

ITEM 615.8008 11 - 1964 WORLD'S FAIR BENCH WITH WOOD SLATS AND ARMS

DESCRIPTION

This work shall consist of furnishing and installing 1964 WORLD'S FAIR BENCH WITH WOOD SLATS AND ARMS in accordance with the contract documents and as directed by the Engineer.

MATERIALS

Benches shall be manufactured by Kenneth Lynch & Sons, Wilton, CT, Kevin G. Lindelow Associates, Frenchtown, N.J., All City Play Equipment, Inc., Brooklyn, N.Y., or approved equal.

Standards: Bench standards shall be of cast ductile iron. The tensile strength shall meet a minimum of 448 Mpa (65,000 psi), in accordance with ASTM designation A536-84 (or most recent revision) for Grade 65-45-12. Standards shall be hot-dipped galvanized in accordance with ASTM A-153.

Bench Slats: Acceptable hardwood species are Bethabara (*Tabebuia serratifolia* [Vahl] Nicholson) or, Cumaru (*Dipteryx odorata*), as manufactured by Ceceo Trading, Inc., Milwaukee, WI, or approved equal. All hardwood shall purchased from environmentally friendly sources complying with either the Forest Stewardship Council (FSC), as being produced from a "well-managed" forest; or with a reforestation program such as "Fields to Forests™", or approved equal. Reforestation requires two (2) tropical trees to be replanted and maintained in a well-managed community owned forest or plantation by a reforestation program for every 152 board meters (500 board feet) of lumber consumed in the supply of this project.

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 3 millimeters (1/8"). 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 3 millimeters (1/8") in width, will be acceptable. Dimensional tolerance (measured at 20% moisture content) shall be plus or minus 2 millimeters (.08") in both width and thickness.

Hardwood slats shall meet or exceed the mechanical properties as defined by U.S. Forest Product Laboratories testing methods 50 millimeters (2" standard) as follows:

Bending strength:	153 Mpa (22,200 psi)
Modulus of elasticity:	16 Mpa 2,370,000 psi
Max. Crush strength:	70 Mpa (10,100 psi)

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The State reserves the right to independently identify species of samples of wood taken from the job site. Random samples must be supplied 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.

Wood Finish for Bench Slats: Hardwoods shall not be painted or stained.

Hardware: All bolts, nuts, and washers used to secure slats to standards shall be stainless steel. Anchor bolts used to secure the benches to pavements shall be stainless 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.

Concrete: Concrete for slabs or footings shall be Footing Concrete Class A.

CONSTRUCTION DETAILS

Concrete footings shall be excavated to the dimensions and in the locations indicated on the drawings and as directed by the engineer. Attachment of standards to footings shall be as indicated on the drawings

New bolts shall be lubricated by a product such as "Never-Seez" or "WD-40" compounds, or approved equal, before being used to secure new slats to the standards. 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 drawings. Bench slats shall not be painted or stained.

SUBMITTALS:

Environmental Sources for Hardwoods: All Environmental submittals shall be clear, legible copies, in English. Contractor shall submit three (3) copies of all applicable Environmental compliance documentation from either Forest Stewardship Council (FSC) or Fields to Forest™ reforestation program, or approved equal.

FSC Certification Requirements:

- 1.) A Certificate of Environmental Compliance from an independent third party inspection and grading agency confirming that the wood supplied was produced from legally harvested logs, and was supplied in compliance with all foreign and domestic laws and regulations pertaining to the harvest and trade of timber products. Included in this document shall be species, lumber dimensions, quantity supplied and order number.
- 2.) CITES Appendices I, II and III, latest revision, confirming that the species of wood supplied are not listed as: I- Threatened with extinction due to trade, II- May become threatened with extinction due to trade, or III- Include species of concern which any country chooses to voluntarily regulate.
- 3.) Forest Stewardship Council (FSC) endorsed third party certified credentials for review. Certificate shall state FSC chain of custody certificate number and certified product supplied (species). The certifying body shall be an independent third party

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inspection organization accredited by the FSC, such as Smartwood, Richmond, VT, or Scientific Certification Systems, Oakland, CA, or approved equal. Third party certification is a mechanism to verify responsibly managed forestry operation along with a labeling system to recognize the products from those forests.

4.) Material supplier proof of Chain of Custody status in an FSC endorsed certification program. The dates of validity must be clearly shown. The Agency reserves the right to verify the validity of all submissions with a Forest Stewardship Council (FSC) representative.

Fields To Forest Reforestation Program Requirements:

1.) A tree planting certificate referencing the specific project, confirming the number of board feet of lumber used in the project and confirming the number of trees planted and maintained in a FSC certified well managed community owned forest or plantation.

2.) CITES Appendices I, II, and III, latest revision, confirming that the species of wood supplied are not listed as: I - Threatened with extinction due to trade, II - May become threatened with extinction due to trade, or III - Include species of concern which any country chooses to voluntarily regulate.

Shop Drawings: The Contractor shall submit Shop Drawings.

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

METHOD OF MEASUREMENT

This work will be measured as the number of meters of 1964 WORLD'S FAIR BENCH WITH WOOD SLATS AND ARMS satisfactorily furnished and installed.

BASIS OF PAYMENT

The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.