
STRUCTURAL TIMBER

Floating Dock Construction
SAR Station, Twillingate, NL
Project No. R.089926.008

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PART 1 - GENERAL

1.1 DESCRIPTION

- .1 This section specifies requirements for supply and installation of structural timber as follows:
 - .1 Supply and installation of treated dimension floating docks and associated painting, hardware and galvanizing.

1.2 RELATED WORK

- .1 Section 06 05 73 - Wood Treatment.

1.3 REFERENCES

- .1 American Society for Testing and Materials (ASTM International)
 - .1 ASTM A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2 American Wood-Preserver's Association (AWPA)
 - .1 Latest edition of AWPA M4, Standard for the Care of Preservation - Treated Wood Products.
- .3 Canadian Standards Association (CSA International)
 - .1 Latest edition of CSA B111, Wire Nails, Spikes and Staples.
 - .2 Latest edition of CAN/CSA-G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Steel.
 - .3 Latest edition of CAN/CSA G164, Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .4 Latest edition of CAN/CSA-O80 Series, Wood Preservation.
- .4 Canadian Wood Council
 - .1 Wood Design Manual.

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- .5 National Lumber Grades Authority (NLGA)
 - .1 Latest edition of Standard Grading Rules for Canadian Lumber.

1.4 DIMENSIONS

- .1 Check existing site dimensions and report discrepancies to Departmental Representative before commencing work.

1.5 PROTECTION

- .1 Avoid dropping, bruising or breaking of wood fibres.
- .2 Avoid breaking surfaces of treated timber.
- .3 Do not damage surfaces of treated timber by boring holes or driving nails or spikes into them to support temporary material or staging.
- .4 Treat cuts, breaks or abrasions on surfaces of treated timber with 3 brush coats of preservative to CSA 080.
- .5 Treat bolt holes, cutoffs and field cuts in accordance with CSA 080.

1.6 DELIVERY AND STORAGE

- .1 Store timber horizontally, evenly supported and open piled permit circulation when stored for prolonged period.
- .2 When handling long timber, provide support at sufficient number of points, properly located to prevent damage due to excessive bending.
- .3 Handle treated timber with hemp, manila or sisal rope slings or other

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approved means of support that will not damage surface.

- .4 Do not use sharp pointed tools to handle treated timber. Any timber so handled will be rejected and be replaced at Contractor's expense.

1.7 SUBMITTALS

- .1 Submit shop drawings for buoyancy compartment shells and foam filler.

PART 2 - PRODUCTS

2.1 TIMBER MATERIALS

- .1 Timber: Use timber graded and stamped in accordance with applicable grading rules and standards of associations or agencies approved to grade lumber by Canadian Lumber Standards Administration Board of CSA.
- .2 Species
 - .1 Wheelguard, wheelguard blocks, and floating dock timbers: Hemlock or Douglas Fir (CCA or ACA treated).
- .3 Grade: No. 1 Structural Grade
- .4 Grading Authority: NLGA
- .5 Preservative Treatment: Treat to CSA 080, for coastal waters and Section 06 05 73. Timbers will be treated in the lengths required. Unnecessary field cutting will not be permitted.
- .6 Primer: Alkyd undercoat, exterior oil wood primer, similar to Pittsburgh 6-9.
- .7 Paint: Alkyd/Oil Resin paint similar to Pittsburgh Paints "Safety Yellow" Product ID 7-808. Paint to conform to latest edition of CAN/CGSB-1.61.

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2.2 MISCELLANEOUS
STEEL AND FASTENINGS

.8 Plywood: unsanded pressure treated Canadian softwood plywood to latest edition of CSA O151 or unsanded pressure treated douglas fir plywood to latest edition of CSA O141.

.1 Miscellaneous Steel: All steel and fastenings to be CSA G40.21, Grade 300W, galvanized.

.2 Nails and Spikes: to CSA B111.

.3 Machine Bolts and Nuts: to ASTM A307. All machine bolts and nuts to be galvanized.

.4 Drift Bolts: to G40.21 from round stock button head and diamond or wedge point. All drift bolts to be galvanized.

.5 Washers:

.1 Round Plate Washers: for 16mm machine bolts will be 76mm diameter by 6.4mm thick, for 19mm machine bolts will be 79mm diameter by 7.9mm thick and have a hole diameter of 18mm and 21mm diameter respectively. Washers to conform to G40.21. All washers to be galvanized.

.2 Plain Washers: to CSA B19.1, Class 2. All washers to be galvanized.

.3 Square washers are not permitted unless indicated otherwise on the drawings.

.6 Galvanizing: will conform to CSA G164 "Hot Dip Galvanizing of Irregularly Shaped Articles." Unless otherwise specified, minimum weight of zinc coating will be as stated in

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Table 1 of this standard. Fabricator is to adhere to recommendations of CSA G164.

- .7 Welding in accordance with CSA Standards. The welders will be qualified to the appropriate classification as stated in CSA W47.1 "Certification of Companies for Fusion Welding of Steel Structures." Conform welding to all appropriate requirements and recommendations of CSA Standard W59 "Welded Steel Construction" (metal arc welding).

2.3 BUOYANCY COMPARTMENTS

- .1 Buoyancy compartment shells to be manufactured from linear virgin polyethylene resin containing UV ray inhibitors and carbon black pigment to protect against ultra-violet deterioration. Shells shall be rotationally molded for seamless, one piece construction with a 3.2 mm wall thickness.
- .2 Buoyancy compartment shells to be filled with urethane foam with a maximum density of 32 kg/m3.

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Install structural timbers to details shown on drawings or as specified.

3.2 FLOATING DOCK TIMBER

- .1 Install floating dock timbers and all other floating dock components as indicated on drawings.

3.3 PAINTING

- .1 Paint wheelguard and wheelguard blocking as directed by the

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Departmental Representative.

- .2 Use one (1) coat of exterior oil wood primer and two (2) coats of alkyd/oil resin paint as specified. Paint materials for each coat to be product of a single manufacturer as specified. Ensure previous coat of primer or paint is dry before second coat is applied.

3.4 BOLT SIZING

- .1 Drift Bolts: Drift bolts used in the work will have a length equal to thickness of timbers being fastened less 50mm unless otherwise specified. Holes for drift bolts will be bored 2mm smaller diameter than size of steel used and for full length of bolts.
- .2 Machine Bolts: Machine bolts used in work will have a length equal to thickness of timbers being fastened plus thickness of washers plus 40mm. Where bolts are countersunk, the length will be as above less depth of countersinking. Machine bolts will be threaded for 64mm. Holes will be drilled same diameter as bolt.
- .3 Lag Screws: All lag screws used in the work will have a length equal to thickness of timbers being fastened less 50mm and depth of countersinking. Holes for 19 mm diameter lag screws to be drilled with 12.7 mm diameter drill bit maximum for the threaded portion of the lag screw. A drill bit diameter equal to the shank shall be permitted only for the non-threaded depth of the lag screw. All lag screws will be countersunk, screwed,

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not driven in place, and will have
one (1) standard washer under the
head.

- .4 Countersink drift bolts and/or lag
screws in ladders to the extent that
the minimum distance from face of
timber to head of bolt is 12mm.
- .5 Bolting of timbers without properly
drilled bolt holes will not be
accepted.

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END OF SECTION