

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
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July 1, 2009

04-SM-280-13.3/13.6
04-0A9204
ACIM-280-1(117)E

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for BUILDING CONSTRUCTION ADJACENT TO STATE HIGHWAY IN SAN MATEO COUNTY NEAR HILLSBOROUGH AT CRYSTAL SPRINGS SAFETY ROADSIDE REST AREA.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on Tuesday, July 7, 2009.

This addendum is being issued to revise the Project Plans, the Notice to Bidders and Special Provisions, the Federal Minimum Wages with Modification Number 29 dated 06/05/09, and provide a copy of the Information Handout.

Project Plan Sheets 61, 119, 134, 156, 169 and 173 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheets 118A, 133A, 155A, 168A and 172A are added. Half-sized copies of the added sheets are attached for addition to the project plans.

In the Special Provisions, Section 5-1.08, "PROJECT INFORMATION," is revised as attached.

In the Special Provisions, Section 5-1.11, "NATURALLY OCCURRING ASBESTOS," is revised as attached.

In the Special Provisions, Section 10-1.29, "MATERIAL CONTAINING NATURALLY OCCURRING ASBESTOS," is revised as attached.

In the Special Provisions, Section 12-2.03, "LEAD RELATED CONSTRUCTION WORK," is revised as attached.

In the Special Provisions, Section 12-4.01, "CONCRETE MASONRY UNITS," is revised as attached.

In the Special Provisions, Section 12-5.01, "STRUCTURAL STEEL FOR BUILDINGS," is revised as attached.

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To Bid book holders:

Attached is a copy of the additional Information Handout "LEAD-CONTAINING PAINT AND TILE SAMPLING RESULTS" and "RETAINING WALL ASBESTOS REPORT".

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the Notice to Bidders section of the Notice to Bidders and Special Provisions.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the Bid book.

Submit bids in the Bid book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by GSO overnight mail to all book holders to ensure that each receives it. A copy of this addendum and the modified wage rates are available for the Contractors' use on the Web site:

http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addenda.php

If you are not a Bid book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

REBECCA D. HARNAGEL, Chief
Office of Plans, Specifications & Estimates
Division of Engineering Services - Office Engineer

Attachments

5-1.08 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 Standard Specifications and these special provisions do not appear in this section. The information is subject to the conditions and limitations set forth in Section 2-1.03, "Examination of Plans, Specifications, Contract, and Site of Work," and Section 6-2, "Local Materials," of the Standard Specifications. Bidders and Contractors shall be responsible for knowing the procedures for obtaining information.

Information attached to the project plans is as follows:

A. Log of Test Borings.

Information included in the Information Handout provided to bidders and Contractors is as follows:

1. Foundation Report, Feb. 14, 2006
2. Asbestos and Lead-based Paint/Material Demolition Survey, by CSC of Pleasanton, CA, March 31, 2005
3. Asbestos & Deteriorated Lead Paint Survey Report, by Geocon, March 2007
4. Retaining wall asbestos report by EMSL, April 27, 2007
5. Site Investigation Report, Crystal Springs Rest Area, Hillsborough, March, 2007
6. Lead-Containing Paint and Tile Sampling Results, Crystal Springs Rest Area, by Geocon, May 21, 2009
7. Revocable Permit issued by the San Francisco Public Utilities Commission
8. Boring Logs for the area of the utility easement

Cross sections are not available for this project.

The District Office in which the work is situated is located at Duty Senior's Office, 111 Grand Ave., Oakland, CA. 94623.

5-1.11 NATURALLY OCCURRING ASBESTOS

Naturally occurring asbestos (NOA) is present within the project limits. Material containing NOA is material that has an asbestos content of 0.25 percent or greater as defined in California Code of Regulations, Title 17, Section 93105 "Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations." These provisions are also applicable when work is located in serpentine and ultramafic rock.

Handling, stockpiling, transporting, and disposing of material containing NOA must comply with "Material Containing Naturally Occurring Asbestos" of these special provisions.

Notify the Engineer and the Air Pollution Control District (APCD) at least 15 days before starting work that disturbs material containing NOA. Maintain and make available at the job site a copy of the APCD notification and exemption, if appropriate. Provide the Engineer a copy of the APCD notification and exemption, if approved.

The site investigation report is available as specified in "Project Information" of these special provisions.

After you have completed the handling and placement of material containing NOA in accordance with these special provisions, as certified by the Engineer, you will have no further responsibility for the NOA material in place within the right-of-way. You will not be considered a generator of the hazardous material, and the Department requires no further cleanup, removal, or remedial actions for the material containing NOA will be required within the right-of-way.

Excavate, stockpile, reuse, and dispose of material containing hazardous levels of NOA under the rules and regulations of the following agencies:

1. United States Environmental Protection Agency
2. Department of Toxic Substances Control, North Region
3. California Integrated Waste Management Board
4. California Department of Public Health
5. California Division of Occupational Safety and Health Administration
6. California Air Resources Board
7. San Francisco Bay Area Air Quality Management District
8. California Department of Motor Vehicles
9. Regional Water Quality Control Board (Region 2), San Francisco Bay Area

Handle and transport material containing hazardous levels of NOA to comply under Federal and State laws and regulations and county and municipal ordinances and regulations. Laws and regulations that govern this work include:

1. California Code of Regulations, Title 8, Section 1529 (Asbestos) and Section 5192 (Hazardous Waste Operations and Emergency Response)
2. California Code of Regulations, Title 17, Section 93105 (Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations) and Section 93106 (Asbestos Airborne Toxic Control Measure for Surfacing Applications)
3. California Code of Regulations, Title 22, Division 4.5, Chapter 10 (Environmental Health Standards for the Management of Hazardous Waste)
4. Health and Safety Code, Division 20, Chapter 6.5 (Hazardous Waste Control)
5. Code of Federal Regulations, Part 1926, Section 1101, (Asbestos).

10-1.29 MATERIAL CONTAINING NATURALLY OCCURRING ASBESTOS

This work includes specifications for handling, stockpiling, transporting, and disposing of material containing naturally occurring asbestos (NOA). The State regulates material containing NOA and material from areas where serpentine or ultramafic rock is present. Material containing NOA is material containing 0.25 percent or greater concentration of asbestos. Naturally occurring asbestos (NOA) is present within the job site limits. The tested levels of NOA range from less than 0.25 to 6.00 percent asbestos, with an average of 1.78 percent as estimated by the 90 percent upper confidence limit (UCL) and as analyzed by California Air Resources Board (CARB) Test Method 435.

Perform earthwork in areas containing NOA under Section 19, "Earthwork," of the Standard Specifications and these special provisions. A copy of the asbestos testing report is available as specified in "Project Information" of these special provisions.

Notify the Air Pollution Control District (APCD) at least 15 days before starting work in areas containing NOA and comply with the California Air Resources Board (CARB), Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying and Surface Mining Operations (ATCM) and California Code of Regulations (CCR), Title 17, Section 93105 (d)(1)(A).

Material containing NOA exists throughout the project site.

Surplus material containing NOA may be temporarily stockpiled until such time it is transported and disposed of in accordance with these specifications or used on site (for excavated material containing 0.25 percent NOA or greater). Limit stockpile locations to areas that contain NOA within the job site limits when not actively working with stockpile material. Cover temporary stockpiles with polyethylene sheeting of 10-mil minimum thickness or stabilize stockpiles by other methods permitted by the ATCM under CCR Title 17, Section 93105(d)(1)(3). Temporarily stockpiled surplus material containing NOA is not selected material under Section 19-2.07, "Selected Material," of the Standard Specifications.

Do not leave NOA surface areas exposed unless these areas are stabilized by being kept wetted or by being treated with a chemical dust palliative. Disturbed material containing NOA permanently placed during construction activities must be covered with a 3-inch-minimum layer of asbestos-free material that has been certified by the Engineer. Survey the locations where material containing NOA is placed using GPS, electronic theodolite, or other methods approved by the Engineer and submit the information to the Engineer.

Material with 1 percent or higher concentration of NOA is hazardous material and for removing, managing, hauling, and disposing of the material outside the right-of-way, comply with federal, state, and local laws and ordinances.

Material with 0.25 percent or higher of NOA must not be left exposed on the surface if disturbed.

SUBMITTALS

Submit the asbestos compliance plan (ACP) signed by a certified industrial hygienist (CIH) certified in comprehensive practice by the American Board of Industrial Hygiene to the Engineer for acceptance at least 15 days before starting work in areas containing NOA.

ASBESTOS-COMPLIANCE PLAN

Prepare and implement a site-specific asbestos compliance plan (ACP) to prevent or minimize worker exposure to asbestos. The ACP must comply with:

1. CCR, Title 8, Section 1529, (Asbestos) and Section 5192, (Hazardous Waste Operations and Emergency Response)
2. Occupational Safety and Health Guidance Manual published by the National Institute of Occupational Safety and Health (NIOSH)
3. Occupational Safety and Health Administration (OSHA), including addenda to it issued up to and including the date of advertisement of the contract

Include in the ACP:

1. Identification of personnel designated to be on site
2. Job hazard analysis for work assignments
3. Summary of potential risks
4. Worker exposure air monitoring plan
5. Description of personal protective equipment
6. Delineation of work zones on the job site
7. Decontamination procedures
8. General safe work practices
9. Site security measures
10. Emergency response plans
11. Description of worker training

Before performing work in areas with material containing NOA, personnel who have not had the worker training must complete a safety training program that meets the requirements of the ACP. The safety training program must meet the requirements of CCR, Title 8, Section 1529, (Asbestos), and Section 5192 (b)(4)(B), (Hazardous Waste Operations and Emergency Response). Provide the Engineer written certification of completion of safety training for each trainee before performing work in areas containing NOA.

Provide training, personal protective equipment, and washing facilities for 3 Department employees.

When required by local APCD, perform daily ambient air monitoring on this job site. If daily ambient monitoring is required, submit a written air monitoring report to the Engineer every month. The report must include:

1. Air monitoring results
2. An analysis of results from the prior month
3. The name and location of the laboratory where the analysis was performed
4. An assessment of exposures of workers or the public
5. Descriptions of the type of air monitoring equipment
6. Sampling frequency

DUST CONTROL PLAN

Prepare and implement a site-specific dust control plan (DCP). Prevent visible dust emission during excavation, stockpiling, transportation, or placement of material containing NOA under Section 10, "Dust Control," of the Standard Specifications, these special provisions, and the requirements in the Asbestos ATCM CCR Title 17, Section 93105(d)(1)(B).

Control dust in areas with material containing NOA using measures that include the following:

1. Stabilize unpaved areas subject to vehicular traffic by keeping adequately wetted, treated with a chemical dust palliative, or covered with material that contains less than 0.25 percent asbestos
2. The speed of vehicles and equipment traveling across unpaved areas must not be more than 15 mph unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment going faster from causing dust that is visible from crossing job site limits
3. Stockpiles and disturbed areas not subject to vehicular traffic must be located in the plan and stabilized by being kept adequately wetted, treated with a chemical dust palliative, or covered with material that contains less than 0.25 percent asbestos
4. Conduct activities so that no dirt or mud tracking is visible on any paved roadway open to the public

MATERIAL TRANSPORTATION AND DISPOSAL

Excess material containing 0.25 percent or more NOA must not be disposed of in a surfacing application as defined in CCR Title 17, Section 93106, "Asbestos Airborne Toxic Control Measure for Surfacing Applications."

Transport surplus material containing NOA to a landfill facility appropriately permitted to receive the NOA material. You are responsible for identifying the appropriately permitted landfill to receive the material. When handling and disposing of surplus material obtain written authorization from the owner of the disposal facility as provided in the ATCM CCR Title 17, Section 93105 and as required by Health and Safety Code Section 25249.6, stating that the surplus material contains NOA.

Dispose of surplus material containing asbestos with concentrations equal to or greater than 1 percent as hazardous waste at a landfill facility under permit issued by the California Environmental Protection Agency.

Material containing NOA excavated from outside the limits of payment for contract items is the property of the Contractor and must be disposed of in accordance with these special provisions.

Provide the Engineer copies of manifests, landfill receipts and certified weight tickets showing the amount of disposal material containing NOA and the concentration of asbestos that was sent to the facility. Provide the Engineer a copy of additional test results if required by the owner of the landfill facility.

The Engineer obtains the Environmental Protection Agency Generator Identification Number for any disposal of Department of Toxic Substance Control regulated hazardous material and will sign all manifests. Notify the Engineer 5 days before the manifests are to be signed. Ensure that the Engineer has full access to the disposal facility during construction.

MEASUREMENT AND PAYMENT

Roadway excavation (naturally occurring asbestos) will be measured and paid for by the cubic yard in the same manner specified for roadway excavation in Section 19, "Earthwork," of the Standard Specifications. Structure excavation (naturally occurring asbestos) will be measured and paid for by the cubic yard in the same manner as structure excavation specified for the construction of foundations for structures in Section 19-3, "Structure Excavation and Backfill."

Surveying locations where material containing NOA is placed as directed by the Engineer and reporting survey data to the Engineer will be paid for as extra work as provided in Section 4-1.03D, "Extra Work", of the Standard Specifications.

The contract lump sum price paid for asbestos compliance plan (naturally occurring asbestos) must include full compensation for preparing and implementing the ACP and no additional compensation will be allowed therefor.

The contract lump sum price paid for dust control plan (naturally occurring asbestos) includes full compensation for preparing and implementing the DCP and providing notification and payment of fees to the APCD and no additional compensation will be allowed therefor.

Transporting and disposing of surplus material containing greater than or equal to 0.25 percent of NOA to an appropriately permitted landfill facility, including providing copies of disposal documents to the Engineer will be paid for as extra work under Section 4-1.03D, "Extra Work," of the Standard Specifications.

Placing of NOA material and covering of NOA material within the project limits must be directed by the Engineer and will be paid for as extra work under Section 4-1.03D, "Extra Work," of the Standard Specifications.

Air monitoring and reporting results will be paid for as extra work under Section 4-1.03D, "Extra Work," of the Standard Specifications.

The Department does not pay for sampling, analyzing, transporting, and disposing of material containing NOA from outside the limits of payment for contract items.

12-2.03 LEAD RELATED CONSTRUCTION WORK

PART 1 - 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.

SITE CONDITIONS

The building areas to be removed are known to contain lead containing materials. Hazardous material survey reports:

1. Asbestos and Lead-based Paint/Material Demolition Survey, by CSC of Pleasanton, CA, March 31, 2005
2. Asbestos & Deteriorated Lead Paint Survey Report, by Geocon, March 200
3. Lead-Containing Paint and Tile Sampling Results, Cyrstal Springs Rest Area, Geocon, May 21, 2009 are included as Information Handouts. The following items tested positive for lead-based paint material:

Location	Description	Total Lead (mg/kg)
Doors, Ventilation Grills, Picnic Tables and Trim	Green and Brown colored intact paint	53-2700
Restroom Floors and Walls and Exterior West Wall	Exterior tiles, Mosaic floor tiles, and White tiles	6.7-230

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 reviewed 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 5-1.02, "Plans and Working Drawings," of the Standard Specifications.

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 Public Health. 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 Public Health. The program 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 Public Health-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 Public Health 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.

PART 2 – PRODUCTS (Not applicable)

PART 3 - EXECUTION

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, and 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 Public Health criteria in the California Code of Regulations Title 17.

12-4.01 CONCRETE MASONRY UNITS

PART 1 - GENERAL

SUMMARY

Scope: This work shall consist of constructing reinforced hollow concrete masonry units in accordance with the details shown on the plans and these special provisions.

Related Work:

Water repellent coating shall be applied in accordance with the requirements specified under "Water Repellent Coating" in Section 12-7, "Thermal and Moisture Protection," of these special provisions.

PERFORMANCE REQUIREMENTS

Masonry Compressive Strength: Provide masonry that develops the compressive strength (f_m) at 28 days, as shown on the plans.

Prior to construction determine the net-area compressive strength of unit masonry under "Quality Control and Assurance." During construction determine the net-area compressive strength of unit masonry under "Field Quality Control."

SUBMITTALS

Product Data: Manufacturer's descriptive data for each type of masonry unit, accessory, and other manufactured products shall be submitted for approval.

Samples: Two samples of masonry units of each color and architectural finish shall be submitted for approval.

Working Drawings:

Submit calculations and working drawings for temporary supports of masonry lintels. Design and construct temporary supports to provide the necessary rigidity and to support loads which will be applied. Working 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.

Qualification Data: Submit qualification data for testing laboratory.

QUALITY CONTROL AND ASSURANCE

Single Source Responsibility:

Exposed masonry units of uniform color and texture shall be obtained from one manufacturer for each different product required for each continuous surface or visually related surfaces.

Mortar ingredients of uniform quality, including color for exposed masonry, shall be obtained from one manufacturer for each cementitious component and from one source and producer for each aggregate.

Certificates of Compliance: Certificate of Compliance shall be furnished for masonry units, aggregate for grout, and ready-mixed grout in accordance with the requirements specified in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

DELIVERY, HANDLING AND STORAGE

Delivery: Masonry materials shall be delivered to the project in an undamaged condition.

Storage and Handling: Masonry units shall be stored and handled in order to prevent deterioration or damage due to moisture, temperature changes, contamination, corrosion or other causes.

PART 2 - PRODUCTS

CONCRETE MASONRY UNITS

Concrete Masonry Units:

Concrete masonry units shall be nominal size, color and architectural finish as shown on plans; hollow load bearing, light weight or medium weight, conforming to ASTM Designation: C 90; open ended masonry units.

Special shapes shall be provided where required for lintels, corners, jambs, sash, control joints, headers, bonding and other special conditions.

MASONRY LINTELS

Masonry Lintels: Masonry lintels shall be from bond beam CMUs with reinforcing bars.

MORTAR AND GROUT MATERIALS

Cement:

Cement for mortar shall be Type II, low alkali portland cement conforming to ASTM Designation: C 150.

Cement for grout shall be Type II portland cement conforming to ASTM Designation: C 150 with maximum 25 percent Class N, F, or C mineral admixture conforming to ASTM Designation: C 618 except that the loss on ignition shall not exceed 4 percent; or Type IP(MS) blended hydraulic cement conforming to ASTM Designation: C 595.

Aggregate:

Aggregate for mortar shall conform to ASTM Designation: C 144, except not more than 10 percent shall pass the No. 100 sieve.

Aggregate for grout shall conform to ASTM Designation: C 404, except 100 percent of the coarse aggregate shall pass the 3/8-inch sieve. Soundness loss shall not exceed 10 percent as determined by California Test 214.

Coloring for Mortar: Coloring for mortar shall be chemically inert, fade resistant mineral oxide or synthetic type.

Lime: Lime shall conform to ASTM Designation: C 207, Type S.

Premixed Mortar: A premixed packaged blend containing only cement, lime, and sand, with or without color, that requires only water to prepare for use as masonry mortar, may be furnished. Packages of premix shall bear the manufacturer's name, brand, contents, weight, and color identification.

Ready-Mixed Grout: Ready-mixed grout shall conform to ASTM Designation: C 94, except aggregate shall be as specified herein for aggregate for grout. The minimum compressive strength shall be 2,500 psi at 28 days when tested in accordance with ASTM Designation: C 39. Admixtures, if used, shall conform to ASTM Designation: C 494, Types A, E or F and shall not contain chlorides.

REINFORCEMENT, TIES AND ANCHORING DEVICES

Bar Reinforcement: Bar reinforcement shall conform to ASTM Designation: A 615/A 615 M, Grade 60, or ASTM Designation: A 706/A 706 M.

Anchor Bolts and Anchor Rods, Nuts and Washers: Anchor bolts and anchor rods shall conform to ASTM Designation: F 1554. Anchor bolts and anchor rods shall be Grade 36 unless otherwise shown on the plans. Nuts shall conform to ASTM A 563. Washers shall conform to ASTM F 436.

Anchors, Ties, Angles, and Metal Lath: Anchors, ties, angles, and metal lath shall be commercial quality, and shall be galvanized.

Dry Pack: Dry pack to set items into masonry shall be one part portland cement to not over 3 parts of clean sand and with a minimum amount of water for hydration and packing.

Nonshrink Grout: Conform to ASTM C 1107, color to match the mortar.

PROPORTIONING MORTAR AND GROUT

Mortar shall be proportioned by loose volume and shall have one part cement, 1/4 to 1/2 part of hydrated lime, and 2 1/4 to 3 parts aggregate. Mortar shall be tinted with coloring to match the masonry units.

Premixed Mortar: Packages of premixed mortar shall have proportions of one part cement, 1/4 to 1/2 part of hydrated lime, and 2 1/4 to 3 parts aggregate.

Grout shall be proportioned by loose volume and shall have one part cement, not more than 1/10 part hydrated lime, 2 1/4 to 3 parts sand aggregate, and one to 2 parts pea gravel aggregate.

Aggregate shall be measured in a damp, loose condition.

Grout shall be mixed with sufficient water to produce a mix consistency suitable for pumping without segregation. Slump shall be 8 to 11 inches.

PART 3 - EXECUTION

CONSTRUCTION

Masonry units shall be laid in running bond, except as otherwise shown on the plans.

Surfaces of metal, glass, wood, completed masonry, and other such materials exposed to view shall be protected from spillage, splatters and other deposits of cementitious materials from masonry construction. All such deposits shall be removed without damage to the materials or exposed surfaces.

Construction shall comply with Section 2104, "Construction," of the CBC. Tolerances specified in Section 2104 shall be in effect unless otherwise shown on the plans.

Where fresh masonry joins concrete or masonry, the contact surfaces of existing material shall be roughened, cleaned and lightly wetted. The roughened surface shall be no smoother than a wood troweled surface. Cleaning shall remove laitance, curing compounds, debris, dirt and any substance which decreases bond to the fresh masonry.

Masonry shall not be erected when the ambient air temperature is below 40°F.

Surfaces of masonry erected when the ambient air temperature exceeds 100°F. shall be kept moist with water for a period of not less than 24 hours. Water shall be uniformly applied with a fog spray at the intervals required to keep the surfaces moist but not to exceed 3 hours unless otherwise approved by the Engineer.

All anchors, bolts, dowels, reglets and other miscellaneous items to be cast into the wall, shall be firmly secured in place before grout is poured.

Laying Masonry Units:

Concrete masonry units shall be laid dry.

During laying of units all cells shall be kept dry in inclement weather by suitably covering incomplete walls. Wooden boards and planks shall not be used as covering materials. The covering shall extend down each side of masonry walls approximately 2 feet.

Chases shall be kept free from debris and mortar.

Bond beam units with an opening at each cross web shall be used at all horizontal reinforcing bars.

Where masonry unit cutting is necessary, all cuts shall be made with a masonry saw to neat and true lines. Blocks with excessive cracking or chipping of the finished surfaces exposed to view will not be acceptable.

Leave openings to inset outlet boxes, access control keypads, intrusion detection sensors, and similar components in masonry, with concealed wiring.

Lintels: Masonry lintels shall be as shown on the plans. Lintels shall be formed using U-shaped lintel units with reinforcing bars placed as shown on the plans. Formed-in-place lintels shall be temporarily supported for a minimum of 15 days after the wall has been completed.

Bar Reinforcement:

Bar reinforcement shall be accurately positioned as shown on the plans and securely held in position with either wire ties or spacing devices near the ends of bars and at intervals not exceeding 192 bar diameters. Wire shall be 16-gage or heavier. Wooden, aluminum, or plastic spacing devices shall not be used. Tolerances for the placement of vertical reinforcement in walls and flexural elements shall be $\pm \frac{1}{2}$ inch. Tolerance for longitudinal reinforcement in walls shall be ± 2 inches.

The minimum spacing for splices in vertical reinforcement for masonry walls shall be 4 feet plus lap.

Bar reinforcement shall not be placed in the plane of mortar joints.

Mortar:

Mortar joints shall be approximately 3/8 inch thick. Units shall be laid with all head and bed joints filled solidly with mortar for the full width of masonry unit shell. Head joints shall be shoved tight. Exposed joints shall be concave, tooled smooth, unless otherwise shown on the plans.

Mortar that has been mixed more than one hour shall not be retempered.

Mortar placed in joints shall preserve the unobstructed vertical continuity of the grout. Any overhanging mortar projecting more than $\frac{1}{2}$ inch, or other obstruction or debris shall be removed from the inside of such cells.

GROUTING

All cells shall be filled solidly with grout. All grout in the cells shall be consolidated at the time of placement by vibrating and reconsolidated after excess moisture has been absorbed but before plasticity is lost. Slicing with a trowel is not acceptable.

Masonry units may be placed full height of the masonry work before grouting, or they may be placed in increments for individual grout pours.

Cleanouts shall be provided for all grout pours over 5 feet in height and shall have a maximum spacing of 32 inches. Cleanouts shall be provided in the bottom course at every cell containing vertical reinforcement and shall be a minimum of 3 inches square. After cell inspection, the cleanouts shall be sealed before filling with grout.

Masonry units shall be placed full height of the grout pour. Grout shall be placed in a continuous pour in grout lifts. Grout lifts shall not exceed 5 feet. The interruption between placing successive grout lifts shall be not more than one hour. If the interruption is more than one hour, another grout pour shall be used.

Between grout pours, a horizontal construction joint shall be formed by stopping the grout a minimum of 1½ inches below the top of the last course, except if the joint is at a bond beam, it shall be ½ inch below the top of the bond beam unit, or at the top of the wall.

CLEANING AND PROTECTING MASONRY

Splashes, stains or spots on the faces of the masonry exposed to view shall be removed.

Completed masonry shall be protected from freezing for a period of at least 5 days.

FIELD QUALITY CONTROL

Any work not meeting the requirements of Section 2105 shall be redone and retested. Sampling, inspecting, reworking and retesting of material will be done at the Contractor's expense.

12-5.01 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, nuts and washers and alternative connectors, shall be submitted for approval.

Working Drawings:

Working drawings and calculations shall be submitted for approval.

Working 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 working 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. Working 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 6-1.07, "Certificates of Compliance," of the Standard Specifications. 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.
2. ASTM A 572/A 572M, Grade 50, when minimum yield stress is 50 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 501, when minimum yield stress is 36 ksi.
2. 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.
3. ASTM A 500/A 500M, Grade C, when minimum yield stress is 46 ksi for round shapes, and when minimum yield stress is 50 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. Headed and unheaded anchor bolts and anchor rods shall conform to the following when the grade is shown on the plans:

1. ASTM F 1554, Grade 55.

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.

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.

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.

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 Section 12-9, "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 working 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:

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.

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 Section 12-9.

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.