

ITEM 11615.0801 M -Type 'A' Bench (World's Fair)

ITEM 11615.0802 M -Type 'A' Bench - Backless (World's Fair)

DESCRIPTION

Under this Item, the Contractor shall furnish and install Type 'A' Bench in accordance with the plans, specifications, and directions of the Engineer.

MATERIALS

Benches shall be No. 6737, or 6736 (backless) as manufactured by Kenneth Lynch & Sons, Wilton, CT., (203)762-8363, "Liberty Bench" as manufactured by Kevin G. Lindelow Associates, Bridgewater, N.J., (800)722-0331, or "World's Fair Bench" as manufactured by All City Play Equipment, Inc., Brooklyn, N.Y., (718) 258-9600, or approved equal. There are minor variations from the standard detail dimensions among manufacturers.

Standards: Bench standards shall be of cast ductile iron. The tensile strength shall meet a minimum of 448,000 kPa, in accordance with ASTM Specification A536-84, Grade 65-45-12. Standards shall be either painted or powder coated per this specification.

Finishes for Cast Ductile Iron Standards: The Contractor shall supply either powder coated or painted bench standards, both types of finishes are outlined below:

Powder Coating: All surfaces of the cast iron bench standards, bars and brace rods shall be powder coated with a polyester thermosetting Powder Coating such as manufactured by Tiger Drylac (color to be Gloss Black - RAL-8022) or approved equal.

Powder coating shall be applied to the metal in such a manner that the coating will not peel off. Insure surfaces to be coated are clean and dry and free of grease, dust, rust, etc. All surfaces shall first receive phosphating and chromating treatments to improve the adhesion of the surface coating.

Powder coating shall be applied at a film thickness of 75 to 100 μm by electrostatic spray process and bake finished per the manufacturer's directions. It shall be applied without voids, tears or cuts that reveal the substrate and shall thoroughly adhere to the metal without peeling when scratched with a pick device or knife blade point. Nuts, washers and ends of all bolts shall be painted with touch-up paint as described below.

Touch-up and Repair: For minor damage caused by installation or transportation, touch-up finish in conformance with manufacturer's recommendations. Provide touch-up such that repair is not visible from a distance of six feet.

Laboratory Test For TGIC-Polyester Powder Coat: At the discretion of the Engineer, a sample TGIC-Polyester powder coated bench standard may be laboratory tested for bonding of the powder coating to the metal. Test shall be the Cross Hatch test per ASTM D3359, method B. Failure to satisfactorily pass this test shall be a basis for rejection.

Painting: All surfaces of the cast iron bench standards, hardware, bars and brace rods shall receive three (3) coats of shop applied paint. Immediately prior to painting, all surfaces shall be thoroughly clean. All surfaces that are rust free shall be cleaned in accordance with SP-1, Solvent Cleaning. Cleaning shall be performed with a solvent such as mineral spirits, xylol, or turpentine to remove all dirt, grease, and foreign matter.

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Surfaces that show evidence of scale and rust shall be cleaned in accordance with SP-2, Hand Tool Cleaning, a method generally confined to wirebrushing, sandpaper, hand scrapers, or hand impact tools, or SP-3, Power Tool Cleaning, a method generally confined to power wirebrushes, impact tools, power sanders, and grinders in order to achieve a sound substrate. After the standards have been cleaned and prepared, they shall be painted as follows:

First Coat: Sherwin Williams #E41N1 Metal Primer, as manufactured by Sherwin Williams Co.,(718)426-8813, or approved equal. Primer is an alkyd oil flat finish coating having a dry film thickness of 75 to 100 µm. Paint requires twenty four (24) hours drying time before recoating. Performance shall meet or exceed the standards of Federal Specification TT-P-86H.

Second Coat: Sherwin Williams High Solids Alkyd Metal Primer, B50 Series, or approved equal. Primer is an alkyd low luster coating having a dry film thickness of 75 to 125 µm. Paint requires four (4) hours drying time before recoating (with alkyds).

Third Coat: Sherwin Williams Silicone Alkyd Low VOC B56Z Black, or approved equal. Top coat is a silicon alkyd high gloss coating having a dry film thickness of two (2) to four (4) mils. Paint requires sixteen (16) hours drying time at seven (7) degrees C., eight (8) hours at twenty-five (25) degrees C.

All three (3) coats shall be shop painted. All paints shall be applied when the ambient air temperature is seven (7) degrees C. and rising and when surfaces to be painted are moisture free. No painting will be allowed below the minimum ambient air temperature. In addition, no painting will be allowed below the temperature at which moisture will condense on surfaces.

Bench Slats: Lumber shall be Bethabara (*Tabebuia serratifolia* [Vahl] Nicholson) as manufactured by Greenheart-Durawoods, Inc., Bayville, N.J. (800) 783-7220, LAX Enterprises Inc., Boca Raton, Fla. (888) 599-9663 or Timber Holdings Ltd., Milwaukee, Wis. (414) 445-8989, or approved equal.

Slats shall be milled perfectly smooth to the finished length. Each slat shall be of one continuous piece; no joints will be allowed. Lumber shall be parallel cut without heart center or sap wood and shall be straight grained, maximum slope of grain to be 1:10. All milled surfaces shall be sanded smooth on all four sides and both ends after being worked to the required dimensions. All edges shall be eased to a radius of three millimeters (3 mm). All wood shall be thoroughly seasoned and shall contain not more than fifteen percent (15%) to twenty percent (20%) of moisture by weight.

Lumber shall be in sound condition, free from worm holes, knots, longitudinal heart cracks, firm or soft sap wood, fungus, and deformation (twisting or cupping) which cannot be removed during installation using normal installation methods and tools. Natural drying checks, to a maximum of three millimeters (3 mm) in width, will be acceptable. Dimensional tolerance (measured at 20% moisture content) shall be plus or minus 2 mm in both width and thickness.

Slats shall meet or exceed the mechanical properties as defined by U.S. Forest Product Laboratories testing methods (50 mm standard) as follows:

Bending strength:	155,000 kPa
Modulus of elasticity:	21,500 MPa

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Max. Crush strength: 90,000 kPa

The State reserves the right to independently identify species of samples of wood taken from the job site. Random samples must be supplied to NYCDPR for identification, at the request of the Engineer. Should the wood provided on the job site not be as previously approved, the Contractor shall replace all the incorrect wood at no extra cost to the State. Bench slats shall be finished as per this item.

Wood Finish: Slats shall be shop coated prior to field installation, per manufacturer's application instructions. Finish shall be a clear aliphatic polyester urethane graffiti-resistant coating with high gloss finish, such as G.S.S. AP102 topcoat, manufactured by American Polymer Corp., Sandy, Utah, (800) 676-5963 local distributor: Kenseal. (718) 937-5490; Armaglaze 9000 manufactured by Aquarius Coatings Inc., (800) 661-2298; Aquathane manufactured by Tamms Industries, (800) 216-2667; or Approved Equal. The installer of coatings must be Certified by the Manufacturer (see "Submittals"). Slats shall be coated on three (3) sides only; Seat Slats shall remain uncoated on the bottom side, and Backrest Slats shall remain uncoated along the bottom edgeside. Refer to Manufacturers Application Instructions. Lightly sand between coats. The thickness shall be 38 to 50 μm per coat for all coatings. Three (3) coats are required. Drying time between coats is always one hour. Full cure time averages seven (7) days. Graffiti remover (Erasol or equivalent) must not be used until the coating is fully cured to prevent damage to the coating.

Hardware: Bolts, nuts, and washers used to secure slats to standards shall be stainless steel. Anchor bolts used to secure the benches to pavements may be either stainless steel or hot-dipped galvanized steel. Type and dimensions of all bolts, nuts, and washers shall be as indicated on the Plans. Threads of all bolts shall have the ends upset after installation of nuts so as to render the connection vandal resistant.

CONSTRUCTION DETAILS

ASSEMBLY AND INSTALLATION: Benches shall be pre-assembled before being installed in their final location in the work. After assembly, benches shall be installed in their final position and properly secured in place, as indicated on the Plans.

SUBMITTALS:

Wood Mill Certificate: Contractor shall supply a copy of a certificate from the mill stating that the wood is produced from an IBAMA (Brazilian Institute for the Environment and the Renewal of Natural Resources) registered mill and that the wood is from legally harvested logs as defined under Brazilian Forest Code Law 4771 as regulated by IBAMA and the ITTO (International Timber Trade Organization) guidelines. (IBAMA insures mill compliance with legal guidelines for the management, production and export of tropical timbers).

Bench Supplier Certificate: Contractor shall supply a copy of a certificate from the bench supplier stating bench slats comply with this specification as to species, dimensions, milling, and grade.

Paint Substitution: A written request for any paint or wood coating substitution must be submitted to the Engineer. The Contractor shall submit manufacturer's Data Sheets and installation instructions for approval of any proposed- or-equal product no less than two (2) weeks prior to application.

Proof of Manufacturer's Training for Application of Graffiti Resistant Coating: Installer of coating must

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submit written Certification from approved coating manufacturer, stating that installer has been properly trained and is currently certified by manufacturer. Provide copy of Certification to the Engineer prior to start of Work.

Ten-Year Product Warranty: Contractor shall submit Manufacturers product guarantee/warranty for a period of up to ten (10) years from the date of purchase, stating that the graffiti-resistant coatings will allow for the removal of all types of paint and other graffiti materials, when installed by a Certified Applicator approved by Manufacturer, subject to listing of manufacturers limitations, which shall be included with the submittal. Installation must be performed according to the precise procedures set forth by Manufacturer, as stated in their Instruction Literature. In addition, coatings shall retain adhesion, gloss and color stability, when stated specific remover/cleaner materials have been used. In the event that the products are found to be defective, Manufacturer shall provide sufficient quantity of replacement material to recoat the surface at no additional cost to the State. The Contractor shall provide to the Engineer, sealed in plastic, a statement of the warranty with the name, telephone number, and address of the manufacturer of the product, to be contacted in the event that the product fails.

Shop Drawings: The Contractor shall submit Shop Drawings when required, in accordance with the requirements of the General Provisions.

Foundry Certificates: Certifying ductile iron used in bench standards shall be submitted.

METHOD OF MEASUREMENT

The quantity of Type 'A' Bench to be paid for under this item will be the number of meters of the respective type of bench, measured in place along the top slat, installed in accordance with the Plans, Specifications, and directions of the Engineer.

BASIS OF PAYMENT

The price bid shall be a unit price per meter of the respective type of bench furnished and installed and shall include the cost of all labor, materials, equipment, and incidentals necessary, including lumber, hardware, submittals, and all finishes, all in accordance with the Plans and Specifications, to the satisfaction of the Engineer.

Excavation and concrete for footings or concrete slab shall be paid for separately under their respective items.