

ITEM 11615.08 M - WOOD BENCH

DESCRIPTION

The work shall consist of furnishing and installing wood benches and stainless steel supports in conformance with the details shown on the Contract Drawings, and where directed by the Engineer.

MATERIALS

- A. Bench Supports. Provide custom fabricated stainless steel plate supports as detailed on the Contract Drawings. Stainless steel shall meet the requirements of ASTM A167, AISI 302/304, minimum thickness 6 mm.
- B. General. In engineering support systems determine allowable design working stresses of support materials based on the following:
1. Stainless Steel. ASCE "Specification for the Design of Cold-Formed Stainless Steel Structural Members."
- C. Wood Slats. All wood slats shall be Douglas Fir "B" and better grade, vertical, close grained with ninety (90%) per cent or more of heartwood on each side, face or edge measured at the narrowest point. Slats shall be milled perfectly smooth on all sides to detail and shall be cut smooth to the finished length. All milled surfaces shall be sanded after being worked to the required dimension. Slats shall be free from marks, blemishes, discolorations, warp, twist, quirk or other imperfections. All wood shall be thoroughly seasoned and shall contain between twelve (12%) per cent and sixteen (16%) per cent of moisture by weight.
- An "Association Inspection Certificate" shall be furnished by the Contractor, at his own expense, certifying that the grade and quality is fully in accordance with the requirements of the specification. This certificate shall be issued by the association whose grading rules govern this particular class of wood. Wood that is "Grade Marked" by an accredited association will be accepted in lieu of the "Association Inspection Certificate".
- D. Paint. Exterior enamel color 14272 in accordance with Federal Specification 595A.
- E. Submittals.
1. Shop drawings showing fabrication and installation of stainless steel bench supports and wood slats including plans, elevations, details of components, and attachments to other units of work. Indicate materials and profiles of each support member, fitting joinery, finishes, anchorages, and accessory items.
 - a. Include setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed as work of other Items.
 2. Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article
- F. Quality Assurance.
1. Fabricator Qualifications. Firm experienced in successfully producing custom metalwork similar to that indicated for this Project and with sufficient production capacity to produce required units without delaying the work.

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2. Installer Qualifications. Arrange for installation of custom metalwork specified in this item by the same firm that fabricated it.
3. Welding Standards. Comply with applicable provisions of AWS D1.1 "Structural Welding Code - Steel"
 - a. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

G. Metals.

1. General. Provide metals free from surface blemishes where exposed to view in the finished unit. Exposed-to-view surfaces exhibiting pitting, seam marks, roller marks, stains, discolorations, or other imperfections on finished units are not acceptable.
2. Stainless Steel. Grade and type designated below for each form required:
 - a. Plate. ASTM A 167, type as follows:
 - (1) Type 304.
 - b. Bar Stock. ASTM A276.
 - (1) Type 304.

H. Miscellaneous Metals.

1. Welding Electrodes and Filler Metal. Type and alloy of filler metal and electrodes as recommended by producer of metal to be welded, complying with applicable AWS specifications, and as required for color match, strength, and compatibility in fabricated items.
2. Fasteners. Use fasteners of same basic metal as the fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.
 - a. Provide tamper proof exposed fasteners, unless otherwise indicated.
3. Nonshrink, Nonmetallic Grout. Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107. Provide grout specifically recommended by manufacturer for exterior applications.

I. Fabrication, General.

1. Form custom metalwork to required shapes and sizes, with true curves, lines, and angles. Provide components in sizes and profiles indicated, but not less than required to comply with requirements indicated for structural performance.
2. Provide necessary rebates, lugs, and brackets to assemble units and to attach to other work. Drill and tap for required fasteners, unless otherwise indicated. Use concealed fasteners wherever possible.
3. Comply with AWS for recommended practices in shop welding and brazing. Provide welds and

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brazes behind finished surfaces without distortion or discoloration of exposed side. Clean exposed welded and brazed joints of all flux, and dress all exposed and contract surfaces. Ground smooth all welds.

4. Mill joints to a tight, hairline fit. Cope or miter corner joints. Form joints exposed to weather to exclude water penetration.
 5. Finish exposed surfaces to smooth, sharp, well-defined lines and arrises.
 6. Assemble items in the shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- J. Finishes, General.
1. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.
- K. Stainless-Steel Finish.
1. Finish designations prefixed by AISI conform with the system established by the American Iron and Steel Institute for designating finishes for stainless-steel sheet.
 2. Remove or blend tool and die marks and stretch lines into finish.
 3. Grind and polish surfaces to produce iniform, non-directional, textured, polished finish indicated, free of cross scratches.
 4. Mirrorlike Reflective, Nondirectional Polish. Match AISI No. 8 finish.
 5. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

CONSTRUCTION DETAILS

Benches shall be placed at the locations indicated on the Contract Drawings with stainless steel supports and wood slats as detailed. The bench supports shall be set in a 40 by 50 mm footing with supports verticle and true to line and position as shown on the Contract Drawings or as directed by the Engineer. The concrete footings will be paid for under the item "Cast-In-Place Concrete".

Field Welding. Comply with the applicable AWS specification for procedures of manual shielded metal-arc welding, for appearance and quality of welds made, and for methods used in correcting welding work. Grind exposed welded joints smooth and restore finish to match finish of adjacent surfaces.

The bench slats shall receive two (2) coats of exterior enamel, one (1) coat before installation and second coat after installation.

Painting coats as specified are intended to cover surfaces perfectly; if surfaces are not well covered with two (2) coats, further coats shall be applied by the Contractor at no added cost to the State. Special care shall be taken to paint the underside of all slats.

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Surfaces to be painted shall be properly prepared by the Contractor. Before painting, the surfaces shall be wire brushed, all dirt and dust removed, and the surface left clean. All surfaces shall be inspected and approved by the Engineer before any paint is applied.

Paint shall be applied only when air temperature is at or above four point four degrees Celsius (4.4°C). It shall not be applied upon dirty, dusty or damp surfaces or upon surfaces containing frost, nor shall it be applied when the air is misty or, in the opinion of the Engineer, otherwise unsatisfactory for work.

Care shall be taken that painted surfaces are free of moisture, dampness or foreign particles immediately prior to the application of subsequent coatings. No paint shall be applied before the surface is approved by the Engineer as being sufficiently clean to be painted.

Paint shall be thoroughly stirred, preferably by means of mechanical mixers, before being removed from the containers and to keep the pigments in suspension, it shall also be stirred while being applied.

Each coat of paint shall be thoroughly dry before the application of the next coat; not less than forty-eight (48) hours shall elapse between the application of the first and second coats.

The slats shall be attached to the supports with stainless steel bolts of 18-8 stainless steel with side slot, truss type vandal proof heads, and as indicated on the Contract Drawings.

Restore finishes damaged during installation and construction so that no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit; or provide new units as required.

METHOD OF MEASUREMENT

Wood benches will be measured by the actual number of wood benches installed in accordance with the Contract Drawings, specifications and directions of the Engineer.

BASIS OF PAYMENT

The unit price bid for each wood bench shall include all labor, material (including stainless steel support and connection materials), equipment, and all incidentals and appurtenances necessary to satisfactorily complete the work, including delivery and inspection.

Payment will not be made for repairs to damaged areas caused by the Contractor's operations. No payment will be made for installing wood benches of work related thereto that has not been accepted by the Engineer or that has degraded due to the Contractor's negligence, material failure, or improper storage of the material.

Excavation and cast-in-place concrete will be paid for under other items of the contract.