish shall be equal to the best general practice in modern shops.

Cuts shall not deviate more than 1/16 inch from the intended line. Roughness, notches, or gouges shall be removed.

Bearing stiffeners at points of loading shall be square with the web and shall have at least 75 percent of the stiffener in contact with the flanges.

Finished members shall be true to line, shall have square corners and smooth bends, and shall be free from twists, kinks, warps, dents, and open joints.

Exposed edges and ends of metal shall be dressed smooth, with no sharp edges, and with corners slightly rounded.

Stud Connectors: Steel surfaces shall be prepared as recommended by the manufacturer of the stud connectors. Stud connectors shall be welded to the flanges of beams or girders as shown on the plans. Automatic end welding of headed stud connectors shall be in accordance with the manufacturer's instructions.

Connections:

Abutting surfaces at connections shall be clean.

Cutting and welding at the jobsite will not be allowed except as shown on the approved drawings or specifically approved by the Engineer.

Finished holes for bolts shall be cylindrical and perpendicular to the plane of the connection. Sub-punched and sub-drilled holes shall be ¼ inch smaller in diameter than the diameter specified for the finished hole.

#### Bolted Connections:

Bolts for connecting steel to steel shall be machine bolts conforming to ASTM A 307 or high-strength bolts conforming to ASTM A 325 , as shown on the plans.

High-strength structural steel bolts, or equivalent fasteners, other bolts attached to structural steel, nuts, and washers shall be galvanized by mechanically deposited coating.

#### Holes for Other Work:

Holes for securing other work to structural steel and passage of other work through steel framing members shall be as shown on the approved drawings.

Threaded nuts or specialty items for securing other work to steel members shall be as shown on the approved drawings.

Holes shall be cut, drilled, or punched perpendicular to metal surfaces. Holes shall not be flame cut or enlarged by burning. Holes are to be drilled in bearing plates.

### **SHOP PAINTING**

Structural steel members, except those to receive sprayed-fireproofing, shall be shop primed.

Cleaning and coating shall be in accordance with the requirements specified for the particular type of substrate material in Division 9, "Painting," of these special provisions.

Bolted Connections: Contact surfaces of high-strength bolted connections and ungalvanized anchorage assemblies shall be coated before assembly. The total thickness of primer on each surface shall be between 1 mil and 3 mils and may be applied in one application.

## **PART 3 - EXECUTION**

### **ERECTION AND ASSEMBLY**

#### Field Splices:

Field splices shall be made only at the locations shown on approved shop drawings.

The parts shall be accurately assembled in their final position as shown on the plans and in true alignment with related and adjoining work before final fastening.

All parts shall be supported adequately and at locations to provide a vibration free, rigid, and secure installation.

#### Bolted Connections:

All high strength bolted connections shall be made with high strength bolts installed with direct tension indicator washers or tension control fasteners.

When used, one mechanically galvanized direct tension washer shall be installed with each high strength bolt. Bolts shall be tightened until a direct tension indicator washer gap is 0.005 inch or less. A zero gap will not be cause for rejection.

During installation of tension control bolts, the torque required to turn the nut on the tension control bolt shall be counterbalanced by the torsion shear resistance of the splined end of the bolt.

The bolt head type and head location shall be consistent within a joint.

Nuts shall be on side of member least exposed to view.

#### Setting Bases and Bearing Plates:

Concrete and masonry surfaces shall be cleaned and roughened to improve bond. Bottom of base and bearing plates shall be clean.

Base plates and bearing plates for structural members shall be set on wedges or other adjusting devices.

Anchor bolts shall be wrench tightened after supported members have been positioned and plumbed.

Mortar shall be solidly packed between bearing surfaces and base or bearing plates to ensure that no voids remain. Exposed surfaces shall be finished and allowed to cure.

Promptly pack grout solidly between bearing surfaces and base plates so no voids remain. Neatly finish exposed surfaces, protect grout and allow to cure. Comply with manufacturer's written instructions for shrinkage-resistant grouts.

#### **FIELD PAINTING**

Touch-up Painting: After erection, the Contractor shall clean field welds, bolted connections, and abraded areas of shop primer and apply the same materials as applied for shop priming.

After erection, surfaces shall be coated with a second prime coat, and finish coats when specified, in accordance with the requirements specified under "Painting" in Division 9.

#### **QUALITY CONTROL**

##### Testing and inspection:

Ultrasonic examination shall be performed by the Contractor on at least 50 percent of all full penetration butt-welded splices in accordance with the requirements of AWS D1.1 and these special provisions.

Welding procedures and methods shall be subject to inspection for conformance with AWS D1.1.

Butt welds shall be tested in accordance with AWS D1.1, Chapter 6, Part C, Ultrasonic Testing of Groove Welds.

Examination, reporting and disposition of tests shall be in accordance with the provisions of 6.12, AWS D1.1.

In addition to ultrasonic examinations by the Contractor, welds may be subject to inspection or non-destructive testing by the Engineer.

When additional inspection or non-destructive testing is required by the Engineer, the Contractor shall provide sufficient access facilities in the shop and at the jobsite to permit the Engineer or his agent to perform such inspection and testing.

The Contractor shall correct all deficiencies in the structural steel work which inspections and laboratory test reports have indicated to be not in compliance with these special provisions. Additional tests shall be performed by the Contractor at the Contractor's expense to reconfirm any non-compliance of original work, and to show compliance of the corrected work.

## **5.02 BUILDING MISCELLANEOUS METAL**

### **PART 1 - GENERAL**

Scope: This work shall consist of fabricating, furnishing, and installing building miscellaneous metal in accordance with the details shown on the plans and these special provisions.

Building miscellaneous metal shall consist of the following:

1. Rolling ladder
2. Steel pipe railings and handrail
3. Tread warning strip
4. Miscellaneous metal fabrications not otherwise specified

Including all anchors, fastenings, hardware, accessories, and other supplementary parts necessary to complete the work.

### **REFERENCES**

Codes and Standards: Welding of steel shall be in accordance with American Welding Society (AWS) D 1.1, "Structural Welding Code - Steel" and D 1.3, "Structural Welding Code - Sheet Steel."

### **SUBMITTALS**

Product Data: Submit manufacturer's specifications, anchor details, and installation instructions for products used in miscellaneous metal fabrications.

Shop Drawings: Shop drawings of fabricated items shall be submitted for approval.

### **QUALITY ASSURANCE**

Shop Assembly: Preassemble items in shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark all units for reassembly and installation.

Inspection and Tests: Materials and fabrication procedures shall be subject to inspection and tests by the Engineer, in mill, shop, and field. Such tests will not relieve the Contractor of responsibility of providing materials and fabrication procedures in compliance with specified requirements.

### **PART 2 - PRODUCTS**

#### **MATERIALS**

Steel Bars, Plates, and Hot-rolled Shapes: Steel bars, plates, and hot-rolled shapes shall conform to ASTM A 36/A 36M.

Galvanized Sheet Steel: Galvanized sheet steel shall conform to ASTM A 653/A 653M, Grade 33. Galvanizing shall be G60.

Pipe: Pipe shall be commercial quality standard steel pipe.

Hollow Structural Sections: Hollow structural sections shall conform to ASTM A 500/A 500M, Grade B, or A 501.

Provide min. 2" wide warning strip 1" max. from edge of nosing of each exterior stair and top landing. Products shall be manufacturer standard two-part assembly with sub-channel and warning stripe insert. Fasteners for sub-channel shall be concealed. Fasteners for warning strip insert can be concealed or exposed. Color of warning strip insert shall be black. Provide warning strip systems by one of the following manufacturers: Balco, Inc., Arden Architectural Specialties, American Safety Tread Company, Inc., or equal.

**Bolts, Studs, Threaded Rods, Nuts, and Washers:**

Bolts, studs, and threaded rods for general application shall conform to ASTM A 307 or F 1554, Grade 36.

Nuts shall conform to ASTM A 563.

Washers bearing on wood surfaces shall be commercial quality. Washers bearing on steel surfaces shall conform to ASTM F 844 or F 436.

**Fittings:** Brackets, bolt, threaded studs, nuts, washers, and other fittings for railings and handrailings shall be commercial quality pipe and fittings.

**Expansion Anchors:** Expansion anchors shall be ICC approved for the purpose intended, integral stud type anchor or internally threaded type with independent stud, hex nut, and washer.

**Powder Driven Anchors:** Powder driven anchors shall be plated, spring steel alloy drive pin or threaded stud type anchors for use in concrete or steel. Spring steel shall conform to ASTM A 227, Class 1. The diameter, length, and type of shank and the number and type of washer shall be as recommended by the manufacturer for the types and thickness of material being anchored or fastened.

**Resin Capsule Anchors:** Stud anchors for resin capsule anchors shall conform to ASTM A 307 or F 1554, Grade 36, threaded steel rod with hex nut and washer and sealed glass capsule or cartridge containing an adhesive composed of unsaturated polyester resin and benzol peroxide coated quartz sand. Resin capsule shall be Hilti; Molly; or equal.

**Mortar:** Mortar shall consist of one part cement, measured by volume, to 2 parts clean sand and only enough water to permit placing and packing.

**Rolling Ladder:** Rolling ladder shall be fabricated from aluminum. Steps shall be 4" minimum depth securely fastened to side rails of 3-1/4" minimum depth. The overall width shall be at least 16". The sliding assembly shall be permanently attached and consist of roller-type top slide on a minimum 7/8" diameter steel track with supports at 30" minimum on center. Bottom rolling wheels shall be non-marring. The rolling ladder shall have a capacity of 300 pounds minimum. Subject to compliance with requirements rolling ladder shall be the product of one of the following: Alaco Ladder Co., Spiral Stairs of America, Putman Rolling Ladder Co., Inc., or equal.

## **FABRICATION**

**Workmanship and Finish:**

Workmanship and finish shall be equal to the best general practice in modern shops.

Miscellaneous metal shall be clean and free from loose mill scale, flake rust and rust pitting, and shall be well formed and finished to shape and size with sharp lines and angles. Bends from shearing or punching shall be straightened.

The thickness of metal and details of assembly and support shall give ample strength and stiffness.

Built-up parts shall be true to line and without sharp bends, twists, and kinks. Exposed ends and edges of metal shall be milled or ground smooth, with corners slightly rounded.

Joints exposed to the weather shall be made up to exclude water.

Galvanizing: Items indicated on the plans to be galvanized shall be hot-dip galvanized after fabrication. The weight of galvanized coating shall be at least 1½ ounces per square foot of surface area, except drainage grates shall have at least 2 ounces per square foot of surface area.

Painting: Building miscellaneous metal items that are not galvanized shall be cleaned and coated with one prime coat prior to erection in accordance with the requirements specified under "Painting" in Division 9 of these special provisions. After erection, surfaces shall be coated with a second prime coat, and finish coats when specified, in accordance with the requirements specified under "Painting" in Division 9.

Loose Bearing and Leveling Plates: Loose bearing and leveling plates shall be furnished for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of required thickness and bearing area. Plates shall be drilled to receive anchor bolts. Galvanize after fabrication.

Steel Pipe Railings and Handrailings:

Pipe handrailing shall consist of handrailing elements supported by metal brackets (wall type) or handrailing elements supported by tubular steel posts (post type).

Handrails for stairs and ramps shall be 1-1/4" to 1-1/2" diameter (1-1/2" nominal) and mounted 1-1/2" clear from side walls.

Ends of railing pipe shall be closed, except for a 1/8-inch diameter weep hole at the low point.

All corners on railings shall be rounded. Simple and compound curves shall be formed by bending pipe in jigs to produce uniform curvature; maintain cylindrical cross-section of pipe throughout the bend without buckling, twisting or otherwise deforming exposed surfaces of the pipe.

All welded joints and surfaces shall be ground smooth, no sharp or abrasive corners edges or surfaces. Wall surfaces adjacent to handrail shall be smooth.

Wall brackets, end closures, flanges, miscellaneous fitting and anchors shall be provided for interconnections of pipe and attachment of railings and handrails to other work. Inserts and other anchorage devices shall be furnished for connecting railings and handrails to concrete or masonry.

Steel railing shall be galvanized after fabrication. After galvanizing, all elements of the railing shall be free of fins, abrasions, rough or sharp edges, and other surface defects and shall not be kinked, twisted, or bent.

### **PART 3 - EXECUTION**

#### **GENERAL**

Anchorage:

Anchorage devices and fasteners shall be provided for securing miscellaneous metal in-place construction; including threaded fasteners for concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.

Cutting, drilling, and fitting shall be performed as required for installation of miscellaneous metal fabrications. Work is to set accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels.

Loose Leveling and Bearing Plates: Plates shall be set on wedges or other adjustable devices. Anchor bolts shall be wrench tightened after the plates have been positioned and plumbed. Mortar shall be packed solidly between bearing surfaces and plates to ensure that no voids remain.

Steel Pipe Railings and Handrailings:

Railings shall be adjusted prior to anchoring to ensure matching alignment at abutting joints. Secure posts and railing ends to building construction as shown on the plans.

Resin capsule anchors shall not to be used for anchoring railings and handrailings.

Powder Driven Anchors: Powder driven anchors shall be installed with low velocity powder actuated equipment in accordance with the manufacturer's instructions and State and Federal OSHA regulations.

Resin Capsule Anchors: Resin capsule anchors shall be installed in accordance with the manufacturer's instructions.

## **DAMAGED SURFACES**

Galvanized surfaces that are abraded or damaged shall be repaired by thoroughly wire brushing the damaged areas and removing all loose and cracked coating. The clean areas shall then be painted with 2 spot applications of a coating conforming to the requirements in the Detailed Performance Standards of the Master Painters Institute (MPI) and listed on MPI List Number 18, Primer, Zinc Rich, Organic.

## **DIVISION 6. WOOD AND PLASTICS**

### **6.01 ROUGH CARPENTRY**

#### **PART 1 - GENERAL**

##### **SUMMARY**

Scope: This work shall consist of furnishing and installing materials and performing rough carpentry work including wood framing, furring, and sheathing in accordance with the details shown on the plans and these special provisions.

Rough carpentry includes carpentry work not specified as part of other sections and which is generally not exposed.

##### **SUBMITTALS**

Product Data: Manufacturer's material data and installation instructions shall be submitted for gypsum sheathing, framing hardware and underlayments.

Wood Treatment Data:

Chemical treatment manufacturer's instructions shall be submitted for the handling, sorting, installation, and finishing of treated materials.

For each type of preservative treatment used, certification by treating plant shall include type of preservative solution and pressure process used, net amount of preservative retained and conformance with the applicable standards of the American Wood Preservers Association.

For each type of fire-retardant treatment, include certification by treating plant that the treated material complies with the applicable standards and other requirements.

## **DELIVERY, HANDLING AND STORAGE**

Delivery and Storage: Materials shall be kept under cover and dry. All materials shall be protected from exposure to weather and contact with damp or wet surfaces with blocking and stickers. All lumber, plywood and other panels shall be stacked in such a manner to provide air circulation within and around the stacks.

## **PART 2 - PRODUCTS**

### **LUMBER**

Lumber shall be manufactured to comply with PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection.

Softwood lumber shall be quality grade stamped or shall be accompanied by a certificate of inspection. Inspection certificates or grade stamps shall indicate compliance with the grading requirements of WWPA, WCLIB, RIS, or other approved lumber inspection agencies.

All lumber used shall be nominal sized and dressed S4S unless otherwise specified in these special provisions.

Framing lumber shall be solid stock lumber, Douglas Fir-Larch, and the grades indicated under WCLIB or WWPA rules. Moisture content shall not exceed 19 percent and shall be grade stamped "S-Dry."

### **DIMENSION LUMBER**

Except as otherwise shown on the plans, lumber shall have the following grades.

#### Vertical Framing Lumber:

Vertical framing lumber, nominal 2" x 2" through 4" x 4", shall be No. 1 or better.

Vertical framing lumber, nominal 2" x 6" through 4" x 6", shall be No. 1 or better.

#### Horizontal Framing Lumber:

Horizontal framing lumber, nominal 2" x 4" and wider, including joists and rafters, shall be No. 1 or better.

Horizontal framing lumber, nominal 4" x 4" and wider, including joist and rafters, shall be No. 1 or better.

Exposed Framing Lumber: Exposed framing lumber which is not concealed and is to receive a stain or natural finish shall be the same grade and species as indicated for structural framing and hand selected for appearance.

#### Miscellaneous Lumber:

Miscellaneous lumber for support or attachment of other work including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping and similar members shall be not less than No. 2 or better.

Lumber in contact with concrete or masonry construction shall be pressure treated Douglas Fir-Larch.

### **TIMBERS**

Timbers (Nominal 5 inches or Thicker): Timbers shall be No. 1 or better.

**PLYWOOD PANELS**

Plywood panels shall comply with Voluntary Product Standard PS1, "U. S. Product Standard for Construction and Industrial Plywood."

Plywood panels shall be Group 1 unless otherwise noted.

Each plywood panel shall be factory marked with APA or other trademark evidencing compliance with grade requirements.

Structural Plywood Wall Sheathing: Structural plywood wall sheathing for walls shall be APA RATED SHEATHING, Exposure 1. Thickness and grade shall be as shown on the plans.

Plywood Decking: Plywood decking shall be APA RATED STURD-I-FLOOR, Exposure 1, with tongue-and-groove edges. Span rating and thickness shall be as shown on the plans.

**MISCELLANEOUS MATERIALS**

Rough Carpentry Hardware:

Steel plates and rolled sections shall be mild, weldable steel, conforming to AISI grades 1016 through 1030 except 1017.

Nails, screws, bolts, nuts, washers shall be commercial quality. Exposed fasteners shall be hot dipped galvanized or stainless steel.

Joist hangers, clips and other standard framing hardware shall be ICBO approved, commercial quality, galvanized sheet steel or hot dipped galvanized, of the size shown on the plans.

Expansion anchors and powder driven anchors shall be as specified under "Building Miscellaneous Metal," in Division 5, "Metals," of these special provisions.

Nails: Nails shall conform to ASTM F 1667-95. "Common" nails shall conform to the following table:

Nail Size	Length (inches)	Diameter (inches)
8d	2½	0.131
10d	3	0.148
16d	3½	0.162

Building Paper: Building paper shall be kraft type waterproofing building paper, Type I (No. 15) asphalt saturated roofing felt or high density, bonded polyethylene fiber building paper.

Adhesive: Adhesive for plywood glue-nailed systems shall conform to APA Specification: AFG-01.

**WOOD TREATMENT BY PRESSURE PROCESS**

Preservative Treatment:

Preservative treatment shall be copper naphthenate, pentachlorophenol or water-borne arsenicals (ACA, CCA or ACZA).

The following items shall be treated:

Wood cants, nailers, curbs, equipment support bases, blocking, stripping and similar members in connection with roofing, flashing, vapor barriers and waterproofing.

Wood sills, sleepers, blocking, furring and other similar members in contact with concrete or masonry.

All holes, daps and cut ends of treated lumber shall be thoroughly swabbed with 2 applications of copper naphthenate.

Fire Retardant Treatment: Fire retardant treatment shall be paintable, odorless fire retardant preservative applied by pressure treating methods.

### **PART 3 - EXECUTION**

#### **INSTALLATION**

##### Wood Framing:

Wood framing shall be in accordance with Chapter 23 of the California Building Code.

Framing members shall be of sizes and spacing shown on the plans. Unless otherwise shown on the plans, structural members shall not be spliced between supports.

Wood framing shall be accurately cut and assembled to provide closely fitted members. Framing shall be erected true to the lines and grades shown on the plans and shall be rigidly secured in place as shown and as required by recognized standards. Bracing shall be placed wherever necessary to support all loads on the structure during erection.

The size and spacing of fasteners and the edge distance for nails shall be as shown on the plans.

Nailing schedule shall be as shown on the plans and shall comply with the California Building Code.

Wall coverings exposed to the weather shall have a backing of building paper applied weatherboard fashion to the framing or sheathing. Backing shall be lapped 2 inches at horizontal joints, 6 inches at vertical joints and 12 inches at building corners.

##### Plywood Panels:

Plywood panels shall be attached to the framing as shown on the plans and these special provisions. All structural plywood sheathing (both roof and wall) shall be nailed with "Common" nails.

Plywood decking shall be glued and nailed to the framing system.

Plywood sheathing shall be nailed to the framing system and shall be continuous over 2 or more supports. Roof and floor panels shall be installed with the long dimension across the supports, with end joints staggered 4 feet. Wall sheathing shall have all edges blocked. Spacing between panels shall be 1/8 inch.

### **6.02 GLUED LAMINATED MEMBERS**

#### **PART 1 - GENERAL**

##### **SUMMARY**

Scope: This work consists of furnishing and erecting pre-engineered, factory fabricated glued laminated members, including beams, headers and laminated decking, in accordance with the details shown on the plans and these special provisions.

## **SUBMITTALS**

Product Data: Manufacturer's data, specifications and installation instructions for lumber, adhesives, fabrication process, preservative and fire-retardant treatment, accessories and protection shall be submitted for approval.

Shop Drawings:

Shop drawings for glued laminated members shall be submitted for approval.

## **QUALITY ASSURANCE**

Codes and Standards:

Glued laminated members, including beams and headers, shall conform to American National Standards Institute (ANSI) Standard A190.1, "Structural Glued Laminated Timber."

Factory Marks:

Glued laminated structural members shall be stamped with a APA EWS or similar mark which indicates that the member conforms to the requirements of ANSI Standard A190.1.

Such marks shall be placed on surfaces that will not be exposed in the completed work.

Certificates of Compliance: Certificates of Compliance shall be furnished for glued laminated members in accordance with the requirements specified in Section 4-1.04, "Certificates of Compliance," of the General Conditions.

## **DELIVERY, STORAGE, HANDLING**

Protection:

Water resistant wrapping on glued laminated members shall remain in place until units are erected.

Laminated members that are to be stored prior to erection shall be stored on blocks well off the ground with individual member separated for air circulation. Wrapping shall remain intact, lower side of wrapping shall be slit or punctured to permit drainage of water which may accumulate.

## **PART 2 - PRODUCTS**

### **GLUED LAMINATED MEMBERS**

Lumber:

Glued laminated members shall be engineered, stress rated, factory laminated structural members with adhesive for wet use. Unless otherwise shown on the plans, structural glued laminated timber members shall be Combination 24F-V8 DF/DF for all cantilever beams and Combination 24F-V4 DF/DF for simple beam spans in accordance with AITC 117, "Design, Standard Specifications for Structural Glued Laminated Timber of Softwood Species."

Exposed members shall be of Architectural Grade and non-exposed members shall be of Industrial Grade complying with AITC 110.

Penetrating Sealers: Penetrating sealers shall be the manufacturers standard translucent penetrating sealer which will not interfere with the application of wood stain and transparent finish or paint finish as shown on the plans.

Connectors, Anchors, Accessories:

Steel plates and rolled sections shall be mild, weldable steel, conforming to ASTM Designation: A 36, unless otherwise noted.

Nails, screws, bolts, nuts, washers shall be commercial quality. Fasteners for galvanized hardware shall be hot-dip galvanized, unless otherwise noted.

Joist hangers, clips and other standard framing hardware shall be commercial quality, galvanized sheet steel or hot dipped zinc coated, manufacturer's standard units for timber sizes indicated, unless otherwise noted.

Expansion anchors and powder driven anchors shall be ICBO approved for the purpose intended.

## **FABRICATION**

Glue laminated members shall comply with ANSI/AITC A190.1 as indicated.

Members shall be shop-cut for connections and connecting hardware to greatest extent feasible, including drilling of bolt holes.

Members shall have location placement identification marks or symbols which correspond to the approved location plan and shall have stamps or marks which indicate the top of each member.

Camber: Unless otherwise shown on the plans, the camber shall be the manufacturer's standard camber, but shall not exceed a 2,000 foot radius.

Preservative Treatment: The entire surface of the members, including ends, shall be sealed with a penetrating sealer immediately following manufacture.

## **PART 3 - EXECUTION**

### **INSTALLATION**

Miscellaneous steel connectors, anchors and accessories shall be installed as shown on the plans.

Members shall be erected so that a close fit and neat appearance of joints and structure as a whole will not be impaired.

Padded or non-marring slings shall be used when hoisting members. Corners shall be protected with wood blocking.

## **6.03 FINISH CARPENTRY**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work consists of furnishing and installing materials and performing finish carpentry, including exterior and interior trim, plywood soffits and panels and plywood and softwood paneling, as shown on the plans and these special provisions.

Finish carpentry includes carpentry work not specified as part of other sections and which is generally exposed to view.

## **SUBMITTALS**

Product Data: Manufacturer's specifications and installation instructions for each item of factory-fabricated siding and paneling.

Samples: One sample shall be submitted to the Engineer at the jobsite for each species and cut or pattern of finish carpentry as shown below:

Exterior standing and running trim: 2 feet long x full board or molding width, finished on one side and one edge.

Interior standing and running trim and wood base: 2 feet long by full board or molding width, finished on one side and one edge.

## **QUALITY ASSURANCE**

Factory Marks: Each piece of lumber and plywood shall be marked with type, grade, mill and grading agency identification. Marks shall be omitted from surfaces to receive transparent finish. A mill certificate stating that material has been inspected and graded in accordance with requirements shall be furnished if marks cannot be placed on concealed surfaces.

## **PRODUCT DELIVERY, STORAGE AND HANDLING**

Delivery: Carpentry materials shall be delivered after painting, wet work and similar operations have been completed.

Protection: Finish carpentry materials shall be protected during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

## **PART 2 - PRODUCTS**

### **WOOD PRODUCT QUALITY STANDARDS**

Softwood Lumber: Softwood lumber shall conform to the requirements of PS 20, "American Softwood Lumber Standard," with applicable grading rules of inspection.

Plywood: Plywood shall conform to the requirements of Voluntary Products Standard PS-1, "U. S. Product Standard for Construction and Industrial Plywood."

Hardwood Lumber: Hardwood lumber shall conform to the requirements of the National Hardwood Lumber Association (NHLA) rules.

Woodworking: Woodworking shall conform to the requirements of Woodwork Institute of California (WIC), "Manual of Millwork."

### **MATERIALS**

Lumber sizes indicated shall be nominal sizes except as indicated by detailed dimensions. Lumber which is to be dressed or worked and dressed shall be manufactured to the actual sizes as required by PS 20.

Lumber that is to receive a transparent finish (stained or clear) shall be made of solid lumber stock.

Lumber that is to be painted may be solid or glued-up lumber at the contractor's option.

Glued-up lumber for exterior finish work shall comply with PS 56 for "wet use" and be so certified by the inspection agency.

Exterior Standing and Running Trim:

Standing and running trim in the form of boards or worked products shall be clear, all heart Redwood.

Trim to be painted shall be finished smooth.

Trim which is to be exposed to view and to receive transparent finish (stained or clear) shall be saw textured.

Plywood Siding for Transparent Finish: Plywood for transparent finish shall be 5/8-inch, redwood, APA RATED SIDING 303-6-W, EXT with exterior glue, rough sawn Texture 1-11. Siding shall be factory treated with the manufacturer's standard water repellent preservative.

Plywood Paneling and Wainscotting: Plywood paneling and wainscotting shall be APA Interior Grade A-C, Group 1, Exposure 1 plywood. Thickness shall be as shown on the plans.

Interior Standing and Running Trim:

Standing and running trim to be painted shall be paint-grade pine, solid stock or finger jointed.

Standing and running trim to have transparent finish shall be solid hardwood, species to be shown on the plans.

Open Shelving: Open shelving shall be 3/4-inch Grade A-C fir plywood with veneer core and 1/2-inch thick solid stock pine edge banding glued and nailed.

Miscellaneous Materials:

Nails, screws and other anchoring devices of the type, size, material and finish required shall be provided for secure attachment, concealed where possible.

Fasteners and anchorages for exterior use shall be hot dip galvanized.

Screens for soffit vents shall be 4 x 4 or 8 x 8 mesh, galvanized screen. Open area shall be not less than 50 percent.

Preservative Treatment:

Preservative treatment shall be copper naphthenate, pentachlorophenol or water-borne arsenicals (ACA, CCA or ACZA).

Wood members, except those of redwood, in contact with mortar setting beds, concrete block walls, slab on grade and other concrete work, and wood used for roofing cant and curbs shall be pressure treated with leach resistant preservative. Each piece of pressure treated lumber shall bear the AWPA label.

All holes, daps, or cuts made after treating shall be thoroughly swabbed with copper naphthenate

Fire Retardant Treatment: Fire retardant treatment shall be paintable, odorless fire retardant preservative applied by pressure treating methods.

### **PART 3 - EXECUTION**

#### **INSTALLATION**

All work shall be installed plumb, level and true with no distortions.

Standing and Running Trim:

Standing and running trim shall be installed with minimum number of joints possible, using full length pieces to the greatest extent possible.

Exterior joints shall be made water-resistant by careful fitting.

Anchor Finish Carpentry:

Finish carpentry shall be anchored to framing or blocking built in or attached directly to the substrate.

Interior carpentry shall be attached to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing where required for complete installation. Fine finish nails shall be used for exposed nailing, countersunk and filled flush with finished surface and matching final finish where transparent finish is indicated.

Finish exterior siding shall be fastened with corrosion resistant nails. The size and spacing of the siding fasteners shall be as shown on the plans. Nails shall be driven flush with the surrounding surfaces, not countersunk. Nails shall be located in the grooves of grooved siding whenever possible.

### **ADJUSTMENT, CLEANING, FINISHING AND PROTECTION**

Damaged and defective finish carpentry work shall be repaired or replaced.

All exposed or semi-exposed surfaces shall be cleaned.

Finish carpentry shall be finished in accordance with the requirements specified under "Painting" in Division 9, "Finishes," of these special provisions.

## **6.04 CABINETS**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of furnishing and installing , plastic laminate cabinets and reception desk and solid surface tops, splashes and returns as shown on the plans and in these special provisions.

#### **SUBMITTALS**

Product Data: Manufacturer's product data for plastic laminates and cabinet hardware shall be submitted for approval.

Samples: Three samples shall be submitted for each of the items shown below:

Plastic laminate, 8" x 10" for each type, color, pattern and surface finish.

Solid surface tops, 8" x 10" for each type, color, pattern and surface finish.

Shop Drawings: Shop drawings for cabinets showing location of cabinets, dimensioned plans and elevations, attachment devices and other components shall be submitted for approval. Shop drawings shall bear the "WIC Certified Compliance Label," on the first sheet of the drawings.

## **QUALITY ASSURANCE**

Codes and Standards: Cabinets, reception desk and solid surface tops shall be manufactured and installed in accordance with the Manual of Millwork of the Woodwork Institute of California (WIC) requirements for the grade or grades specified in these special provisions.

Certificates of Compliance:

Prior to delivery to the jobsite, the cabinet manufacturer shall issue a WIC Certified Compliance Certificate indicating that the products he will furnish for this job and certifying that they will fully meet all the requirements of the grade or grades specified.

WIC Certified Compliance Label shall be stamped on all cabinet work, reception desk and solid surface tops.

Each solid surface top shall bear the WIC Certified Compliance Label.

Prior to completion of the contract, a WIC Certified Compliance Certificate for Installation shall be delivered to the Engineer.

## **DELIVERY, STORAGE AND HANDLING**

Protection: Cabinets shall be protected during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

## **PART 2 - PRODUCTS**

### **ACCEPTABLE MANUFACTURERS**

Manufacturers: Subject to compliance with these specifications, high pressure decorative laminates shall be Consoweld Corp.; Formica Corp.; Nevamar Corp.; or equal.

### **MANUFACTURED UNITS**

Cabinets shall be fabricated to the dimensions, profiles, and details shown on the plans with openings and mortises precut, where possible to receive hardware and other items and work.

Fabrication, assembly, finishing, hardware application, and other work shall be completed to the maximum extent possible prior to shipment to the jobsite.

Laminate Clad Cabinets:

Laminate clad cabinets shall be custom grade, flush overlay construction.

Laminate cladding shall be high pressure decorative laminate complying with NEMA LD 3. Color, pattern and finish shall be as shown on the plans. Laminate surface and grade shall be as follows:

Horizontal and vertical surfaces other than tops shall conform to GP-50 (50-mil nominal thickness).

Postformed surfaces shall conform to PF-42 (42-mil nominal thickness).

Solid-surfacing Material Counter Tops and Splashes:

Solid surface material shall be homogenous solid sheets of filled plastic resin complying with ISSFA-2.

Subject to compliance with the requirements of these special provisions, solid surfacing materials shall be Avonite, Inc., Formica Corp., Nevamar Corp., or equal.

## **CABINET HARDWARE AND ACCESSORY MATERIALS**

Cabinet hardware and accessory materials shall be provided for cabinets.

Hardware shall be provided with (Builders Hardware Manufacturer's Association) BHMA A156.18 for Dark, Oxidized, Satin Bronze, Oil Rubbed; BHMA 613 for bronze base; BHMA 640 for steel base. Match sample submitted for approval.

Drawer Slides: Drawer slides shall be side mounting full extension with fully enclosed rolling balls and rollers. Concealed slides and bearings, and positive stop. Capacity shall be not less than 75 pounds, except capacity shall be not less than 100 pounds for heavy duty drawers.

Door Guides: Sliding door guides shall be continuous, dual channel, metal guides, top and bottom. Bottom guide shall have crowned track.

Shelf Supports: Shelf supports shall be adjustable, semi-recessed, chrome finished pressed metal, heavy duty standards and support clip, with one inch adjustment increments.

Cabinet Hinges:

Cabinet hinges shall be steel. Length of jamb leaf shall be 2½ inches.

Cabinet hinge manufacturers shall be Stanley, Hager, McKinney, or equal.

Cabinet Catches:

Cabinet catches shall be self aligning magnetic type in aluminum case with zinc plated steel strike.

Cabinet catch manufacturers shall be Stanley, Hager, McKinney, or equal.

Cabinet Pulls:

Provide U shaped wire pulls at all accessible casework or equally accessible pull hardware.

Cabinet pulls shall be 5/16-inch diameter rod, with 1 5/16-inch projection and 3-inch center to center fastening.

Cabinet pull manufacturers shall be Stanley, Hager, McKinney, or equal.

## **FABRICATION**

Shop Assembly:

Nails shall be countersunk and the holes filled, molds shall be neatly mitered and all joints shall be tight and true.

As far as practicable, work shall be assembled at the mill and delivered to the building ready to be set in place. Parts shall be smoothly dressed and interior work shall be belt sanded at the mill and hand sanded at the building. After assembly, work shall be cleaned and made ready for the specified finish.

All work shall be prepared to receive finish hardware. Finish hardware shall be accurately fitted and securely fastened as recommended by the manufacturer. Finish hardware shall not be fastened with adhesives.

Drawers shall be fitted with dust covers of ¼-inch plywood or hardboard above compartments and drawers except where located directly under tops.

Precut Openings: Openings for hardware, appliances, plumbing fixtures, and similar items shall be precut where possible. Openings shall be accurately located and templates used for proper size and shape. Edges of cutouts shall be smoothed and edges sealed with a water-resistant coating.

### **PART 3 - EXECUTION**

#### **INSTALLATION**

Cabinets and Reception Desk: Cabinets and reception desk shall be installed without distortion so that doors and drawers fit openings properly and are accurately aligned. Hardware shall be adjusted to center doors and drawers in openings and to provide unencumbered operation. Installation of hardware and accessory items shall be completed as indicated on the approved drawings.

Solid Surface Tops: Solid surface tops shall be securely fastened to base units and other support systems as indicated on the approved drawings.

Cabinet Hardware:

Doors for cabinets shall be equipped with one pair of hinges and one catch per leaf, unless otherwise shown on the plans. Each door leaf shall be equipped with one pull .

Drawers up to 24 inches wide shall have one pull and drawers over 24 inches wide shall have two pulls .

### **DIVISION 7. THERMAL AND MOISTURE PROTECTION**

#### **7.01 INSULATION (GENERAL)**

##### **PART 1 - GENERAL**

###### **SUMMARY**

Scope: This work shall consist of furnishing and installing insulation in accordance with the details shown on the plans and these special provisions.

Insulation materials shall be as specified in these special provisions, and shall be compatible with existing or new materials incorporated in the building.

###### **SUBMITTALS**

Product Data:

A list of materials, manufacturer's descriptive data, location schedule, and time schedule shall be submitted for approval.

The list of materials to be used shall include the trade name, manufacturer's name, smoke developed and flame spread classification, resistance rating and thickness for the insulation materials and accessories.

Schedules:

A location schedule and time schedule shall be submitted for approval.

The location schedule shall show where each material is to be installed.

The Contractor shall provide the Engineer at the jobsite with an accurate time schedule of the areas of the building to be insulated each day. The time schedule shall be submitted 3 working days in advance of the work.

Samples: Samples of insulation material shall be submitted to the Engineer at the jobsite.

### **QUALITY ASSURANCE**

Codes and Standards: All insulating materials shall be certified to comply with the California Quality Standards for Insulating Materials and shall be listed in the Department of Consumer Affairs publication "Consumer Guide and Directory of Certified Insulation Material."

### **DELIVERY, STORAGE AND HANDLING**

Insulating materials shall be delivered to the jobsite and stored in a safe dry location with labels intact and legible.

Insulating materials shall be protected from physical damage and from becoming wet or soiled.

In the event of damage, materials shall be repaired or replaced as necessary to comply with these specifications.

### **PART 2 - PRODUCTS (Not applicable)**

### **PART 3 - EXECUTION (Not applicable)**

## **7.02 BATT AND BLANKET INSULATION**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of furnishing and installing batt or blanket insulation in accordance with the details shown on the plans and these special provisions.

Batt insulation shall include faced and unfaced batts in walls and ceilings, acoustical batts for sound control and exposed batt or blanket insulation for ceilings and walls.

#### **QUALITY ASSURANCE**

Laminator's Qualifications:

Laminator for bonding polyethylene vapor-retarder to insulating batts shall be approved by the insulation manufacturer.

The name of the laminator shall be submitted with the Product Data.

Codes and Standards:

All batt or blanket insulation, including facings such as vapor barriers, shall have a flame-spread rating not to exceed 25 and a smoke density not to exceed 450 when tested in accordance with UBC Standard No. 8-1.

The flame-spread and smoke density limitations do not apply to facings on batt insulation installed between ceiling joists, or in roof-ceiling or wall cavities, provided the facing is installed in substantial contact with the surface of the ceiling or wall finish.

## **PART 2 - PRODUCTS**

### **INSULATING MATERIALS**

Fiberglass batts shall be thermal insulation produced by combining glass fibers with thermosetting resins to comply with ASTM Designation: C 665.

Exterior Wall Insulation: Wall insulation shall be R-19 fiberglass batts with paper-laminate vapor-retarder membrane on one face. Insulation shall conform to ASTM Designation: C 665, Type II, Class C.

Roof and Sub-floor Insulation: Roof and Sub-floor insulation shall be R-19 fiberglass batts with paper-laminate vapor-retarder membrane on one face. Insulation shall conform to ASTM Designation: C 665, Type II, Class C.

Acoustical Insulation (Interior Wall Insulation): Acoustical insulation (interior wall insulation) shall be 3½ inches, unfaced fiberglass insulation batts. Insulation shall conform to ASTM Designation: C 665, Type I.

### **VAPOR-RETARDERS**

Paper-laminate Vapor-retarder: Paper-laminate vapor-retarder shall be kraft paper sheets laminated together with asphalt or other vapor retarding compounds, scrim reinforced at edges of sheets.

### **AUXILIARY INSULATION MATERIALS**

Insulation Tape: Insulation tape shall be as recommended by the insulation manufacturer.

Insulation Adhesive: Insulation adhesive shall be the type recommended by the insulation manufacturer and complying with the requirements for fire resistance.

Impaling Pins: Impaling pins shall be self-adhering wire pins with sheet metal retaining clips and protective rubber tips. Adhesive for pins shall be as recommended by the pin manufacturer.

Line Wire: Line wire shall be commercial quality 20-gage galvanized steel wire.

### **FABRICATION**

Polyethylene shall be factory laminated to fiberglass batts or blankets by an applicator approved by the manufacturer of the batts or blankets.

## **PART 3 - EXECUTION**

### **INSTALLATION**

The vapor retarder on faced batts shall be toward the interior and shall be fastened to provide a sealed retarder. Punctures and holes in the retarder shall be repaired.

Unless otherwise shown on the plans or specified elsewhere in these special provisions, insulation shall be kept at minimum 3 inches clear of lighting fixtures and heat producing electrical appliances and equipment.

Installing Batt Type Insulation: Insulation batts shall be installed to completely fill the space between framing members. Apply a single layer of insulation of required thickness, unless otherwise shown on the plans or required to make up total thickness. Installation shall conform to the manufacturer's recommendations and these special provisions.

Installing Exposed Insulation:

Exposed insulation shall be installed on impaling pins adhered to the substrate at 16-inch centers each direction with a minimum distance of 4 inches to the edge of the batt. Retainer clips shall be placed onto the pins so that the batt is slightly compressed. Pins shall be cut within ½ inch of the retaining clips and protective rubber caps placed on the ends of the pins.

When line wire is shown on the plans, blankets shall be supported with line wire spaced at 16 inches on center.

Joints in exposed insulation shall be sealed by lapping not less than 4 inches. Exposed insulation shall be fastened to framing at top, end and bottom, at perimeter of wall openings and at lap joints.

Overlapping joints shall be sealed with insulation adhesives as recommended by vapor retarder manufacturer's printed directions. Butt joints and fastener penetrations shall be sealed with insulation tape of the type recommended by the vapor retarder manufacturer. Joints at pipes, conduits, electrical boxes and similar items penetrating the vapor retarder shall be sealed.

### **7.03 RIGID INSULATION**

#### **PART 1 - GENERAL**

##### **SUMMARY**

Scope: This work shall consist of furnishing and installing rigid insulation in accordance with the details shown on the plans and these special provisions.

Rigid insulation shall include rigid insulation, fasteners and such other materials, not mentioned, which are required for the complete installation of the rigid insulation system.

#### **PART 2 - PRODUCTS**

Rigid Insulation: Rigid insulation shall be preformed board insulation having thermal conductance or resistance as shown on the plans. Foil-Faced, Polyisocyanurate Board Insulation: ASTM C 1289, Type 1 with maximum flame spread and smoke-developed indexes of 75 and 450, respectively.

Installation adhesive: Use manufacturer's recommended adhesive for insulation installation.

Subject to compliance with the requirements of these special provisions, rigid insulation shall be the product of one of the following: Atlas Roofing Corporation, Dow Chemical Company, Rmax, Inc. or equal.

#### **PART 3 - EXECUTION**

Preparation:

Cavity to receive insulation shall be clean, dry and free of defects that will prevent insulation board from adhering flat against the underside of the roof deck.

Installation:

Insulation panels shall be oriented with the long side parallel to the roof rafters to minimize joints.

Insulation panels shall be trimmed to fit the cavity with minimal gaps between the insulation and roof rafters and between insulation panels.

Insulation adhesive shall be applied with sufficient coverage to ensure insulation board will remain in place. Provide appropriate temporary methods to hold board in place until adhesive properly sets as per manufacturer's recommendations.

Insulation panels with broken or crushed corners or edges shall be trimmed free of such defects or shall be discarded. Replacement boards less than 12 inches wide shall not be used.

Damaged insulation in the completed work shall be removed and replaced. Insulation that has been wet or is wet shall be considered damaged.

## **7.04 SHEET METAL FLASHING**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of fabricating, furnishing and installing sheet metal flashing in accordance with the details shown on the plans and these special provisions.

Sheet metal shall include metal flashings, counterflashings, straps, gutters, downspouts, roof jacks, gravel stops, reglets, copings, scuppers, conductor heads, and screen type vents.

#### **QUALITY ASSURANCE**

Codes and Standards: Sheet metal work shall in accordance with the requirements in the latest edition of the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) "Standard Practice in Architectural Sheet Metal Work."

### **PART 2 - PRODUCTS**

#### **MATERIALS**

Galvanized Sheet Steel: Galvanized sheet steel shall conform to ASTM Designation: A 653/A 653M with G 90 [Z275] coating, not less than 24-gage, unless otherwise shown on the plans. Surfaces to be painted shall not have factory coatings on galvanizing that cannot be removed by paint thinner.

Sheet Aluminum: Sheet aluminum shall be not less than 0.032 inch thick, mill finish, 3003-H14 alloy, conforming to ASTM Designation: B 209M.

Sheet Lead: Sheet lead shall be not less than 0.062 inch thick, conforming to ASTM Designation: B 749.

Hardware and Fastenings: Hardware and fastening for premolded roof flashings shall be stainless steel.

Solder: Solder shall conform to ASTM Designation: B 32, Alloy Grade Sn50.

Soldering Flux: Soldering flux shall be acid type, conforming to Federal Specification: O-F-506C, Type I, Form A.

Insect Screen: Insect screen shall be industrial wire cloth and screen, medium grade, 18 mesh, 0.017-inch diameter, 0.039-inch openings, plain weave, galvanized steel conforming to ASTM Designation: E 437.

Lap Joint Sealant: Lap joint sealant for concealed locations shall be a non-drying butyl.

Flashing Cement: Flashing cement shall be a bituminous plastic cement, asbestos free, conforming to ASTM Designation: D 4586, Type II.

Sealant: Sealant for exposed locations shall be a silicone sealant conforming to ASTM Designation: C 920.

Primer: Primer shall be as recommended by the sealant manufacturer.

Coal Tar Paint: Coal tar paint shall be coal-tar epoxy coating conforming to U.S. Corps of Engineers Specification: C-200 or Steel Structures Painting Council Paint Specification: SSPC-16-68T.

## **FABRICATION**

Sheet metal shall be assembled to Sheet Metal and Air Conditioning Contractors National Association Standards.

Sheet metal shall be formed to the sizes, shapes and dimensions shown on the plans or as specified herein with angles and lines straight, sharp and in true alignment. The number of joints shall be kept to a minimum.

Angle bends and folds for interlocking the metal shall be made with full regard for expansion and contraction to avoid buckling or fullness in the metal after it is installed.

Joints in sheet metal work shall be closed watertight unless slip joints are specifically required. Watertight joints shall be mechanically interlocked and then thoroughly soldered for metals other than aluminum. Watertight joints in aluminum or between aluminum and other metals shall be sealed with acrylic sealant.

Sheet metal joints to be soldered shall be cleaned with steel wool or other means, pre-tinned and soldered watertight.

All joints shall be wiped clean of flux after soldering. Acid flux shall be neutralized by washing the joints with sodium bicarbonate.

Flashings shall have a 45 degree drip return at bottom edges. Unless otherwise shown on the plans, counterflashing shall extend not less than 4 inches over roofing or other materials protected by the counterflashing and shall be arranged so that roofing or materials can be repaired without damage to the counterflashing. Where reglets are indicated, counterflashing shall be fastened by lead wedges or snap-in flashing.

## **PART 3 - EXECUTION**

Preparation: Surfaces to receive sheet metal shall be clean, smooth and free from defects.

Protection: Aluminum surfaces to be in contact with concrete, mortar, or dissimilar metals shall be given a heavy coat of coal tar paint.

## **INSTALLATION**

Roof Penetration Flashings:

All pipes, ducts, vents and flues passing through roofs shall be made waterproof with flashings of storm collars or counterflashings.

Roof penetration flashings shall be fabricated from galvanized sheet steel, not less than 24-gage. Size and shape shall be as shown on the plans.

Downspouts:

Downspouts shall be fabricated from galvanized sheet steel, not less than 24-gage. Size and shape shall be as shown on the plans.

Downspouts shall be installed as shown on the plans, secured to the wall with straps near top, bottom and at intermediate points not more than 8 feet apart. Straps shall extend 2 inches out on wall and be secured with suitable anchors.

Unless otherwise shown on the plans, the lower end of downspout shall terminate with mitered 45 degree elbow.

## **7.05 SEALANTS AND CAULKING**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of furnishing and applying sealants and caulking which are required for this project, but not specified elsewhere, in accordance with the details shown on the plans and these special provisions.

#### **QUALITY ASSURANCE**

Certificates of Compliance: Certificates of compliance shall be furnished for the sealants and caulking in accordance with the requirements specified in Section 4-1.04, "Certificates of Compliance," of the General Conditions.

#### **SUBMITTALS**

Product Data: Manufacturer's descriptive data and installation instructions for all sealants shall be submitted for approval.

Samples: Color samples of all sealants shall be submitted for approval. Unless otherwise shown on the plans, colors will be selected by the Engineer from the manufacturer's standard colors.

### **PART 2 - PRODUCTS**

#### **MATERIALS**

All sealants, primers and accessories shall be non-staining to adjacent exposed surfaces. Products having similar applications and usage shall be of the same type and same manufacturer. Gun consistency compound shall be used unless otherwise required by the job conditions.

Acrylic Sealant: Acrylic sealant shall be one compound, solvent release acrylic sealant.

Butyl Sealant: Butyl sealant shall be one component, skinning type.

Silicone Sealant: Silicone sealant shall be one component, low modulus building sealant. Sealant shall be tack-free in one hour, shall not sag or flow, shall be ozone resistant and capable of 100 percent extension without failure.

Joint Sealant: Joint sealant shall be a two-part, non sag polysulfide base, synthetic rubber sealant formulated from liquid polysulfide polymer.

Backer Rod: Backer rod shall be round, open or closed cell polyurethane. Backer rod shall be sized such that it must be compressed between 25 percent and 75 percent of its uncompressed diameter during installation in the joint.

Neoprene: Neoprene shall conform to the requirements of ASTM Designation: C 542.

### **PART 3 - EXECUTION**

#### **APPLICATION**

Unless otherwise shown on the plans, sealants shall be applied in accordance with the manufacturer's instructions.

Silicone sealants shall not be used in locations where painting is required.

Butyl sealants shall not be used in exterior applications, and acrylic sealants shall not be used in interior applications.

Sealants shall be applied in a continuous operation for the full length of the joint. Immediately following the application of the sealant, the sealant shall be tooled smooth using a tool similar to that used to produce concave masonry joints. Following tooling, the sealant shall remain undisturbed for not less than 48 hours.

## **DIVISION 8. DOORS AND WINDOWS**

### **8.01 HINGED DOORS**

#### **PART 1 – GENERAL**

Scope: This work shall consist of furnishing and installing hinged doors and frames in accordance with the details shown on the plans and these special provisions.

#### **SUBMITTALS**

Manufacturer's descriptive data, installation instructions for fire rated assemblies and a door schedule shall be submitted for approval. The door schedule shall include a description of the type, location and size of each door and frame.

#### **PART 2 - PRODUCTS**

Wood Door:

Wood door shall be Woodwork Institute of California (WIC) "Custom" grade stile and rail as shown on the plans. Exposed surfaces shall be solid stock or close-grained hardwood veneer except as otherwise shown on the plans. Doors shall bear the WIC quality grade mark or shall be accompanied by a Certificate of Compliance certifying compliance with the WIC quality specified herein. Certificates of Compliance shall be in accordance with the requirements specified in Section 4-1.04, "Certificates of Compliance," of the General Conditions.

Where fire rated doors are required, solid core doors shall be listed and labeled for the fire rating shown on the plans.

Glazing for Doors: New glazing for doors shall be safety glass as specified under "Glazing" in Division 8, "Doors and Windows," of these special provisions. New glazing shall be not less than 3/16 inch thick. Original intact glazing shall be maintained in existing doors to remain.

Wood Frame: Wood frame shall be clear, paint grade, pine.

Frames for fire rated doors shall be listed for the same rating shown on the plans for fire rated doors.

Sealants: Sealants shall be ultraviolet and ozone resistant, gun grade polysulfide or polyurethane, multicomponent, Federal Specification: TT-S-227.

#### **PART 3 - EXECUTION**

#### **INSTALLATION**

Doors and frames shall be installed rigidly, securely, plumb and true and in such a manner that the doors operate freely without rubbing or binding. Clearance between frame and door shall be not more than 1/8 inch. The exterior frame shall be sealed weathertight.

Fire rated assemblies shall be installed according to the manufacturer's recommendations.

Fire rated assemblies shall include doors, door frames, and self-closing mechanisms. Assemblies shall be approved by the California State Fire Marshal.

Painting: Except for the primer application specified herein, doors and frames shall be cleaned, prepared and painted in accordance with the requirements specified under "Painting" in Division-9, "Finishes," of these special provisions.

## **8.02 FOLDING DOOR**

### **PART 1 – GENERAL**

Scope: This work shall consist of furnishing and installing folding doors in accordance with the details shown on the plans and these special provisions.

#### **SUBMITTALS**

Manufacturer's descriptive data, standard hardware finish options and installation instructions shall be submitted for approval. The hardware finish will be selected from the standard finish options by the Engineer after the award of the contract.

### **PART 2 - PRODUCTS**

Door Assembly: Door assembly shall be factory fabricated assembly of equal width, close stacking panels and connecting and supporting hardware. Panels shall be fabricated of close grain solid wood with waterproof glue. Hardware shall consist of hinges, brackets, top pivot pin and pivot block, bottom pivot, guide rollers, extruded aluminum head track, door aligners, latches, door pulls, and floor plates.

### **PART 3 - EXECUTION**

#### **INSTALLATION**

Folding doors shall be installed rigidly, securely, plumb and true in accordance with the manufacturer's instructions. Doors shall operate smoothly and shall stack neatly.

Door hardware shall be factory installed.

## **8.03 BY-PASS AND POCKET DOORS**

### **PART 1 – GENERAL**

Scope: This work shall consist of furnishing and installing by-pass and pocket doors in accordance with the details shown on the plans and these special provisions.

#### **SUBMITTALS**

Manufacturer's descriptive data, standard hardware finish options and installation instructions shall be submitted for approval. The hardware finish will be selected from the standard finish options by the Engineer after the award of the contract.

## **PART 2 - PRODUCTS**

By-Pass Door Assembly: Door assembly shall be factory fabricated assembly of equal width door panels and supporting hardware. Panels shall be fabricated of close grain hardwood veneer face sheets laminated to a solid wood core with waterproof glue. Hardware shall consist of extruded aluminum head track, door aligners, latches, door pulls, and floor plates.

Pocket Sliding Door Assembly: Door assembly shall be factory fabricated assembly of door panel and supporting hardware. Panel shall be fabricated of close grain hardwood veneer face sheets laminated to a solid wood core with waterproof glue. Hardware shall consist of extruded aluminum head track, door aligners, latches, and door pull.

## **PART 3 - EXECUTION**

### **INSTALLATION**

Sliding doors shall be installed rigidly, securely, plumb and true in accordance with the manufacturer's instructions. Doors shall operate smoothly.

Door hardware shall be factory installed.

## **8.04 ACCESS DOORS**

### **PART 1 – GENERAL**

Scope: This work shall consist of furnishing and installing access doors in accordance with the details shown on the plans and as otherwise required by code and these special provisions

### **SUBMITTALS**

Manufacturer's descriptive data and installation instructions shall be submitted for approval.

## **PART 2 - PRODUCTS**

Access Doors: Access doors shall be factory assembled and factory prime painted steel. Door panel shall be 0.075 inch thick (14-gage) and door frame shall be 0.060 inch thick (16-gage) . The door and frame assembly shall have standard screw driver operated cam locks, concealed springs or continuous piano hinge and inside release handle. Access doors shall be by Babcock-Davis Hatchways, Bar-Co Access Doors, Inryco-Milcor, J.L. Industries, or equal.

## **PART 3 - EXECUTION**

### **INSTALLATION**

Access doors shall be installed in accordance with the manufacturer's recommendations.

The access door assemblies shall be painted to match the color of the adjacent surrounding surfaces.

## **8.05 REPAIR OF HISTORIC STEEL WINDOWS**

### **PART 1 - GENERAL**

### **SUMMARY**

Attention is directed to "Lead Related Construction Work" in Division 2, "Sitework" of these special provisions regarding governing codes and procedures for the removal and disposal of lead based materials, which shall apply to the work specified herein.

Attention is directed to "Historic Treatment Procedures" in Division 1, "General Requirements" of these special provisions regarding special procedures for treatment of historical materials which shall apply to the work specified herein.

Attention is directed to "Building Miscellaneous Metal" in Division 5, "Metals" of these special provisions regarding metal fabrication requirements.

Scope: The work shall consist of repair of historical steel windows to improve operability and thermal performance, in accordance with the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings and National Parks Service Preservation Brief 13.

The intent of this special provision is to repair existing historical construction. Total replacement of historical windows or sashes in-kind is deemed a substitution and is subject to prior approval by the Engineer. Replacement of historical windows or sashes with alternate materials or design will not be allowed.

Any proposed substitution shall provide equal or better conformance with the specified requirements and the referenced standards and guidelines. Contractor shall submit material and product data, samples and all other information required by the Engineer for review. The Contractor is responsible for additional cost and delay in connection with the review of proposed substitutions.

#### **DESCRIPTION OF WORK:**

Remove all paint and rust from historical steel windows and hardware. Adjust and service each operable sash to open, close and lock properly; realign each window sash to fit properly within the window frame. Straighten bent and bowed window sections. Replace deteriorated steel elements by cutting out deteriorated sections and welding in new sections that match the original in material, size and shape. Prime all bare metal with two coats of primer compatible with finish coating, in accordance with "Painting" in Division 9, "Finishes" of these special provisions.

Repair damaged hardware; replace missing fasteners and hardware in-kind or replace with approved substitutes. Clean and lubricate hinges. Add spring metal or sealant bead weatherstripping at perimeter of operable sash, except hinge side.

Protect and maintain original intact glazing. Remove glazing film. Protect and maintain original intact glazing compound and setting materials, except where removal of glazing and setting material is required to meet the requirements of this section. Remove and reinstall original intact glazing, setting clips and other fasteners where protection in place is not feasible. Replace-in-kind cracked or broken glass. Replace glazing and setting materials with materials that match originals in size, and visual characteristics, and that provide equal or better performance. Where shown on plans, replace existing glazing with obscure glazing. Utilize existing setting materials, clips and other fasteners to the greatest extent possible.

Caulk window surrounds with sealant with color to match adjacent stucco, in accordance with "Sealants and Caulking" in Division 7, "Thermal and Moisture Protection" of these special provisions.

Except as specified herein, glazing for windows shall be in accordance with the requirements specified under "Glazing" in Division 8, "Doors and Windows" of these special provisions.

## **SUBMITTALS**

Lead Based Paint Abatement Workplan: Workplan for removal and disposal of lead-based paint from historic steel windows shall describe in detail protection of existing facilities and adjacent construction, and materials, methods and equipment to be used. Removal methods shall comply with requirements specified elsewhere in these provisions except that alternative methods of removal of lead-based paint, when certified by the Contractor as complying with all regulatory requirements, will be considered. Provide manufacturer's data, specifications, and instructions for materials and/or proprietary procedures for the removal of lead-based paint from historic steel windows. Disposal of lead-containing materials and documentation of disposal shall be as specified elsewhere in these provisions, and shall comply with all local, state and federal regulatory requirements. Lead Based Paint abatement may be performed in place, on site or in the Contractor's workshop.

Treatment Workplan: Workplan for repair of historic steel windows shall describe in detail protection of existing facilities and adjacent construction; materials, methods and equipment proposed for repair for each repair category of window; work sequence; and schedule showing location, size and type, and repair category for each window. Coordinate work sequence with other project activities. Window repair may be performed in place, on site or in the Contractor's workshop. Removal, storage and reinstallation of historic materials shall be performed per the requirements of "Historic Treatment Procedures" in Division 1, "General Requirements" of these special provisions.

Qualifications: Qualifications of Contractor and Contractor's Supervisory Personnel responsible for work under this section: Include list and photographs of completed projects with similar scope of work and budget.

Product Data. Product data for items to be incorporated into the work including replacement steel sections, hardware, fasteners, weatherstripping, glazing compound and sealant.

Shop Drawings. Shop drawings showing proposed work including details of repair, weatherstripping and any replacement parts.

## **QUALITY ASSURANCE**

Codes and Standards: Work shall conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings, and the California Historic Building Code, CCR Title 24, Part 8.

Qualifications of Contractor and Contractor's Supervisory Personnel responsible for work under this section: Contractor's and Supervisory Personnel shall have completed historic preservation and/or rehabilitation projects, as defined under the Secretary of the Interior's Standards, with similar scope of work and budget.

## **PART 2 – PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION**

### **TREATMENT OF STEEL WINDOWS**

Repair windows in accordance with Contractor's approved Treatment Plan and these special provisions.

### **EXAMINATION**

Examine adjoining construction and ensure that excess moisture is not present and that the building is weather tight before undertaking repair in place work or reinstalling repaired windows.

### **PROTECTION**

Temporary Security Enclosure: Provide temporary weathertight and secure enclosure for building exterior.

Protection of adjacent construction: Protect construction indicated to remain.

Protection of removed historical material to be reinstalled: Protect removed items to be reinstalled in accordance with "Historic Treatment Procedures" in Division 1, "General Requirements" of these special provisions.

### **PAINT REMOVAL**

Remove and dispose of all paint from window sashes, hardware and exposed window frames and subframes in accordance with Contractor's approved Lead Based Paint Abatement Workplan; "Lead Related Construction Work" in Division 2, "Sitework" of these special provisions, except as modified herein; and all local, state and federal regulatory requirements. Wet removal processes shall be followed by immediate drying with a blow drier. Clean and dry bare metal and prime within 4 hours of paint removal with primer compatible with coating system specified under "Painting" in Division 9, "Finishes" of these special provisions.

Alternative methods of removal shall comply with all local, state and federal regulatory requirements, specified requirements and preserve the integrity of historic materials. Remove glazing and preserve intact glazing and fasteners prior to chemical bath or other removal methods known to damage glass and setting materials.

### **RUST REMOVAL**

Remove any remaining rust using manual and or mechanical abrasion or chemical means. Do not use hydrochloric acid or other chemicals that may leave chloride deposits. Immediately wipe chemical residue off with a damp cloth and dry with a blow drier. Do not burn off rust with a torch, welding gun or other methods that produce heat that may break glass or distort steel. Clean and dry bare metal and prime within 4 hours of paint removal with primer compatible with coating system specified under "Painting" in Division 9, "Finishes" of these special provisions.

### **STRAIGHTENING OF BENT STEEL MEMBERS**

Straighten minor bends and bows by removing glazing and straightening by application of progressive mechanical pressure to realign metal section.

Straighten larger bows by cutting metal section to relieve pressure, pressing back into shape, welding and grinding smooth.

Straighten sections that are seriously bent or bowed in a workshop using heat and applied pressure. Cut out structurally weakened sections, and replace-in-kind with sections welded in place and ground smooth.

### **HARDWARE**

Repair damaged hardware; replace missing fasteners and hardware in-kind or replace with approved substitutes. Clean and lubricate hinges.

### **WEATHERSTRIPPING**

Add spring metal or sealant bead weatherstripping at perimeter of operable sash, except hinge side.

### **GLAZING**

Protect and maintain original intact glazing in conformance with "Historic Treatment Procedures" in Division 1, "General Requirements" of these special provisions.

Remove glazing film.

Protect and maintain original intact glazing compound and setting materials, except where removal of glazing and setting material is required to meet the requirements of this section.

Remove and reinstall original intact glazing, setting clips and other fasteners where protection in place is not feasible.

Replace-in-kind cracked or broken glass.

Replace glazing and setting materials with materials that match originals in size, and visual characteristics, and that provide equal or better performance.

## **REINSTALLATION OF SASH AND WINDOW UNITS**

Sash and Window units shall be set straight, level, plumb and in true alignment in prepared openings. Sash and windows shall be centered in openings. Clearance between the window unit and the building framing shall be from 3/16 inch to ¼ inch at the sides and ½ inch at the top, except as limited by existing conditions. Ventilator sash shall be adjusted after glazing for easy, smooth and proper operation.

## **CAULKING**

Caulk window surrounds with sealant with color to match adjacent stucco, in accordance with "Sealants and Caulking" in Division 7, "Thermal and Moisture Protection" of these special provisions.

## **8.06 FINISH HARDWARE**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of furnishing and installing hardware items for doors in accordance with the details shown on the plans and these special provisions.

Hardware for special doors and frames, if required, shall be as specified under "Hinged Doors" in Division 8, "Doors and Windows," of these special provisions.

Hardware assemblies shall comply with the fire code and the disabled accessibility requirements indicated on the plans and specified in these special provisions.

#### **SUBMITTALS**

Manufacturer's technical information and catalog cuts for each item of door hardware and a door hardware schedule shall be submitted for approval prior to installation.

Manufacturer's catalog cuts shall include catalog numbers, material, grade, type, size, function, design, quality and finish of hardware.

The door hardware schedule shall indicate the location and size of door opening, the door and frame material, and the size, style, finish and quantity of the hardware components required.

#### **FINISHES**

Hardware shall be provided with standard BHMA (Builder's Hardware Manufacturer's Association) 613 metal plated finish or 640 sprayed finish where indicated.

## KEYING INSTRUCTIONS

New locks shall be compatible with the master key system of the existing facility and shall be keyed to the lock system in use.

Locks and cylinders shall be provided with six pin "O" cylinders and blank keys. Cylinders and blank keys shall be delivered to the Engineer for combining of cylinders and cutting of keys.

The Contractor shall provide cylinders for use during construction. Construction cylinders shall remain in place until permanent cylinders are installed. Construction cylinders shall remain the property of the Contractor.

Key bows shall be stamped "State of California" and "Do Not Duplicate."

## PART 2 - PRODUCTS

### GENERAL

Door hardware equal in material, grade, type, size, function, design, quality and manufacture to that specified herein may be submitted for approval.

Butt Hinges:

Butt hinges shall be steel, 1 1/2-pair per door unless otherwise specified or shown on the plans. Nonremovable pins shall be provided at outswing exterior doors. Hinge size shall be 4½" x 4½" unless otherwise noted.

Standard weight hinges shall be:

Hager	1191
McKinney	TB 2714
Stanley or equal.	F191

Heavy weight hinges shall be:

Hager	BB 1191
McKinney	T4B 37869
Stanley or equal.	CB199

Cylindrical Locksets, Latchsets and Privacy Sets:

Cylindrical locksets, latchsets and privacy sets shall be steel chassis, 2 1/8-inch diameter, 2¾-inch backset. Door and frame preparation for cylindrical lockset, latchsets and privacy sets shall conform to ANSI A115.1.

Lever operated lockset (with classroom function) shall be:

Schlage	D70PD RHO
Best	93K6 R 15D
Falcon or equal.	T561D

Lever operated lockset (with storeroom function) shall be:

Schlage	D80PD RHO
Best	93K6 R 15D
Falcon	T581D
or equal.	

Lever operated privacy set shall be:

Schlage	D40S Rhodes
Best	93K OL 15D
Falcon	T301D
or equal.	

Cylindrical Dead Locks:

Cylindrical dead locks shall have one-inch throw bolt with concealed hardened steel inserts and one-inch diameter bolt housing, 2¾-inch backset.

Double cylinder dead lock shall be:

Schlage	B662
Best	83T 6M
Falcon	D131
or equal.	

Push/Pulls:

Push/Pull plates shall be 4" x 16" brass or aluminum with 0.050" minimum thickness. Pulls shall be 1" diameter brass or aluminum with 8" centers. Material and finish of plates and pulls to match.

Push/Pulls shall be:

Ives	8303-8 + 8200
Trimco	1017-3B + 1001-3
Quality	1610A-5 + 40-5
or equal.	

Electric Strike:

Electric strikes shall operate as "fail-secure" and include appropriate electrical transformer per manufacturer's requirements.

Electric strikes shall be:

Adams Rite	7140
Von Duprin	5100
Rofu	1505
or equal.	

Door Closers:

Parallel arms for closers shall be installed at outswing exterior doors. Closers shall have sprayed finish to match other hardware on door.

Door closers shall be:

LCN	4110
Norton	8301
Dorma	8916 AF89P
or equal.	

Power Operators

Operators shall include push-side mounting and push-button activator with all mounting accessories.

LCN	4640 + 7910-956
Dorma	ED400
KM Systems	2100
or equal.	

Kickplates:

Kickplates shall be 10 inches in height x 2 inches less than door width x 16-gage.

Kickplates shall be:

Ives	8400
Builders Brass	37X
Quality	48
or equal.	

Floor Mounted Stops:

Floor mounted stops shall be dome type. The height of the stop shall be determined by the clearance required when a threshold is used or not used.

Stops for openings without thresholds shall be:

Ives	FS40
Builders Brass	8061
Quality	331
or equal.	

Stops for openings with thresholds shall be:

Ives	FS444
Builders Brass	8063
Quality	431
or equal.	

Wall Bumpers:

Wall bumpers base diameter shall be 2½ inches with a one-inch projection.

Bumpers shall be:

Ives	WS407 CCV
Builders Brass	WC9
Quality	302
or equal.	

By-passing Door Hardware:

Door track shall be extruded aluminum with a door weight rating of 125 pounds minimum:

P C Henderson	2802A
Arthur Cox & Sons	Series 32
Hager	Series 9602
or equal.	

Carrier sets shall be multiple wheel, side or top mount carriers with a door weight rating of 125 pounds minimum:

Grant	6320 and 6330
Johnson	2216 and 2238
Stanley	2850-1 and 2850-2
or equal.	

Finger pull shall be approximately 3 1/2" x 1 1/2" x 1/2" deep, recessed into the door:

Builders Brass	9365-aluminum
Ives	SP223-B26D
P C Henderson	400
or equal.	

Floor guide shall be non-adjustable, 16-gage steel with nylon covered steel uprights, for 1 3/8-inch bypassing door.

Pocket Door Hardware:

Door track shall be extruded aluminum with a door weight rating of 125 pounds minimum:

P C Henderson	280A
Arthur Cox & Sons	Series 32
Hager	Series 9601
or equal.	

Carrier sets shall be multiple wheel, top mount carriers with a door weight rating of 125 pounds minimum:

P C Henderson	284
Arthur Cox & Sons	32-076
Hager	9606
or equal.	

Locking mechanism shall be heavy duty, lockable and include a keyed cylinder consistent with building keyway:

Floor guide and balance of required hardware for complete installation shall be manufacturer's standard hardware package.

Folding Door Hardware:

Door track shall be extruded aluminum with a door weight rating of 75 pounds minimum per door leaf:

P C Henderson	600A + 1B
Johnson	Series 200RD
Hager	Series 9100
or equal.	

Carrier, pivot and guide sets shall be multiple wheel, side or top mount carriers with a door weight rating of 75 pounds minimum per door leaf and shall be manufacturer's standard package.

Finger pull shall be approximately 3½" x 1½" x ½" deep, recessed into the door.

Thresholds, Rain Drips, Door Sweeps and Door Shoes:

Thresholds, rain drips, door sweeps and door shoes shall conform to the sizes and configurations shown on plans. Thresholds at door openings with accessibility requirements shall not exceed ½ inch in height.

Threshold, rain drip, door sweep and door shoe manufacturers shall be Pemko, Reese, Zero, or equal.

Threshold Bedding Sealant: Threshold bedding sealant shall conform to Federal Specification: SS-C-153.

Weatherstrip and Draft Stop:

Weatherstrip and draft stop shall conform to the sizes and shapes shown on plans. Assemblies shall be UL listed and shall be provided where shown on the plans or as specified in these special provisions.

Weatherstrip and draft stop manufacturers shall be Pemko, Reese, Zero, or equal.

Saddle Threshold:

Saddle thresholds shall be:

Pemko	272D
Reese	S207D
Zero	546D
or equal.	

Half-Saddle Threshold:

Half-saddle thresholds shall be:

Pemko	2727D
Reese	S514D
Zero	103D
or equal.	

Door Bottom with Rain Drip:

Door bottoms with rain drips shall be:

Pemko	216DPK
Reese	DB595DU
Zero	153D
or equal.	

Door Bottom (No Drip):

Door bottoms with no drips shall be:

Pemko	217DPK
Reese	DB594DU
Zero	111D
or equal.	

Door Shoe (with Rain Drip):

Door shoes shall be:

Pemko	210DPK
Reese	DB592DU
Zero	111D + 11D
or equal.	

Automatic Door Bottom:

Fully mortised automatic door bottoms shall be:

Pemko	411ARL
Reese	430A
Zero	369
or equal.	

Perimeter Gasketing:

Perimeter gasketing shall be:

Pemko	297DPK
Reese	403D
Zero	328D
or equal.	

Meeting Stile Gasketing:

Meeting stile gasketing shall be:

Pemko	18061DNB
Reese	964D
Zero	98D
or equal.	

Sign:

Self sticking sign (overall size 1-1/2" x 27") with 1" high lettering on contrasting background stating "THIS DOOR TO REMAIN UNLOCKED DURING BUSINESS HOURS" shall be:

Trimco	771
National Sign	
Safeguard Sign	
or equal.	

Door Signs and Name Plates: Door signs and name plates shall be as specified under "Signs" in Division 10, "Specialties," of these special provisions.

**PART 3 - EXECUTION**

Doors and Frames: Doors and frames shall be set square and plumb and be properly prepared before the installation of hardware.

**INSTALLATION**

Hardware items shall be accurately fitted, securely applied, and adjusted and lubricated in accordance with the manufacturer's instructions. Installation shall provide proper operation without bind or excessive play.

Hinges shall be installed at equal spacing with the center of the end hinges not more than 9 5/8 inches from the top and bottom of the door. Pushplates and door pulls shall be centered 44 inches from the finished floor. Mounting height of latching hardware shall be 30" to 44" above finished floor per CBC Section 1133B.2.5.2. Kickplates shall be mounted on the push side of the doors, one inch clear of door edges.

Thresholds shall be set in a continuous bed of sealant material. Thresholds shall comply with CBC Section 1133B.2.4.1.

Pressure to operate the door shall not exceed: 5 lbs. (22.2N) for exterior doors, 5.0 lbs. (22.2N) for interior doors & when fire doors are required 5 lbs. (22.2N) max or the maximum effort to operate the door may be increased to the maximum allowable by the appropriate administrative authority, not to exceed 15 lbs. (66.72N). CBC Section 1133B.2.5.

Door closer when provided then the sweep period of the closer shall be adjusted to so that from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3" from the latch, measured to the landing side of the door. CBC Section 1133B.2.5.1.

Door stops located on concrete surfaces shall be fastened rigidly and securely in place with expansion anchoring devices. Door stops mounted elsewhere shall be securely attached with wood screws or expansion devices as required. Floor stops shall not be located in the path of travel and 4" maximum from walls.

Backing shall be provided in wall framing at wall bumper locations.

The location and inscriptions for door signs and name plates shall be as shown on the plans.

Hardware, except hinges, shall be removed from surfaces to be painted before painting.

All hardware shall meet the requirements of CBC Sections 1133B.2.1, 1133B.2.5.1 and 1003.3.1.8.

Upon completion of installation and adjustment, the Contractor shall deliver to the Engineer all dogging keys, closer valve keys, lock spanner wrenches, and other factory furnished installation aids, instructions and maintenance guides.

**DOOR HARDWARE SETS AND SCHEDULE**

Hardware sets specified herein shall correspond to those shown on the plans:

**SET 1**

<i>No.</i>	<i>Item</i>	<i>Description</i>	<i>Finish</i>
3 ea.	Butt Hinges	Heavy Weight (4.5" x 4.5")	613
1 ea.	Cylindrical Lockset	Classroom Function	613
1 ea.	Cylindrical Dead Lock	Double Cylinder	613
1 ea.	Floor Mounted Stop	Stop (w/ Threshold)	613
1 ea.	Threshold	Half-Saddle	Dk. Brz.
1 ea.	Door Shoe		Dk. Brz.
1 ea.	Perimeter Gasket		Dk. Brz.

**SET 2**

<i>No.</i>	<i>Item</i>	<i>Description</i>	<i>Finish</i>
3 ea.	Butt Hinges	Heavy Weight (4" x 4")	613
1 ea.	Cylindrical Lockset	Classroom Function	613
1 ea.	Cylindrical Dead Lock	Double Cylinder	613
1 ea.	Electric Strike		613
2 ea.	Kickplate		613
1 ea.	Door Closer		640
1 ea.	Floor Mounted Stop	Stop (w/ Threshold)	613
1 ea.	Threshold	Half-Saddle	Dk. Brz.
1 ea.	Door Bottom	With Rain Drip	Dk. Brz.
1 ea.	Perimeter Gasket		Dk. Brz.
1 ea.	Sign		Blk./Silver

**SET 3**

<i>No.</i>	<i>Item</i>	<i>Description</i>	<i>Finish</i>
3 ea.	Butt Hinges	Heavy Weight (4" x 4")	613
1 ea.	Cylindrical Lockset	Classroom Function	613
1 ea.	Power Operator		640
1 ea.	Electric Strike		613
2 ea.	Kickplate		613
1 ea.	Floor Mounted Stop	Stop (w/ Threshold)	613
1 ea.	Threshold	Half-Saddle	Dk. Brz.
1 ea.	Door Bottom	With Rain Drip	Dk. Brz.
1 ea.	Perimeter Gasket		Dk. Brz.
1 ea.	Sign		Blk./Silver

**SET 4**

<i>No.</i>	<i>Item</i>	<i>Description</i>	<i>Finish</i>
3 ea.	Butt Hinges	Standard Weight (4" x 4")	613
1 ea.	Cylindrical Lockset	Classroom Function	613
2 ea.	Kickplate		613
1 ea.	Door Closer		640
1 ea.	Floor Mounted Stop	Stop (w/ Threshold)	613
1 ea.	Threshold	Saddle Threshold	Dk. Brz.
1 ea.	Door Bottom	With No Drip	Dk. Brz.
1 ea.	Perimeter Gasket		Dk. Brz.

**SET 5**

<i>No.</i>	<i>Item</i>	<i>Description</i>	<i>Finish</i>
3 ea.	Butt Hinges	Standard Weight (4" x 4")	613
1 ea.	Push/Pull		613
2 ea.	Floor Mounted Stop	Stop (w/o Threshold)	613
1 ea.	Threshold	Saddle Threshold	Dk. Brz.
1 ea.	Automatic Door Bottom		Dk. Brz.
1 ea.	Perimeter Gasket		Dk. Brz.
2 ea.	Meeting Stile Gasket		Dk. Brz.

**SET 6**

<i>No.</i>	<i>Item</i>	<i>Description</i>	<i>Finish</i>
3 ea.	Butt Hinges	Standard Weight (4" x 4")	613
1 ea.	Cylindrical Latchset	Privacy	613
1 ea.	Wall Bumper		613

**SET 7**

<i>No.</i>	<i>Item</i>	<i>Description</i>	<i>Finish</i>
3 ea.	Butt Hinges	Standard Weight (4" x 4")	613
1 ea.	Cylindrical Lockset	Storeroom Function	613
1 ea.	Wall Bumper		613

**SET 8**

<i>No.</i>	<i>Item</i>	<i>Description</i>	<i>Finish</i>
1 ea.	Door Track		613
1 ea.	Carrier Set		613
1 ea.	Floor Guide		613
1 ea.	Lock		613

**SET 9**

<i>No.</i>	<i>Item</i>	<i>Description</i>	<i>Finish</i>
1 ea.	Door Track		613
1 ea.	Carrier Set		613
1 ea.	Flush Bolt		613
2 ea.	Finger Pulls		613

**SET 10**

<i>No.</i>	<i>Item</i>	<i>Description</i>	<i>Finish</i>
1 ea.	Door Track		613
1 ea.	Carrier Set		613
2 ea.	Finger Pulls		613

**8.07 GLAZING****PART 1 - GENERAL****SUMMARY**

Scope: This work shall consist of furnishing and installing or re-installing glazing in accordance with the details shown on the plans and these special provisions. Existing intact glazing shall be preserved and protected in place unless otherwise noted. Replace broken or cracked glass.

Glazing shall consist of glass for windows, doors and other glazed openings.

All new glass shall conform to ASTM Designation: C 1036 and the classifications specified herein and shall be clear glass except as noted.

Where new glazing is indicated or otherwise required, safety glass shall be furnished and installed at all locations designated in Consumer Product Safety Commission's Safety Standard For Architectural Glazing Materials 16 CFR 1201.

## **SUBMITTALS**

A detailed list of glazing materials including glass, sheet, sealants, tapes, setting blocks, shims, compression seals, and glazing channels shall be submitted for approval. The list shall include a schedule of the materials to be used at each location.

## **LABELS**

Each individual pane of heat strengthened or fully tempered glass shall bear an identification label in accordance with ASTM Designation: C 1048.

## **PART 2 - PRODUCTS**

Sheet Glass, Float Glass, or Plate Glass: Sheet glass, float glass, or plate glass shall be Type I, Class 1, Quality q4 or better, double strength for panes to 10 square feet, 3/16 inch thick for panes between 10 and 28 square feet, and 1/4 inch thick for panes over 28 square feet, except as otherwise shown on the plans.

Obscure Glass: Obscure glass shall be Type II, Class 1, Form 3, Quality q8, Finish f1, Pattern p1 or p2; 1/8-inch thick flat figured glass, one surface smooth, other surface fine grid pattern.

Safety Glass: Safety glass shall conform to Consumer Product Safety Commission Safety Standard For Architectural Glazing Materials: 16 CFR 1201, and ANSI Standard Z97.1 and shall be one of the following:

Tempered Glass: Tempered glass shall conform to ASTM Designation: C 1048, Kind FT, Condition A, Type 1, Quality q4 or better.

Laminated Glass: Laminated glass shall be safety glass, 1/4-inch minimum thickness, fabricated from 2 pieces of Type I, Class 1, Quality q4 or better glass fused to plastic interlayers.

Seals, Caulks, Putties, Setting Blocks, Shims, Tapes, Compression Seals, Felt, Spacers, and Channels: Seals, caulks, putties, setting blocks, shims, tapes, compression seals, felt, spacers, and channels shall be top grade, commercial quality, as recommended by the glass or sheet manufacturer and shall conform to the requirements in the publications of the Flat Glass Marketing Association.

## **PART 3 - EXECUTION**

### **INSTALLATION**

New and replacement glazing and glazing materials shall match existing.

Panes shall be bedded fully and evenly, set straight and square within panels in such a manner that the pane is entirely free of any contact with metal edges and surfaces.

For all panes on the exterior of the building, the glazing on both sides of window panes shall provide a watertight seal and watershed

Whenever welding or burning of metal is in progress within 15 feet of glazing materials, a protective cover shall be provided over exposed surfaces.

### **REPLACEMENT AND CLEANING**

All broken or cracked glass and glass with scratches which reduce the strength shall be replaced before completion of the project.

Panes shall be kept clean of cement and plaster products, cleansers, sealants, tapes and all other foreign material that may cause discoloration, etching, staining, or surface blemishes to the materials.

Excess sealant left on the surface of the glass or surrounding materials shall be removed during the work life of the sealant.

Solvents and cleaning compounds shall be chemically compatible with materials, coatings and glazing compounds to remain. Cleaners shall not have abrasives that scratch or mar the surfaces.

All panes shall be cleaned just before the final inspection. All stains and defects shall be removed. Paint, dirt, stains, labels (except etched labels), and surplus glazing compound shall be removed without scratching or marring the surface of the panes or metal work.

## **DIVISION 9. FINISHES**

### **9.01 PORTLAND CEMENT PLASTER REPAIR**

#### **PART 1 – GENERAL**

Scope: This work shall consist of installing lath and applying portland cement plaster in accordance with the details shown on the plans and these special provisions.

Plaster shall be 3 coat work. The total thickness of plaster shall match existing unless otherwise shown on the plans. The color and the surface finish shall match existing.

#### **PART 2 - PRODUCTS**

Sand: Sand shall be lean commercial quality plaster sand.

Cement: Cement shall be portland cement, blended hydraulic cement, or portland cement with a maximum of 15 percent mineral admixture. Portland cement shall be Type II, conforming to ASTM Designation: C 150. Blended hydraulic cement shall be Type IP, conforming to ASTM Designation: C 595. Mineral admixture shall be Class N, Class F or Class C, conforming to ASTM Designation: C 618, except loss on ignition shall not exceed 4 percent.

Lime: Lime shall conform to ASTM Designation: C 206.

Color for Plaster: Color for plaster shall be non-fading, sunproof, and limeproof fine ground synthetic mineral oxide.

Metal Lath: Metal lath shall be self-furring expanded metal diamond mesh with rust inhibitive coating and waterproof vapor barrier backing. Mesh shall weigh not less than 3.4 pounds per square yard.

Metal Lath Fasteners: Metal lath fasteners shall be galvanized or corrosion resistant nails, screws or staples.

Beads, Screeds, Control Joints and Accessories: Beads, screeds, control joints and accessories shall be galvanized steel, not less than 0.022 inch thick.

Water: Water shall be potable.

#### **PART 3 - EXECUTION**

##### **INSTALLATION**

Metal lath, beads, screeds, control joints and other metal accessories shall be installed rigidly and securely in place in accordance with the manufacturer's recommendations.

The type, size and spacing of fasteners for fastening the metal lath and accessories shall be as recommended by the metal lath manufacturer for the type of substrate and the location of the lath and accessories.

### **PROPORTIONING AND MIXING**

Materials shall be accurately proportioned and measured for each batch. All batches for a given coat shall be proportioned the same. Plaster shall be proportioned one part cement to between 3 and 5 parts sand by volume, only sufficient water to obtain a workable mix, and a lime plasticizing agent. Not more than 20 pounds of dry hydrated lime or lime putty per sack of cement shall be used in the first and second plaster coat. Plaster for finish coat shall contain not more than 94 pounds of dry hydrated lime or lime putty per sack of cement. Lime shall not be used if mineral admixture or blended hydraulic cement is used.

Frozen materials shall not be used in the mix.

All plaster mixing ingredients shall be mixed in a mechanical mixer. After all ingredients are in the mixer, the plaster shall be mixed for a minimum of 2 minutes. The mixture shall be uniform in color after mixing. Hand mixing of plaster will be allowed only with the written approval of the Engineer.

Plaster to be colored shall be colored by mixing the coloring ingredient uniformly and homogeneously into the plaster. Color, if used, will be required only in materials for the finish coat.

### **APPLICATION**

Plaster shall not be applied if the ambient temperature is 40°F or less. Plaster shall not be applied to frost covered or frozen surfaces. Surfaces to receive plaster shall be clean.

The coats of plaster shall be applied continuously in one general direction without allowing mortar to dry at the edges.

The first coat shall be applied with sufficient material and pressure to form full keys and good bond and to cover surfaces. Before setting, the first coat shall be cross-scratched to receive the second coat. The first coat shall be moisture cured, without soaking, for not less than 48 hours after application or until covered by the second coat.

The second coat of plaster shall not be placed until the first coat of plaster has set thoroughly or until at least 12 hours after the first coat of plaster has been placed. The second coat shall be brought out to grounds, straightened to a true, even surface, roughened to assure a bond with the finish coat, and made free of imperfections which would reflect in the finish coat. The second coat shall be moisture cured, without soaking, for not less than 48 hours after application.

The third coat of plaster shall not be placed until at least 7 days after the second coat of plaster has been placed. Troweling of the third coat of plaster shall leave the surface smooth and free from rough areas, trowel marks, checks, or other blemishes. The finished surface shall be true and even and shall not vary more than 1/8 inch in 5 feet from the required plane. Plaster with cracks, blisters, pits, stains, efflorescence, shadowing, dryouts, or checks will not be accepted. Surfaces shall be clean and sound.

The third coat shall have the type of finish shown on the plans.

After all other related work has been completed, pointing around trim and set work and repairing of damaged portions of plaster shall be done. Repairs and patching shall match surrounding work in texture and appearance.

Plaster coats shall be protected against freezing for a period of 24 hours after application.

## **9.02 GYPSUM WALLBOARD**

### **PART 1 – GENERAL**

Scope: This work shall consist of furnishing, installing and finishing gypsum wallboard in accordance with the details shown on the plans and these special provisions.

Where assembly fire ratings are indicated on the plans, construction shall provide the fire resistance in accordance with the applicable standards in the Fire Resistance Design Manual published by the Gypsum Association.

Wallboard backing for use in restroom and other areas noted shall be water-resistant gypsum backing board.

### **PART 2 - PRODUCTS**

**Gypsum Wallboard:** Gypsum wallboard shall conform to ASTM Designation: C 36/C 36M.

**Gypsum Backing Board:** Gypsum backing board shall conform to ASTM Designation: C 442/C 442M.

**Water-resistant Gypsum Backing Board:** Water-resistant gypsum backing board shall conform to ASTM Designation: C 630/C C 630M.

**Joint Tape and Joint and Finishing Compound:** Joint tape and joint and finishing compound shall conform to ASTM Designation: C 475.

**Corner Beads, Metal Trim and Control Joints:** Corner beads, metal trim and control joints shall be galvanized steel of standard manufacture.

**Resilient Metal Channel:** Resilient metal channel shall be galvanized sheet steel channels of standard manufacture for reducing sound transmission in wood frame partitions.

**Fasteners:** Fasteners shall be gypsum wallboard nails conforming to ASTM Designation: C 514 or steel drill screws conforming to ASTM Designation: C 1002.

### **PART 3 - EXECUTION**

#### **DELIVERY AND STORAGE**

Materials shall be delivered in original packages, containers or bundles bearing brand name, applicable standard of manufacture, and name of manufacturer or supplier and shall be kept dry and fully protected from weather and direct sunlight exposure. Gypsum wallboard shall be stacked flat with adequate support to prevent sagging or damage to edges, ends and surfaces.

#### **INSTALLATION**

Wallboard panels to be installed on ceilings and soffits shall be installed with the long dimension of the panels perpendicular to the framing members. Wallboard panels to be installed on walls may be installed with the long dimension of the panels either parallel or perpendicular to the framing members. The direction of placing the panels shall be the same on any one wall or partition assembly.

Edges of wallboard panels shall be butted loosely together. All cut edges and ends shall be smoothed as needed for neat fitting joints.

All edges and ends of gypsum wallboard panels shall coincide with the framing members, except those edges and ends which are perpendicular to the framing members. End joints on ceiling and on the opposite sides of a partition assembly shall be staggered.

Except where closer spacings are shown on the plans, the spacing of fasteners shall not exceed the following:

Nails	7 inches
Screws	12 inches
Screws at perimeter of panels for fire resistive assemblies having metal framing	8 inches

Type S steel drill screws shall be used to fasten wallboard to metal framing. Nails or Type W steel drill screws shall be used to fasten wallboard to wood framing. Except as shown on the plans, screws shall not be used in fire resistive assemblies.

Adhesives shall not be used for securing wallboard to framing.

Gypsum wallboard panels shown on the plans for shear wall sheathing or for fire resistive assemblies shall be fastened to all framing members. Gypsum wallboard panels at other locations and gypsum wallboard finish over plywood sheathed shear walls shall be fastened to all framing members except at the following locations:

At internal angles formed by ceiling and walls; ceiling panels shall be installed first with the fasteners terminating at a row 7 inches from the walls, except for walls parallel to ceiling framing. Wall panels shall butt the ceiling panels. The top row of wall panel fasteners shall terminate 8 inches from the ceiling.

At internal vertical angles formed by the walls; fasteners shall not be installed along the edge or end of the panel that is installed first. Fasteners shall be installed only along the edge or end of the panel that butts and overlaps the panel installed first.

Fasteners shall be located at least 3/8 inch from wallboard panel edges and ends. Nails shall penetrate into wood framing at least 1 1/8 inches. Screws shall penetrate into wood framing at least 5/8 inch. All metal fasteners shall be driven slightly below surface level without breaking the paper or fracturing the core.

Metal trim shall be installed at all free edges of panels, at locations where wallboard panels abut dissimilar materials and at locations shown on the plans. Corner beads shall be installed at external corners. Control joints shall be installed at the locations shown on the plans.

Joints between face panels, the internal angles formed by ceiling and walls and the internal vertical angles formed by walls shall be filled and finished with joint tape and at least 3 coats of joint compound. Tape in the corners shall be folded to conform to the angle of the corner. Tape at joints and corners shall be embedded in joint compound.

Dimples at nail and screw heads, dents, and voids or surface irregularities shall be patched with joint compound. Each patch shall consist of at least 3 coats and each coat shall be applied in a different direction.

Flanges of corner beads, control joints and trim shall be finished with a least 3 coats of joint compound.

Each coat of joint compound shall be feathered out onto the panel surface and shall be dry and lightly sanded before applying the next coat. The finished surfaces of joint compound at the panel joints, internal angles, patches and at the flanges of trim, corner beads and control joints shall be flat and true to the plane of the surrounding surfaces and shall be lightly sanded.

Good lighting of the work area shall be provided during the final application and sanding of the joint compound.

Gypsum wallboard used as backing boards for tile or rigid sheet wall covering or wainscoting shall be water resistant. Joints in backing board shall not be taped or filled and dimples at the fastener heads shall not be patched. Edges of cuts and holes in backing board shall be sealed with a primer or sealer that is compatible with the wall covering or wainscoting adhesive to be used.

Surfaces of wallboard to be textured shall receive an orange peel texture, unless otherwise shown on the plans.

### **9.03 CERAMIC TILE**

#### **PART 1 - GENERAL**

##### **SUMMARY**

**Scope:** This work shall consist of furnishing and installing ceramic tile in accordance with the details shown on the plans and these special provisions.

Ceramic tile shall include glazed wall tile, unglazed floor tile, trim tile, setting materials, grouts and such other materials as maybe required for a complete installation.

##### **SUBMITTALS**

###### **Product Data:**

Manufacturer's descriptive data, a list of materials to be used, and installation instructions for all materials required for the work shall be submitted for approval.

Manufacturer's descriptive data shall be submitted for each type of tile, mortar bed materials, bond coat materials and additives, and grout materials and additives.

Materials list and installation instructions shall include all products and materials to be incorporated into the work.

Friction reports shall be submitted for tile products to be used on floors and other pedestrian surfaces.

**Samples:** Samples shall include 2 individual samples of each type and color of tile and trim to be installed and shall be of the same size, shape, pattern and finish as the tile and trim to be installed.

**Certificates:** Submit certificates as indicated under "QUALITY ASSURANCE" as specified herein.

##### **QUALITY ASSURANCE**

**Single Source Responsibility:** Each type and color of tile, grout and setting materials shall be obtained from a single source.

**Master Grade Certificates:** Each shipment of tile to the project site shall be accompanied by a Master Grade Certificate issued by the tile manufacturer.

**Certificates of Compliance:** Certificates of compliance shall be furnished for bond coat materials, setting bed materials and grout in accordance with the requirements specified in Section 4-1.04, "Certificates of Compliance," of the General Conditions.

##### **DELIVERY, STORAGE AND HANDLING**

**Delivery:** Tile and packaged materials shall be delivered to the job site in sealed, unbroken, unopened containers with the labels intact. Tile containers shall bear the Standard Grade label.

**Storage and Handling:** Materials shall be stored and handled in such a manner as to prevent damage or contamination by water, freezing or foreign matter.

## **PROJECT CONDITIONS**

**Protection:** Tile work shall be protected and environmental conditions maintained during and after installation to comply with the reference standards and manufacturer's printed instructions.

**Temperatures:**

Unless otherwise specified in the manufacturer's installation instructions, the ambient temperature shall be maintained at not less than 50°F nor more than 100°F in tiled areas during installation and for 7 days after completion. Exterior work areas shall be shaded from direct sunlight during installation.

Tile shall not be installed when the temperature of the substrate is greater than 90°F or is frost covered.

**Illumination:** Interior work areas shall be illuminated to provide the same level and angle of illumination as will be available during final inspection.

## **PART 2 - PRODUCTS**

### **MANUFACTURERS**

**Available Manufacturers:** Subject to compliance with the specifications, tile shall be as specified under "TILE PRODUCTS" elsewhere in this special provision.

### **GENERAL**

**Ceramic Tile:**

Ceramic tile shall conform to the requirements in ANSI Standard: A137.1, "American National Standard Specifications for Ceramic Tile" for types and grades of tile indicated.

Ceramic tile shall conform to the "Standard Grade" requirements.

**Tile Installation Materials:** Tile installation materials shall conform to the requirements in ANSI standard referenced with products and materials indicated for setting and grouting.

**Tile Color and Size:** The color and tile size shall be as indicated in the plans and Tile Products elsewhere in this special provision.

**Tile at Walking Surfaces:** Tile installed on walking surfaces shall have sufficient abrasives added such that the static coefficient of friction, wet or dry, shall be not less than 0.6 for walking surfaces and 0.8 for ramps when tested in accordance with ASTM Designation: C 1028.

### **TILE PRODUCTS**

**Glazed Wall Tile:**

Glazed wall tile shall be machine made, dust pressed white body clay, and shall have a glossy glaze finish, plain face, and cushion edges. Tile shall be 5/16-inch nominal thickness, 4-inch x 4-inch (module size). Subject to compliance with the requirements of these special provisions, provide products by one of the following: DalTile, Crossville, Inc., Interceramic, or equal.

Ceramic tile trim shall match material, size and finish of field tile. Free edges of tiled areas of walls shall have bullnose type trim. Outside corners shall have bullnose type runner trim (not beads). Reentrant corners shall have cove type trim.

#### Unglazed Floor Tile:

Subject to compliance with the requirements of these special provisions, provide products by one of the following: DalTile, Crossville, Inc., Interceramic, or equal.

Unglazed floor tile shall be machine made, unpolished, dust pressed natural porcelain clay and shall have a plain face. Tile shall have a nominal thickness of 5/16 inch. Unglazed floor tile shall be slip resistant.

Unglazed floor trim tile shall include cove type base at walls and single piece intersecting cove base at corners.

### **SETTING MATERIALS**

Thin Set Installation Materials: Materials for thin set installation shall conform to the requirements in ANSI Standard: A108.5 as required for installation method designated, unless otherwise indicated.

Uncoupling Membrane: Membrane shall be uncoupling and waterproof. Subject to compliance with these requirements, provide products by one of the following: Schluter-Ditra, Mapei, Wetdecs Co., or equal.

#### Mortar Bond Coat:

Mortar bond coat shall be latex-portland cement mortar bond coat.

Latex-portland cement mortar bond coat shall conform to ANSI Standard: A118.11 and the uncoupling membrane manufacturer's requirements.

Unmodified Thin Set Mortar: Unmodified thin set mortar shall conform to ANSI Standard: A118.11 and the uncoupling membrane manufacturer's requirements.

### **GROUTING MATERIALS**

#### Tile Grout:

Tile grout shall be latex-portland cement grout.

Latex-portland cement grout shall conform to ANSI Standard: A108.6, A108.9, A108.10, and the uncoupling membrane manufacturer's requirements.

Grout Pigment: Grout pigment shall be chemically inert, fade resistant mineral oxide or synthetic type. Color shall be selected by the Engineer.

### **SEALANTS**

#### Sealant:

Sealant for vertical expansion joints shall be a medium modulus silicone or polyurethane. Sealant for horizontal joints shall be a 2-part polyurethane type material with a Shore Hardness of 35 to 45.

Color of exposed sealants shall match color of grout in tile adjoining sealed joints.

## **MISCELLANEOUS MATERIALS**

Sealers:

Sealer for unglazed tile shall be water repellent, clear solution of ammonium cementitious compound, silicone base material, or other commercially manufactured sealer as recommended by tile manufacturer.

Sealer for grout shall be a penetrating proprietary compound designed for sealing grout. Silicone sealers shall not be used.

Water: Water shall be clean and potable.

Metal Edge Transition Strips: Metal edge transition strips shall be stainless steel shapes, designed to provide a smooth transition between tile surfaces and adjoining finished floor surfaces. Subject to compliance with the requirements of these special provisions, provide products by one of the following: Schluter-Reno, Macklanburg Duncan, Pemko, or equal..

Cementitious Tile Backer Board: Cementitious backer board shall be a backing and underlayment panel composed of a concrete core with glass mesh reinforcing on both faces and conforming to the requirements of ANSI Standard: A118.9.

## **MIXING MORTAR AND GROUT**

Mixing: Mortar and grout shall be mixed to comply with the requirements of referenced standards and manufacturers for accurately proportioning of materials, water or additive content, mixing equipment and mixer speeds, mixing containers, mixing time, and other procedures need to produce mortars and grout of uniform quality with optimum performance characteristics for application intended.

## **PART 3 - EXECUTION**

### **PREPARATION**

Surfaces to receive a mortar setting bed or a bond coat shall be cleaned adequately to assure a tight bond to the applied material. Such cleaning shall leave the surface thoroughly roughened and free from laitance, coatings, oil, sand, dust and loose particles.

Substrates shall be inspected to insure that grounds, anchors, plugs, recessed frames, bucks, drains, electrical work, mechanical work, and similar items in or behind the tile have been installed before proceeding with installation of the tiles.

### **INSTALLATION**

Tile installation shall conform to applicable parts of ANSI 108 Series of the tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tile" and Tile Council of American, "Handbook for Ceramic Tile Installation."

The back face of the tile shall be free of paper, adhesives, fiber mesh, resins, or other materials affecting the bond of the tile to the bedding material.

Tile sheets shall have permanent edge bonding or temporary mounting materials on the exposed face. Water soluble or absorbent adhesives shall not be used for edge bonding. Temporary mounting materials shall allow observation during tile setting operations.

Tile work shall extend into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as shown on the plans. Work shall be terminated neatly at obstructions, edges and corners without disrupting pattern or joint alignments.

Intersections and returns shall be accurately formed. Cutting and drilling of tile shall be performed without marring visible surfaces. Cut edges of tile abutting trim, finish or built-in items shall be carefully ground to produce straight aligned joints. Tile shall be closely fit to electrical outlets, piping, fixtures and other penetrations such that plates, collars, or covers overlap the tile.

**Cementitious Backer Board:** Cementitious backer board shall be installed in accordance with the provisions of ANSI Standard: A118.11.

**Tile Bond Coat:**

The tile bond coat mortar shall be mixed according to the manufacturer's recommendations. The consistency of the mixture shall be such that ridges formed with the recommended notched trowel shall not flow or slump. Reworking will be allowed provided no water or materials are added. The setting bed surfaces shall be dampened before placing the bond coat as necessary tile installation, but the setting bed shall not be soaked. The setting bed surfaces for epoxy bond coat shall be dry.

The bond coat shall be floated onto the substrate with sufficient pressure to cover the surface evenly with no bare spots. The surface area to be covered with the bond coat shall be no greater than the area that can be tiled while the bond coat is still plastic. The bond coat shall be combed with a notched trowel as recommended by the manufacturer within 10 minutes before installing tile. Tile shall not be installed on a skinned over bond coat.

**Installing Tiles:**

Tile shall be installed in accordance with the manufacturer's instructions and shall be set solid and shall be well bonded to the substrate.

Tile set on a tile bond coat shall be installed in accordance with ANSI Standard: A108.5, and tile set on an epoxy mortar shall be installed in accordance with ANSI Standard: A108.6.

If tiles are cut, the cuts shall be made with saws. Cut edges shall be rubbed with an abrasive stone to bring the edge of the glaze slightly back from the body of the tile. Cuts shall be accurately made to neatly fit the tile in place. Cut edges shall not be butted against other tile. Cut tile shall be at least half the size of a full size tile.

Tile shall completely cover wall areas behind mirrors and fixtures.

Tile shall be installed so that the finished tile surface does not vary more than 1/8 inch in 8 feet from the finished tile surface shown on the plans. In no case shall there be offsets in adjoining tiles, low spots on finished tile surfaces that can pond water, or finished tile surfaces that are not plumb or true in the completed tile work.

Tiles shall be firmly pressed into the freshly notched bond coat

If tile is face mounted, the paper and glue shall be removed within one hour after tile is installed and all tiles that do not meet the requirements for joints and surface tolerance shall be adjusted or replaced.

**Joints:** Joints between tile shall be continuous both vertically and horizontally. Joints shall be straight and of uniform and equal width. Where tiles on adjoining surface are the same size, the joints shall align, one with the other. Joint width shall be as recommended by the tile manufacturer.

#### Grouting Tile:

Grout shall be mixed, applied and cured in accordance with the manufacturer's recommendations and ANSI Standard: A108.10 for cement grout and ANSI Standard: A108.9 for epoxy grout.

Spacers, strings, ropes, pegs, glue, paper, and face mounting material shall be removed before grouting. Joints between glazed wall tile shall be wetted if they have become dry. Joints for epoxy mortar shall be dry.

Grouting shall not begin until at least 48 hours after installing tile.

A maximum amount of grout shall be forced into the joints between tiles in accordance with the manufacturer's recommendations. The grout shall be finished to the depth of the cushion for cushion edge tile and finished flush with the surface for square edge tile. All gaps and skips in the grout spaces shall be filled.

Mortar or mounting mesh shall not show through the grouted joints.

The finished grout shall have a uniform color and shall be smooth without voids, pinholes or low spots.

Expansion joints shall be kept free of grout or mortar.

#### Expansion Joints:

Expansion joints shall be installed at the perimeter of all tile floors and at all substrate control joints and changes in the substrate material. Exterior expansion joint spacing shall not exceed 16 feet in any direction.

All expansion joints shall be made with sealant over backer rods. The thickness of sealant at the center of expansion joints shall not exceed the width of the joint. Joint edges shall be primed as recommended by the sealant manufacturer.

Edge Strips: Edge strips shall be installed at openings where the threshold has not been shown on the plans, but where tile floor abuts other flooring materials at the same level. Edge strips shall be installed centered under the closed door, or where there is no door, centered in the opening.

Sounding Tile: Tiled surfaces shall be sounded with a metal bar or chain for improperly bonded tile or setting bed. Tile or setting bed that emits a hollow sound shall be replaced.

Replacement: Cracked, chipped, broken, or otherwise defective tiles shall be removed and replaced. All tiles which differ more than 1/16 inch in elevation from adjacent tile edges shall be removed and replaced.

#### Curing:

After the installation of tile and the grouting of joints, the tile and grout shall be cured by keeping the surface continuously damp for at least 72 hours after grouting. Curing materials shall not stain the tile or grouted joints. Curing methods shall not erode away the grout.

After grouting, horizontal tiled surfaces shall be closed to traffic, and all tiled surfaces shall be kept free from impact, vibration or shock, for at least 72 hours.

## **CLEANING AND PROTECTION**

### Cleaning Tile Surfaces:

All exposed tile surfaces shall be cleaned of all grout haze upon completion of grouting. Acids and chemicals used to clean tile shall conform to the tile manufacturer's recommendations. Cleaners shall not be harmful to materials on surfaces of abutting floors, walls, and ceilings. Tile work shall be rinsed thoroughly with clean water before and after using acid or chemical cleaners. After cleaning and rinsing, tile surfaces shall be polished using a soft cloth.

Tile work shall be cleaned and polished again immediately prior to completion of the contract. All dirt, grime, stains, paints, grease, and other discoloring agents or foreign materials shall be removed.

### Protection:

After grouting, horizontal tiled surfaces shall be closed to traffic, and all tiled surfaces shall be kept free from impact, vibration or shock, for at least 72 hours after.

Tile surfaces damaged by construction operations shall be retiled.

## **SCHEDULES**

### Wall Tile:

Installation on cementitious backer board, using a tile bond coat and grout, shall conform to the requirements of Method W 244C, "TCA Handbook for Ceramic Tile Installation." No membrane is required.

Floor Tile: Floor tile installation shall conform to the requirements of Method F 148, "TCA Handbook for Ceramic Tile Installation."

## **9.04 BAMBOO FLOORING**

### **PART 1 - GENERAL**

#### **SUMMARY**

**Scope:** This work shall consist of furnishing and installing bamboo strip flooring and matching accessories by the glue-down method in accordance with the details shown on the plans and these special provisions.

Bamboo flooring shall include shall include bamboo strip flooring, matching accessories, adhesive materials and such other materials as maybe required for a complete installation.

#### **SUBMITTALS**

##### Product Data:

Manufacturer's descriptive data, test reports, a list of materials to be used, and installation instructions for flooring materials, accessories, adhesive and miscellaneous materials required for the work, and maintenance instructions shall be submitted for approval.

Proof of manufacturer's qualifications.

Proof of installer's qualifications.

Samples: Samples shall include 2 samples, 6" long of flooring and trim to be installed and shall be of the same size, shape, pattern and finish as the flooring and trim to be installed.

## **QUALITY ASSURANCE**

Single Source Responsibility: Flooring and trim shall be by a single manufacturer and obtained from a single source. Adhesive material shall be by a single manufacturer and obtained from a single source.

Manufacturer's Qualifications: Furnish certification of membership in the National Wood Flooring, Association American Bamboo Society and Woodwork Institute.

Installer's Qualifications: Minimum of 3-years experience in hardwood flooring installation

Certificates of Compliance: Furnish Certificates of compliance for flooring, trim and adhesive in accordance with the requirements specified in Section 4-1.04, "Certificates of Compliance," of the General Conditions.

## **DELIVERY, STORAGE AND HANDLING**

Delivery: Flooring materials shall be delivered to the job site in sealed, unbroken, unopened cartons or bundles with the labels intact. .

Storage and Handling: Protect flooring from exposure to moisture. Do not deliver flooring until after concrete, plaster, ceramic tile and similar wet work is complete and dry. Store flooring materials in a dry, warm ventilated, weathertight location.

## **PROJECT CONDITIONS**

Conditioning: Conditioning period shall begin not less than seven days before flooring installation, be continuous through installation and end not less than seven days after flooring installation.

Environmental Conditioning: Maintain an ambient temperature between 60 and 70 deg F and relative humidity planned for building occupancy (40-60% recommended) in spaces to receive flooring during the conditioning period.

Flooring Conditioning: Move flooring into spaces where it will be installed, no later than three days prior to installation. Do not install flooring until it adjusts to relative humidity of, and is at same temperature as, space where it is to be installed. Open sealed packages to allow flooring to acclimatize immediately on moving flooring into spaces in which it will be installed. Do not store flooring on concrete or near outside walls.

After conditioning period, maintain relative humidity and ambient temperature planned for building occupants.

Illumination: Interior work areas shall be illuminated to provide the same level and angle of illumination as will be available during final inspection.

## **PART 2 - PRODUCTS**

### **MANUFACTURERS**

Subject to compliance with the requirements of these special provisions, provide prefinished, tongue and groove strand bamboo flooring by Smith & Fong, EcoTimber, Teragren or equal.

### **BAMBOO FLOORING MATERIALS**

Bamboo Strip Flooring: Bamboo Strip flooring shall be 3-3/4 inches wide by 3/8 thick by 36 inches length, with tongue and groove edge configuration at four sides. Prefinished color shall be as shown on plans.

Bamboo species shall be Moso (Phylostachys Pubescens)

Physical Mechanical Properties: ASTM E648, Critical Radiant Flux: Class 1. ASTM D 1037, Dimensional Stability at 20 percent RH: Linear Expansion: Parallel -0.02, Perpendicular -0.23; Thickness Swell: -0.25; Hardness (Janka Ball Test): 2899 lbf. ASTM D 4442, Moisture Content: 4.2. ASTM D 3501, Compressive Strength: 9,431 pounds, maximum load 13,066 lbf. ASTM E 1333, Formaldehyde: 0.02 ppm, no added urea formaldehyde.

Slip resistances shall be equal to 0.6 per ASTM D2047.

Accessories: Provide flooring manufacturer's matching prefinished threshold, t-molding, reducer, base shoe and other flooring trim as required to complete installation.

#### **FLOORING INSTALLATION MATERIALS:**

Adhesive Material: Adhesive material shall be adhesive recommended by flooring manufacturer.

#### **MISCELLANEOUS MATERIALS**

Leveling Compound: Provide flooring manufacturer's recommended trowelable leveling and patching compound as required to achieve an acceptable substrate for installation of the flooring in accordance with the flooring manufacturer's recommendations.

### **PART 3 - EXECUTION**

#### **PREPARATION**

Examine substrates and verify that substrates meet manufacturer's requirements for installation tolerances and suitable materials.

Substrate shall be structural sound OSB, plywood or existing wood floor, ¾" minimum thickness, and level to 3/16" per 10' radius. Sand and/or fill with approved leveling compound to achieve required tolerance.

Substrate shall be dry and swept clean of all debris. Moisture content of wood substrate shall not exceed 12%.

Verify that HVAC system is operating and maintaining temperature and humidity conditions indicated

Start of work by installer indicates acceptance of substrate.

#### **INSTALLATION**

Flooring installation shall conform to flooring manufacturer's and adhesive manufacturer's written instructions for glue-down installation.

Immediately remove any adhesive from flooring finish surface.

Unless otherwise recommended by the flooring manufacturer, provide at least ½ inch expansion space between flooring and all walls and other vertical elements. Use wood or plastic spacers during installation to maintain expansion space.

Unless otherwise recommended by the flooring manufacturer, walk, roll or weight each section of flooring within the adhesive working time to ensure solid contact.

Remove spacers and install trim and transition pieces. Do not allow foot traffic or furniture on floor for at least 24 hours or as recommended by adhesive manufacturer.

## **CLEANING AND PROTECTION**

Cleaning:

Repair or replace damaged installed products.

Vacuum floors to remove dirt or debris. If additional cleaning is required use only products and materials recommended by the flooring manufacturer. Do not use water, oil soaps, or wax products

Protection:

Protect installed floor from damage until construction is complete with heavy kraft-paper or other suitable covering. Do not use non-breathable sheet or film that could cause condensation to form.

## **9.05 RESILIENT FLOOR TILE**

### **PART 1 - GENERAL**

Scope: This work shall consist of furnishing and installing rubber floor tile in accordance with the details shown on the plans and these special provisions.

Rubber floor tile shall consist of rubber tile, edger strips, and tile manufacturer's recommended primers and adhesives.

### **ENVIRONMENTAL CONDITIONS**

Deliver materials to the jobsite in the manufacturer's original, unopened boxes that bear the name and brand of the manufacturer and project identification. Store materials in an enclosed space, off the ground and protected from weather.

Store flooring, adhesives and accessories in the space where they will be installed for at least 48 hours before beginning installation. Maintain a minimum temperature in the spaces to receive the flooring of between 65°F and 85°F for at least 48 hours before, during and at least 48 hours after installation.

Install flooring and accessories after other finishing operations, including painting have been completed. Close spaces to traffic during installation of the flooring.

### **SUBMITTALS**

Product Data: Submit manufacturer's descriptive data, installation instructions, and maintenance data.

Qualification Data: Submit qualification data for qualified installer.

Samples for Initial Selection: Submit full range of color and pattern samples of actual tile material, on chain or bound, for selection.

Samples for Verification: Submit full size unit of color and pattern selected for verification.

### **QUALITY ASSURANCE**

Qualification of Installer: Installer shall be trained and/or certified by the rubber floor tile manufacturer for installation of the specified product by the specified technique, or otherwise demonstrate successful experience in the installation of rubber floor tiles in similar projects.

## **PART 2 - PRODUCTS**

Subject to compliance with the requirements of these special provisions, rubber floor tile shall be the product of one of the following: Armstrong World Industries, Burke Mercer Flooring Products, Johnsonite, Flexco Nora Rubber Flooring, or Roppe Corporation.

Rubber Floor Tile: Rubber floor tile shall be 0.125 inches thick, manufacturer's standard tile size, with embossed texture wearing surface.

Resilient flooring demonstrating a coefficient of friction of at least 0.6 per ASTM D2047, will be accepted as meeting the intent of slip resistance.

Tile shall conform to ASTM F 1344 Class I-A or Class-I-B and ASTM D-2240 Hardness Shore A, 85 minimum.

Subject to conformance with specified standards, color and pattern shall be as selected by the Engineer from full range of Manufacturer's colors and embossed textures.

Leveling and patching compounds shall be type recommended by the rubber floor manufacturer for the intended purpose.

Adhesive shall be water-resistant type recommended by rubber floor tile manufacturer for the intended purpose.

## **PART 3 - EXECUTION**

### **EXAMINATION AND PREPARATION**

Before commencing work examine substrates with installer present to verify that substrate is acceptable in conformance with the rubber floor tile manufacturer's recommendations regarding structural soundness, material, moisture content, level-surface tolerances, absence of deleterious materials and other requirements. Verify that substrates are free of cracks, ridges, depressions, scale and foreign deposits that might interfere with adhesion of the floor tile. Proceed with installation only after unsatisfactory conditions have been corrected. Commencement of installation of rubber floor tile shall constitute installer's acceptance and approval of the substrate.

Immediately prior to application of the tile flooring, the surface to be covered shall be thoroughly dry, free of paint, oil, grease, mortar, plaster droppings, scaly surfaces or other irregularities and shall be broom clean.

Maintain a minimum temperature in the spaces to receive the flooring of between 65°F and 85°F for at least 48 hours before, during and at least 48 hours after installation.

Prepare substrates with products recommended by the rubber floor tile manufacturer, according to the manufacturer's written instructions to ensure adhesion of the tile and accessories.

### **FLOOR TILE INSTALLATION**

Install floor tile in compliance with manufacturer's written instructions for installing floor tiles.

Tile shall be laid to a true, straight, smooth and even finished surface. Joints shall be tight fitting. Floor covering shall be placed before floor mounted fixtures are installed.

Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter. Lay tiles square with room axis.

Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles. Lay tiles with grain running in one direction.

Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings, unless otherwise indicated.

Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.

Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections. Roll the adhered tiles per manufacturer's written instructions.

Install edger strips at free edges.

## **CLEANING AND PROTECTION**

Comply with manufacturer's written instructions for cleaning and protection of floor tile.

Perform the following operations immediately after completing floor tile installation: Remove adhesive and other blemishes from exposed surfaces. Sweep and vacuum surfaces thoroughly. Damp-mop surfaces to remove marks and soil.

Protect floor tile products from marks, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Cover floor tile until completion of construction.

## **9.06 PAINTING**

### **PART 1 - GENERAL**

Scope: This work shall consist of preparing surfaces to receive coatings, and furnishing and applying coatings to the following: all exposed exterior items and surfaces and all exposed interior items and surfaces, in conformance with the schedules and details shown on the plans and these special provisions.

The coatings specified in this section are in addition to any factory finishes, shop priming, or surface treatment specified elsewhere in these special provisions.

The requirements specified under "Lead Related Construction Work" in Division 2 of these special provisions shall apply to work specified herein.

### **DEFINITIONS**

Detergent Wash: Removal of dirt and water-soluble chemicals by scrubbing with a solution of detergent and water, and removal of all solution and residues with clean water.

Hand Cleaning: Removal of dirt, loose rust, mill scale, excess base material, filler, aluminum oxide, chalking paint, peeling paint, or paint that is not firmly bonded to the surfaces by using hand or powered wire brushes, hand scraping tools, power grinders, or sandpaper and removal of all loose particles and dust prior to coating.

Mildew Wash: Removal of mildew by scrubbing with a solution of detergent, hypochlorite-type household bleach, and warm water, and removal of all solution and residues with clean water.

Abrasive Blasting:

Removal of loosely adhering paint, dirt, rust, mill scale, efflorescence, weak concrete, or laitance, shall be by the use of airborne abrasives. Loose particles, dust, and abrasives shall be removed by blasting with clean, oil-free air.

Abrasives shall be limited to mineral grit, steel grit, or steel shot, and shall be graded to produce the surface profile recommended in the manufacturer's data sheet.

Steam Cleaning: Removal of oil, grease, dirt, or other foreign matter by using steam generated by commercial steam cleaning equipment, from a solution of water and steam cleaning compounds, and removal of all residues and cleaning compounds with clean water.

TSP Wash: Removal of oil, grease, dirt, paint gloss, and other foreign matter by scrubbing with a solution of trisodium phosphate and warm water, and removal of all solution and residues with clean water.

Water Blasting: Removal of dirt, loose scale, chalking, or peeling paint by low-pressure water cleaning. Water blasting shall be performed in conformance with the requirements in SSPC-SP12 and shall produce a surface cleanliness meeting the requirements of SSPC-SP12-WJ4. Equipment used shall have a minimum flow rate of 1.5 GPM. If a detergent solution is used, it shall be biodegradable and shall be removed from all surfaces with clean water.

Protection:

The Contractor shall provide protective devices, such as tarps, screens or covers, as necessary to prevent damage to the work and to other property or persons from all cleaning and painting operations.

Paint or paint stains on surfaces not designated to be painted shall be removed by the Contractor at the Contractor's expense and the original surface shall be restored.

## **SUBMITTALS**

Manufacturer's descriptive data, a materials list, and color samples shall be submitted for approval.

Product descriptive data shall include product description, manufacturer's recommendations for product mixing, thinning, tinting, handling, site environmental requirements, product application, and drying time.

Materials list shall include manufacturer's name, trade name, and product numbers for each type coating to be applied.

Color samples shall be manufacturer's draw down, approximately 8-1/2" x 11", for each color and type of coating. Color samples for stains shall be submitted on wood of the same species, color, and texture as the wood to receive the stain. Colors shall be selected by the Engineer.

## **QUALITY ASSURANCE**

Certificates of Compliance: Certificates of Compliance shall be furnished when products are required to conform with the requirements of The Society for Protective Coatings (SSPC) in conformance with the requirements specified in Section 4-1.04, "Certificates of Compliance," of the General Conditions.

## **REGULATORY REQUIREMENTS**

Coatings and applications shall conform to the rules for control of Volatile Organic Compound (VOC) emissions adopted by the air quality control district in the air basin in which the coatings are applied.

## **SITE ENVIRONMENTAL REQUIREMENTS**

Coatings shall be applied in conformance with the environmental constraints specified in the manufacturer's printed instructions. These conditions shall be maintained until the coating has cured and is ready for recoat.

Continuous ventilation shall be provided during application of the coatings.

Adequate lighting, as determined by the Engineer, shall be provided while surfaces are being prepared for coatings and during coating applications.

## **DELIVERY, STORAGE, AND HANDLING**

Products shall be delivered to the site in sealed, labeled containers and stored in a well-ventilated area at an ambient air temperature of not less than 45°F. Container labeling shall include manufacturer's name, type of coating, trade name, color designation, drying time, and instructions for tinting, mixing, and thinning.

## **MAINTENANCE STOCK**

Upon completion of coating work, a full one-gallon container of each type and color of finish coat and stain used shall be delivered to the location at the project site designated by the Engineer. Containers shall be tightly sealed and labeled with color, texture, and room locations where used, in addition to the manufacturer's standard product label.

## **PART 2 - PRODUCTS**

Products for each coating system shall be from a single manufacturer and shall conform to the requirements in the Detailed Performance Standards of the Master Painters Institute (MPI). Each product shall be shown on the MPI Approved Products List unless otherwise specified in these special provisions.

## **PART 3 - EXECUTION**

### **INSPECTION**

Coatings shall not be applied until surface preparation has been approved by the Engineer. The Contractor shall notify the Engineer at least 3 working days prior to the application of coatings.

### **SURFACE PREPARATION**

Surfaces scheduled to be coated shall be prepared in conformance with the coating manufacturer's printed instructions unless otherwise specified in these special provisions.

Hardware, cover plates, light fixture trim, and similar items shall be removed prior to preparing surfaces for coating. Following the application of the finish coating, the removed items shall be reinstalled in their original locations.

Wood:

Coatings for exterior applications shall have the surface lightly sanded no more than 24 hours prior to the coating application.

A sealer recommended by the coating manufacturer shall be spot applied to knots, sap, pitch, tar, creosote, and other bleeding substances.

After the application of the prime coat, all nail holes, cracks, open joints, dents, scars, and surface irregularities shall be filled, hand cleaned, and spot primed to provide smooth surfaces for the application of finish coats.

Irregularities in wood surfaces to receive a transparent stain finish shall be filled and hand cleaned after the first coat of stain has been applied. The color of the filler shall match the color of the stained wood.

Irregularities in wood surfaces to receive a clear finish shall be filled and hand cleaned before the application of coatings. The color of the filler shall match the color of the coated wood.

#### Galvanized Metal:

New surfaces shall be roughened by hand sanding or light abrasive blasting. Galvanizing shall not be removed during cleaning or roughening.

Damaged or corroded areas shall be cleaned and given 2 spot applications of a coating that conforms to the requirements in the Detailed Performance Standards of the MPI, and listed on MPI List "Number 18, Primer, Zinc Rich, Organic."

Steel and Other Ferrous Metals: Surface shall be cleaned in conformance with the requirements in SSPC-SP 1. Surface profile shall be as required for the coating system specified.

Aluminum and Other Non-ferrous Metals: Surface shall be cleaned in conformance with the requirements in SSPC-SP 1.

Gypsum Board: Holes, cracks, and other surface imperfections shall be filled with joint compound or suitable filler prior to application of coatings. Taped joints and filled areas shall be hand sanded to remove excess joint compound and filler.

Cement Plaster: New plaster shall be cured a minimum of 14 days before coating. Cracks, holes, and surface imperfections shall be filled with patching plaster and hand textured to match adjacent surfaces.

Concrete and Concrete Masonry Unit: New material shall be cleaned and prepared in conformance with the requirements in SSPC-SP 13. Cracks and voids shall be filled with cement mortar patching material. Concrete shall be cured until the surface moisture is below the level specified in the coating manufacturer's printed instructions.

#### Previously Coated Surfaces:

Lead-containing paint shall be removed as specified under "Lead Related Construction Work" in Division 2 of these special provisions.

Dirt, oil, grease, or other surface contaminants shall be removed by water blasting, steam cleaning, or TSP wash. Minor surface imperfections shall be filled as required for new work. Mildew shall be removed by mildew wash. Chalking paint shall be removed by hand cleaning. The surfaces of existing hard or glossy coatings shall be abraded to dull the finish by hand cleaning or light abrasive blasting. Abrasive blasting shall not be used on wood or non-ferrous metal surfaces.

Chipped, peeling, blistered, or loose coatings shall be removed by hand cleaning, water blasting, or abrasive blasting. Bare areas shall be pretreated and primed as required for new work.

## **APPLICATION**

Coatings shall be applied in conformance with the printed instructions and at the application rates recommended by the manufacturer to achieve the dry film thickness stated in the coating technical data sheet.

Mixing, thinning and tinting shall conform to the manufacturer's printed instructions. After thinning, the coating shall conform to the regulatory requirements in these special provisions.

Coatings shall be applied only when surfaces are dry and properly prepared.

Cleaning and painting shall be scheduled so that dust and other contaminants from the cleaning process will not fall on wet, newly coated surfaces.

Materials required to be coated shall have coatings applied to all exposed surfaces, including the tops and bottoms of wood and metal doors, the insides of cabinets, and other surfaces not normally visible from eye level.

#### Surface Finish Application:

Each coat shall be applied to a uniform finish. Finished surfaces shall be free of surface deviations and imperfections such as skips, cloudiness, spotting, holidays, laps, brush marks, runs, sags, curtains, ropiness, improper cutting in, overspray, drips, ridges, waves, and variations in color and texture.

Each application of a multiple application finish system shall closely resemble the final color coat, except each application shall provide enough contrast in shade to distinguish the separate applications.

#### Work Required Between Applications:

Each application of material shall be cured in conformance with the coating manufacturer's printed instructions before applying the succeeding coating.

Enamels and clear finishes shall be lightly sanded, dusted, and wiped clean between applications.

Stain blocking primer shall be spot applied whenever bleeding substances are visible through the previous application of a coating.

Timing of Applications: The first application of the coating system shall be during the same work shift that the final surface preparation was performed. Additional coats shall be applied as soon as the required drying time of the preceding coat, specified in the coating manufacturer's printed instructions, has been met.

#### Application Methods:

Coatings shall be applied by brush, roller or spray. Rollers shall be of a type which do not leave a stippled texture in the paint film. Extension handles for rollers shall not be greater than 6 feet in length.

If spray methods are used, surface deviations and imperfections such as overspray, thickness deviations, lap marks, and orange peel shall be considered as evidence the work is unsatisfactory and the Contractor shall apply the remainder of the coating by brush or roller, as approved by the Engineer.

#### Back Priming:

The first application of the coating system shall be applied to all wood surfaces (face, back, edges, and ends) of wood materials that are not factory coated, immediately upon delivery to the project site. Surfaces of interior finish woodwork that adjoin concrete or masonry shall be coated with one application of exterior wood primer before installation.

Patches in Previously Coated Surfaces: Where patches are made on surfaces of previously coated walls or ceilings, the entire surface to corners on every side of the patch shall be coated with a minimum of one application of the finish coat.

#### Finishing Mechanical and Electrical Components:

Shop primed mechanical and electrical components shall be finish coated in conformance with the coating system specified for the substrate material. Louvers, grilles, covers, and access panels on mechanical and electrical components shall be removed and coated separately.

Interior surfaces of air ducts which are visible through grilles or louvers shall be coated with one application of flat black enamel, to limit of the sight line.

Conduit, piping, and other mechanical and electrical components visible in the finished work shall be painted.

Both sides and all surfaces, including edges and back of wood mounting panels for electrical and telephone equipment shall be finish coated before installing equipment.

## **CLEANING**

Upon completion of all operations, the coated surfaces shall be thoroughly cleaned of dust, dirt, grease, or other unsightly materials or substances.

Surfaces marred or damaged as a result of the Contractor's operations shall be repaired, at his expense, to match the condition of the surfaces prior to the beginning of the Contractor's operations.

## **COATING SYSTEM**

The surfaces to be coated shall be as shown on the plans and as specified in these special provisions. When a coating system is not shown or specified for a surface to be finish coated, the coating system to be used shall be as specified below for the substrate material. The number of applications specified for each coating system listed herein is a minimum. Additional coats shall be applied if necessary to obtain a uniform color, texture, appearance, or required dry film thickness.

### **SYSTEM 1 - ALUMINUM AND OTHER NON-FERROUS METALS**

#### **1 Pretreat Coat:**

Vinyl wash pretreatment

#### **1 Prime Coat:**

Aluminum primer

#### **2 Finish Coats:**

Flat: Latex, exterior, MPI Gloss Level 1, MPI List Number 10

Eggshell-like: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 3, MPI List Number 161

Semi-Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 5, MPI List Number 163

Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 6, MPI List Number 164

### **SYSTEM 2 - CEMENT PLASTER AND CONCRETE**

#### **1 Prime Coat:**

Concrete and masonry primer

#### **2 Finish Coats:**

Flat: Latex, Exterior, MPI Gloss Level 1, MPI List Number 10

Semi-Gloss: Latex, Exterior, MPI Gloss Level 5, MPI List Number 11

### **SYSTEM 3 - GALVANIZED METAL**

#### **1 Pretreat Coat:**

Vinyl wash pretreatment

1 Prime Coat:

Galvanized metal primer

2 Finish Coats:

Flat: Latex, Exterior, MPI Gloss Level 1, MPI List Number 10

Eggshell-like: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 3, MPI List Number 161

Semi-Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 5, MPI List Number 163

Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 6, MPI List Number 164

#### SYSTEM 4 - GYPSUM BOARD

One Prime Coat:

Primer Sealer: Latex, Interior, MPI List Number 50

2 Finish Coats:

Flat: Latex, Interior, MPI Gloss Level 1, MPI List Number 53

Velvet-like: Latex, Interior, MPI Gloss Level 2, MPI List Number 44

Semi-Gloss: Latex, Interior, MPI Gloss Level 5, MPI List Number 54

Gloss: Latex, Interior, MPI Gloss Level 6, MPI List Number 114

#### SYSTEM 5 - PREVIOUSLY COATED EXTERIOR SURFACES

1 Prime Coat:

Alkyd exterior enamel undercoat

2 Finish Coats:

Flat: Latex, Exterior, MPI Gloss Level 1, MPI List Number 10

Low Sheen: Latex, Exterior, MPI Gloss Level 3/4, MPI List Number 15

Semi-Gloss: Latex, Exterior, MPI Gloss Level 5, MPI List Number 11

Gloss: Latex, Exterior, MPI Gloss Level 6, MPI List Number 119

#### SYSTEM 6 - PREVIOUSLY COATED INTERIOR SURFACES

1 Prime Coat:

Alkyd interior wood primer

2 Finish Coats:

Flat: Latex, Interior, MPI Gloss Level 1, MPI List Number 53

Eggshell-like: Latex, Interior, MPI Gloss Level 3, MPI List Number 52

Semi-Gloss: Latex, Interior, MPI Gloss Level 5, MPI List Number 54

Gloss: Latex, Interior, MPI Gloss Level 6, MPI List Number 114

#### SYSTEM 7 - STEEL AND OTHER FERROUS METALS, NON-CORROSIVE ENVIRONMENT

VISIBLE IN FINISHED WORK:

2 Prime Coats:

Shop Primer: Coating meeting the requirements of SSPC-Paint 15  
Field Primer: Rust Inhibitive, Water Based, MPI List Number 107

2 Finish Coats:

Flat: Latex, Exterior, MPI Gloss Level 1, MPI List Number 10  
Eggshell-like: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 3, MPI List Number 161  
Semi-Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 5, MPI List Number 163  
Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 6, MPI List Number 164

NOT VISIBLE IN FINISHED WORK:

2 Prime Coats:

Shop Primer: Coating meeting the requirements of SSPC-Paint 15  
Field Primer: Rust Inhibitive, Water Based, MPI List Number 107

SYSTEM 8 - STEEL AND OTHER FERROUS METALS, SEMI-CORROSIVE ENVIRONMENT

VISIBLE IN FINISHED WORK:

2 Prime Coats:

Primer: Rust Inhibitive, Water Based, MPI List Number 107

2 Finish Coats:

Flat: Latex, Exterior, MPI Gloss Level 1, MPI List Number 10  
Eggshell-like: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 3, MPI List Number 161  
Semi-Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 5, MPI List Number 163  
Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 6, MPI List Number 164

NOT VISIBLE IN FINISHED WORK:

2 Prime Coats:

Primer: Rust Inhibitive, Water Based, MPI List Number 107

SYSTEM 9 - WOOD, CLEAR FINISH

2 Finish Coats:

Semi-Gloss: Varnish, Waterborne, Clear, MPI List Number 129  
Gloss: Varnish, Waterborne, Clear, MPI List Number 130  
Topcoat for Multi-colored coating, Clear, MPI List Number 121

SYSTEM 10 - WOOD, PAINTED

1 Prime Coat:

Primer: Latex for Exterior Wood, MPI List Number 6

2 Finish Coats:

Flat: Latex, Exterior, MPI Gloss Level 1, MPI List Number 10  
Low Sheen: Latex, Exterior, MPI Gloss Level 3/4, MPI List Number 15  
Semi-Gloss: Latex, Exterior, MPI Gloss Level 5, MPI List Number 11  
Gloss: Latex, Exterior, MPI Gloss Level 6, MPI List Number 119

#### SYSTEM 11 - WOOD, STAINED

One Prime Coat:

Primer: Latex for Exterior Wood, MPI List Number 6

2 Finish Coats:

Solid Hide: Stain, Exterior, Water based, MPI List Number 16

#### SYSTEM 12 - WOOD, TRANSPARENT STAIN FINISH

2 Finish Coats:

Semi-Transparent: Stain, Exterior, Water based, MPI List Number 156

### **COLOR SCHEDULE**

Colors shall be selected by the Engineer.

## **9.07 SUSPENDED CEILINGS**

### **PART 1 - GENERAL**

Scope: This work shall consist of furnishing and installing suspended ceilings in accordance with the details shown on the plans and these special provisions. This work shall be coordinated with furnishing and installing integrated t-bar powered grid as shown on the plans.

Suspended ceilings shall consist of lay-in acoustical ceilings panels and an exposed grid suspension system. Listed fire rated assemblies shall be installed where shown on the plans.

Design:

The suspension system shall be designed to support the weight of ceiling panels, lighting fixtures, air terminals, service assemblies and such other items, not mentioned, which are supported by the suspended ceiling system.

The deflection of any component of the suspension system shall not exceed 1/360 of the span.

The suspension system shall be designed for seismic restraint in accordance with ASTM Designation: E 580.

Lighting fixture attachments shall be designed for a capacity of 100 percent of the lighting fixture weight acting in any direction.

## **SUBMITTALS**

Manufacturer's descriptive data and installation instructions and complete shop drawings of all supporting details, lighting fixture attachments, lateral force bracing, partition bracing and runner and panel layouts shall be submitted for approval.

## **PART 2 - PRODUCTS**

**Acoustical Panels:** Acoustical panels shall be factory produced, lay-in panels, 24" x 48" x 5/8" thick with non-directional natural fissured surface texture and factory applied, washable, off-white, vinyl latex finish. Panels shall conform to ASTM E 1264 Type III, form 2. Noise Reduction Coefficient (NRC) shall be minimum 0.65. Panels shall have a flame spread rating not exceeding 25.

**Products:** Subject to compliance with the requirements of these special provisions, provide one of the following: Armstrong World Industries, Inc., Fine Fissured, Item #17732; Ecophon CertainTeed, Inc., Fine Fissured, Item #HHF-154; USG Interiors, Inc., Radar ClimaPlus, Item #2220; or equal.

**Suspension System:** Suspension system shall be galvanized steel, tee shaped main runners and cross runners and wall molding angles or channels conforming to ASTM Designation: C 635, intermediate duty or heavy duty. Runners shall have exposed flanges approximately one inch wide and positive interlocks between main runners and cross runners. Wall moldings shall have a 3/4-inch wide exposed face. Runners and moldings shall be bonderized and shall have a flat off-white color, factory painted finish unless otherwise shown on the plans.

**Wire Hangers:** Wire hangers shall be 12-gage minimum, galvanized, soft-annealed, mild steel wire.

**Assembly Devices, Splices, Intersection Connectors and Expansion Devices:** Assembly devices, splices, intersection connectors and expansion devices shall be as recommended by the suspension system manufacturer.

**Products:** Subject to compliance with the requirements of these special provisions, provide one of the following: Armstrong World Industries, Inc., Prelude ML Series; Ecophon CertainTeed, Inc., Snap-Grid 200 Series; USG Interiors, Inc., Donn DX Series; or equal.

## **PART 3 - EXECUTION**

### **INSTALLATION**

The suspended ceiling shall be installed square, level and true in accordance with the approved shop drawings, the manufacturer's installation instructions and the requirements of ASTM Designations: C 636 and E 580 and UBC Standard No. 25-2.

Hangers for the suspension system shall be spaced at not more than 48 inches on centers and shall be saddle tied or wrapped around the main runner members.

Except as specified herein, all lighting fixtures, air terminals, services or other ceiling supported items shall be positively attached to the suspension system.

Lighting fixtures, air terminals, services or other items weighing less than 56 pounds shall have, in addition to the requirements specified herein, two 12-gage hangers connected from the housing of the fixture, terminal, service or other items to the structure above. These hanger wires may be slack.

Lighting fixtures, air terminals, services or other items weighing more than 56 pounds shall be supported directly from the structure above.

The ceiling shall be leveled to within 1/8 inch in 12 feet.

## **MAINTENANCE STOCK**

Upon completion of the suspended ceiling work, one unopened carton of acoustical panels shall be delivered to a location at the project site designated by the Engineer.

## **DIVISION 10. SPECIALTIES**

### **10.01 DISPLAY CASES**

#### **PART 1 - GENERAL**

##### **SUMMARY**

Scope: This work shall consist of shop-fabricating, furnishing and installing illuminated display cases in accordance with the details shown on the plans and these special provisions.

Display cases shall be suspended aluminum-framed, glazed cabinets with adjustable shelves; table-type aluminum-framed, glazed display cases and mobile, free-standing, aluminum-framed, glazed display cases.

##### **SUBMITTALS**

Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for display cases.

Shop Drawings: Include plans, elevations, sections, details, and attachments to other work. Include sections of typical trim members.

Wiring Diagrams: For power, signal, and control wiring.

##### **QUALITY ASSURANCE**

Display cases and support systems shall be shop-fabricated and assembled, except for minimal field assembly required for installation.

Obtain display cases from a single source.

Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

##### **PERFORMANCE REQUIREMENTS**

Seismic Performance: Display cases shall withstand the effects of earthquake motions according to ASCE/SEI 7.

#### **PART 2 - PRODUCTS**

##### **MATERIALS**

Unless otherwise indicated miscellaneous materials shall meet the following standards:

Hardboard: ANSI A135.4, tempered.

Extruded-Aluminum Bars and Shapes: ASTM B 221, Alloy 6063.

Aluminum Tubing: ASTM B 429, Alloy 6063.

Clear Tempered Glass: ASTM C 1048, Kind FT, Condition A, Type I, Class 1, Quality Q3, with exposed edges seamed before tempering, and 0.236 inch (6 mm) thick unless otherwise indicated.

Opaque Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet).

Translucent Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), with Finish 1 (smooth or polished). Provide white-colored sheet unless otherwise indicated, of density required to produce uniform brightness and minimum halation effects.

High-Pressure Plastic Laminate: NEMA LD 3.

Fasteners: Provide screws, bolts, and other fastening devices made from same material as items being fastened, except provide hot-dip galvanized, stainless-steel, or aluminum fasteners for exterior applications. Provide types, sizes, and lengths to suit installation conditions. Use security fasteners where exposed to view.

## **DISPLAY CASES**

Subject to compliance with the requirements of these special provisions, provide products by one of the following manufacturers or equal:

Custom Showcases and Schadebo Showcases  
9 Hunters Rd, VanDorf, Ontario  
Canada

TECNO Display  
2277 National Avenue  
Hayward, CA 94545

Display Case Depot  
[www.displaycasedepot.com](http://www.displaycasedepot.com)  
416-623-9433

Cabinet: Shop-fabricated cabinet; with melamine on back inside surface, and glazed doors at front.

Cabinet Box: Glazed top, bottom, and side panels.

Cabinet Frame: Aluminum with clear anodic finish.

Glazed Sliding Doors: Tempered glass; unframed; with extruded-aluminum top and bottom track; supported on nylon or ball-bearing rollers; with plastic top guide and rubber bumpers. Equip each door with ground finger pull and adjustable cylinder lock with two keys. Thickness: Not less than 0.236 inch (6 mm) thick.

Glazed Hinged Doors: Tempered glass; set in frame matching cabinet material and finish. Equip each door with full-height continuous hinge and cylinder lock with two keys. Thickness: Not less than 0.236 inch (6 mm) thick.

Shelves: 0.236 inch (6 mm) thick tempered glass; supported on adjustable shelf standards and supports.

Back Surface: Manufacturers standard. Color: As selected by the Engineer from manufacturer's full range.

Illumination System: Concealed top-lighting system consisting of fluorescent-strip fixtures. Include lamps and internal wiring with single concealed electrical connection to building system. Coordinate electrical characteristics with power supply provided. Ballasts: Low-temperature, high-power-factor, low-energy, fluorescent lamp ballasts that comply with Certified Ballast Manufacturers Association standards and carry its label.

## **FABRICATION**

Fabricate display cases to requirements indicated for dimensions, design, and thickness and finish of materials.

Use metals and shapes of thickness and reinforcing to produce flat surfaces, free of oil-canning, and to impart strength for size, design, and application indicated.

Fabricate cabinets and door frames with reinforced corners, mitered to a hairline fit, with no exposed fasteners.

Fabricate shelf standards plumb and at heights to align shelf brackets for level shelves.

## **GENERAL FINISH REQUIREMENTS**

Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## **ALUMINUM FINISHES**

Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.0004 inch (0.010 mm) or thicker.

## **PART 3 - EXECUTION**

### **EXAMINATION**

Examine walls, with Installer present, for compliance with requirements for installation tolerances, surface conditions of wall, and other conditions affecting performance of the Work.

Examine roughing-in for electrical power system to verify actual locations of connections before installation of illuminated units.

Examine walls and partitions for proper backing for display cases.

Proceed with installation only after unsatisfactory conditions have been corrected.

### **INSTALLATION**

General: Install units in locations and at mounting heights indicated. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.

Comply with requirements in Division 16 for connecting illuminated display cases.

After installation is complete, install new fluorescent lamps.

Install display case shelving level and straight.

### **ADJUSTING AND CLEANING**

Adjust doors to operate smoothly without warp or bind and so contact points meet accurately.

Lubricate operating hardware as recommended by manufacturer.

Touch up factory-applied finishes to restore damaged or soiled areas.

## **10.02 MARKER BOARDS**

### **PART 1 – GENERAL**

Scope: This work shall consist of furnishing and installing a marker boards in accordance with the details shown on the plans and these special provisions.

One felt eraser and 12 felt tipped liquid chalk markers of assorted colors shall be furnished for each marker board installed.

### **SUBMITTALS**

Manufacturer's descriptive data and installation instructions shall be submitted for approval.

### **PART 2 - PRODUCTS**

Marker Board:

Marker board shall conform to Porcelain Enamel Institute Standard PEI-S-104, and shall be porcelain enamel surface on 0.024-inch thick (24-gage) sheet steel pressure laminated to ¼-inch thick tempered hardboard. Hardboard shall have a backing of 0.015-inch nominal thickness aluminum sheet. Enamel surface shall be suitable for marking with felt tipped liquid chalk markers and erasing with a felt eraser or dry cloth. The enamel surface shall be white in color.

Marker board dimensions shall be as shown on the plans.

Trim and marker tray: Trim and marker tray shall be factory installed, satin finish, clear anodized aluminum extrusions with 4 inches maximum projection.

### **PART 3 - EXECUTION**

#### **INSTALLATION**

Marker boards shall be installed rigidly, securely, plumb and true in accordance with the manufacturer's instructions.

## **10.03 SIGNS**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of furnishing and installing signs in accordance with the details shown on the plans and these special provisions.

## SUBMITTALS

Product Data: Manufacturer's descriptive data for sign materials, colors and graphics, and for fastening hardware and material shall be submitted for approval.

## PART 2 - PRODUCTS

Plastic Signs (Permanent Room Identification):

Plastic signs for permanent room identification for other than restrooms shall be scratch resistant, non-static, fire retardant, washable melamine laminate with a non-glare surface, not less than 1/8 inch thick.

**Character type:** Characters on signs shall be raised 1/32 inch (0.794 mm) minimum and shall be sans serif uppercase characters accompanied by Grade 2 Braille (see note below).

**Character size:** Raised characters shall be a minimum of 5/8 inch (15.9 mm) and a maximum of 2 inches (51 mm) high.

**Finish and contrast:** Contrast between character, symbols and their background must be 70% minimum and have a non-glare finish. CBC Section 1117B.5.2

**Proportions:** Characters on signs shall have a width-to-height ratio of between 3:5 and 1:1 and a stroke width-to-height ratio of between 1:5 and 1:10. CBC Section 1117B.5.3

All letters measured must be uppercase. After choosing a typestyle to test, begin by printing the letters **I**, **X**, and **O** at 1 inch high. Place the template's 1:1 square over the **X** and **O**, whichever is narrower. If the character is not wider than 1 inch, nor narrower than the 3:5 rectangle, the proportions are correct. Use the 1:5 rectangle to determine if the stroke of the **I** is too broad, and the 1:10 rectangle to see if it is too narrow. If all the tests are passed, the typestyle is compliant with proportion code.

**Braille:** California (Contracted) Grade 2 Braille shall be used wherever Braille is required in other portions of these standards. Dots shall be 1/10 inch (2.54 mm) on centers in each cell with 2/10 inch (5.08 mm) space between cells, measured from the second column of dots in the first cell to the first column of dots in the second cell. Dots shall be raised a minimum of 1/40 inch (0.635 mm) above the background. CBC Section 1117B.5.6

Recommend rounded or domed California Braille dots, each distinct and separate. Dots with straight sides and flat tops are not readable for many Braille users.

Plastic Sign (Restroom):

Plastic sign for restroom shall be not less than 1/4-inch acrylic plastic. Sign background shall be blue and shall conform to Federal Standard 595B, Color No. 15090. Male/female symbol and lettering shall be white and shall conform to Federal Standard 595B, Color No. 17886.

Male restroom identification shall be a male symbol on an equilateral triangle with edges 12 inches long and a vertex pointing upward.

Female restroom identification shall be a female symbol on a 12-inch diameter circle.

Accessible Building Entrance Sign:

Accessible building entrance sign shall be not less than 1/8-inch acrylic plastic, not less than 4" x 4" with the international symbol of accessibility.

Sign background shall be blue and shall conform to Federal Standard 595B, Color No. 15090. Symbol and border shall be white and shall conform to Federal Standard 595B, Color No. 17886.

Metal Sign (Loft): Metal sign for loft shall be sheet steel, not less than 0.030 inch thick (22-gage), black enamel letters on a white enamel background. Sign size shall be 24 inches wide by 14 inches high with 2½-inch minimum height letters. Sign shall be mounted to face of loft shelf as shown on plans.

Metal Plaque:

Aluminum Castings: ASTM B 26/B 26M, of alloy and temper recommended by sign manufacturer for casting process used and for use and finish indicated.

Bronze Castings: ASTM B 584, Alloy UNS No. C86500 (No. 1 manganese bronze).

Subject to compliance with the requirements of these special provisions, provide products by one of the following: Gemini, Inc., Advance Corporation, Braille-Tac Division; A.R.K. Ramos; Matthews International Corporation, Bronze Division; Metal Arts, Division of L&H Manufacturing Company; Mills Manufacturing Company; Nelson-Harkins Industries; and The Southwell Company.

Exterior mounted cast plaques: Provide castings free of pits, scale, sand holes, and other defects, as follows: plaque material, bronze; background texture, manufacturer's standard smooth texture; border style, plain bevel; mounting, concealed studs, noncorroding for substrates encountered.

Plaque schedule:

Plaque type: Historic Designation: Plaque size: 16" x 20" ; Character size: Varies (per layout supplied by the Engineer); Character finish/color: Smooth, polished letters with dark oxide background; Text/message: Per layout supplied by the Engineer; Location: Exterior (face of building) as shown on plans.

Self-luminous Sign (Exit):

Self-luminous sign shall be internally illuminated, self-luminous exit sign powered by permanent integral tritium gas source. Sign shall be listed by the California State Fire Marshal, and UL or other approved testing laboratory.

Sign housing shall be ABS molding. Faceplate shall be acrylic.

Fastening hardware and material: Fastening hardware and material shall be as recommended by the sign manufacturer. Fasteners shall be noncorrosive.

### **PART 3 - EXECUTION**

Inscription: Except for loft and exit signs, sign messages shall be as shown on the plans.

Metal loft sign shall read as follows:

**LOFT  
LOAD LIMIT  
125 LB./SQ.FT.**

## **INSTALLATION**

Plastic signs for room identification and restrooms shall be fastened or secured to clean, finished surfaces in accordance with the sign manufacturer's instructions. Signs shall be installed at a location and height as shown on the plans.

Metal signs shall be attached securely with galvanized or cadmium plated fasteners.

Fastening hardware and material shall be installed within the sign.

## **10.04 FIRE EXTINGUISHERS AND CABINETS**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of furnishing and installing fire extinguishers with cabinets or mounting brackets in accordance with the details shown on the plans and these special provisions.

#### **REFERENCES**

Fire Extinguishers shall conform to the requirements in California Code of Regulations, Title 19 Division 1, Chapter 3, "Portable Fire Extinguishers."

#### **SUBMITTALS**

Product Data: Manufacturer's descriptive data and installation instructions shall be submitted for approval.

#### **QUALITY ASSURANCE**

Codes and Standards: Fire extinguishers shall be Underwriters Laboratories or Factory Mutual Laboratories approved for the type, rating and classification of extinguisher specified.

### **PART 2 - PRODUCTS**

#### **MANUFACTURER'S**

Acceptable Manufacturers: Subject to contract compliance, manufacturers shall be J. L. Industries; Larsen's Manufacturing; Potter-Roemer; or equal.

#### **COMPONENTS**

Fire Extinguisher: Fire extinguisher shall be fully charged, multi-purpose dry chemical type, with charge indicator, hose and nozzle, and attached service record tag. Fire extinguisher shall be of the capacity and type rating shown on the plans.

Fire Extinguisher Cabinet:

Fire extinguisher cabinet shall be factory fabricated, constructed of steel with a clear plastic panel in a steel door frame, and shall have a baked enamel finish. Color to be selected by the Engineer from the manufacturer's standard colors.

Fire extinguisher cabinet shall be semi-recessed or fully recessed.

## **PART 3 - EXECUTION**

### **INSTALLATION**

Fire extinguishers shall be installed in locations and at mounting heights shown on the plans, or if not shown, at a height of 48 inches from the finished floor to the top of the fire extinguisher.

Fire extinguisher mounting brackets and cabinets shall be attached to structure, square and plumb, in accordance with the manufacturer's recommendations.

### **IDENTIFICATION**

Cabinet-mounted: Extinguishers in cabinets shall be identified with letter spelling "FIRE EXTINGUISHER" applied to the cabinet door. Letter size, styles, and color shall be selected by the Engineer from manufacturer's standard arrangements.

### **SERVICING**

Fire extinguishers shall be serviced, charged, and tagged not more than 5 days prior to contract acceptance.

## **10.05 MOBILE STORAGE SYSTEM**

### **PART 1 – GENERAL**

#### **SUMMARY**

This Section includes high-density mobile storage units with carriage-mounted storage units.

#### **PERFORMANCE REQUIREMENTS**

Seismic Performance: Provide mobile storage units capable of withstanding the effects of earthquake motions determined according to the building code in effect for this Project or ASCE 7. "Minimum Design Loads for Buildings and Other Structures," Section 9, "Earthquake Loads," whichever is more stringent.

Design Requirements: Total height of all mobile storage systems shall not be greater than 7 feet, 6 inches, yielding a clear height from top of mobile storage systems to underside of finished ceilings of not less than 1 foot, 6 inches.

ISO Certification: Manufacturer must be ISO 9001 Certified and supply copy of certification with bid.

#### **SUBMITTALS**

Product Data: Include installed weight, load criteria, furnished specialties, and accessories. Product Data: Submit manufacturer's product literature and installation instructions for each type of shelving, track and installation accessory required. Include data substantiating that products to be furnished comply with requirements of the contract documents.

Shop Drawings: Shop drawing shall show detailed fabrication, assembly, and installation of mobile storage unit, as well as procedures and diagrams. Include details of layout and installation including clearances, spacings, and relation to adjacent construction in plan, elevation, and section; clear exit and access aisle widths; access to concealed components; components, assemblies, connections, attachments, reinforcement, and anchorage; and deck details, edge conditions, and finish flooring. Submit shop drawings showing location, ranges and extent of high density storage shelving system. Show installation details at non-standard conditions. Furnish floor layouts, technical and installation manuals for every unit shipment with necessary dimensions for rail layout and system configuration at the project site.

Provide layout, dimensions, and identification of each unit corresponding to sequence of installation and erection procedures. Specifically include the following: Location, position and configuration of tracks on all floors. Plan layouts of positions of carriages, including all required clearances. Details of welded frame shelving, indicating method and configuration of installation in carriages.

Provide location and details of anchorage devices to be embedded in or fastened together construction. Furnish templates if required for accurate placement.

Include schedule and erection procedure for proper installation.

Samples: Of each exposed product and for each color and texture required, at least 3 inches square in size. Selection Samples: For initial selection of colors and textures, submit manufacturer's color charts consisting of actual product pieces, showing full range of colors and textures available.

Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements. Submit manufacturer's certification that products comply with requirements of the contract documents.

Warranty: Submit a written warranty, executed by Contractor, Installer, and Manufacturer, agreeing to repair or replace units which fall in materials or workmanship within the specified warranty period. This warranty shall be in addition to and not a limitation of other rights the State has with the Contractor under Contract Documents. The entire movable compact shelving installation will be warranted against defects in material and workmanship for a period of one (1) year from date of acceptance by the State.

Maintenance Data: Submit operating and maintenance instructions, parts inventory listing, purchase source listing, emergency instructions, and similar information. Submit manufacturer's instructions for proper maintenance materials and procedures. Submit manufacturer's printed instructions for maintenance of installed work, including methods and frequency recommended for maintaining optimum condition under anticipated use conditions include precautions against materials and methods which may be detrimental to finishes and performance.

Reference List: Provide a list of recently installed mobile storage units to be visited by Department personnel. Visit is intended to witness operation and quality of installation. Manufacturer is required to address all issues raised by Department personnel with written responses. Issues unresolved by manufacturer may result in termination of manufacturer at no cost or repercussion to the State.

## **QUALITY ASSURANCE**

Installer Qualifications: Engage an experienced installer who is an authorized representative of the mobile storage unit manufacturer for both installing carriages and anchoring shelving units to carriages required for this Project with not less than 2 years experience installing systems similar to those required for this project, and licensed or certified by mobile storage system manufacturer.

Pre-installation Conference: Conduct pre-installation conference at Project site. Review methods and procedures related to mobile storage units including, but not limited to, the following:

Inspect and discuss condition and levelness of flooring and other preparatory work performed under other contracts.

Review structural loading limitations.

In addition to the Contractor and the installer, arrange for attendance of the following: other installers affected by the work of this section, the Department personnel, and the Manufacturer's representative.

## **PROJECT CONDITIONS**

Field Measurements: Verify mobile storage unit location by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating mobile storage units without field measurements. Coordinate construction to ensure actual dimensions correspond to established dimensions.

Delivery, Storage, & Handling: Comply with instructions and recommendations of manufacturer for special delivery, storage and handling requirements.

Sequence & Scheduling: Sequence storage shelving system installation with other work to minimize possibility of damage and soiling during remainder of construction period.

## **PART 2 – PRODUCTS**

Provide products complying with the requirements of these special provisions and made by one of the following: Spacesaver Systems (800) 698-8990; KI Dealers; WorkSpace Technology, Inc; or equal.

### **TRACK**

Rails shall be designed and manufactured to carry loads of 1,000 lbs per lineal foot of carriage.

Rails shall be designed to be attached over existing wood floor and allow for adjustment so rails can be leveled over an uneven floor.

Rails shall be level with the walking surface (allowable tolerance: vertical change in level of the walking surface including rails shall not exceed ¼".)

All rail connection joints shall be designed to provide horizontal and vertical continuity between rail sections, to gradually transfer the concentrated wheel point load to and from adjoining rail sections.

Rail shall be located and positioned properly, leveled and grouted, allowing at least 1/4" for grout under high point. Grout to be worked under rail, any voids completely filled and trimmed up sides flush with rails. This will allow proper weight distribution from rail to subfloor. (Shims unacceptable.)

Levelness of rails: 3/32" maximum variation from true level within any module; 1/16" maximum variation between adjacent rails, perpendicular to rail direction; 1/32" maximum variation in 10'0" of rail length, along any rail.

Rails to be rechecked for integrity of position and levelness and anchored into structure, using anchors in sizes and quantities as determined by manufacturer.

Main rail section shall be a minimum of 6' each with shorter sections used only to terminate each individual rail assembly.

### **FLOOR / RAMP**

Finished elevation of the raised floor shall be flush with the top of the rails (allowable tolerance: vertical change in level of the walking surface including rails shall not exceed ¼").

The ramp shall provide for wheelchair accessibility in compliance with the alternative provisions of the 2007 California Historical Building Code 8-603.6. Slope shall not exceed 1:6 for a horizontal distance not to exceed 13 inches or 1:10 for a horizontal distance not to exceed 5 feet. The vertical transition from the ramp edge to the floor shall be a maximum of 1/8". Ramps shall extend under all movable and stationary ranges.

Floor panels shall be constructed of a minimum 3/4" thick, 5 ply underlayment grade plywood. The floor and ramp shall be constructed in a manner that will absolutely prevent any warping or deformation of the floor panels in a normal operating environment.

## **CARRIAGES**

All carriages are to be welded steel construction. Galvanized structural components are unacceptable.

Fixed carriages, as shown on the drawing, shall be of same construction and height as the movable carriages and anchored to rails.

Necessary carriage splices shall be bolted type designed to maintain proper unit alignment and weight load distribution.

Carriage straightness shall have no more than 1/4" maximum deviation from a true straight line. There shall be no permanent set or slippage in any spliced or welded joint when exposed to forces encountered in normal operating circumstances.

Carriage construction shall be so designed to allow the shelving uprights to recess and interlock into the carriages a minimum of 3/4". The shelving units will be secured to the carriage frames with vibration proof anchors.

Each carriage shall have two wheels per rail.

Carriages shall be powder coat paint finished (1.5 mil.) inside and out. Color selection by the Engineer to match shelving. Powder coat paint finish is required for finish durability. Galvanized steel structural carriage components are unacceptable.

## **DRIVE / GUIDE SYSTEM**

Drive/guide system shall absolutely prevent carriage whipping, binding and wheel/rail wear under normal operation. All connections between drive shafts shall be by means of secured connections. Drive shaft shall exhibit no play or looseness over the entire length of that assembly. All rotating load bearing members must ride in ball or roller bearings. All line shaft bearings shall be a pillow block or flange self-aligning type. Shafts shall drive wheels or synchronized wheel assemblies.

## **WHEELS**

Wheels shall be constructed of solid steel for smooth operation. Minimum load capacity per wheel 3200 lbs. Each carriage shall have two wheels per rail.

## **FACE PANELS**

All exposed face panels, as shown on drawings, shall have high pressure plastic laminate end panels, with particle board core. Both vertical edges of face panel must have black plastic molding entire height of vertical edges. Colors to be selected from manufacturer's standard colors.

## **SYSTEM OPERATION**

The system shall be of the mechanical assist type having a chain sprocket drive system. A driving system is required to provide uniform movement along the total length of the carriage with unbalanced loads on the carriage. The system shall have a positive drive to ensure that there is no play in the drive handle and that the carriage will stop without drifting. All components of the system shall be compatible for smooth even movement along the total length of the carriage. All components of the system shall be compatible for smooth, non-jerking, even movement along the total length of the carriage. Drive system shall have a gear ratio of 1 lb. of force to 4,000 lbs. of load. All bearings used in the drive mechanism shall be permanently shielded and lubricated.

Provide a waist high lock per module to restrict access to the systems.

Operating handles shall be single or three spoke type with steel spokes, approximately 17" diameter which transmits power through a chain drive to the drive wheels. Provide operating handles on drive end of carriages as noted on drawings.

Each Mechanical Assist carriage to be complete with manual safety locking pin, on all operating ends.

## **SHELVING**

4-Post type (case, clip-type, cantilever not acceptable) wedge locking design.

Closed upright construction, full 24 gauge closure panels welded full depth and height of uprights. All shelves, minimum 22 gauge construction.

Canopy tops, 22 gauge required on all sections.

Shelving material: Minimum gauge shelves: 22. Minimum gauge uprights: 18. Shelf Type: Standard flat profile, with slots. Color: As selected by the Engineer from manufacturer's standards.

Movable shelving shall not exceed 87" high (including carriages base) and shall accommodate six (6) shelves, spaced at 13 ½" on centers along the height of the upright. Depth shall be 18" deep, capable of storing either letter or legal size files. Units must be equipped with a minimum of four (4) pairs of shelf supports for stability.

Stationary Shelving: Same as movable.

All mobile and shelving components must be from same manufacturer, complying with all specifications.

## **PART 3 – EXECUTION**

### **EXAMINATION**

Examine subfloor surfaces, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of mobile storage units.

For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of mobile storage units.

Proceed with installation only after unsatisfactory conditions have been corrected.

Inspect substrates and conditions in which high density storage shelving, tracks and blockouts will be installed and verify that installation may commence. Verify locations of positioning of exits and aisles and overall dimensions of space. Do not proceed with the work until unsatisfactory conditions have been resolved fully.

Preparation: Prior to installation of shelving system, vacuum floor surface to remove dust, debris and loose particles: Verify that components, including size and finish are those specified before installing.

## **INSTALLATION**

Install tracks in accordance with manufacturer's written recommendations. Permanently attach shelving units to carriages. Stabilize shelving units to comply with mobile storage unit manufacturer's written requirements. Reinforce shelving units to withstand the stress of movement where required.

Install mobile storage systems, shelving, track, blockouts, and accessories after finishing operations, including painting have been completed. Install system to comply with final layout drawings, in strict compliance with manufacturer's printed instructions. Position units level, plumb; at proper location relative to adjoining units and related work.

Field Quality Control: Remove and replace components which are shipped, scratched, or otherwise damaged and which do not match adjoining work. Provide new matching units, installed as specified and in manner to eliminate evidence of replacement.

Adjust: Adjust components and accessories to provide smoothly operating, visually acceptable installation.

Cleaning: Immediately upon completion of installation, clean components and surfaces. Remove surplus materials, rubbish and debris resulting from installation upon completion of work and leave areas of installation in neat, clean condition.

Protection: Protect system against damage during remainder of construction period. Advise Department personnel of additional protection needed to ensure that system will be without damage or deterioration at time of substantial completion.

## **INSTALLATION TOLERANCES**

Install tracks parallel and level within 3/32 inch for each length; 1/16 inch between adjacent tracks perpendicular to track direction; and 1/32 inch in 10 feet of track length.

## **DEMONSTRATION**

Provide demonstration and training in operation and routine maintenance to Department personnel.

## **10.06 TOILET ROOM ACCESSORIES**

### **PART 1 - GENERAL**

Scope: This work shall consist of furnishing and installing toilet room accessories in accordance with the details shown on the plans and these special provisions.

### **SUBMITTALS**

Manufacturer's descriptive data and installation instructions and details shall be submitted for approval.

### **PART 2 - PRODUCTS**

Toilet Tissue Dispenser: Toilet tissue dispenser shall be dual roll, semi-recessed, stainless steel with satin finish, approximately 8½" x 5" and shall project from wall surface no more than 3 inches. Dispenser shall utilize standard toilet tissue rolls. The top roll shall automatically drop into place after the bottom roll is depleted. One dispenser per toilet room.

Waste Receptacle: Waste receptacle shall be stainless steel waste receptacle with satin finish, all welded construction and seamless corners. Approximate width: 15 inches. Waste container capacity shall be not less than 6 gallons. Waste container shall have a removable receptacle equipped with liner hooks, reusable vinyl liner, and tumbler lock. One waste receptacle per lavatory.

Soap Dispenser System: Soap dispenser system shall be wall-mounted and shall have gravity feed, plunger type spouts, and a remote stainless steel liquid soap reservoir equipped with soap level indicator, outlet valves, and brass tubing and fittings. Brass tubing and fittings shall be as recommended by the dispenser manufacturer. The stainless steel and chrome plated brass construction soap dispensing mechanisms shall be capable of delivering fixed amounts of liquid soap in lather form. The vandal resistant valves shall project not more than 3½ inches from the wall and shall not be removable from within the restroom.

Toilet Seat Cover Dispenser: Toilet seat cover dispenser shall be stainless steel, lockable dispenser. Approximate dimensions: 15" x 11½" x 2 3/8" deep. One dispenser per toilet stall.

Mirror, Wall Hung: Mirror, wall hung shall be Number 1 quality, ¼ inch thick, electrolytically copper plated float or plate glass mirror with nonmoisture-absorbing filler. Mirror shall have a heavy gage galvanized steel back and stainless steel frame. The frame shall have a satin finish and shall be mitered and welded and the corners shall be ground smooth. Fasteners shall not penetrate surfaces of the frame exposed to view. Mirror shall conform to Federal Specification: DD-M-411b and shall be guaranteed against silver spoilage for not less than 10 years.

Paper Towel Dispenser: Paper tower dispenser shall be satin finish stainless steel, surface mounted, with tumbler lockset and pierced-slot refill indicator. Capacity shall be 400-C fold or 525 multifold.

Grab Bars: Grab bars shall be stainless steel, 1½-inch diameter bars with integral mounting flanges concealed under integral escutcheons.

Underlavatory Guard: Underlavatory guard shall be white antimicrobial molded plastic and shall insulate underlavatory and allow service access without removal.

### **PART 3 - EXECUTION**

Toilet accessories required to be accessible shall be mounted at heights according to CBC Section 1115B.9.

The grab bar cannot project more than 3" into the 48" minimum clear space in front of the water closet 1115B.7.1.3. Consider toilet paper and feminine napkin dispensers located on the grab bar side of an accessible toilet room or stall should not project more than the grab bar. The accessory shall not be located closer than 1-1/2" clear of the tangent point of the grab bar. Accessories surface mounted above grab bar will restrict usability.

Toilet room accessories shall be installed in accordance with the manufacturer's recommendations. Fasteners for mounting toilet room accessories shall be concealed and vandal resistant.

Expansion anchors shall be used for mounting accessories on masonry or concrete walls.

Toilet room accessories shall be mounted after painting work has been completed.

All toilet room accessories shall be mounted plumb, secure and rigid. Grab bars shall be supported adequately so the bars will withstand an applied load of 250 pounds at any point.

## **DIVISION 11. EQUIPMENT**

### **11.01 AUDIO/VISUAL SCREEN**

#### **PART 1 - GENERAL**

##### **SUMMARY**

Scope: This work shall consist of furnishing and installing a manually operated projection screen.

##### **SUBMITTALS**

Product data: Manufacturer's descriptive data and maintenance manual.

Shop drawings: Show layout and type of projection screen. Include the following: Drop lengths, anchorage details and accessories.

##### **DELIVERY, STORAGE AND HANDLING**

Environmental Limitations: Do not deliver or install projection screen until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period. Store rear-projection screen in manufacturer's protective packaging and according to manufacturer's written instructions.

##### **COORDINATION**

Coordinate layout and installation of projection screen with adjacent construction, including ceiling suspension systems, light fixtures, HVAC equipment, partitions and markerboard and rail.

#### **PART 2 - PRODUCTS**

##### **MANUALLY OPERATED PROJECTION SCREENS**

General: Manufacturer's standard spring-roller-operated units, consisting of case, screen, mounting accessories, and other components necessary for a complete installation.

Screen Mounting: Top edge securely anchored to a 3-inch- (75-mm-) diameter, rigid steel roller; bottom edge formed into a pocket holding a tubular metal slat, with ends of slat protected by plastic caps, and with a saddle and pull attached to slat by screws.

Bracket-Mounted, Metal-Encased, Manually Operated Screen: Units designed and fabricated for suspending from wall brackets, fabricated from formed-steel sheet not less than 0.027 inch (0.7 mm) thick or from aluminum extrusions; with vinyl covering or baked-enamel finish and matching end caps. Provide manufacturer's best mounting brackets to provide clearance required at marker board.

Products: Subject to compliance with the requirements of these special provisions, provide one of the following, or an equal product: Da-Lite Screen Company; Model B or Draper Inc.; Luma.

##### **PROJECTION SCREEN MATERIAL**

Matte-White Viewing Surface: Peak gain not less than 0.9, and gain not less than 0.8 at an angle of 50 degrees from the axis of the screen surface.

Mildew-Resistance Rating: 0 or 1 when tested according to ASTM G 21.

Flame-Spread Index: Not greater than 75 when tested according to ASTM E 84.

Seamless Construction: Provide screens, in sizes indicated, without seams.

Edge Treatment: Black masking borders.

Size of Viewing Surface: 57 X 77 or 60 x 80 inches.

Extra Drop Length: Provide extra drop length as needed at top of screen for bottom of screen to be 36 inches above floor. Drop color: Black.

### **PART 3 - EXECUTION**

#### **PROJECTION SCREEN INSTALLATION**

Install projection screen at location indicated to comply with screen manufacturer's written instructions.

Install projection screen with screen case in position and in relation to adjoining construction indicated. Securely anchor to supporting substrate in a manner that produces a smoothly operating screen with vertical edges plumb and viewing surface flat when screen is lowered. Coordinate mounting with markerboard marker tray below.

Test manually operated units to verify that screen-operating components are in optimum functioning condition.

### **DIVISION 12. FURNISHINGS**

#### **12.01 AUDIO-VISUAL VENETIAN BLINDS**

##### **PART 1 - GENERAL**

Scope: This work shall consist of furnishing and installing audio-visual venetian blinds in accordance with the schedule shown on the plans and these special provisions.

Audio-visual venetian blinds shall be standard, factory manufactured assemblies suitable for use on exterior wall windows in audio-visual type meeting rooms.

##### **SUBMITTALS**

Product Data: Manufacturer's descriptive data and installation instructions shall be submitted for approval.

##### **PART 2 - PRODUCTS**

Venetian Blinds:

Venetian blinds shall be nominal 2 inches wide, spring tempered aluminum horizontal slats supported by braided polyester ladders. Slats shall have rout holes and rear notches for effective light sealing. Braided ladders shall hold slats at equal spaces, parallel, straight, and shall provide tilt control and adequate overlap of slats for effective light sealing. The distance between ladders shall not exceed 36 inches. Slat tilt shall be adjustable by a transparent wand. Blinds shall be adjustable to any height using lift cords. Blinds shall be provided with light traps at the head, jambs and sills.

Hardware shall be enclosed in a metal head and the operating hardware shall be clinched to the head. All metal parts shall have a corrosion resistant coating.

### **PART 3 - EXECUTION**

#### **INSTALLATION**

Venetian blinds shall be installed in accordance with the manufacturer's recommendations.

The completed installation shall provide a light shield without excessive light leaks.

### **12.02 BLACKOUT SHADES**

#### **PART 1 - GENERAL**

Scope: This work shall consist of furnishing and installing manually operated, roll-up fabric opaque window shade system for complete blackout of window opening including side and bottom channels, headbox, opacity plates and mounting hardware in accordance with the schedule shown on the plans and these special provisions.

Blackout shades shall be standard, factory manufactured assemblies suitable for use on exterior wall windows.

#### **SUBMITTALS**

Product Data: Manufacturer's descriptive data and installation instructions shall be submitted for approval.

Samples for Verification: Complete, full-size operating unit not less than 16" wide; shade material not less than 6" square; and valance not less than 12" long.

Product Test Report: Include information stating the amount of UV blockage

#### **PART 2 - PRODUCTS**

Blackout shades type shall be bead chain and clutch operated, vertical roll-up, fabric, opaque window shade system.

Blackout shades shall be designed for eliminating all visible light gaps when shades are fully closed; fabricated from blackout shade band material with headbox and bottom bar extended and formed for tight-fitting joints among shade components and between shade components and adjacent construction.

Roller shall be electrogalvanized or epoxy primed steel or extruded-aluminum tube of diameter and wall thickness required to support operating system and weight of shade band material without sagging. Direction of roll shall be standard, from back of roller.

Side channels and perimeter seals shall be manufacturer's standard design for eliminating light gaps when shades are closed.

#### **PART 3 - EXECUTION**

Install roller shades level, plumb, and aligned according manufacturer's installation instructions. Allow clearances for window operating hardware.

Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operating range.

**DIVISION 13. (BLANK)**

**DIVISION 14. (BLANK)**

**DIVISION 15. MECHANICAL**

**15.01 MECHANICAL WORK**

**PART 1 - GENERAL**

Scope: This work shall consist of performing mechanical work in accordance with the details shown on the plans and these special provisions.

Mechanical work shall include furnishing all labor, materials, equipment and services required for providing heating, ventilating, air conditioning, and plumbing.

Earthwork, foundations, sheet metal, painting, electrical, and such other work incidental and necessary to the proper installation and operation of the mechanical work shall be in accordance with the requirements specified for similar type work elsewhere in these special provisions.

System layouts are generally diagrammatic and location of equipment is approximate. Exact routing of pipes, ducts, etc., and location of equipment is to be governed by structural conditions and obstructions. Equipment requiring maintenance and inspection is to be readily accessible.

Roof penetrations shall be flashed and sealed watertight in accordance with the requirements specified under "Sheet Metal Flashing" in Division 7, "Thermal and Moisture Protection," of these special provisions.

**SUBMITTALS**

Product Data:

A list of materials and equipment to be installed, manufacturer's descriptive data, and such other data as may be requested by the Engineer shall be submitted for approval.

Manufacturer's descriptive data shall include complete description, performance data and installation instructions for the materials and equipment specified herein. Control and wiring diagrams, rough-in dimensions for plumbing fixtures, and component layout shall be included where applicable.

Manufacturer's descriptive data shall be submitted for the following:

Split System Heat Pump  
Dehumidifier  
Humidifier

**CLOSEOUT SUBMITTALS**

Operation and Maintenance Manuals:

Prior to the completion of the contract, 3 identified copies of the operation and maintenance instructions with parts lists for the equipment specified herein shall be delivered to the Engineer at the jobsite. The instructions and parts lists shall be indexed and bound in a manual form and shall be complete and adequate for the equipment installed. Inadequate or incomplete material shall be returned. The Contractor shall resubmit adequate and complete manuals at no expense to the State.

Operation and maintenance manuals shall be submitted for the following equipment:

Split System Heat Pump  
Exhaust Fans  
Dehumidifier  
Humidifier  
Controls

## **QUALITY ASSURANCE**

Codes and Standards: Mechanical work, including equipment, materials and installation, shall conform to the CBC,CMC, and to the California Code of Regulations, Title 8, Chapter 4, Division of Industrial Safety (DIS).

## **WARRANTY**

Warranties and Guarantees: Manufacturer's warranties and guarantees for materials or equipment used in the work shall be delivered to the Engineer at the jobsite prior to acceptance of the contract.

## **SYSTEM IDENTIFICATION**

Piping, Ducts, Valves and Equipment:

Identification of piping, ducts, valves and equipment shall be as shown on the plans or these special provisions:

Above Ground Piping and Ducts: Markers shall be provided on lines which are either exposed or concealed in accessible spaces. For piping systems, except drain and vent lines, indicate the fluid conveyed or its abbreviation; either by preprinted markers or stenciled markings, and include arrows to show the direction of flow. Colors shall comply with ANSI Standard: A13.1. Locate markers at ends of lines, near major branches and other interruptions including equipment in the line, where lines pass through penetrations in floors, walls or ceilings or otherwise pass into inaccessible spaces, and at 50-foot maximum intervals along exposed portions of the lines. Marking of short branches and repetitive branches for equipment connections is not required.

Valves: Valve tags shall be provided on all valves of each piping system, excluding check valves, valves within equipment, faucets, stops and shut-off valves at fixtures and other repetitive terminal units. Provide brass or plastic laminate tags. Prepare and submit a tagged valve schedule, listing each valve by tag number, location and piping service. Valve schedule shall be mounted in a glazed frame at a location approved by the Engineer.

Equipment: All equipment shall be identified with a plastic laminated, engraved nameplate, which bears the unit mark number as indicated on the drawings (for example, AC-4). Provide ½-inch high lettering, white on black background. Nameplates shall be permanently secured to the unit.

## **PART 2 – PRODUCTS (Not applicable)**

## **PART 3 – EXECUTION (Not applicable)**

### **15.02 PIPE, FITTINGS AND VALVES**

#### **PART 1 - GENERAL**

## **SUMMARY**

Scope: This work shall consist of furnishing and installing pipes, fittings and valves in accordance with the details shown on the plans and these special provisions. Pipe, fittings and valves shall include such plumbing and piping accessories and appurtenances, not mentioned, that are required for the proper installation and operation of the plumbing and piping systems.

All piping insulation and associated material shall be in accordance with the requirements specified under "Mechanical Insulation," elsewhere in this Division 15.

The pipe sizes shown on the plans are nominal inside diameter. No change in the pipe size shown on the plans shall be permitted without written permission from the Engineer.

The pipe and fitting classes and material descriptions shall be as specified herein. No change in class or description shall be permitted without written permission from the Engineer.

## **QUALITY ASSURANCE**

Codes and Standards: Pipe, fittings and valves shall be installed in accordance with the requirements in the CPC, the manufacturer's recommendations and the requirements specified herein.

## **PART 2 - PRODUCTS**

### **MATERIALS**

#### **PIPE AND FITTINGS (Class and Description)**

A1: Schedule 40 galvanized steel pipe conforming to ASTM Designation: A 53, with 150 psi galvanized malleable iron banded screwed fittings and galvanized steel couplings. The weight of the zinc coating shall be not less than 90 percent of that specified in ASTM Designation: A 53.

A2: Schedule 40 galvanized steel pipe conforming to ASTM Designation: A 53, with black cast iron recessed drainage fittings. For rainwater leaders, neoprene-gasket compression couplings, Smith Blair, Dresser, or equal, may be used. The weight of the zinc coating shall be not less than 90 percent of that specified in ASTM Designation: A 53.

C1: Hub and plain end cast iron soil pipe with neoprene gaskets conforming to Cast Iron Soil Pipe Institute's Standard 301. Pipe, fittings and gaskets shall be of one manufacturer.

C2: Hubless cast iron soil pipe with neoprene gaskets, corrugated stainless steel shields and stainless steel clamps conforming to Cast Iron Soil Pipe Institute's Standard 301. Joint materials shall be furnished by pipe manufacturer.

H1: Type DWV hard copper tubing conforming to ASTM Designation: B 306, with DWV drainage fittings, stop type couplings and threaded adapters.

H3: Type L hard copper tubing conforming to ASTM Designation: B 88, with wrought copper or cast bronze solder joint pressure fittings, stop type couplings and threaded adapters. Solder shall be lead-free.

J1: Vitrified clay sewer pipe and fittings conforming to ASTM Designation: C 700, with resilient cold joint ends; hot pour joint ends; or hubless type with neoprene gaskets, stainless steel clamps and hexagon head bolts. Cold joints shall conform to ASTM Designation: C 425, Type 1 and shall be made with interlocking, resilient, mechanical compression joint, formed on pipe at factory. When clay pipe is to join cast iron soil pipe, joints shall be made between bell end of clay pipe and spigot end of cast iron soil pipe using gasket and bitumastic joint compound as specified for hot pour joints.

Unions (for Steel Pipe): Unions (for steel pipe) shall be 250 psi, threaded malleable iron, ground joint, brass to iron seat, galvanized or black to match piping.

Unions (for Copper or Brass Pipe): Unions (for copper or brass pipe) shall be 150 psi cast bronze, ground joint, bronze to bronze seat with silver brazing threadless ends or 125 psi cast brass, ground joint, brass to brass seat with threaded ends.

Unions (for Brass Waste and Flush Pipes): Unions (for brass waste and flush pipes) shall be slip or flange joint unions with soft rubber or leather gaskets. Unions shall be placed on the fixture side of the traps.

Dielectric Waterway: Dielectric waterway shall be a premanufactured unit that incorporates an insulated interior lining at least 3 inches in length between the 2 pipes being connected while maintaining metal to metal contact on the exterior surface. Dielectric water way shall be listed by IAPMO (International Association of Plumbing and Mechanical Officials).

Insulating Union: Insulating union or flange as applicable shall be suitable for the service on which used. Connections shall be constructed such that the 2 pipes being connected are completely insulated from each other with no metal to metal contact. Insulating couplings shall not be used. Insulating union shall be F. H. Maloney; Central Plastics; EPCO; or equal.

Insulating Connection (to Hot Water Tanks): Insulating connection (to hot water tanks) shall be 6-inch minimum, flexible copper tubing with dielectric union at each end and designed to withstand a pressure of 150 psi and a temperature of 200°F.

## **VALVES**

Ball Valve: Ball valve shall be two piece, minimum 400 psi WOG, bronze body and chrome plated or brass ball with full size port. Valve shall be Nibco Scott, T-580; Watts, B-6000; Kitz, 56; or equal.

Check Valve (1½-inch and smaller): Check valve (1½-inch and smaller) shall be silent spring loaded type, threaded bronze body, nylon or teflon disc, beryllium or stainless steel helical spring and shaft, Class 125 and same size as pipe in which installed. Check valve shall be Nibco/Scott, T-480; CPV, 36; Kitz, 26; or equal.

## **CLEANOUTS**

Cleanout Through Wall: Cleanout through wall shall be cast iron cleanout tee type with polished stainless access plates. Plug shall be countersunk brass or bronze with tapered threads. Cleanout shall be Wade, No. W-8460; Smith, No. 4532; Zurn, No. 1445; or equal.

Cleanout Through Floor:

Cleanout through floor shall have nonslip scoriated nickel bronze access plate and adjustable frame with square pattern top for ceramic tile and round pattern top for other finishes. Where floors are constructed with a membrane, access frame shall be provided with membrane clamping flange. Plug shall be countersunk brass or bronze with tapered threads. Cleanout shall be Wade, W-7000 Series; Smith, 4023 Series; Zurn, No. 1400; or equal.

Cleanout through floors in exterior locations shall be heavy duty, floating pipe type with cast iron cover. Cleanouts shall be Wade, No. W-8300-HF; Smith, No. 4253; Zurn, No. 1474; or equal.

Cleanout to Grade: Cleanout to grade shall be cast iron ferrule type. Plug shall be countersunk brass or bronze with tapered threads. Cleanout to grade shall be Wade, No. W-8450; Smith, 4420; Zurn, No 1440; or equal.

**MISCELLANEOUS ITEMS**

Compression Stop (Exposed): Compression stop (exposed) shall be metal full free waterway, angle type, ground joint union, non-rising stem, molded rubber seat and wheel handle.

Pipe Hanger (for piping supported from overhead): Pipe hanger (for piping supported from overhead) shall be Grinnell, Model 269; Super Struct, C711; or equal.

Pipe Wrapping Tape and Primer:

Pipe wrapping tape shall be pressure sensitive polyvinyl chloride or pressure sensitive polyethylene tape having nominal thickness of 20 mils. Wrapping tape shall be Polyken, 922; Manville, Trantex VID-20; Scotchrap, 51; or equal.

Pipe wrapping primer shall be compatible with the pipe wrapping tape used.

Floor, Wall, and Ceiling Plates: Floor, wall, and ceiling plates shall be chromium plated steel or plastic plates having screw or spring clamping devices and concealed hinges. Plates shall be sized to completely cover the hole.

**PART 3 - EXECUTION**

**INSTALLATION**

**INSTALLATION OF PIPES AND FITTINGS**

Pipe and Fittings: Pipe and fittings shall be installed in accordance with the following designated uses:

Designated Use	Pipe and Fitting Class
Domestic water (CW and HW) in buildings	H3 or A1
Sanitary drain piping above ground in building	H1, C1, or C2
Sanitary drain and vent piping underground within 5 feet of the building	J1, C1 or C2
Sanitary vent piping above ground in building	A2, H1, C1, or C2
Equipment drains and relief valve discharge	H3 or A1

Installing Piping:

Water piping shall be installed generally level, free of traps and bends, and arranged to conform to the building requirements.

Vitrified clay pipe shall be installed in accordance with ASTM Designation: C 12, Class C.

Piping installed underground shall be tested as specified elsewhere in these special provisions before backfilling.

Public use areas, offices, rest rooms, locker rooms, crew rooms, training rooms, storage rooms in office areas, hallway type rooms, and similar type use areas shall have concealed piping.

Warehouse rooms, equipment bays, and loft areas shall have exposed piping.

Piping shall not be run in floor fill, except as shown on the plans.

Piping shall be installed parallel to walls. All obstructions shall be cleared, headroom preserved and openings and passageways kept clear whether shown or not. Piping shall not interfere with other work.

Where pipes pass through exterior walls, a clear space around pipe shall be provided. Space shall be caulked water tight with silicone caulk.

Underground copper pipe shall have brazed joints. Underground plastic pipe shall be buried with No. 14 solid bare copper wire. Wire ends at pipe ends shall be brought up 8 inches and looped around pipe.

Exposed supply and drain piping in rest rooms shall be chrome finished.

Forty-five degree bends shall be used where offsets are required in venting. Vent pipe headers shall be sloped to eliminate any water or condensation.

Vent piping shall extend a minimum of 8 inches above the roof.

Horizontal sanitary sewer pipe inside buildings shall be installed on a uniform grade of not less than ¼ inch per foot unless shown otherwise on the plans.

Drainage pipe shall be run as straight as possible and shall have easy bends with long turns.

Wye fittings and 1/8 or 1/16 bends shall be used where possible. Long sweep bends and combination Wye and 1/8 bends may be used only for the connection of branch pipes to fixtures and on vertical runs of pipe.

#### Pipe Sleeves:

The Contractor shall provide sleeves, inserts and openings necessary for the installation of pipe, fittings and valves. Damage to surrounding surfaces shall be patched to match existing.

PVC pipe sleeves shall be provided where each pipe passes through concrete floors, footings, walls or ceilings. Inside diameter of sleeves shall be at least ¾ inch larger than outside diameter of pipe. Sleeves shall be installed to provide at least 3/8-inch space all around pipe the full depth of concrete. Space between pipes and pipe sleeves shall be caulked watertight.

**Cutting Pipe:** Pipe shall be cut straight and true and the ends shall be reamed to the full inside diameter of the pipe after cutting.

**Damaged Pipe:** Pipe that is cracked, bent or otherwise damaged shall be removed from the work.

#### Pipe Joints and Connections:

Joints in threaded steel pipe shall be made with teflon tape or a pipe joint compound that is nonhardening and noncorrosive, placed on the pipe and not in the fittings.

The use of thread cement or caulking on threaded joints will not be permitted. Threaded joints shall be made tight. Long screw or other packed joints will not be permitted. Any leaky joints shall be remade with new material.

Exposed polished or enameled connections to fixtures or equipment shall be made with special care, showing no tool marks or threads.

**Cleaning and Closing Pipe:** The interior of all pipe shall be cleaned before installation. All openings shall be capped or plugged as soon as the pipe is installed to prevent the entrance of any materials. The caps or plugs shall remain in place until their removal is necessary for completion of the installation.

Securing Pipe: Pipe in the buildings shall be held in place by iron hangers, supports, pipe rests, anchors, sway braces, guides or other special hangers. Material for hangers and supports shall be compatible with the piping or neoprene isolators shall be used. Allowances shall be made for expansion and contraction. Steel pipe shall have hangers or supports every 10 feet. Copper pipe one inch or less in diameter shall have hangers or supports every 6 feet and sizes larger than one inch shall have hangers or supports every 10 feet. Plastic pipe shall have hangers or supports every 3 feet. Cast iron soil pipe with neoprene gaskets shall be supported at each joint. Vertical pipes shall be supported with clamps or straps. Horizontal and vertical piping shall be securely supported and braced to prevent swaying, sagging or flexing of joints.

Hangers and Supports:

Hangers and supports shall be selected to withstand all conditions of loading to which the piping and associated equipment may be subjected and within the manufacturer's load ratings. Hangers and supports shall be spaced and distributed so as to avoid load concentrations and to minimize the loading effect on the building structure.

Hangers and supports shall be sized to fit the outside diameter of pipe or pipe insulation. Hangers shall be removable from around pipe and shall have provisions for vertical adjustment after erection. Turnbuckles may be used.

Materials for holding pipe in place shall be compatible with piping material.

Hanger rods shall be provided with locknuts at all threaded connections. Hanger rods shall be sized as follows:

Pipe Size	Minimum Hanger Rod Diameter
1/2" to 2"	3/8"
2 1/2" to 3 1/2"	1/2"
4" to 5"	5/8"

Wrapping and Coating Steel Pipe:

Steel pipe buried in the ground shall be wrapped or shall be plastic coated as specified herein:

1. Wrapped steel pipe shall be thoroughly cleaned and primed as recommended by the tape manufacturer.
2. Tapes shall be tightly applied with 1/2 uniform lap, free from wrinkles and voids with approved wrapping machines and experienced operators to provide not less than 40-mil thickness.
3. Plastic coating on steel pipe shall be factory applied. Coating imperfections and damage shall be repaired to the satisfaction of the Engineer.
4. Field joints, fittings and valves for wrapped and plastic coated steel pipe shall be covered to provide continuous protection by puttying and double wrapping with 20-mil thick tape. Wrapping at joints shall extend a minimum of 6 inches over the adjacent pipe covering. Width of tape for wrapping fittings shall not exceed 2 inches. Adequate tension shall be applied so tape will conform closely to contours of fittings. Putty tape insulation compounds approved by the Engineer shall be used to fill voids and provide a smooth even surface for the application of the tape wrap.

Wrapped or coated pipe, fittings, and field joints shall be approved by the Engineer after assembly. Piping shall be placed on temporary blocks to allow for inspection. Deficiencies shall be repaired to the satisfaction of the Engineer before backfilling or closing in.

Union: Unions shall be installed where shown and at each threaded or soldered connection to equipment and tanks. Unions shall be located so piping can be easily disconnected for removal of equipment or tanks. Unions shall be omitted at compression stops.

Dielectric Waterway: Dielectric waterway shall be provided between metal pipes of different material, and between brass or bronze valves and steel piping.

Insulating Union and Insulating Connection:

Insulating union and insulating connection shall be provided where shown and at the following locations:

1. In metallic water, gas and air service connections into each. Insulating connections shall be installed on the exterior of the building, above ground and after shut-off valve.
2. In water, gas and air service connections in ground at point where new metallic pipes connect to existing metallic pipes. Install valve box above insulating connection.
3. At points of connections of copper or steel water pipes to steel domestic water heaters and tanks.

Bonding at Insulating Connections: Interior water piping and other interior piping that may be electrically energized and are connected with insulating connections shall be bonded in accordance with the CEC. Bonding shall all be coordinated with electrical work.

Compression Stop: Each fixture, including hose faucets, shall be equipped with a compression stop installed on water supply pipes to permit repairs without shutting off water mains. Ball valves may be installed where shown on the plans or otherwise permitted by the Engineer.

## **INSTALLATION OF CLEANOUTS**

Cleanouts:

A concrete pad 18 inches long and 4 inches thick shall be placed across the full width of trench under cleanout Wye or 1/8 bend. Cast iron soil pipe (C1 or C2) and fittings shall be used from Wye to surface. Required clearance around cleanouts shall be maintained.

Cleanout risers outside of a building installed in a surface other than concrete shall terminate in a cleanout to grade. Cleanout to grade shall terminate in a valve box with cover marked "CO-SS". Top of box shall be set flush with finished grade. Cleanout plug shall be 4 inches below grade and shall be located in the box to provide sufficient room for rodding.

Cleanout risers installed in tile and concrete floors, including building aprons and sidewalks, shall terminate in a cleanout through floor.

Flushing Completed Systems: All completed systems shall be flushed and blown out.

Chlorination:

The Contractor shall flush and chlorinate all domestic water piping and fixtures.

Calcium hypochlorite granules or tablets, if used, shall not be applied in the dry form, but shall first be dissolved into a solution before application.

The Contractor shall take adequate precautions in handling chlorine so as not to endanger workmen or damage materials. All pipes and fittings shall be completely filled with water containing a minimum of 50 ppm available chlorine. Each outlet in the system shall be opened and water run to waste until a strong chlorine test is obtained. The line shall then be closed and the chlorine solution allowed to remain in the system for a minimum of 24 hours so

that the line shall contain no less than 25 ppm chlorine throughout. After the retention period, the system shall be drained, flushed and refilled with fresh water.

### FIELD QUALITY CONTROL

#### Testing:

The Contractor shall test piping at completion of roughing in, before backfilling, and at other times as directed by the Engineer.

The system shall be tested as a single unit, or in sections as approved by the Engineer. The Contractor shall furnish necessary materials, test pumps, instruments and labor and notify the Engineer at least 3 working days in advance of testing. After testing, the Contractor shall repair all leaks and retest to determine that leaks have been stopped. Surplus water shall be disposed of after testing as directed by the Engineer.

The Contractor shall take precautions to prevent joints from drawing while pipes and appurtenances are being tested. The Contractor shall repair damage to pipes and appurtenances or to other structures resulting from or caused by tests.

#### General Tests:

All piping shall be tested after assembly and prior to backfill, pipe wrapping, connecting fixtures, wrapping joints and covering the pipe. Systems shall show no loss in pressure or visible leaks.

The Contractor shall test systems according to the following schedule for a period of not less than 4 hours:

Test Schedule		
Piping System	Test Pressure	Test Media
Sanitary sewer and vent	10-foot head	Water
Water	125 psig	Water

During testing of water systems, valves shall be closed and pipeline filled with water. Provisions shall be made for release of air.

Sanitary sewers shall be cleared of obstructions before testing for leakage. The pipe shall be proved clear of obstructions by pulling an appropriate size inflatable plug through the pipe. The plug shall be moved slowly through the pipe with a tag line. The Contractor shall remove or repair any obstructions or irregularities.

Sanitary sewer pipes beyond 5 feet perpendicular to the building shall be tested for leakage for a period of not less than 4 hours by filling with water to an elevation of 4 feet above average invert of sewer or to top of manholes where less than 4 feet deep. The system shall show no visible leaks. The sewer may be tested in sections with testing water progressively passed down the sewer as feasible. Water shall be released at a rate that will not create water hammer or surge in plugged sections of sewer.

### 15.03 MECHANICAL INSULATION

## **PART 1 - GENERAL**

### **SUMMARY**

Scope: This work shall consist of furnishing and installing mechanical insulation in accordance with the details shown on the plans and these special provisions.

Piping insulation shall be installed on all domestic hot water piping, above grade, in non-conditioned spaces.

Piping insulation shall be installed on all hydronic supply and return piping, above and below grade unless shown otherwise on the plans.

P-trap, hot water supply pipes and angle valves for lavatories and sinks, except in janitor closets or similar enclosed spaces, shall be insulated.

Duct insulation shall be installed on all rigid ductwork installed in concealed non-conditioned spaces.

Duct liner shall be installed in all rectangular ductwork installed in exposed non-conditioned spaces and in exterior locations. Plenum liner shall be installed in all plenums in non-conditioned spaces or in walls facing a non-conditioned space.

### **QUALITY ASSURANCE**

Codes and Standards:

Mechanical insulation shall conform to California State Energy Commission regulations and, where applicable, shall meet American Society of Testing and Materials (ASTM) standards.

All materials shall bear the label of the Underwriters Laboratory (UL) or other approved testing laboratory indicating that the materials proposed for use conform to the required fire hazard ratings.

Pipe safety insulation shall conform to Section 1504(b) of the CPC.

## **PART 2 - PRODUCTS**

### **MATERIAL**

All pipe insulation and wrapping material, including adhesives and jackets, located within buildings shall be certified to have a composite flame spread rating of not more than 25 and smoke development rating of not more than 450 when tested in accordance with ASTM Designation: E 84.

Duct insulation and wrapping material, including adhesives and jackets, located within buildings shall be certified to have a composite flame spread of not more than 25 and smoke development rating of not more than 50 when tested in accordance with ASTM Designation: E 84.

Domestic Water and Interior Hydronic Piping Insulation: Piping insulation shall be glass fiber molded pipe insulation with factory applied jacket suitable for service temperatures up to 350°F. Covering jacket shall have pressure sealing lap adhesive joints. Pipe insulation shall have a minimum thermal resistance of R-3. Insulation and jackets shall be Owens-Corning, Fiberglass 25 with ASJ/SSL All Service Jacket; Manville, Micro-Lok 650ML with AP-T All Purpose Jacket; or equal.

Piping Insulation Cement: Insulation cement shall be Fenco, All Purpose Cement; Manville, JM375; or equal.

Exterior and In Ground Hydronic Piping Insulation: Piping insulation shall be polyurethane foam insulation with a service temperature range of 32°F to 250°F. A 6-mil vapor barrier shall be applied over the top off the insulation. The vapor barrier shall be installed with an adhesive as recommended by the manufacturer.

PVC Jacket: PCV jacket shall be rated for a service temperature of 175°F. PVC jacket shall include covers specifically designed to cover pipe fittings.

Alternative Pipe Insulation: Alternative pipe insulation shall be closed cell, elastomeric material in a flexible tubular form. Insulation shall have a service temperature range between -40°F and 200°F, a minimum vapor transmission rating of 0.20 perm-inch, and a minimum thermal resistance of R-3.

Pipe Safety Insulation: Pipe safety insulation for P-traps, hot water supply pipes and angle valves shall be molded closed cell vinyl or closed cell foam with exterior vinyl surface. Pipe safety insulation shall be configured to protect against contact. Pipe safety insulation shall be Truebro Inc., Handi Lav-guard; Plumberex Specialty Products, Handy Shield; or equal.

External Duct Insulation: External duct insulation shall be 1½ inch thick, one-pound density glass-fiber blanket type. Material and coatings shall be fire resistive and shall be approved by the State Fire Marshal. External duct insulation shall be Fiberglas, Type PF-336; Ultralite, No. 100; Pittsburgh Plate Glass, Superfine; Johns-Manville, Microlite; Silvercote, Silvercel; or equal.

Plenum and Duct Liner: Plenum and duct liner shall be one-inch minimum thickness. Material and coatings shall be fire resistive and shall be approved by the State Fire Marshal. Liner shall be Gustin-Bacon, Ultra-Liner duct insulation; Owens-Corning Fiberglas, Type CE; Gustin-Bacon, coated insulation Board No. 90-A; Owens-Corning Fiberglas 1½-pound density coated flexible duct liner; Johns-Manville, MicroBar, or 1½-pound density coated Microlite; Pittsburgh Plate Glass, Superfine 1½-pound density coated interior duct insulation; or equal.

Adhesive: Adhesive shall be non-flammable type: Benjamin Foster Company, No. 85-20 Spark Safe; Goodloe E. Moore Company, Tuff Bond No. 6; Permacel, No. PA-310; 3M, No. 38 Insulation Adhesive; Swift's, No. 7228 brush type or No. 7336 spray type; Chicago Mastic, 17-461; or equal.

Insulation Inserts: Insulation inserts at pipe hangers supports for pipes 2 inches or larger shall be calcium silicate, cellular glass, or other acceptable material of the same thickness as the adjacent insulation and not less than 13-pound density.

## **PART 3 - EXECUTION**

### **INSTALLATION**

Insulation materials shall be neatly installed with smooth and even surfaces, jackets drawn tight and smoothly cemented down.

Insulation material shall not be installed until all pipes or surfaces to be covered are tested for leaks, cleaned and dried, and foreign materials, such as rust, have been removed.

Piping Insulation:

Piping insulation shall be in accordance with the following, except that unions, unless integral with valves, and flexible connections shall not be insulated:

1. Where insulation butts against flanges or is discontinued, insulation shall be tapered to pipe to allow for covering jacket to completely seal off end of insulation.

Insulation shall be extended on the valve bodies up to the valve bonnet.

Extend insulation continuous through pipe hangers and pipe sleeves. At hangers where pipe is supported, provide an insulated protection shield.

Insulating cement shall be applied to fittings, valves, and strainers and troweled smooth to thickness of adjacent covering. Strainer cleanout plugs shall remain accessible. Covers fabricated from molded pipe covering may be used in lieu of cement, provided covers are neat and well secured.

2. Jacket flap shall be sealed down with factory applied self-sealing lap. Seams shall be lapped not less than 1½ inches. Jacket shall be secured with aluminum bands installed at 12-inch centers.
3. Exposed outdoor insulation shall have an additional 0.016-inch minimum thickness aluminum jacket applied over the completed insulation. The jacket shall have a factory applied moisture barrier and shall be Childers; Smith; or equal.

End joints shall be lapped with aluminum holding traps located directly over the lap. Additional aluminum holding straps shall be placed at 8-inch centers. Jacket at ells and tees shall be mitered, or premanufactured fitting jackets shall be provided, with additional aluminum holding bands, as required. All joints shall be sealed watertight using silicon type, heat resistant sealant.

4. In-ground insulation shall have an additional PVC jacket applied over the completed insulation and vapor barrier. PVC jacket shall be made watertight with adhesive or sealant as recommended by the PVC jacket manufacturer.

Alternate pipe insulation, where used, shall be installed on hot water piping before connections are made or the insulation may be slit lengthwise, applied to pipe and sealed with adhesive.

Pipe Safety Insulation: Pipe safety insulation shall be installed in accordance with the manufacturer's recommendations.

Duct Insulation:

Ragged edges shall be repaired or taped. Coverings shall be neatly finished at joints and edges. Each joint shall have a 2-inch minimum lap.

Where transitions are made between externally covered ducts and lined ducts, the lined duct shall be overlapped 8 inches with external covering.

Insulation shall be flush with but not cover control devices, damper controls or access doors.

Before insulation is wrapped around concealed ducts, an adhesive shall be spot applied at a maximum of 4-inch centers on each side of the ducts to prevent sagging of the insulation. Insulation shall be wrapped entirely around the ducts and shall be wired securely in place with No. 16 copper clad wire, metal bands at least ½ inch wide or plastic ties. Supports shall be spaced a maximum of 12 inches on center. Metal bands shall be installed with the use of a banding machine. Seams in the insulation shall be taped.

The finished insulation covering shall be even and level and shall not contain humps.

Plenum and Duct Liner:

Plenums and exposed ducts shall be lined with plenum and duct liner. Plenums and ducts shall be sized to provide the clear inside dimensions shown on plans after the liner is installed.

The insulation shall be applied with coated side exposed to air stream to prevent surface erosion.

The lining shall be fastened in place with adhesive and with studs with washers spaced a maximum of 18 inches on center each way.

Applying Adhesive: The adhesive shall be liberally applied over entire interior surfaces of ducts or plenums.

3. Pneumatic Driven Type Studs: At locations where pneumatic driven type studs are used, hardened steel backup plates or dollies shall be used under the sheet metal.

## 15.04 PLUMBING FIXTURES

### PART 1 - GENERAL

#### SUMMARY

Scope: This work shall consist of furnishing and installing plumbing fixtures in accordance with the details shown on the plans and these special provisions.

### PART 2 - PRODUCTS

General: Plumbing fixtures shall be white in color and shall meet the following requirements:

Water Closet (Accessible, 1.6 gallons per flush, Floor Mounted with Tank): Accessible water closet shall be 1.6 gallons per flush maximum, vitreous china, siphonable jet, 16-inch to 17½-inch high elongated bowl, close coupled tank, floor mounted, with solid plastic open front elongated seat with check hinges. Water closet shall meet or exceed Americans with Disabilities Accessibility Act Guidelines (ADAAG) and ANSI Standards: A117.1 and A112.19.2. Closet and accessories shall be of the following types or equal:

	American Standard	Crane	Universal Rundle
Closet	"Cadet 17 EL1.6/PA" 2168.100 or 4086.800	"Hymont" 3-154E or 3-152 with 3-655	"Atlas 1.5" UR 4078-341 or UR 4078-342
Seat	Church 5321.070	Olsonite 95	Benke 527

Lavatory (Wall-mounted): Lavatory shall be vitreous china, with back, integral perforated grid drain, drilled for 4-inch centers, size 20" x 18", with single extra long lever mixing faucet and chair carrier with concealed arms. Lavatory shall be equipped with temperature controls to limit the hot water supply to 110°F. Lavatory shall be equipped with a flow limiting device that limits the flow rate of hot water to no more than 0.5 GPM. Lavatory and accessories shall be of the following types or equal:

	Eljer	Crane	Kohler
Lavatory	"Lucerne" 0355.012	"Norwich" 1-194-V	"Greenwich" K-2032
Drain	--	C-1065-G or Moen 52659	K-7715
Supplies	Brass Craft FR1711C	C-1151 or Moen 52664	K-7605
Faucet	2385.130	Moen 8400	K-15592-5
Trap	1¼-inch chromium plated brass exposed bent tube adjustable 17-gage minimum thickness.		
Carrier	Concealed wall mounted carrier with leveling screws and locking devices; Zurn, J.R. Smith, Josam, Wade, Jonespec, or equal.		

Mop Sink: Mop sink shall be acid resisting enameled cast iron, 24" x 24" outside dimensions, 3-inch trap, vinyl coated rim guard, vacuum breaker faucet with hose and wall hook. Sink and accessories shall be of the following types or equal:

	American Standard	Eljer	Kohler
Mop sink	"Florwell" 7740.020	"Custodial" 242-0050	"Whitby" K-6710
Strainer	7721.038	803-0630	K-9146
Faucet	8344.111	749-1450	K-8928

Water Heater (Electric):

Water heater shall be minimum capacity as shown on plans, designed for minimum 125 psig, interlocking (non-simultaneous) or single element, glass lined, and equipped with magnesium anodes, cold water drop tube, high temperature energy shut-off device, valved drain, high density R-8 minimum foam insulation and finished with a steel jacket with baked enamel finish. Water heater shall meet the requirements of the California Energy Commission.

Water heater shall be equipped with an ASME labeled, tank mounted, pressure and temperature relief valve sized for maximum input.

### **PART 3 - EXECUTION**

#### **INSTALLATION**

Accessible plumbing fixtures shall comply with all of the requirements of CBC Section 1115B. Fixture controls shall comply with CBC Section 1118B.

All finish for exposed metal on any fixture, including wall flanges, bolts, nuts and washer, shall be polished chrome plated.

Fixtures shall be sealed to wall or floor with silicone caulk bead.

All exposed metal surfaces on fixture supports shall be enameled to harmonize with fixtures.

Wall mounted fixtures shall be installed on concealed chair carriers designed to support weight of fixture from the floor, made for the specific fixture to be supported and for the particular installation conditions.

All fixtures, including showers, shall be provided with accessible metal stop valves.

Hot water supply, trap and tailpiece on lavatories shall be wrapped with insulating material.

Flush valves for fixtures designated on the plans as disabled accessible shall be installed so that the valve handle is on the widest side of the toilet space.

### **FIXTURE MOUNTING HEIGHTS**

Heights and location of all fixtures shall be according to CBC Table 1115B-1.

Unless otherwise noted, fixtures shall be mounted at the heights shown on the plans.

Service Sink: Service sink double faucet shall be mounted on wall above sink back with spout outlet face 16 inches above service sink rim.

Mop Sink: Mop sink double faucet shall be mounted on wall above sink back with spout outlet face 36 inches above the floor.

Water Heater: Water heater shall be installed with seismic restraints, inlet ball valve and insulating connections, and 3/4-inch pressure and temperature relief drain pipe.

### **FIELD QUALITY CONTROL**

Testing:

The Contractor shall test piping in accordance with the requirements specified elsewhere in these special provisions.

All installed fixtures shall be tested for proper operation after all plumbing work has been completed.

## **15.05 HEATING, VENTILATING AND AIR CONDITIONING EQUIPMENT AND SYSTEMS**

### **PART 1 - GENERAL**

Scope: This work shall consist of furnishing, installing and testing heating, ventilating and air conditioning (HVAC) equipment and systems in accordance with the details shown on the plans and these special provisions. The performance rating and electric service of the HVAC equipment shall be as shown on the plans.

Temperature Controls: Thermostats, relays, time switches, and other sensor type control devices required for this work shall be furnished and installed by the supplier of the heating, ventilating and air conditioning equipment. All temperature control wiring shall be furnished and installed in accordance with the requirements specified in Division 16, "Electrical," of these special provisions.

Codes and Standards:

Equipment and systems shall conform to California State Energy Commission Regulations and, where applicable, shall be American Refrigeration Institute (ARI), American Gas Association (AGA), Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA), and Air Movement and Control Association (AMCA) approved for performance ratings and application shown on the plans.

Any appliance for which there is a California standard established in the Appliance Efficiency Standards may be installed only if the manufacturer has certified to the Commission, as specified in those regulations, that the appliance complies with the applicable standards for that appliance. Space conditioning equipment may be installed only if the manufacturer has certified that the equipment meets or exceeds all applicable efficiency requirements listed in the Energy Efficiency Standards.

## **PART 2 - PRODUCTS**

### **HEATING AND COOLING UNITS**

#### **Heat Pump (Split System):**

Heat pump (split system) shall be factory matched unit consisting of indoor fan coil unit with electrical resistance heating, outdoor condensing unit and economizer.

Refrigerant lines and condensate drain piping shall be as specified elsewhere in these special provisions.

Outdoor condensing unit shall be factory-assembled, air-cooled, charged and tested, factory-wired for single point power and control connections, and shall be enclosed in a weatherproof acoustically lined cabinet with convenient access panels and a baked-on enamel finish. The compressor shall be the hermetically sealed type, and shall be provided with quick start components, pressure relief valve, high and low pressure switches, liquid-line filter-dryer, crankcase heater, short cycling protection, and service valves.

Indoor fan coil unit shall be adjustable V-belt drive type or the multi-speed direct drive type. The motor shall be provided with thermal overload protection.

The indoor coils shall be provided with refrigerant metering devices, check valves, and filter-dryers.

Cabinet shall be fabricated of heavy-gage, mill galvanized steel, and shall be lined with fire retardant insulation, with baked-on enamel finish and condensate drain pan.

Fan-coil unit shall provide the required air flow against the external static pressure shown on the plans.

Electric resistance heater shall be UL listed for the intended use, factory installed and shall be pre-wired for convenient hookup.

### **FANS AND VENTILATORS**

Exhaust Fan (Ceiling Mounted): Exhaust fan shall be ceiling mounted, AMCA certified and shall be equipped with grille, backdraft damper and metal housing. Exhaust fan motor shall have integral thermal overload protection. Ceiling exhaust fan shall be Breidert, ILG, Penn, or equal.

### **HVAC CONTROLS**

Thermostat (Office Only): Thermostat shall be 24-volt, 7-day programmable, electronic heating/cooling thermostat, with the ability to program the fan-on mode during normal working hours, and fan-off mode during unoccupied periods. Thermostat shall be provided with sub-base selector switches for "AUTO-HEAT-OFF-COOL" and fan "AUTO-ON". Thermostat shall be auto-changeover type, and have full temperature range setback capacity. Thermostat shall be Robertshaw, 7900; Honeywell, T7300; or equal.

Time Switch: Time switch shall be one-hour, spring-wound, "OFF" type time switch without a "HOLD" feature. Time switch shall be Intermatic, Type F60M; Tork, A500 Series; or equal.

## AUXILIARY HVAC COMPONENTS

Unless specified herein, all components shall be sized and have the characteristics as shown on the plans.

**Rigid Ductwork:** Rigid ductwork shall be galvanized steel sheet metal conforming to the latest edition of the SMACNA "Low Velocity Duct Construction Standards." Galvanized steel shall be cleaned by washing with mineral spirit solvent sufficient to remove any oil, grease or other materials foreign to the galvanized coating.

**Spiral Duct:** Spiral duct shall be prefabricated type.

**Duct Supports:** Duct supports shall be hot-dip galvanized steel.

**Flexible Ductwork:** Flexible ductwork shall be UL 181, Class 1 air duct rated and shall meet the requirements of NFPA 90-A. Duct shall have steel helix wire, flexible insulation, minimum thermal resistance of R-8, and flame resistant vapor barrier. Inner and outer surfaces shall be non-metallic. Outer surface shall be Copolymer or Mylar, factory applied.

**Flexible Connection:** Flexible connection shall be prefabricated type and shall be commercial quality flexible glass fabric coated on both sides with neoprene or hypalon.

**Ceiling Diffuser (for Gypsum Board Ceilings):** Ceiling diffuser for gypsum board ceilings shall be rectangular or square type. Diffuser shall be steel with oven baked-on enamel bone white dull finish or extruded aluminum, equipped with a removable core and a standard flanged frame with sponge rubber or felt gasket. Diffuser shall have individually adjustable curved blades, counter-sunk screw holes, shall be surface mounted, with face velocity less than 600 feet per minute; Titus, 250; Air Mate, 400-O; Hart and Cooley, A40; or equal.

**Return Register (for Gypsum Board Ceilings):** Return register for gypsum board ceilings shall be rectangular or square, and shall be steel with oven baked-on enamel bone white dull finish or extruded aluminum, fixed bar type, die formed louvers set at 45 degrees, ½-inch spacing maximum, surface mounted; Titus, 335; Air Mate, 280; or equal.

**Ceiling Diffuser (for Suspended Ceilings):** Ceiling diffuser for suspended ceilings shall be 24 inches square. Diffuser shall be steel with oven baked-on enamel bone white dull finish or extruded aluminum, perforated face hinged for easy access, and shall be fitted with fully adjustable air pattern controllers, a removable core, and a standard flanged frame; Titus, PAS; Air Mate, 700; or equal.

**Return Register (for Suspended Ceilings):** Return register for suspended ceilings shall be 24 inches square, steel or extruded aluminum, perforated face hinged for easy access; Air Mate, 700RA; Titus, PAR; or equal.

**Wall Supply Register:** Wall supply register shall be double-deflecting adjustable type, with vertical face bars and horizontal rear louvers, steel with oven baked-on enamel bone white finish or extruded aluminum, flanged frame with sponge or felt gasket; Hart and Cooley T62; Air Mate 240-HO or equal.

**Wall Return Register:** Wall return register shall be single deflecting type, with horizontal adjustable louvers, steel with oven baked-on enamel bone white finish or extruded aluminum, flanged frame with sponge or felt gasket; Hart and Cooley, T70; Air Mate, 200-HO; or equal.

**Volume Damper:** Volume damper shall be opposed blade type, operable from face with screw driver or Allen-head wrench, shall be same manufacturer as diffuser or may be furnished as part of the diffuser.

**Fire Damper:** Fire damper shall be approved or listed by the State Fire Marshal. Each fire damper shall have an approved fusible link with a temperature rating 50°F. above normal maximum operating temperature, and precision machined bronze sleeve type bearings. Fire damper shall have all steel parts factory painted with an oven baked-on metal primer and enamel finish.

Combination Smoke and Fire Damper: Combination smoke and fire damper shall be approved or listed by the State Fire Marshal. Damper assembly shall be 1 1/2 hour fire rated under UL Standard 555 and be a Leakage Rated Damper for use in smoke control systems meeting the requirements of the latest version of UL 555S. Combination smoke and fire damper shall be equipped with a fusible link rated at 165°F, have a 115-volt shaded pole motor actuator and an approved smoke detector. Bearings shall be stainless steel sleeve turning in an extruded hole in the frame. Damper and actuator shall be supplied as a single entity which meets all applicable UL Standards. Damper shall have all galvanized steel parts. Damper shall be installed at the locations shown on the plans.

Balance Damper: Balance damper shall be butterfly type, 16-gage (minimum) galvanized steel blade, end bearings with steel shaft and locking and indicator operator. Balance damper shall be Ventlock, Young, Anemostat, or equal.

Air Filter (for HVAC Units): Air filter shall be permanent metal viscous impingement type, constructed of aluminum or galvanized steel, 2-inch minimum thickness and be approved for Class 2 use. Filter shall have a minimum efficiency rating of 50 percent as determined when tested in accordance with ASHRAE Test Standard 52. Filter shall be mounted in 16-gage galvanized steel holding frames. Two cans of recharging adhesive shall be provided with the filter and shall be nearly odorless, have a high flash point, rapid wetting characteristics, dye tracer and be water soluble. Filter shall be Airspan, Type AF, Eco-Air Products, Inc., Type HIA; Snyder General, Type AAF; or approved equal.

Refrigerant and Condensate Drain Piping: Refrigerant and condensate drain piping shall be rigid, Type L copper tubing with brazed solder fittings. The suction line shall be insulated, with vapor barrier and shall be weatherproofed for exterior installation. Factory sealed tubing shall not be used.

## **PART 3 - EXECUTION**

### **INSTALLATION**

Ventilators:

Exhaust ducts connected to exhaust fans shall be routed as shown on the plans and shall terminate in a weatherproof cap. Duct sizes shall be as shown on the plans or as recommended by the manufacturer, whichever is larger.

Condensate Drains: Air conditioning units and heat pumps shall be provided with condensate drain trap and piping. Outdoor piping shall extend to the nearest roof drain, gutter or as shown on the plans. Air gap shall be installed where required by code. Interior condensate drain piping shall be insulated with foam insulation.

Mounting Heights: Thermostats and time switches shall be installed as shown on the plans.

Air Outlets: Volume dampers shall be furnished and installed for all diffusers. Blocking shall be provided on all sides of air outlets between ceiling or wall joists. Collars shall be supplied for all outlets and shall be taped and sealed in place.

Vents and Flues: Vents and flues shall be securely fastened to the building construction, shall be provided with a collar at all ceiling penetrations and shall terminate with a weather cap fabricated of the same material.

Access Door: Access doors shall be provided in rigid ducts and plenums for access to volume dampers, fire dampers and control devices located within such ductwork; and shall be provided at such other locations as shown on the plans.

Ducts and Vents:

Ductwork within the building shall be installed to clear lighting fixtures, doors, windows and other obstructions. Ductwork shall preserve head room and shall keep openings and passageways clear whether shown on plans or not.

Ductwork shall be installed and braced according to the latest edition of the SMACNA "HVAC Duct Construction Standards."

Slopes in sides at transitions shall be approximately one to five. The ductwork system shall not contain abrupt changes or offsets of any kind unless otherwise shown on the plans.

Where ducts pass through walls, floors or ceilings, galvanized sheet metal or steel angle collars shall be installed around the ducts.

Duct sections shall be connected by beaded sleeve-type couplings using joint sealer as recommended by the duct manufacturer. Duct sections shall be mechanically fastened with pop rivets or sheet metal screws and sealed with mastic or insulated, reinforced silver tape.

Flexible connections shall be provided at both inlet and outlet of fan coil and ventilating units.

Sheet metal plenums shall be adequately braced and supported from the floor or structure with structural steel angles to prevent sagging, flexing and vibration.

All standing seams and transverse joints of supply, return and exhaust ducts and seams around plenums, fan and coil housings shall be sealed with sealant and taped.

Ductwork Identification:

Ductwork shall be identified as follows:

Duct Description	Identification Symbol
Supply duct	S
Return duct	R
Exhaust duct	EXH
Outside air duct	OA

Identification symbol letters shall be stenciled at locations visible from the access routes to be used by maintenance workers. Such letters shall be painted with black colored paint and shall be a minimum of 2 inches high.

**FIELD QUALITY CONTROL**

Pre-test Requirements:

Before starting or operating systems, equipment shall be cleaned and checked for proper installation, lubrication and servicing.

In each system, at least one air path, from fan to final outlet, shall have all balance dampers open. The final air quantities shall be achieved by adjusting the volume dampers or the fan RPM.

Final adjustments and balancing of the systems shall be performed in such a manner that the systems will operate as specified and as shown on the plans.

The Contractor shall replace or revise any equipment, systems or work found deficient during tests.

All automatic operating devices which are pertinent to the adjustment of the aforementioned air systems shall be set and adjusted to deliver the required quantities of air and at temperatures specified by the Engineer. All control work shall be done in collaboration with the control manufacturer's representative.

Project Completion Tests:

The Engineer shall be notified at least 3 working days in advance of starting project completion tests.

The project completion tests shall consist of the following:

1. Air Systems: All air systems shall be tested and balanced to the conditions set forth on the plans and in these special provisions. This work shall be performed by an Associated Air Balance Council (AABC) or National Environmental Balancing Bureau (NEBB) certified contractor. The air systems include, but are not necessarily limited to, the following:
  - a. Supply air systems
  - b. Return air systems
  - c. Exhaust air systems
2. Operational Data: The tests shall include operation of the heating, cooling, and ventilating systems for not less than two 8-hour days, each system shall operate at not less than 90 percent of their full specified capacities.

The required data shall be accurately measured. The data shall be measured during one operational cycle in the presence of the Engineer and shall be submitted for approval.

The following data shall be measured and tabulated:

- a. Ambient temperatures and conditions, °F
- b. Supply and return air quantities, CFM, each room
- c. Thermostat set point, °F
- d. Air temperatures at room center, °F
- e. Fan motor amperages and voltages
- f. System static pressures, inches of water column

## **DIVISION 16. ELECTRICAL**

### **16.01 ELECTRICAL WORK**

#### **PART 1 - GENERAL**

##### **SUMMARY**

Scope: This work shall consist of performing electrical work in accordance with the details shown on the plans and these special provisions.

Electrical work shall include furnishing all labor, materials, equipment and services required to construct and install the complete electrical system shown on the plans and the work of installing electrical connections for the thermostats, motors, and controls specified elsewhere in these special provisions.

System layouts are generally diagrammatic and location of equipment is approximate. Exact routing of conduits and other facilities and location of equipment is to be governed by structural conditions and other obstructions, and shall be coordinated with the work of other trades. Equipment requiring maintenance and inspection shall be located where it is readily accessible for the performance of such maintenance and inspection.

Related Work: Earthwork, foundations, sheet metal, painting, mechanical and such other work incidental to and necessary for the proper installation and operation of the electrical work shall be done in accordance with the requirements specified for similar work elsewhere in these special provisions.

## **CLOSEOUT SUBMITTALS**

### Operation and Maintenance Manuals:

Prior to the completion of the contract, 3 identified copies of the operation and maintenance instructions with parts lists for the equipment specified herein shall be delivered to the Engineer at the jobsite. The instructions and parts lists shall be in a bound manual form and shall be complete and adequate for the equipment installed. Inadequate or incomplete material will be returned. The Contractor shall resubmit adequate and complete manuals at no expense to the State.

Manuals shall be submitted for the following equipment:

Lighting Control Panel  
Fire Alarm System

## **QUALITY ASSURANCE**

Codes and Standards: All work performed and materials installed shall be in accordance with the CEC and the California Code of Regulations, Title 8, Chapter 4, "Electrical Safety Orders."

Warranties and Guarantees: Manufacturer's warranties and guarantees for materials or equipment used in the work shall be delivered to the Engineer at the jobsite prior to acceptance of the contract.

## **PART 2 - PRODUCTS (Not applicable)**

## **PART 3 - EXECUTION**

### **TESTING**

After the electrical system installation work has been completed, the electrical system shall be tested in the presence of the Engineer to demonstrate that the electrical system functions properly. The Contractor shall make necessary repairs, replacements, adjustments and retests at his expense.

## **16.02 BASIC MATERIALS AND METHODS**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of furnishing and installing conduits, conductors, fittings, and wiring devices in accordance with the details shown on the plans and these special provisions.

Conduits, conductors, fittings, and wiring devices shall include those accessories and appurtenances, not mentioned, that are required for the proper installation and operation of the electrical system.

#### Related Work:

Roof penetrations shall be flashed and sealed watertight conforming to the requirements specified under "Sheet Metal Flashing" in Division 7, "Thermal and Moisture Protection," of these special provisions.

Where conduits pass through fire rated walls, floor or ceiling assemblies, the penetrations shall be protected in accordance with the requirements specified under "Through-Penetration Firestopping" in Division 7, "Thermal and Moisture Protection," of these special provisions.

## **SUBMITTALS**

### Product Data:

A list of materials and equipment to be installed and the manufacturer's descriptive data shall be submitted for approval. Any other data as requested by the Engineer shall also be submitted for approval.

Manufacturer's descriptive data shall include complete description, performance data and installation instructions for the materials and equipment specified herein. Control and wiring diagrams, rough-in dimensions for recessed junction and pull boxes, and component layout shall be included where applicable. All control and power conductors on the shop drawings shall be identified with wire numbers.

Manufacturer's descriptive data shall be submitted for the following:

- Conduits and Fittings
- Cables and Conductors
- Electrical Boxes
- Receptacles and Switches

## **PART 2 - PRODUCTS**

### **CONDUITS AND FITTINGS**

#### Rigid Steel Conduit and Fittings:

Rigid steel conduit shall be threaded, full weight rigid steel, hot-dip galvanized inside and outside with steel or malleable iron fittings. Fittings shall be threaded unless otherwise specified or shown on the plans.

Split or three-piece couplings shall be electroplated, malleable cast iron couplings.

Insulated grounding bushings shall be threaded malleable cast iron body with plastic insulated throat and steel, lay-in ground lug with compression screw.

Insulated metallic bushings shall be threaded malleable cast iron body with plastic insulated throat.

#### Electrical Metallic Tubing (EMT) and Fittings:

Electrical metallic tubing shall be formed of cold rolled strip steel, electrical resistance welded continuously along the longitudinal seam with zinc coating outside and enamel or lacquer coating inside.

Couplings shall be electroplated, rain and concrete tight, gland compression type, steel body couplings with malleable iron nuts.

Connectors shall be electroplated, rain and concrete tight, gland compression type, steel body connectors with male hub, malleable iron nut and insulated plastic throat.

#### Flexible Metallic Conduit and Fittings:

Flexible metallic conduit shall be fabricated in continuous lengths from galvanized steel strip, spirally wound and formed to provide an interlocking design.

Fittings shall be electroplated screw-in type with malleable cast iron body and threaded male hub with insulated throat.

#### Liquid Tight Flexible Metallic Conduit and Fittings:

Liquid tight flexible metallic conduit shall be fabricated in continuous length from galvanized sheet steel, spirally wound and formed to provide an interlocking design with an extruded polyvinyl chloride cover.

Fittings shall be electroplated, malleable cast iron body, with cap nut, grounding ferrule, and connector body with insulated throat.

#### Rigid Non-metallic Conduit and Fittings:

Rigid non-metallic conduit shall be Schedule 40, high impact, nonconducting, self-extinguishing polyvinyl chloride (PVC) rigid non-metallic conduit for direct underground burial.

Couplings shall be PVC, socket type or thread on one end and socket type on the other end as required for the particular application.

Terminal adapters for adapting PVC conduit to boxes, threaded fittings, or metallic conduit system shall be PVC adapters with threads on one end and socket type on the other end.

### **CABLES AND CONDUCTORS**

Cables: Cables shall be copper.

Conductors:

Conductors shall be stranded copper wire.

Conductor insulation types unless otherwise shown or specified, shall be as follows:

1. Conductors across hinges of control panel enclosures shall be Type MTW.
2. Conductors shall be type XHHW-2 in wet, underground, and outdoor locations.
3. Conductors shall be type THHN in dry locations.

Wire Connections and Devices: Wire connections and devices shall be pressure or compression type, except that connectors for No. 10 AWG and smaller conductors in dry locations may be preinsulated spring-pressure type.

### **ELECTRICAL BOXES**

Outlet, Device and Junction Boxes:

Unless otherwise shown or specified, boxes shall be galvanized steel boxes with knock-outs and shall be the size and configuration best suited to the application indicated on the plans. Minimum size of outlet, receptacle, switch or junction boxes shall be 4 inches square by 1-1/2 inches deep, except that switch boxes for the installation of single switches and outlet boxes for flush-mounted light fixtures shall be 2" x 3" x 1-1/2" deep.

Multiple switches shall be installed in standard gang boxes, unless otherwise specified or shown on the plans.

Cast metal boxes shall be cast iron boxes with threaded hubs and shall be of the size and configuration best suited to the application shown on the plans.

Flush-mounted boxes shall have stainless steel covers, 0.04 inch thick. Cover screws shall be metal with finish to match cover finish.

Unless otherwise shown or specified, surface-mounted boxes shall have galvanized steel covers with metal screws.

Weatherproof junction boxes shall have cast metal covers with gaskets.

Weatherproof switch and receptacle boxes shall have gasketed covers with gasketed hinged flaps to cover switches and receptacles.

Unless otherwise shown or specified, all PVC boxes shall be PVC boxes with hubs or equivalent means for conduit entry and shall be the size and configuration best suited to the application indicated on the plans. Minimum size of outlet, receptacle, switch or junction boxes shall be 4 inches square by 1-1/2 inches deep, except that switch boxes for the installation of single switches and outlet boxes for light fixtures shall be 2" x 3" x 1-1/2" deep.

All PVC junction boxes shall have PVC covers with gaskets.

All PVC switch and receptacle boxes shall have gasketed covers with gasketed hinged flaps to cover switches and receptacles.

Sectional device plates will not be permitted.

## **RECEPTACLES AND SWITCHES**

Ground Fault Circuit Interrupter Receptacles, (GFCI): Ground fault circuit interrupter receptacles shall be NEMA Type 5-20R, feed-through type, ivory color, 3-wire, 20-ampere, 125-volt AC, grounding type, specification grade, duplex receptacle with ground fault interruption. Receptacle shall detect and trip at current leakage of 5 milliamperes and shall have front mounted test and reset buttons.

Duplex Receptacles: Duplex receptacles shall be NEMA Type 5-20R, 3-wire, 20-ampere, 125-volt AC, safety grounding, ivory color, specification grade receptacle suitable for wiring with stranded conductors.

Floor Mounted Receptacles: Modular, Flush-Type, dual service units suitable for wiring method used complete with barriered compartments to separate power from (future) communication cabling. Service plate shall be solid brass with satin finish. Power receptacle shall be NEMA WD6 configuration 5-20R. Voice/Data communication outlet shall have Blank cover with bushed cable opening.

Snap Switches: Snap switches shall be 20-ampere, 120/277-volt AC, quiet type, specification grade, ivory color switch with silver cadmium alloy contacts. Switch shall be suitable for wiring with stranded conductors.

Motion Sensor Wall Switches: Motion sensor wall switches shall be wall-mounted, 3-wire, 1500-watt incandescent or fluorescent, off-auto-on, passive infrared sensor switch with adjustable photocell override and time delay and shall operate on 120/277 volts. The sensor switch shall cover a minimum of 900 square feet of floor area, be suitable for installation in a single gang box, and shall have a field of view of not less than 170 degrees. The time delay setting shall be adjustable from 30 seconds to 20 minutes, initially set at 5 minutes. Light level adjustment shall be adjustable from 20 lux to 200 foot-candles, initially set at 70 foot candles.

Motion Sensor Ceiling Switches: Motion sensor ceiling switches shall be ceiling-mounted, 3-wire, 600-watt incandescent or fluorescent, passive infrared sensor switch with adjustable time delay and shall operate on 120/277 volts. The sensor switch shall be suitable for installation in a single gang box, and shall have a field of view of not less than 360 degrees. The time delay setting shall be adjustable from 30 seconds to 20 minutes, initially set at 5 minutes.

Three-way Toggle Switches: Three-way toggle switches shall be 20-ampere, 120/277-volt AC, quiet type, specification grade, ivory color switch with silver cadmium alloy contacts. Switch shall be suitable for wiring with stranded conductors.

Four-way Toggle Switches: Four-way switches shall be 20-ampere, 120/277-volt AC, quiet type, specification grade, ivory color switch with silver cadmium alloy contacts. Switch shall be suitable for wiring with stranded conductors.

## MISCELLANEOUS MATERIALS

Pull Ropes: Pull ropes shall be nylon or polypropylene with a minimum tensile strength of 500 pound-force.

Watertight Conduit Plugs: Watertight conduit plugs shall be a hollow or solid stem expansion plugs complete with inner and outer white polypropylene compression plates and red thermoplastic rubber seal. Seal material shall be non-stick type rubber resistant to oils, salt, and alkaline substances normally available at the construction sites.

Anchorage Devices: Anchorage devices shall be corrosion resistant, toggle bolts, wood screws, bolts, machine screws, studs, expansion shields, and expansion anchors and inserts.

Electrical Supporting Devices:

Electrical supporting devices shall be one hole conduit clamps with clamp backs, hot-dipped galvanized, malleable cast iron.

Construction channel shall be 1-5/8 inches by 1-5/8 inches, 12-gage galvanized steel channel with 17/32-inch diameter bolt holes, 1-1/2 inches on center in the base of the channel.

Telephone Outlet Boxes:

Telephone outlet boxes shall be 4-inch square boxes and plates with modular type telephone outlet. Boxes on stud walls shall have plaster ring.

Plates for flush mounting outlets in finished room shall be Type 430 stainless steel, 0.04 inch thick with satin finish.

## PART 3 - EXECUTION

### INSTALLATION

Conduit:

Rigid steel conduit shall be used unless otherwise shown on the plans or specified in these special provisions.

Electrical metallic tubing may be used in furred spaces and for exposed work indoors above the switch height.

Unless otherwise specified or shown on the plans, flexible metal conduit shall be used to connect suspended lighting fixtures, motors, HVAC equipment, and other equipment subject to vibration in dry locations.

Unless otherwise specified or shown on the plans, liquid-tight flexible metal conduit shall be used to connect motors, HVAC equipment, and other equipment subject to vibration in wet locations.

Rigid non-metallic conduit shall be used at the locations shown on the plans for direct underground burial 30 inches below grade. All risers and elbows through building floors shall be rigid steel.

Conduit Installation:

Conduit trade sizes are shown on the plans. No deviation from the conduit size shown on the plans will be permitted without written permission from the Engineer.

Conduit shall be concealed unless otherwise shown on the plans.

Conduits shall be tightly covered and well protected during construction using metallic bushings and bushing "pennies" to seal open ends.

Rigid non-metallic conduit bends of 30 degrees or greater shall be factory-made long radius sweeps. Bends less than 30 degrees shall be made using an approved heat box.

A pull rope shall be installed in all empty conduits. At least 3 feet of pull rope shall be doubled back into the conduit at each termination.

Locations of conduit runs shall be planned in advance of the installation and coordinated with the ductwork, plumbing, ceiling and wall construction in the same areas and shall not unnecessarily cross other conduits or pipe, nor prevent removal of ceiling tiles or panels, nor block access to mechanical or electrical equipment.

Where practical, conduits shall be installed in groups in parallel, vertical or horizontal runs and at elevations that avoid unnecessary offsets.

Exposed conduit shall be installed parallel and at right angles to the building lines.

Conduits shall not be placed closer than 12 inches from a parallel hot water or steam pipe or 3 inches from such lines crossing perpendicular to the runs.

All raceway systems shall be secured to the building structures using specified fasteners, clamps and hangers.

All metal conduits, metal conduit risers, and metal conduit elbows in contact with soil or concrete shall be wrapped with a double layer of 20-mil thick pipe wrapping tape. Each individual layer shall be overlapped a minimum of 50%.

Single conduit runs shall be supported by using one hole pipe clamps. Where run horizontally on walls in damp or wet locations, conduit shall be installed with "clamp backs" to space conduit off the surface.

Multiple conduit runs shall be supported with construction channel secured to the building structure. Conduits shall be fastened to construction channel with channel compatible pipe clamps.

Raceways of different types shall be joined using approved couplings or transition fittings.

Expansion couplings shall be installed where conduit crosses a building separation or expansion joint.

All floor and wall penetrations shall be sealed water-tight.

Existing underground conduit to be incorporated into a new system shall be cleaned with a mandrel or cylindrical wire brush and blown out with compressed air.

#### Conduit Terminations:

Rigid steel conduits shall be securely fastened to cabinets, boxes and gutters using 2 locknuts and specified insulating metallic bushing. Electrical metallic tubing shall be securely fastened to cabinets, boxes and gutters using specified connectors. Conduit terminations at exposed weatherproof enclosures and cast outlet boxes shall be made watertight using specified hubs.

Grounding bushings with bonding jumpers shall be installed on all type of conduits terminating at concentric knockouts and on all conduits containing service conductors, grounding electrode conductor, and conductors feeding separate buildings.

Rigid non-metallic conduits shall be terminated inside the underground pull boxes with an approved conduit bushings or fittings. All conduits shall enter the pull box at an angle of 45 degrees or more.

All future conduits terminated in underground pull boxes or exposed indoor and outdoor shall be provided with watertight conduit plugs.

#### Conductor and Cable Installation:

Conductors shall not be installed in conduit until all work of any nature that may cause injury is completed. Care shall be taken in pulling conductors that insulation is not damaged. An approved non-petroleum base and insulating type pulling compound shall be used as needed.

All cables shall be installed and tested in accordance with manufacturer's recommendations.

Splices and joints shall be insulated with insulation equivalent to that of the conductor.

Provide 6 inches of slack at each outlet and device connection. If the outlet or device is not at the end of a run of wire, connection shall be made with correctly colored pigtails tapped to the runs with splices as specified herein.

Branch circuit conductors in panelboards and load centers shall be neatly trained along a path from the breaker terminals to their exit point. The conductors shall have ample length to transverse the path without strain, but shall not be so long as to require coiling, doubling back, or cramming. The path shall transverse the panelboard gutter spaces without entering a gutter containing service conductors and, unless otherwise shown on the plans, without entering the gutter space of any panelboard feeder.

All pressure type connectors and lugs shall be retightened after the initial set.

Splices in underground pull boxes and similar locations shall be made watertight.

Junction boxes in furred or accessible ceiling spaces shall be identified with felt-tip pen denoting the circuits contained in the box.

#### Conductor Identification:

The neutral and equipment grounding conductors shall be identified as follows:

Neutral conductor shall have a white or natural gray insulation except that conductors No. 4 and larger may be identified by distinctive white marker such as paint or white tape at each termination.

Equipment grounding conductor shall be bare or insulated. If insulated, equipment grounding conductors shall have green or green with one or more yellow stripes insulation over its entire length except that conductors No. 4 and larger may be permanently identified by distinctive green markers such as paint or green tape over its entire exposed insulation.

Ungrounded feeder and branch circuit conductors shall be color coded by continuously colored insulation, except conductors No. 6 AWG or larger may be color coded by colored tape at each connection and where accessible. Ungrounded conductor color coding shall be as follows:

SYSTEM	COLOR CODE
120/240 V-Single phase	Black, blue
120/240 V-Three phase	Black, orange, blue
120/208 V-Three phase	Black, red, blue
277/480 V-Three phase	Brown, orange, yellow

Once an insulated circuit conductor, including grounded and ungrounded conductors, is identified with a specific color code, that color code shall be used for the entire length of the circuit.

Where more than one branch circuit enters or leaves a conduit, panel, gutter, or junction box, each conductor shall be identified by its panelboard and circuit number. All control conductors including control conductors of manufacturer supplied and field wired control devices shall be identified at each termination with the wire numbers shown on the plans, approved shop drawings, and as directed by the Engineer where deemed necessary. Identification shall be made with one of the following:

1. Adhesive backed paper or cloth wrap-around markers with clear, heat shrinkable tubing sealed over either type of marker.
2. Self-laminating wrap around type, printable, transparent, permanent heat bonding type thermoplastic film markers.
3. Pre-printed, white, heat-shrinkable tubing.

Each terminal block shall have a molded marking strip attached with screws. The identifying numbers of the terminating conductors, as shown on the plans or on the submittal drawings, shall be engraved in the marking strip.

#### Outlet, Device and Junction Box Installation:

Where exposed threaded steel conduits are connected to an outlet, device, or junction box below switch height, the box shall be a cast metal box. Unless otherwise shown on the plans or specified in these special provisions, all other boxes shall be sheet steel boxes. Weatherproof outlet, device and junction boxes shall have cast metal covers with gaskets. Unless otherwise shown on the plans or specified in these special provisions, all other boxes shall have standard galvanized covers.

All boxes shall finish flush with building walls, ceiling and floors except where exposed work is called for.

Raised device covers (plaster rings) shall be installed on all boxes concealed in concrete, masonry or stud walls.

No unused openings shall be left in any box. Knockout seals shall be installed as required to close openings.

Outlet, device, and junction boxes shall be installed at the locations and elevations shown on the plans or specified herein. Adjustments to locations may be made as required by structural conditions and to suit coordination requirements of other trades.

Boxes in stud walls and partitions shall not be mounted back to back. Through-wall boxes shall not be used.

Boxes installed in metal stud walls shall be equipped with brackets designed for attaching directly to the studs or shall be mounted on heavy gauge galvanized steel, snap-in box supports.

Fixture outlet boxes installed in suspended ceilings of gypsum board or lath and plaster construction shall be mounted on 16-gage metal channel bars attached to main ceiling runners.

Fixture outlet boxes for pendant-mounted fixtures installed in suspended ceilings supporting acoustical tiles or panels shall be supported directly from the structures above.

#### Anchorage:

Hangers, brackets, conduit straps, supports, and electrical equipment shall be rigidly and securely fastened to surfaces by means of toggle bolts on hollow masonry; expansion shields and machine screws, or expansion anchors and studs or standard preset inserts on concrete or solid masonry; machine screws or bolts on metal surfaces; and wood or lag screws on wood construction.

Anchorage devices shall be installed in accordance with the anchorage manufacturer's recommendations.

Mounting heights: Electrical system components shall be mounted at the following mounting heights, unless otherwise shown on the plans. The mounting height dimensions shall be measured above the finished floor to the bottom of the device or component.

Wall switches	48" maximum
Convenience outlets	15" minimum
Telephone and data outlets	15" minimum

## 16.03 ELECTRICAL EQUIPMENT

### PART 1 - GENERAL

#### SUMMARY

Scope: This work shall consist of furnishing and installing panelboards, starters, disconnect switches, transformers, and related accessories in conformance with the details shown on the plans and these special provisions.

Related Work: Anchorage devices shall be as specified under "Basic Materials and Methods" elsewhere in Division 16.

#### SUBMITTALS

##### Product Data:

A list of materials and equipment to be installed and the manufacturer's descriptive data shall be submitted for approval. Any other data as requested by the Engineer shall also be submitted for approval.

Manufacturer's descriptive data shall include complete description, performance data and installation instructions for the materials and equipment specified herein. Control and wiring diagrams, rough-in dimensions, and component layout shall be included where applicable. All control and power conductors on the shop drawings shall be identified with wire numbers.

Manufacturer's descriptive data shall be submitted for the following:

Panelboard  
Switches

### PART 2 - PRODUCTS

#### PANELBOARDS

Panelboard : Panelboard shall be indoor type, surface-mounted, factory assembled, 1-phase, 3-wire, 120/240-volt, with 200-ampere main lugs, insulated groundable neutral, hinged door and molded case branch circuit breakers as shown on the plans. Panels shall be Square D Company, Westinghouse, General Electric, or equal.

#### SWITCHES

Air Conditioner Disconnect Switch: Air Conditioner Disconnect switch shall be 2-pole, 240-volt, AC, with ampere rating as indicated on Drawings, fused, heavy duty safety switch in a NEMA-3R enclosure when installed outdoors. The fuses shall be sized to suit the air conditioning unit furnished.

Exhaust Fan Disconnect Switch: Exhaust fan disconnect switch shall be 2-pole, 240-volt, 20-ampere, specification grade, AC switch in a cast metal box with standard galvanized cover.

## MISCELLANEOUS MATERIALS

Nameplates: Nameplates shall be laminated phenolic plastic with white core and black front and back. Nameplate inscription shall be in capitals letters etched through the outer layer of the nameplate material.

Warning Plates: Warning plates shall be laminated phenolic plastic with white core and red front and back. Warning plates inscription shall be in capital letters etched through the outer layer of the nameplate material.

Plywood Backing Board: Plywood backing board for mounting electrical or telephone equipment shall be 3/4-inch, APA plywood panels, C-D PLUGGED and touch-sanded, Exposure 1.

## PART 3 - EXECUTION

### INSTALLATION

Plywood Backing Board:

Plywood backing board shall be securely fastened to walls or other vertical framing.

Surface to be coated shall be cleaned of all dirt, excess materials, and filler by hand cleaning.

Exposed surfaces of plywood backing board shall be coated in conformance with the provisions in "Wood, Painted" specified under Division 9 "Painting," of these special provisions. The color shall match surrounding surfaces, or shall be as directed by the Engineer.

Coatings shall be applied in conformance with the manufacturer's instructions. Each coat shall be applied to a uniform finish, free of skips, brush marks, laps or other imperfections.

Panelboard Installation:

Set cabinets plumb and symmetrical with building lines. Train interior wiring as specified under "Conductor and Cable Installation" in "Basic Materials and Methods" of these special provisions. Touch-up paint any marks, blemishes, or other finish damage suffered during installation. Replace cabinets, doors or trim exhibiting dents, bends, warps or poor fit that may impede ready access, security or integrity.

Mounting height shall be 5-1/2 feet to the highest circuit breaker handle, measured above the finished floor.

Provide 2-3/4-inch empty conduit from flush panelboard enclosure to a point above furred ceiling for each 16 circuits or fraction thereof in each panelboard.

Where "Future" or "Space" is indicated on the plans, branch connectors, mounting brackets, and other hardware shall be furnished and installed for future breaker.

A typewritten directory under transparent protective cover shall be provided and set in metal frame inside each cabinet door. Directory panel designation for each circuit breaker shall include complete information concerning equipment controlled, including room number or area designated on the plans.

Equipment Identification:

Equipment shall be identified with nameplates fastened with self-tapping, cadmium-plated screws or nickel-plated bolts.

Nameplate inscriptions shall read as follows:

Item	Letter height, inches	Inscription
PANELBOARD	1/2	PANEL A

**16.04 LIGHTING**

**PART 1 – GENERAL**

Scope: This work shall consist of furnishing, installing and connecting all lighting equipment in accordance with the details shown on the plans and these special provisions.

**SUBMITTALS**

Manufacturer's descriptive information, photometric curves, catalog cuts, and installation instructions shall be submitted for approval. Any other data as requested by the Engineer shall also be submitted for approval.

**PART 2 - PRODUCTS**

Lighting Fixture Lamps: Lighting fixture lamps shall be type and size as shown on the plans. Lamps shall be General Electric, Phillips, Sylvania, or equal. Fluorescent lamps, unless otherwise noted, shall be 4100K tri-phosphor with a CRI of 70 or greater.

Ballasts: All fixtures shall be equipped with high power factor ballasts suitable for the line voltage and for the type, size and number of lamps required by the fixture. Fluorescent ballasts shall be UL Listed, Class P and ETL Certified ballasts with sound rating A. Fluorescent ballasts shall be high-frequency electronic ballasts with power factor greater than 0.95, nominal ballast factor of 0.88 unless specified otherwise, total harmonic distortion less than 20 percent, crest factor less than or equal to 1.7, complying with ANSI C 62.41 Category A for surge protection, and FCC Part 18 for interference. Dimming ballasts shall be high frequency ballasts as specified above and shall be capable of dimming the light output from 100 percent to 20 percent of the rated light output.

Lighting Fixtures: Lighting fixtures shall be as shown on the plans and as specified herein. Outdoor luminaires shall be listed and labeled "Fixture Suitable For Wet Locations."

F1: Recessed 2-foot X 2-foot ceiling-mounted direct/indirect fluorescent fixture with three 17 W T8 lamps and electronic ballast. Direct lighting component shall be provided by a perforated lamp cover with white overlay that incorporates louver blades. Indirect lighting component provided by a partial parabolic shaped reflector.

F1E: Recessed 2-foot X 2-foot ceiling-mounted direct/indirect fluorescent fixture with three 17 W T8 lamps and emergency ballast. Direct lighting component shall be provided by a perforated lamp cover with white overlay that incorporates louver blades. Indirect lighting component provided by a partial parabolic shaped reflector.

F2: Specification grade 10-1/4" X 4' stem or surface mounted fluorescent wraparound fixture with two 32 W T8 lamps, electronic ballast and white baked enamel reflector, complete with lens and end caps. Lens shall be self centering and can be hinged down from either side. Lens shall have pattern 12 bottom prisms with interior linear side wall prism.

F2E: Specification grade 10-1/4" X 4' stem or surface mounted fluorescent wraparound fixture with two 32 W T8 lamps, emergency ballast and white baked enamel reflector, complete with lens and end caps. Lens shall be self centering and can be hinged down from either side. Lens shall have pattern 12 bottom prisms with interior linear side wall prism.

F3: Decorative wall sconce with 26 W CFL lamps, electronic ballast and white frosted elegant glass diffuser.

F4: Pendant mounted compact fluorescent fixture with 5 W 2700K CFL, pendant cords and white frosted cylindrical mouth blown European glass diffusers.

F5: Recessed, 6-inch aperture compact fluorescent downlight with clear specular aluminum reflector, 26 W PLT lamp and electronic ballast.

F6: Surface mounted compact fluorescent fixture with two 13 W CDFQ lamps, acrylic diffuser and electronic ballast.

F7: Integrated T-bar lighting system rated 20 amps, 120 V, with extruded aluminum housing with thermoplastic busbar insulator. Lighting system shall include 20 museum accent lighting with 50 W, PAR 30 lamps. System shall be modular by design and completely compatible with main runners and cross-tees of the ceiling system.

F8: Edge-lit exit signs with LED lamps, injection-molded acrylic panels and emergency battery pack.

Photoelectric Unit, PC: Photoelectric unit shall be cadmium sulfide photoelectric control with capacity of 2000-watt incandescent or 2000-watt inductive or fluorescent load, mounting adapter, and EEI-NEMA twist lock receptacle; Fisher-Pierce, Ripley, or equal.

Lighting Control Station, LCS: Lighting control station shall consist of a lighting contactor, selector switch and pilot light in a surface mounted NEMA-12 enclosure with a hinged door.

Lighting Contactor, LC: Lighting contactor shall be electrically held, 2-pole combination lighting contactor with 120-volt AC coil and 20-ampere, double-break, silver alloy contacts; Square D Company, I.T.E., Westinghouse, or equal.

### **PART 3 - EXECUTION**

#### Lighting Fixtures:

Lighting fixtures shall be mounted securely in accordance with the manufacturer's recommendations. Mounting methods shall be suitable for the particular type of ceiling or support at each location.

The Contractor shall provide all supports, hangers, spacers, channels, fasteners and other hardware necessary to support the fixtures.

Fixtures shall be set at the mounting heights shown on the plans, except heights shown shall be adjusted to meet conditions.

#### Ballasts:

All fluorescent fixtures shall be equipped with high power factor ballasts suitable for the line voltage and for the type, size and number of lamps required by fixture. The Contractor has the option to install low voltage dimming control provided that the Contractor submit plans and specifications with appropriate revisions for the low voltage dimming control to the Engineers for approval prior to installation.

All ballasts used in unheated areas inside the building shall be 0°F ballasts or less.

## **16.05 FIRE ALARM AND DETECTION SYSTEM**

### **PART 1 - GENERAL**

#### **SUMMARY**

Scope: This work shall consist of furnishing and installing a complete and operational fire alarm and detection system in accordance with the details shown of the plans and these special provisions.

The system shall include all materials, whether mentioned or not, but are necessary for the complete and operational fire alarm and detection system.

## **SYSTEM DESCRIPTION**

Design Requirements:

The fire alarm and detection system shall be a low voltage, direct current, zoned, closed circuit, electrically supervised, and Class A fire alarm and detection system. The system shall consist of fire alarm control panel, manual pull stations, smoke detectors, duct smoke detectors, heat detectors, end-of-line resistors, audio-visual devices, and all other necessary appurtenances.

The alarm system components shall be listed by U.L. or F.M. and the California State Fire Marshal.

## **SUBMITTALS**

Product Data:

Manufacturer's descriptive information and installation instructions shall be submitted for approval.

Installation instructions shall include brand name and catalog reference of equipment supplied, wiring diagrams, battery calculations, voltage drop calculations, riser diagrams and floor plans showing all devices and conduit and conductor sizes.

Shop Drawings: Complete shop drawings shall be submitted for approval.

State Fire Marshal Approval: Prior to the submittal of the shop drawings, the Contractor shall have said drawings stamped "APPROVED" by the State Fire Marshal. Allow 12 weeks for State Fire Marshal review and approval.

## **PART 2 - PRODUCTS**

Fire Alarm Control Panel:

Fire alarm control panel shall be surface-mounted, locking cabinet, completely self-contained control panel suitable for 120-volt, AC, input power with separate terminals for all external wires and end-of-line resistors installed within the control panel.

The control panel shall conform to the following requirements:

- Compatible with Radionics 6000 or 6500 receiver or equivalent;
- Five zones;
- Digital dialer communicator;
- Audible trouble signal, silencing switch and trouble pilot light;
- Solid state, modular construction;
- Fan shut down relays;
- 24-hour standby batteries, battery charger with automatic transfer on loss of utility company power and retransfer upon restitution of utility power;
- Indicating lights for normal power failure, battery power failure, audible alarm, and silencing switch;
- Low battery reporting.

Manual Pull Station: Manual pull station shall be single-action, non-coded, closed circuit, pull down type pull station mounted on a standard electrical outlet box. The manual pull station actuating contact shall function continuously until reset. The pull station shall have provisions for fire drill and testing and shall have integral LED light to indicate operation of the pull station.

Smoke Detector: Smoke detector shall be ionization type detector with dual chamber with sensitivity control and plug-in detector head. One chamber shall be for detection and the other for changes in ambient parameters. The smoke detector shall have integral LED light to indicate operation of the smoke detector.

Duct-mounted Smoke Detector:

Duct-mounted smoke detector shall be similar to the space smoke detector except it shall have the following additional features:

- Sampling tube;
- Uniform sensitivity between 500 feet to 3,000 feet per minute air velocity;
- Test jack.

Heat Detector: Heat detector for automatic detection of fire shall be of compact and rugged construction employing rate-of-rise and fixed temperature methods of detecting fires. The heat detectors shall have twist-and-lock type plug-in detector head, and low profile.

Audio-visual Device: Audio-visual device shall be vibrating type horn with flashing light and adjustable volume control with maximum audible output of 90 dB at 10 feet from the horn. Frequency of audio visual flash shall be not less than one flash per second, nor greater than two flashes per second, and shall comply with UL Standard 1971.

### **PART 3 - EXECUTION**

#### **INSTALLATION**

The fire alarm system shall be installed in accordance with the manufacturer's recommendations. No modification of the recommended alarm system type, components type, or replacement shall be made without prior written approval from the Engineer.

Fire alarm panel zoning: Fire alarm panel zoning shall be as follows:

- Zone 1: Room 1
- Zone 2: Room 2
- Zone 3: Room 3
- Zone 4: Spare
- Zone 5: Spare

Conduit and Conductors:

Fire alarm system wiring shall be installed in conduits conforming to the requirements of "Basic Materials and Methods" elsewhere in these special provisions. Conduit size shall be as recommended by the fire alarm system manufacturers except that conduits shall be not less than 1/2-inch diameter, trade size. Conduits shall be concealed in ceiling or walls.

Conductors and cables for the fire alarm system shall be as recommended by the fire alarm system manufacturer.

## **FIELD QUALITY CONTROL**

Testing: The operational test for the fire alarm system shall be performed by the Contractor in the presence of the Engineer. The operational tests shall demonstrate that all functions of the system operate in the manner described in the manufacturer's literature and that the system is stable under normal vibration and shocks to components. The Contractor shall notify the Engineer in writing not less than 10 days in advance of performing the operational tests.

Monitoring:

The contractor shall provide monitoring services for the facility for one year after the acceptance of the contract. The services shall include a toll-free telephone line connecting to the 24-hour on call monitoring station. Monitoring station shall contact designated site representative in the event of alarm and dispatch an immediate on-site response to the alarm location if the site representative cannot be reached or verification of the cause of the alarm cannot be determined.

Monitoring services after the first year will be handled by the State.

## **DEMONSTRATION**

Training: The Contractor shall provide one hour of on-site training on the use, operation, and, maintenance of the system for not more than 8 designated State employees. The Contractor shall notify the Engineer in writing not less than 10 days in advance of proposed training class.

## **DIVISION 17: FEDERAL REQUIREMENTS FOR FEDERAL-AID CONSTRUCTION PROJECTS**

**GENERAL.**—The work herein proposed will be financed in whole or in part with Federal funds, and therefore all of the statutes, rules and regulations promulgated by the Federal Government and applicable to work financed in whole or in part with Federal funds will apply to such work. The "Required Contract Provisions, Federal-Aid Construction Contracts, "Form FHWA 1273, are included in this Division 17. Whenever in said required contract provisions references are made to "SHA contracting officer", "SHA resident engineer", or "authorized representative of the SHA", such references shall be construed to mean "Engineer" as defined in Section 1-1.10 of the General Conditions.

**PERFORMANCE OF PREVIOUS CONTRACT.**—In addition to the provisions in Section II, "Nondiscrimination," of the required contract provisions, the Contractor shall comply with the following:

The bidder shall execute the CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS located in the proposal. No request for subletting or assigning any portion of the contract in excess of \$10,000 will be considered under the provisions of Section VII of the required contract provisions unless such request is accompanied by the CERTIFICATION referred to above, executed by the proposed subcontractor.

**NON-COLLUSION PROVISION.**—The provisions in this division are applicable to all contracts except contracts for Federal Aid Secondary projects.

Title 23, United States Code, Section 112, requires as a condition precedent to approval by the Federal Highway Administrator of the contract for this work that each bidder file a sworn statement executed by, or on behalf of, the person, firm, association, or corporation to whom such contract is to be awarded, certifying that such person, firm, association, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the submitted bid. A form to make the non-collusion affidavit statement required by Section 112 as a certification under penalty of perjury rather than as a sworn statement as permitted by 28, USC, Sec. 1746, is included in the proposal.

**PARTICIPATION BY MINORITY BUSINESS ENTERPRISES IN SUBCONTRACTING.**—Part 23, Title 49, Code of Federal Regulations applies to this Federal-aid project. Pertinent sections of said Code are incorporated in part or in its entirety within other sections of these special provisions.

Schedule B—Information for Determining Joint Venture Eligibility

(This form need not be filled in if all joint venture firms are minority owned.)

- 1. Name of joint venture \_\_\_\_\_
- 2. Address of joint venture \_\_\_\_\_
- 3. Phone number of joint venture \_\_\_\_\_
- 4. Identify the firms which comprise the joint venture. (The MBE partner must complete Schedule A.) \_\_\_\_\_

a. Describe the role of the MBE firm in the joint venture. \_\_\_\_\_

b. Describe very briefly the experience and business qualifications of each non-MBE joint venturer: \_\_\_\_\_

5. Nature of the joint venture's business \_\_\_\_\_

6. Provide a copy of the joint venture agreement. \_\_\_\_\_

7. What is the claimed percentage of MBE ownership? \_\_\_\_\_

8. Ownership of joint venture: (This need not be filled in if described in the joint venture agreement, provided by question 6.).

- a. Profit and loss sharing.
- b. Capital contributions, including equipment.
- c. Other applicable ownership interests.

9. Control of and participation in this contract. Identify by name, race, sex, and "firm" those individuals (and their titles) who are responsible for day-to-day management and policy decision making, including, but not limited to, those with prime responsibility for:

a. Financial decisions \_\_\_\_\_

b. Management decisions, such as:

1. Estimating \_\_\_\_\_

2. Marketing and sales \_\_\_\_\_

3. Hiring and firing of management personnel \_\_\_\_\_

4. Purchasing of major items or supplies \_\_\_\_\_

c. Supervision of field operations \_\_\_\_\_

Note.—If, after filing this Schedule B and before the completion of the joint venture's work on the contract covered by this regulation, there is any significant change in the information submitted, the joint venture must inform the grantee, either directly or through the prime contractor if the joint venture is a subcontractor.

**Affidavit**

"The undersigned swear that the foregoing statements are correct and include all material information necessary to identify and explain the terms and operation of our joint venture and the intended participation by each joint venturer in the undertaking. Further, the undersigned covenant and agree to provide to grantee current, complete and accurate information regarding actual joint venture work and the payment therefor and any proposed changes in any of the joint venture arrangements and to permit the audit and examination of the books, records and files of the joint venture, or those of each joint venturer relevant to the joint venture, by authorized representatives of the grantee or the Federal funding agency. Any

material misrepresentation will be grounds for terminating any contract which may be awarded and for initiating action under Federal or State laws concerning false statements."

_____	_____
Name of Firm	Name of Firm
_____	_____
Signature	Signature
_____	_____
Name	Name
_____	_____
Title	Title
_____	_____
Date	Date

Date \_\_\_\_\_  
State of \_\_\_\_\_  
County of \_\_\_\_\_

On this \_\_\_\_ day of \_\_\_\_\_, 19 \_\_, before me appeared (Name) \_\_\_\_\_, to me personally known, who, being duly sworn, did execute the foregoing affidavit, and did state that he or she was properly authorized by (Name of firm) \_\_\_\_\_ to execute the affidavit and did so as his or her free act and deed.

Notary Public \_\_\_\_\_  
Commission expires \_\_\_\_\_

[Seal]

Date \_\_\_\_\_  
State of \_\_\_\_\_  
County of \_\_\_\_\_

On this \_\_\_\_ day of \_\_\_\_\_, 19 \_\_, before me appeared (Name) \_\_\_\_\_ to me personally known, who, being duly sworn, did execute the foregoing affidavit, and did state that he or she was properly authorized by (Name of firm) \_\_\_\_\_ to execute the affidavit and did so as his or her free act and deed.

Notary Public \_\_\_\_\_  
Commission expires \_\_\_\_\_

[Seal]

## **REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS**

### **I. GENERAL**

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

Section I, paragraph 2;  
Section IV, paragraphs 1, 2, 3, 4, and 7;  
Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

**6. Selection of Labor:** During the performance of this contract, the contractor shall not:

a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

### **II. NONDISCRIMINATION**

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

**6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

**8. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

**9. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

### **III. NONSEGREGATED FACILITIES**

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of \$10,000 or more and that it will retain such certifications in its files.

### **IV. PAYMENT OF PREDETERMINED MINIMUM WAGE**

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

#### **1. General:**

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3)] issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c) the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

## **2. Classification:**

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

## **3. Payment of Fringe Benefits:**

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

#### **4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:**

##### **a. Apprentices:**

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

##### **b. Trainees:**

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

**c. Helpers:**

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under an approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

**5. Apprentices and Trainees (Programs of the U.S. DOT):**

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

**6. Withholding:**

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

**7. Overtime Requirements:**

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

## **8. Violation:**

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

## **9. Withholding for Unpaid Wages and Liquidated Damages:**

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

## **V. STATEMENTS AND PAYROLLS**

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

### **1. Compliance with Copeland Regulations (29 CFR 3):**

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

### **2. Payrolls and Payroll Records:**

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially reposable, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less than the applicable wage rate and fringe benefits or cash equivalent for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

**VI. Blank**

**VII. Blank**

**VIII. SAFETY: ACCIDENT PREVENTION**

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

#### **IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS**

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

#### **NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS**

18 U.S.C. 1020 READS AS FOLLOWS:

"Whoever being an officer, agent, or employee of the United States, or any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more than \$10,000 or imprisoned not more than 5 years or both."

#### **X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

## **XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

### **1. Instructions for Certification - Primary Covered Transactions:**

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement

portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

**Certification Regarding Debarment,  
Suspension, Ineligibility and Voluntary  
Exclusion—Primary Covered Transactions**

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

**2. Instructions for Certification - Lower Tier Covered Transactions:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions of \$25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

**Certification Regarding Debarment,  
Suspension, Ineligibility and Voluntary  
Exclusion—Lower Tier Covered Transactions**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

**XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative

agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

**FEDERAL-AID FEMALE AND MINORITY GOALS**

In accordance with Section II, "Nondiscrimination," of "Required Contract Provisions Federal-aid Construction Contracts" the following are the goals for female utilization:

Goal for Women (applies nationwide).....(percent)                      6.9

The following are goals for minority utilization:

**CALIFORNIA ECONOMIC AREA**

	Goal (Percent)
<b>174 Redding, CA:</b>	
Non-SMSA Counties	6.8
CA Lassen; CA Modoc;CA Plumas;	
CA Shasta; CA Siskiyou; CA Tehama.	
<b>175 Eureka, CA:</b>	
Non-SMSA Counties .	6.6
CA Del Norte; CA Humboldt; CA Trinity.	
<b>176 San Francisco-Oakland-San Jose, CA:</b>	
SMSA Counties:	
7120 Salinas-Seaside-Monterey, CA	28.9
CA Monterey.	
7360 San Francisco-Oakland	25.6
CA Alameda; CA Contra Costa; CA Marin	
CA San Francisco; CA San Mateo.	
7400 San Jose, CA	19.6
CA Santa Clara.	
7485 Santa Cruz, CA.	14.9
CA Santa Cruz.	
7500 Santa Rosa, CA	9.1
CA Sonoma.	
8720 Vallejo-Fairfield- Napa, CA	17.1
CA Napa; CA Solano	
Non-SMSA Counties	23.2
CA Lake; CA Mendocino; CA San Benito.	
<b>177 Sacramento, CA:</b>	
SMSA Counties:	
6920 Sacramento, CA.	16.1
CA Placer; CA Sacramento; CA Yolo.	
Non-SMSA Counties.	14.3
CA Butte; CA Colusa; CA El Dorado; CA Glenn;	
CA Nevada; CA Sierra; CA Sutter; CA Yuba.	
<b>178 Stockton-Modesto, CA:</b>	
SMSA Counties:	
5170 Modesto, CA	12.3
CA Stanislaus.	
8120 Stockton, CA	24.3

CA San Joaquin.		
Non-SMSA Counties		19.8
CA Alpine; CA Amador; CA Calaveras; CA Mariposa; CA Merced; CA Tuolumne.		
		Goal (Percent)
<b>179 Fresno-Bakersfield, CA:</b>		
SMSA Counties:		
0680 Bakersfield, CA		19.1
CA Kern.		
2840 Fresno, CA	26.1	
CA Fresno.		
Non-SMSA Counties		23.6
CA Kings; CA Madera; CA Tulare.		
<b>180 Los Angeles, CA:</b>		
SMSA Counties:		
0360 Anaheim-Santa Ana-Garden Grove, CA.		11.9
CA Orange.		
4480 Los Angeles-Long Beach, CA		28.3
CA Los Angeles.		
6000 Oxnard-Simi Valley-Ventura, CA		21.5
CA Ventura.		
6780 Riverside-San Bernardino-Ontario, CA.		
CA Riverside; CA San Bernardino.		19.0
7480 Santa Barbara-Santa Maria-Lompoc, CA		19.7
CA Santa Barbara.		
Non-SMSA Counties		
CA Inyo; CA Mono;	24.6	
CA San Luis Obispo.		
<b>181 San Diego, CA:</b>		
SMSA Counties		
7320 San Diego, CA.		16.9
CA San Diego.		
Non-SMSA Counties		18.2
CA Imperial.		

In addition to the reporting requirements set forth elsewhere in this contract the Contractor and subcontractors holding subcontracts, not including material suppliers, of \$10,000 or more, shall submit for every month of July during which work is performed, employment data as contained under Form FHWA PR-1391 (Appendix C to 23 CFR, Part 230), and in accordance with the instructions included thereon.

## FEDERAL REQUIREMENT TRAINING SPECIAL PROVISIONS

As part of the Contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The Contractor shall provide on-the-job training to develop full journeymen in the types of trades or job classification involved.

The number of trainees or apprentices to be trained under the requirements of this special provision will be 1.

In the event the Contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees or apprentices are to be trained by the subcontractor, provided however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The Contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of trainees or apprentices in each occupation shall be in their first year of apprenticeship or training.

The number of trainees or apprentices shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing work, the Contractor shall submit to the Department for approval the number of trainees or apprentices to be trained in each selected classification and training program to be used. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. The Contractor will be credited for each trainee or apprentice employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees or apprentices as provided hereinafter.

Training and upgrading of minorities and women toward journeymen status is a primary objective of this Training Special Provision. Accordingly, the Contractor shall make every effort to enroll minority and women trainees or apprentices (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees or apprentices) to the extent such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee or apprentice in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the Contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by both the Department and the Federal Highway Administration. The Department and the Federal Highway Administration will approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee or apprentice for journeyman status in the classification concerned by the end of the training period. Only apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training shall be considered acceptable to meet the requirements of this Training Special Provision. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the Contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the Contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the Contractor where he does one or more of the following and the trainees or apprentices are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or apprentice or pays the trainee's or apprentice's wages during the offsite training period.

No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee or apprentice as a journeyman, is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee or apprentice will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the

project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees or apprentices be on board for the entire length of the contract. A Contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees or apprentices specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees or apprentices shall be paid the standard wage specified under the regulations of the craft or trade at which they are employed.

The Contractor shall furnish the trainee or apprentice a copy of the program he will follow in providing the training. The Contractor shall provide each trainee or apprentice with a certification showing the type and length of training satisfactorily completed.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.