

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

OFFICE ENGINEER

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June 13, 2014

04-Ala-5785
04-014104
Project ID 0413000133

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for CONSTRUCTION ON STATE HIGHWAY IN ALAMEDA COUNTY IN OAKLAND AT THE SAN FRANCISCO-OAKLAND BAY BRIDGE MAINTENANCE YARD.

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, June 24, 2014.

This addendum is being issued to revise the project plans, the *Notice to Bidders and Special Provisions* and the *Bid* book.

Project plan sheets 45 and 51 are replaced and attached for substitution for the like-numbered sheets.

In the Special Provisions, Section 8-1.04C, is added as attached.

In the Special Provisions, Section 10-1.05, is added as attached.

In the Special Provisions, Section 99, "BUILDING CONSTRUCTION," replace the heading "DIVISION 1 GENERAL REQUIREMENTS" with "99-1 GENERAL REQUIREMENTS."

In the Special Provisions, Section 010000, "GENERAL REQUIREMENTS," is replaced as attached.

In the Special Provisions, Section 011000, "SUMMARY," Section 1.6, "SPECIFICATION AND DRAWING CONVENTIONS," item B is replaced as follows:

"B. 99-1 General Requirements: Requirements of 99-1 apply to the Work of all Sections of Standard Specification Section 99."

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In the Special Provisions, Section 013300, "SUBMITTAL PROCEDURES," Section 1.3, "ACTION SUBMITTAL," item A is replaced as follows:

- "A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Engineer and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 2. Initial Submittal: Submit within 7 days after Contract approval. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered."

In the Special Provisions, Section 013300, "SUBMITTAL PROCEDURES," Section 2.1, "SUBMITTAL PROCEDURES," the following items are added after the last item.

- "R. Contractor's Construction Schedule: Comply with requirements specified in Standard Specification Section 8.
- S. Progress Estimate and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."

In the Special Provisions, Section 016000, "PRODUCT REQUIREMENTS," Section 2.1, "PRODUCT SELECTION PROCEDURES," item B is replaced as follows:

- "B. Visual Matching Specification: Where Specifications require "match Engineer's sample", provide a product that complies with requirements and matches Engineer's sample. Engineer's decision will be final on whether a proposed product matches."

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In the Special Provisions, Section 01770, "CLOSEOUT PROCEDURES," Section 1.5, "SUBSTANTIAL COMPLETION PROCEDURES," item A is replaced as follows:

- "A. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Department unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Engineer. Label with manufacturer's name and model number where applicable.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Engineer's signature for receipt of submittals.
 5. Submit test/adjust/balance records.
 6. Submit sustainable design submittals required in Standard Specification Section 10-2.03, "LEED," and in individual Sections.
 7. Submit changeover information related to Department's occupancy, use, operation, and maintenance."

In the Special Provisions, Section 03300, "CAST-IN-PLACE CONCRETE," is replaced as attached.

In the Special Provisions, Section 05120A(2), the fifth paragraph is replaced as follows:

"structural steel: Elements of the structural frame indicated on Drawings and as described in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

In the Special Provisions, Section 055313, "BAR GRATINGS," is added as attached.

In the Special Provisions, Section 133425B(1), "Paint Spray Booth," the second paragraph is replaced as follows:

"The booth must be modular construction and fabricated from preformed steel panels with double wall, insulated construction with internal support members. Steel gage for the preformed steel panels must be in compliance with NFPA 33 and not less than 20ga minimum thickness. Preformed steel panels to be coated inside and out with a baked-on Polyester top coat. Color to be selected by the Engineer from the manufacturer's standard colors. Booth's steel support structure to be 14ga steel minimum."

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In the Special Provisions, Section 133426B(1), "Blast Booth," the second paragraph is replaced as follows:

"The booth must be modular construction and fabricated from preformed steel panels with double wall, insulated construction with internal support members. Steel gage for the preformed steel panels must be in compliance with NFPA 33 and not less than 20ga minimum thickness. Preformed steel panels to be coated inside and out with a baked-on Polyester top coat. Color to be selected by the Engineer from the manufacturer's standard colors. Booth's steel support structure to be 14ga steel minimum."

In the Special Provisions, Section 133426B(2), "Blast & Recovery Unit," is replaced as follows:

"Blast & recovery units must have capacity, air flow, and electrical characteristics as shown. There must be two blast & recovery units. One unit must be suitable for use with steel shot blast material and the other unit must be suitable for use with copper slag (kleen blast) blast material. Blast & recovery unit must be a factory assembled pneumatic unit capable of blasting, recovering, separation, filtration, and dust collection with a pressure blower. Blast & recovery unit must be skid mounted with a ladder for serviceable items, factory wired and piped, be suitable for indoor use, and have a local electrical disconnect. All components must be mounted on the unit skid except for the media recovery hopper. Media recovery hopper must be welded steel construction with an anti-clogging refuse screen and be located inside the blast booth. Media reclaimer must be welded steel construction, tunable to the proper size for the media being used, and have an ultra wear lining on reclaimer interior with externally replaceable wear plate. Media storage hopper must be floor sweep type, welded steel construction, have a viewing window, and have a capacity of 10.5 cubic feet. Pressure vessel must be ASME constructed, have a capacity of 10.5 cubic feet, have 780 pot under pressure remote controls, have 1-1/4 inch piping, have an adjustable grit valve/media regulator with straight thru flow, and have a moisture separator/filter and choke feature. Blast apparatus must have a silicone-carbide venturi #8 nozzle or sized suitable for media being used, a 1 inch inside diameter by 50 foot long heavy duty blast hose with couplings, a pneumatic blast control handle with a safety stop, and a 55 foot dual line pneumatic control hose. Operating system pressure for blasting must be 100 psi to 125 psi. Dust collector must be a HEPA type cartridge dust collector with welded steel construction capable of removing 99% of particles one micron in size or larger. Discharge air must be suitable for discharge back into the space. Dust collector must have large access doors for cleaning with a collection hopper at the bottom. Pressure blower must have the air flow and static pressure as shown capable of recovering blast media at a rate of 70 pounds per minute of more."

In the *Bid* book, in the "Bid Item List," Items 53, 54 and 55 are replaced as attached.

To *Bid* book holders:

In the *Bid* book, page 5 of the "Bid Item List" is replaced as attached. The attached Bid Item List is to be used in the bid.

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.

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Inform subcontractors and suppliers as necessary.

This addendum and attachments are available for the Contractors' download on the Web site:

http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/04/04-014104

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,



MOHSEN SULTAN
Chief, Office of Plans, Specifications & Estimates
Office Engineer
Division of Engineering Services

Attachments

Replace "Reserved" in section 8-1.04C with:

Section 8-1.04B does not apply.

Start job site activities no earlier than December 15, 2014, and within 55 days after receiving notice that the Contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department.

Do not start job site activities until the Department authorizes or accepts your submittal for:

1. CPM baseline schedule
2. WPCP or SWPPP, whichever applies
3. Notification of DRA or DRB nominee and disclosure statement
4. SSPC QP certifications

You may enter the job site only to measure controlling field dimensions and locate utilities.

Do not start other job site activities until all the submittals from the above list are authorized or accepted and the following information is received by the Engineer:

1. *Notice of Materials To Be Used* form.

You may start job site activities after December 15, 2014 and before the 55th day after Contract approval if you:

1. Obtain specified authorization or acceptance for each submittal before the 55th day.
2. Receive authorization to start

Submit a notice 72 hours before starting job site activities. If the project has more than 1 location of work, submit a separate notice for each location.

Replace "Reserved" in section 10-1.05 of the RSS for section 10-1 with:

10-1.05 UTILITY PROTECTION REQUIREMENT

Work adjacent to PG&E's high pressure gas line is subject to the following requirements:

1. Notify the Engineer at least 10 working days before start of excavation and piling work.
2. Arrange for a PG&E representative to be present whenever construction activities are within 10' horizontally of the gas pipeline.
3. Do not exceed the following weight limits for any equipment traversing or coming within 10' horizontally of the gas pipeline:

Depth of Cover (ft)	Maximum Wheel Load half axle*
2	11,609
3	24,159
4	38,399
5	56,398
6	69,221
7	78,308
8	86,740

* Half axle weight is the gross weight upon any one wheel, or wheels, supporting one end of an axle. Tracked equipment, cranes, and vibratory compactors must be evaluated by PG&E on a case by case basis.

4. Do not allow equipment to be parked or set up directly over the gas pipeline. Crane outriggers must be set at least 10' horizontally away from the centerline of the gas pipeline.
5. Excavate only by hand digging within 2' of the gas pipeline.
6. Keep edge of any driven pile at least 3' horizontally away from gas pipeline.

SECTION 010000 GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section 99 includes specifications for performing building construction work.
- B. Building construction work includes the SFOBB Warehouse, which will include the Warehouse building, the Storage Canopy building, a premanufactured metal dock and ramp, and the facility site signage shown on the sheets labeled *GP, A, ST, M, and EE*.
 - 1. The Warehouse building consists of a 33,093 square foot warehouse building with covered breezeway, concrete walks, concrete aprons, concrete driveway aprons, curbs, and planter curbs as shown. The Warehouse includes a 1985 square foot mezzanine, humidity control enclosures and associated humidity control equipment, and a 4175 square foot metal finishing shop with spray, blast, paint mixing booths and all associated equipment.
 - 2. A 2285 square foot Storage Canopy with concrete aprons.
 - 3. A premanufactured dock and ramp on a concrete pad.
 - 4. Facility Site Signage
 - 5. A concrete pad for a future Tire Storage Canopy
 - 6. Any other items or details required by the plans, Standard Specifications, or these special provisions.
- C. "Standard Specification Section" refers to section numbers of the *Standard Specifications* as revised by any revised standard specification, special provision, or both.
- D. Standard Specification Sections 15 through 98 do not apply to building construction work except where a specific reference is made to one of these sections.
- E. The styles of section 99 differ from the styles of the other sections in that:
 - 1. Within section 99, the Department is gradually changing the specifications to align with CSI's MasterFormat styles and 50-division CSI MasterFormat numbers. Because of this transition, the format, organization, and language may vary between sections. Until the transition is complete, a 50-division section number will be located in the division that correlates with the 16-division CSI MasterFormat.
 - 2. Some section 99 specifications are in a streamlined form. In these specifications, interpret a colon as "must be."
- F. Specifications in a Standard Specification Section titled "General" apply to all subordinate sections within the section. A reference to a section includes specifications in sections titled "General" that apply to the section.
- G. Where a reference is made to a Standard Specification Section, Standard Specification Sections 1 through 9 apply and corresponding Standard Specification Section 99-1 specifications do not apply.
- H. The building construction work does not include furnishing and driving precast prestressed temporary indicator piling.

1.2 INTERPRETATION OF BUILDING-INDUSTRY-STANDARD TERMINOLOGY

Standard Specification Section 99 uses building-industry-standard terminology. Some of this terminology differs from that used in sections other than Standard Specification Section 99. Interpret Standard Specification Section 99 terminology as shown in the following table:

Standard Specification Section 99 terminology	Interpretation
Allowance	Change order work
Comparable product	Product that is equal to or better than a specified product as specified in Standard Specification Section 6-3.02.
Compliance with substitution procedure	Compliance with VECP specifications.
Construction Change Directive	Disregard references to this document. Comply with change procedures in Standard Specification Section 4.
Construction Manager	Engineer
Contract modification procedures	Change procedures
Contract sum	Price bid for building work
Material Certificate	Certificate of compliance
Product Certificate	Certificate of compliance
Project identification	Contract number
Punch list	Disregard references to a punch list. The Department does not engage in this practice.
Substantial Completion	Work completion
Work Change Directive	Disregard references to this document. Comply with change procedures in Standard Specification Section 4.
Work Change Proposal Request	<i>Change Order</i>
Project site	"Job site" as defined in Standard Specification Section 1

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 010000

99-3 CONCRETE AND REINFORCEMENT

99-03300 CAST-IN-PLACE CONCRETE

99-03300A General

99-03300A(1) Summary

Scope: This work consists of constructing cast-in-place concrete facilities.

Concrete:

Except for concrete used for minor work, concrete must comply with Standard Specification Section 90. The minimum required compressive strength must be as described or 3,600 psi at 28 days, whichever is greater.

Concrete for minor work must comply with Standard Specification Section 90-2.

Reinforcement: Reinforcement must comply with Standard Specification Section 52, except you may use deformed bars complying with ASTM A 615/A 615M, Grade 60.

99-03300A(2) Definitions

Not Used

99-03300A(3) Submittals

Product Data:

Manufacturer's descriptive data, installation and use instructions for admixtures, expansion joint material, vapor barrier, curing compound, hardener, and sealer must be submitted.

Descriptive data must be delivered to the Engineer at the job site.

Concrete Mix Designs: Submit copies of concrete mix designs.

Certificates of Compliance: Submit a certificate of compliance when required.

LEED Submittals:

MR Credit 4, Recycled Content: For materials with recycled content, submit product data and certification letter documenting post-consumer and pre-consumer recycled content. For each item, indicate cost, post-consumer recycled content, pre-consumer recycled content, and recycled content value based on weight (counting pre-consumer recycled content at half actual value).

MR Credit 5, Regional Materials: For materials with regional content, submit product data indicating location and radius distance from job site of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the percentage by weight that is considered regional.

99-03300A(4) Quality Control and Assurance

LEED:

MR Credit 4, Recycled Content: Use materials with recycled content to contribute toward achieving MR Credit 4.

MR Credit 5, Regional Materials: Use materials with regional content to contribute toward achieving MR Credit 5.

MR Credit 7, Certified Wood: Use materials with certified wood content to contribute toward achieving MR Credit 7.

99-03300B Materials

99-03300B(1) Concrete Mixes

The amount of cementitious material used per cubic yard of concrete for each building element must comply with the following:

Type	Cementitious Material Content (Pounds/CY)
Concrete (Structural Work): Footings, foundation walls, floor slabs, building frame members, building walls	590 min. ^a
Concrete (Minor Work): For concrete curbs, sidewalks, driveways, gutter depressions, new door openings, and collars	505 min.

Notes:

^aFor concrete designated by compressive strength, the maximum amount of cementitious material must be 800 pounds per cubic yard.

^bConcrete must be air entrained under Standard Specification Section 90-1.02E. The air content at time of mixing and prior to placing must be $6 \pm 1\frac{1}{2}$ percent.

In addition to the above requirements, concrete must comply with Standard Specification Section 90-1.02H.

99-03300B(3) Form Materials

Forms for Exposed Finish Concrete:

Forms for exposed surfaces must be plywood, metal or other panel type materials. Plywood must be not less than 5/8 inch thick and without scars, dents, and delaminations. Forms must be furnished in largest practical pieces to minimize number of joints.

Plywood must comply with the requirements of U. S. Product Standard PS-1 for Exterior B-B (Concrete Form) Class I.

Forms for edges of slabs must be nominal 2-inch solid stock lumber, plywood, or metal forms.

Forms for Unexposed Finish Concrete: Forms for unexposed finish concrete surfaces must be plywood, lumber, metal, or other acceptable material.

Forms for Cylindrical Columns or Supports: Forms for cylindrical columns must be metal, fiberglass reinforced plastic, paper, or fiber tubes. Paper or fiber tubes must be constructed of laminated plies using water-resistant adhesive with wax-impregnated exterior for protection against weather or moisture.

Form Ties: Form ties must be factory fabricated, removable or snapoff metal ties for use as necessary to prevent spreading of forms during concrete placement.

Form Oil: Form oil must be commercial quality form oil which will permit the ready release of the forms and will not discolor the concrete.

99-03300B(4) Reinforcement

Not Used

99-03300B(5) Epoxy

Epoxy must be furnished as 2 components which must be mixed together at the site of the work.

Epoxy Resin Adhesive: Epoxy resin adhesive must comply with 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 must consist of a commercial quality, trowelable mixture consisting of epoxy and sand. Epoxy must have a pull-off strength of not less than 1,000 psi and a 90-percent cure in 24 hours. Epoxy must be of the type that requires no primer as a bonding agent.

Sand:

Sand for use in epoxy mortars must be clean and must have a moisture content of not more than 0.50-percent when tested under California Test 226.

Sand for epoxy mortar surface treatment must be graded such that 100-percent passes the No. 100 sieve.

99-03300B(6) Related Materials

Anchor Bolts and Anchor Rods, Nuts and Washers:

Headed and Unheaded Anchor Bolts and Anchor Rods: Comply with ASTM F 1554. Use Grade 36 unless a higher grade is shown.

Nuts: Comply with ASTM A 563.

Washers:

1. Washers bearing on wood surfaces must be commercial quality.
2. Washers bearing on steel surfaces must comply with ASTM F 436, Type 1.
3. Plate washers must comply with ASTM A 36/A 36M.

Exposed anchor bolts and anchor rods, nuts and washers must be hot-dipped galvanized.

Expansion Joint Material: Expansion joint material must be commercial quality asphalt impregnated pressed fiber sheets, 1/2-inch minimum thickness.

Vapor Barrier: Vapor barrier must be not less than 15 mils thick and must comply with the requirements of ASTM E 1745, Grade A. Tape for overlapped seams must be as recommended by the manufacturer of the vapor barrier.

Bond Breaker: Bond breaker must be Type I asphalt saturated organic felt or such other material authorized by the Engineer.

Nonskid Abrasive Aggregate: Nonskid abrasive aggregate must 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 must be commercial quality, preformed, T-shaped plastic strips with detachable top flange.

Keyed Construction Joint Forms: Keyed construction joint forms must be commercial quality, galvanized metal or plastic, factory fabricated construction joint forms. Forms must produce a rabbeted key type joint.

Divider and Edger Strips: Divider and edger strips must be foundation grade redwood.

Mortar: Mortar must consist of one part cement to 2 parts clean sand and only enough water to permit placing and packing.

Curing Compound: Curing compound must be curing compound no. 6.

Concrete Hardener: Concrete hardener must be commercial quality water borne penetrating type magnesium fluosilicate, zinc fluosilicate or combination thereof.

Concrete Sealer: Concrete sealer must be commercial quality VOC-compliant, silane type sealer with hydrophobic and oleophobic properties.

Chemically Resistant Concrete Sealer: Chemically resistant concrete sealer must be commercial quality VOC-compliant solvent based sealant formulated with methyl methacrylate polymers with a high level of resistance to aliphatic solvents, acids, alkalis, gasoline, oils and grease.

Nonshrink Grout:

Nonshrink grout must be metallic for concealed areas, nonmetallic for exposed areas.

Grout must be factory packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107; free of oxidizing catalysts and inorganic accelerators, used as dry or damp pack, or mixed to a 20-second flow (CRD C621), without segregation or bleeding at any temperature between 45 deg F and 90 deg F.

Working time of grout must be 30 minutes or more.

99-03300C Construction

99-03300C(1) 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 must 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 must be no smoother than a wood trowelled surface. Cleaning of the contact surfaces must remove laitance, curing compounds, debris, dirt and such other substances or materials which would prevent bonding of the fresh concrete.

Abrasive blast methods must 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 must be cleaned to remove any substance or material that would prevent bonding of the fresh concrete.

Forms:

Forms must be mortar tight, true to the dimensions, lines, and grades shown, securely fastened and supported, and of adequate rigidity to prevent distortion during placing of concrete.

Forms for exposed surfaces must 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 must be removable without chipping, spalling, heating or otherwise damaging the concrete surface. Form ties must be removed to a depth of at least one inch below the surface of the concrete.

The inside surfaces of forms must be cleaned of all dirt, mortar and foreign material. Forms must be thoroughly coated with form oil prior to use.

Forms must not be stripped until at least 40 hours after placing concrete, except soffit forms and supports must not be released or removed until at least 10 days after placing concrete.

Anchorage and embedded items must be placed and rigidly secured at their planned locations prior to placing concrete.

Reglets or embedded flashing must be installed on concrete forms before the concrete is placed.

Redwood dividers must have 16d galvanized nails partially driven into both vertical faces at 18 inches on center.

Vapor Barrier:

Vapor barrier must be installed under the manufacturer's instructions and must be protected with a 3-inch layer of clean uncompacted sand cover.

Unless otherwise shown, vapor barrier must be placed under portions of the floor slab scheduled to receive finish flooring or epoxy floor sealer.

Placing Reinforcement:

If authorized, you may use plastic supports to hold reinforcement in position.

Set wire ties with ends directed into concrete, away from exposed concrete surfaces.

Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

Ground Bar: A continuous reinforcing steel bar must be installed in the building foundation at the location shown for the electrical ground bar. The use of epoxy coated reinforcing bar is not permitted. The end of the ground bar must extend beyond the concrete surface and must be protected from damage by construction operations.

99-03300C(2) Placing Concrete

Concrete must be placed under Standard Specification Section 51-1.03D.

Concrete must 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 must be placed in alternate long strips between construction joints and the final slab infilled.

99-03300C(3) Colored Concrete (Not Used)

99-03300C(4) Finishing Concrete Surfaces

Finishing Unformed Surfaces:

Slabs must be placed full thickness to finish elevation and leveled to screeds by use of long straightedges. The screeds must be set to grade at approximately 6-foot centers. After leveling, screeds must be removed and the surface must be floated with wooden floats.

Type A control joint strips must be inserted into the floated concrete so that the bottom of the top flange is flush with the finish elevation. Strips must be standard manufactured lengths and must be placed on an approximate straight line. The top flange of the strips must be removed after the concrete has set and cured.

The floated surface must be trowelled with steel trowels. Troweling must form a dense, smooth and true finish. Walkways, pedestrian ramps, stairs and outdoor slabs for pedestrian traffic must be given a non-slip broom finish unless a different finish is described.

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 must be floated to grade and then, before final set of the concrete, the floated surfaces must be roughened with stiff bristled brushes or rakes.

Finished surfaces of floor slabs must not deviate more than 1/8 inch from the lower edge of a 10-foot long straight edge.

Finishing Formed Surfaces:

Formed concrete surfaces must 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 must 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 must be sanded with power sanders or other authorized 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 must closely match the color of surrounding surfaces.

99-03300C(5) Curing Concrete

Freshly placed concrete must be protected from premature drying and excessive cold or hot temperatures.

Floor slabs must be cured by the water method as specified for structures. Initial curing of floor slabs must start as soon as free water has disappeared from the concrete surface.

Concrete surfaces, other than floor slabs, must be cured by the forms-in-place method or the water method as specified for structures.

Concrete curbs, sidewalks, collars, and gutter depressions may be cured by the curing compound method.

99-03300C(6) 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.

99-03300C(7) Special Treatments

Concrete Hardener:

Chemical concrete hardener must be applied to the floor surfaces shown, prior to the application of concrete sealer. Surfaces must be clean and dry before the application of hardener.

The solution must be applied under the manufacturer's instructions.

After the hardener has dried, the surface must be mopped with water to remove encrusted salts.

Concrete Sealer: Concrete sealer must be applied to the concrete surfaces designated on the plans under the manufacturer's instructions for heavy duty use. The sealer must be applied to dry concrete surfaces.

99-03300D Payment

Not Used

SECTION 055313 - BAR GRATINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes metal bar gratings and metal frames and supports for gratings.
- B. Metal bar gratings may be either welded steel grating type or pressure-locked steel grating type, at Contractor's option.
- C. Metal bar gratings must include permanently attached connections, to be used for future lifting and removal of the grates.

1.2 COORDINATION

- A. Coordinate installation of anchorages for gratings, grating frames, and supports. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Clips and anchorage devices for gratings.
- B. LEED Submittals:
 - 1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
- C. Shop Drawings: Include plans, sections, details, and attachments to other work.
- D. Delegated-Design Submittal: For gratings, including manufacturers' published load tables and analysis data. Submittals must be signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

- A. Welding certificates.

1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with gratings by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design gratings.
- B. Structural Performance: Gratings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
Floors: 10,000lbf lift truck.

2.2 METAL BAR GRATINGS

- A. Metal Bar Grating Standards: Comply with NAAMM MBG 532, "Heavy-Duty Metal Bar Grating Manual".
- B. Welded Steel Grating:
 - 1. Bearing Bar Spacing: 1/2 inch o.c.
 - 2. Bearing Bar Depth: 4 inches.
 - 3. Bearing Bar Thickness: As required to comply with structural performance requirements.
 - 4. Crossbar Spacing: 2 inches o.c.
 - 5. Traffic Surface: Applied abrasive finish consisting of aluminum-oxide aggregate in an epoxy-resin adhesive.
 - 6. Steel Finish: Hot-dip galvanized with a coating weight of not less than 1.8 oz./sq. ft. of coated surface.
- C. Pressure-Locked Steel Grating : Fabricated by pressing rectangular flush-top crossbars into slotted bearing bars.
 - 1. Bearing Bar Spacing: 1/2 inch o.c.
 - 2. Bearing Bar Depth: 4 inches.
 - 3. Bearing Bar Thickness: As required to comply with structural performance requirements.
 - 4. Crossbar Spacing: 2 inches o.c.
 - 5. Traffic Surface: Applied abrasive finish consisting of aluminum-oxide aggregate in an epoxy-resin adhesive.
 - 6. Steel Finish: Hot-dip galvanized with a coating weight of not less than 1.8 oz./sq. ft. of coated surface.

2.3 FERROUS METALS

- A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25percent.
- B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- C. Steel Bars for Bar Gratings: ASTM A 36/A 36M or steel strip, ASTM A 1011/A 1011M or ASTM A 1018/A 1018M.
- D. Wire Rod for Bar Grating Crossbars: ASTM A 510.

2.5 FASTENERS

- A. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
- C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, nuts, and, where indicated, flat washers; ASTM F 593 for bolts and ASTM F 594 for nuts, Alloy Group 2.

2.6 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

2.7 FABRICATION

- A. Shop Assembly: Fabricate grating sections in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch material cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form from materials of size, thickness, and shapes indicated, but not less than that needed to support indicated loads.
- D. Fit exposed connections accurately together to form hairline joints.
- E. Welding: Comply with AWS recommendations and the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
- F. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space the anchoring devices to secure gratings, frames, and supports rigidly in place and to support indicated loads.
- G. Removable Grating Sections: Fabricate with banding bars attached by welding to entire perimeter of each section. Include anchors and fasteners of type indicated or, if not indicated, as recommended by manufacturer for attaching to supports.
- H. Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings.
 - 1. Edge-band openings in grating that interrupt four or more bearing bars with bars of same size and material as bearing bars.
- I. Do not notch bearing bars at supports to maintain elevation.

2.8 GRATING FRAMES AND SUPPORTS

- A. Fabricate from metal shapes, plates, and bars of welded construction to sizes, shapes, and profiles indicated and as necessary to receive gratings. Miter and weld connections for perimeter angle frames. Cut, drill, and tap units to receive hardware and similar items.
 - 1. Unless otherwise indicated, fabricate from same basic metal as gratings.
 - 2. Equip units indicated to be cast into concrete or built into masonry with integrally welded anchors. Unless otherwise indicated, space anchors 24 inches o.c. and provide minimum anchor units in the form of steel straps 1-1/4 inches wide by 1/4 inch thick by 8 inches long.
- B. Galvanize all steel frames and supports.

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ADDED PER ADDENDUM NO. 2 DATED JUNE 13, 2014

2.10 STEEL FINISHES

- A. Finish gratings, frames, and supports after assembly.
- B. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing gratings to in-place construction. Include threaded fasteners for concrete and masonry inserts, through-bolts, lag bolts, and other connectors.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing gratings. Set units accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
- C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete or masonry.
- D. Fit exposed connections accurately together to form hairline joints.
 - 1. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- E. Field Welding: Comply with AWS recommendations and the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.

3.2 INSTALLING METAL BAR GRATINGS

- A. General: Install gratings to comply with recommendations of referenced metal bar grating standards that apply to grating types and bar sizes indicated, including installation clearances and standard anchoring details.
- B. Attach removable units to supporting members with type and size of clips and fasteners indicated or, if not indicated, as recommended by grating manufacturer for type of installation conditions shown.
- C. Attach nonremovable units to supporting members by welding where both materials are same; otherwise, fasten by bolting as indicated above.

3.3 ADJUSTING AND CLEANING

- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

END OF SECTION 055313

BID ITEM LIST
04-014104

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
41 (F)	208595	1" PLASTIC PIPE (SCHEDULE 40) (SUPPLY LINE)	LF	62		
42 (F)	208596	1 1/4" PLASTIC PIPE (SCHEDULE 40) (SUPPLY LINE)	LF	16		
43 (F)	208597	1 1/2" PLASTIC PIPE (SCHEDULE 40) (SUPPLY LINE)	LF	22		
44 (F)	208601	4" PLASTIC PIPE (SCHEDULE 40) (SUPPLY LINE)	LF	28		
45 (F)	208605	2" PLASTIC PIPE (CLASS 315) (SUPPLY LINE)	LF	30		
46	208649	QUICK COUPLING VALVE	EA	2		
47	208683	BALL VALVE	EA	3		
48	210110	IMPORTED TOPSOIL (CY)	CY	220		
49	260303	CLASS 3 AGGREGATE BASE (CY)	CY	110		
50	390132	HOT MIX ASPHALT (TYPE A)	TON	350		
51	395000	LIQUID ASPHALT (PRIME COAT)	TON	2		
52	044615	DRIVE INDICATOR PILE (CLASS 200, ALTERNATIVE X)	EA	2		
53	044616	FURNISH INDICATOR PILING (CLASS 200, ALTERNATIVE X)	LF	236		
54	027309	FURNISH PILE (CLASS 200, ALTERNATIVE X)	LF	20,756		
55	027310	DRIVE PILE (CLASS 200, ALTERNATIVE X)	EA	176		
56	994650	BUILDING WORK	LS	LUMP SUM	LUMP SUM	

TOTAL BID:

\$