

## **RIVER BENCH SPECIFICATIONS**

**WORK:** The Contractor shall furnish and install **River Benches** in accordance with the plans, specifications, and directions of the Engineer. In addition the Contractor shall furnish extra materials as specified under the heading, **EXTRA MATERIALS**.

**MATERIALS:** Benches shall be manufactured by Soheil Mosun Limited of Toronto, Ontario.

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

**Finishes for Cast Ductile Iron Standards:** The Contractor shall supply powdercoated bench standards.

**Powdercoating:** All surfaces of the cast iron bench standards, bars and brace rods shall be powdercoated with a polyester thermosetting Powder Coating such as manufactured by Tiger Drylac US, Reading PA, (colour to be gloss black), or approved equal.

Powdercoating shall be applied to a film thickness of 3 to 4 mils by electrostatic spray process and bake finish per the manufacturers 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 blade point. All visible nuts, washers, and end of all bolts shall be painted with touch up paint as described below.

**Touchup and Repair:** For minor damage caused by the installation or transportation, touch-up finish in conformance with manufacturers recommendations. Provide touch-up such that repair is not visible from a distance of six (6') feet.

**Laboratory Test For TGIC – Polyester Powdercoat:** At the discretion of the Engineer, a sample TGIC-Polyester powdercoated bench standard may be laboratory tested for bonding of the powdercoating 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.

**Bench Slats:** Acceptable wood species shall be selected by the Architect.

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. 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 one-eighth (1/8"). All wood shall contain no more than (20%) moisture by weight. Lumber shall be in sound condition, free from worm holes, longitudinal heart cracks, firm or soft sap wood, fungus and deformation (twisting or cupping) which cannot be removed during installation which cannot be removed during normal installation methods and

tools. Natural drying checks, to a maximum of one-eighth inch (1/8") in width will be acceptable. Sound knots are acceptable. All wood terminology referenced in this specification shall be as defined in ASTM D9. A sound knot is defined as solid across its face, at least as hard as the surrounding wood, and showing no indication of decay. Any slat with unsound knots or other limiting characteristics as described above shall be rejected and replaced. Dimensional tolerance (measured at 20% moisture content) shall be plus or minus 0.08" in both width and thickness.

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

Bending strength:	2,400 psi
Modulus of elasticity:	1,700,000 psi
Modulus of rupture:	14,000 lbf/in <sup>2</sup>
Hardness:	1200 lbf

The Architect reserves the right to independently identify species of samples of wood taken from the job site. Random samples must be supplied for identification. Should the wood provided on the job site not be as previously approved, the Contractor shall replace all of the incorrect wood at no extra cost to the City.

Wood Finish: Wood slats shall not be painted or stained. Should any mold or mildew develop on the wood slats through the guarantee period, the Contractor shall wash the entire bench with a mild solution of bleach.

Hardware: All bolts, nuts, and washers used to secure slats to standards shall be stainless steel. Anchor bolts used to secure 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 "Average Concrete" as described in Section B "Materials and Methods of Construction" and shall be of the dimensions indicated on the plans.

**ASSEMBLY AND INSTALLATION:** 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. Should any mould or mildew develop on the wood slats through the guarantee period, the Contractor shall wash the entire bench with a mild solution of bleach.

**SUBMITTALS:**

Shop Drawings: The Contractor shall submit Shop Drawings for approval by the Architect.

Wood Slats: Contractor shall provide sample of wood slat for approval by the Architect.

**EXTRA MATERIALS:** The Contractor shall furnish (supply and deliver only, not install) all extra materials as follows:

10% of total lineal feet with wood slats – undrilled wood slats per specifications.

The above materials shall be delivered before Final Inspection.

**MEASUREMENT AND PAYMENT:** The quantity of River Bench, to be paid for under this item shall be the number of Linear Feet measured in place along the top slat and installed in accordance with the plans, specifications, and directions of the Architect.

The price shall be a unit price per Linear foot of each type of River Bench furnished and installed and shall include the cost of labour, materials, equipment, and incidentals necessary, including iron castings, powdercoating, and hardware all in accordance with the plans and specifications to the satisfaction of the Architect.

In addition the Contractor shall deliver Extra Materials, as outlined above. No additional payment shall be made for extra materials. The Contractor shall include the cost.

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