

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, decking, deck beams, blocking between deck beams, coping, floating docks, gangways and associated painting, hardware and galvanizing.

1.2 RELATED WORK

- .1 Section 06 05 73 - Wood Treatment.
- .2 Section 31 53 13 - Timber Cribwork.

1.3 REFERENCES

- .1 American Society for Testing and Materials (ASTM International)
  - .1 ASTM A3125, Specification for Steel Bolts, 120,000 PSI Tensile.
- .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-080 Series, Wood Preservation.

- .4 Canadian Wood Council
  - .1 Wood Design Manual.
- .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 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 decking, deck beams, blocking between deck beams, coping, wheelguard, and wheelguard blocking, will be measured by the cubic metre (m<sup>3</sup>) of timber secured in place, including all timber, fastenings, plant, material, equipment, labour, wheelguard bolt hole levelling sealant, roofing felt, painting of wheelguard and wheelguard blocking.
  - .2 Floating Dock: Measured by the unit installed in place and includes the cost of all plant, labour, and materials required to supply and install each floating dock complete with galvanized 25mm dia. chains fastened to concrete anchor blocks as indicated. Contractor shall also include cost to supply and install new wooden gangways and all associated hardware required in fixed price.
- .2 Payment for all dimension timber will be made on volume calculated from nominal sizes as indicated on drawing and specified, eg. 200mm x 200mm.

1.8 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, floating dock, gangways, decking and cribwork 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.
- .8 Plywood: unsanded marine grade Canadian softwood plywood to latest edition of CSA 0151 or unsanded marine grade douglas fir plywood to latest edition of CSA 0141.

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 A325. 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.
- .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 CSA G164.
- .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).

2.3 ANCHOR BOLTING SYSTEM

- .1 Anchor bolts, where required, for anchoring coping and/or wheelguard to existing concrete deck will be 19mm 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 manufacture specifications.

2.4 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/m<sup>3</sup>.

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 200mm x 200mm at header cribs and 150mm x 150mm at launchway and will be in minimum lengths of 6100mm or as specially required with butt joints made over wheelguard blocking. Wheelguard timbers to be chamfered on top, 25mm on each horizontal and vertical surface.
- .2 Wheelguard blocks will be installed as indicated.
- .3 The installation of wheelguard and wheelguard blocking as indicated.

3.3 TIMBER RUNNERS

- .1 Install timber runners as indicated.

3.4 COPING

- .1 Install 200mm x 200mm treated timber coping in minimum lengths of 7620mm as directed.
- .2 Secure coping to new concrete deck as indicated. All bolts to be countersunk on the exterior face. All countersinking to be drilled.
- .3 Secure coping to timber below with 19mm diameter drift bolts spaced at 1500mm on centre.

3.5 FLOATING DOCK  
TIMBER

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

3.6 PAINTING

- .1 Paint wheelguard and wheelguard blocking 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.

### 3.7 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 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 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.