

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 timber wheelguard, wheelguard blocking and coping, and associated painting.
 - .2 Supply and installation of untreated dimension hardwood timber fenders.
 - .3 Supply and installation of untreated timber hardwood ladders, ladder handgrips, and associated hardware and painting.

1.2 RELATED SECTIONS

- .1 Section 02 41 16 - Sitework, Demolition, and Removal.
- .2 Section 03 30 00 - Cast-in-Place Concrete.
- .3 Section 06 05 73 - Wood Treatment.
- .4 Section 31 53 13 - Timber Cribwork.

1.3 REFERENCES

- .1 American Society for Testing and Materials (ASTM International).
 - .1 ASTM A307-07b, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile.
 - .2 ASTM A123/A123M-09, Zinc (Hot-Dip Galvanized) coatings on Iron and Steel Products.

- .2 American Wood-Preserver's Association (AWPA).
 - .1 AWPA M4-06, Standard for the Care of Preservation - Treated Wood Products.
- .3 Canadian Standards Association (CSA International).
 - .1 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
 - .2 CAN/CSA-G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Steel.
 - .3 CAN/CSA-O80 Series-97 (R2007), Wood Preservation.
 - .4 CAN/CSA-G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles
- .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 three (3) brush coats of preservative to CSA O80.
- .5 Treat bolt holes, cutoffs, and field cuts in accordance with CSA O80.

1.6 DELIVERY AND STORAGE

- .1 Store timber horizontally, evenly supported, and open piled to permit air 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 coping, wheelguard and wheelguard blocking 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
timber for fendering and
ladders will be measured by
the cubic meter (m³).
Contractor will provide all
timber, fastenings, plant,
material, equipment, and
labour, including ladder
rungs, ladder handgrips,
and painting of all sides
of ladder uprights.

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

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
blocking, coping: 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 O80 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 primer/sealer, similar to Pittsburgh 17-941 NFC.
- .7 Paint: Alkyd/Oil Resin paint similar to Pittsburgh Paints "Safety Yellow" Product ID 7-808C. 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 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:
 - .1 For 16 mm machine bolts: 76 mm diameter by 6.4 mm thick with 18 mm diameter hole.

- .2 For 19 mm machine bolts: 79 mm diameter by 7.9 mm thick, with 21 mm diameter hole.
- .3 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.
- .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 this Standard.
- .7 Ladder Rungs and Hand Grips: to CSA G40.21, galvanized.
- .8 Lag Screws: to CSA B34 and be galvanized. Lag screw washers will conform to CSA B19.1.
- .9 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 ANCHOR BOLTING
SYSTEM

- .1 Anchor bolts, where required, for anchoring coping and/or wheelguard to existing concrete deck will be 19 mm diameter resin cartridge anchors.
- .2 Submit shop drawings and manufacturer's specification for anchor bolts for approval.
- .3 Anchor bolts to be installed with strict adherence to manufacturer's specifications.

PART 3 - EXECUTION

3.1 PREPARATION

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

3.2 WHEELGUARD AND
WHEELGUARD BLOCKING

- .1 Wheelguard timbers to be 200 mm by 200 mm and will be in minimum lengths of 6100 mm or as specially required with butt joints made over wheelguard blocking sized as shown on the drawings. Wheelguard timbers to be chamfered on top, 25 mm on each horizontal and vertical surface, as detailed on drawings.
- .2 Wheelguard blocks will be installed at 1500 mm on centre as support for wheelguard.
- .3 Wheelguard will be secured through wheelguard blocking as shown on detail drawings.
- .4 Wheelguard and wheelguard blocking will be installed as indicated on detail drawings.

3.4 COPING

- .1 Coping timbers to be 200 mm by 250 mm and will be in minimum lengths of 6100 mm or as specially required.
- .2 Coping will be secured to the concrete deck as shown on detail drawings with 19 mm diameter galvanized machine bolts at a maximum spacing of 1500 mm.
- .3 Coping will be secured to the crib timbers as shown on detail drawings with 19 mm diameter galvanized drift bolts at a maximum spacing of 1500 mm.
- .4 Coping will be installed as indicated on detail drawings.

3.5 LADDERS

- .1 Install ladders on face of wharf in locations shown on drawings or as designated by Departmental Representative.

3.6 PAINTING

- .1 Paint wheelguard, wheelguard blocking, and complete ladder uprights as directed by the Departmental Representative.
- .2 Use one (1) coat of exterior primer/sealer 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.

3.7 BOLT SIZING

- .1 Drift Bolts: Drift bolts used in the Work will have a length equal to 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 will have a 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: Lag screws used in Work will have a length equal to thickness of timbers being fastened less 50 mm and the depth of countersinking. Holes for lag screws to be drilled same diameter as shank for 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 drift bolts and/or 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.

END OF SECTION