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PART 1 - GENERAL

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| <u>1.1 DESCRIPTION</u> | <p>.1 This section specifies requirements for supply and installation of structural timber as follows:</p> <p>.1 Supply and installation of treated dimension timber wheelguard, wheelguard blocking, and associated painting.</p> <p>.2 Supply and installation of untreated dimension hardwood timber fenders, and associated painting.</p> <p>.3 Supply and installation of untreated timber hardwood ladders, ladder handgrips, and associated hardware.</p> |
| <u>1.2 RELATED WORK</u> | <p>.1 Section 02 41 16 - Sitework, Demolition and Removal.</p> <p>.2 Section 03 30 00 - Cast-in-Place Concrete.</p> <p>.3 Section 06 05 73 - Wood Treatment.</p> |
| <u>1.3 REFERENCES</u> | <p>.1 American Society for Testing and Materials (ASTM International)</p> <p>.1 ASTM A307-07b, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile.</p> <p>.2 American Wood-Preserver's Association (AWPA)</p> <p>.1 AWPA M4-06, Standard for the Care of Preservation - Treated Wood Products.</p> <p>.3 Canadian Standards Association (CSA International)</p> <p>.1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.</p> <p>.2 CAN/CSA-G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Steel.</p> <p>.3 CAN/CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.</p> <p>.4 CAN/CSA-O80 Series-97 (R2007), Wood Preservation.</p> |

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- .4 Canadian Wood Council
 - .1 Wood Design Manual.

- .5 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2000 edition.

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 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 MEASUREMENT
FOR PAYMENT

.1 Structural Timber:

.1 Treated Dimension Timber: The supply and installation of treated dimension timber for wheelguard, wheelguard blocking associated with the wharf will be measured by the cubic metre (m³) of timber secured in place, including all timber, fastenings, plant, material, equipment, labour, wheelguard bolt hole levelling sealant, painting of wheelguard and wheelguard blocking.

.2 Untreated Dimension Timber: The supply and installation of untreated dimension hardwood timber for hardwood fenders, and ladders as specified will be measured by the cubic metre (m³) of timber secured in place including all timber, fastenings, plant, material, equipment, and labour, ladder rungs, wheelguard hand grips, and painting of complete ladder uprights.

.2 Payment for all dimension timber will be made on volume calculated from nominal sizes as indicated on drawing and specified, eg. 200 mm x 200 mm.

.3 All work associated with the hexagonal sit-down area (including new slab) is to be included on the lump sum arrangement.

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

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.1 Wheelguard, wheelguard blocks: Hemlock or Douglas Fir (CCA or ACA treated).

.2 Hardwood fenders and ladder uprights: Birch or Maple (untreated).

.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.

.7 Paint: Alkyd/Oil Resin paint to conform to CAN/CGSB-1.61-2004.

2.2 MISCELLANEOUS STEEL AND FASTENINGS

.1 Miscellaneous Steel: All steel and fastenings to be CSA G40.21, Grade 300 W, 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 16 mm machine bolts will be 76 mm diameter by 6.4 mm thick, for 19 mm machine bolts will be 79 mm diameter by 7.9 mm thick and have a hole diameter of 18 mm and 21 mm 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.

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- .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 Table 1 of this standard. Fabricator is to adhere to recommendations of Appendix A and Appendix B of standard.
- .7 Ladder Rungs and Hand Grips: to CSA G40.21, galvanized.
- .8 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).

PART 3 - EXECUTION

3.1 PREPARATION

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

3.2 PAINTING

- .1 Paint four (4) sides and exposed ends of wheelguard, exposed sides of wheelguard blocking, and complete ladder uprights as directed by the 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.

3.3 BOLT SIZING

- .1 Where not otherwise noted on the drawings:
 - .1 Drift Bolts: Drift bolts used in the work are calculated as thickness of timbers being fastened less 50 mm unless otherwise

specified. Holes for drift bolts will be bored 2 mm smaller diameter than size of steel used and for full length of bolts.

.2 Machine Bolts: Machine bolts used in work are calculated as length equal to thickness of timbers being fastened plus thickness of washers plus 40 mm. Where bolts are countersunk, the length will be as above less depth of countersinking. Machine bolts will be threaded for 64 mm. 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 50 mm and depth of countersinking. Holes for lag screws to be drilled same diameter as shank portion of screw and to inside thread diameter for threaded portion of screw and for full length. All lag screws will be countersunk, screwed, not driven in place, and will have one (1) standard washer under the head.

.4 Countersink lag screws in hardwood fenders and ladders to the extent that the minimum distance from face of timber to head of bolt is 12 mm.

.5 Bolting of timbers without properly drilled bolt holes will not be accepted.