PART 1 - GENERAL

1.1 Related Work

.1 Refer to other Specification Sections for related information.

.2 Refer to **Section 01 33 00** for Shop Drawing/Submissions requirements.

1.2 Reference Standards

.1 CAN/CSA-080 Series 15 (or latest edition)-Wood Preservation.

.2 CSA 086.1-14 (or latest edition), Engineering Design in Wood.

.3 Copper naphthenate containing 2% copper for Brush or Spray Treatment for Field Cuts.

.4 NLGA standard grading rules for Canadian Lumber 1980 edition (or latest edition at time of tendering.

.5 ASTM A123/A123M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.6 ASTM A307-14 (or latest edition), Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.

.7 ASTM B111/B111M-16 (or latest edition), Standard Specification for Copper and Copper-Alloy Seamless Condenser Tubes and Ferrule Stock.

.8 ASTM D4637/D4627M-15 (or latest edition), Standard Specification for EPDM Sheet Used In Single-Ply Roof Membrane.

1.3 Submissions

.1 At least two weeks prior to finalizing timber order, submit drawings, clearly indicating installation details. Show splice locations, splice details, fastening arrangements.

.2 Submit methodology for field treatment.

.3 Provide submissions in accordance with **Section 01 33 00**.

1.4 Measurement for Payment

.1 Timber will be measured in accordance with **Section 01 29 00.**

PART 2 - PRODUCTS

2.1 Materials

.1 Softwood Timber: Graded and stamped to National Lumber Grading Authority (NLGA) No. 1 Structural. Eastern Hemlock, Western Hemlock or Douglas Fir Species, only, will be used.

.2 Hardwood Timber: Sound merchantable grade yellow birch, hard maple, red or white oak conforming to grading rules approved by the National Hardwood Lumber Association.

.3 Timber Treatment:

.1 Preservative treatment to CAN/CSA-080 Series for Marine Construction Coastal Waters. Where assay retentions are not indicated, they are to be taken as 1.5 times the indicated gauge retention.

.2 Make arrangements for testing of timber by:

.1 Plant Inspection: Provide treatment plant identification, date of treatment, list of various pieces in the charge, charge number, plant assay testing results, concentration and type of preservative used, duration of treatment, gauge retention, species of wood; and make arrangements with the treatment plant to locate bundles, move bundles, break open bundles and carry out other measures to facilitate the inspection.

.2 Filling in and submitting a pre-printed form, agreed to by the *Departmental Representative*, containing the above information.

.4 Miscellaneous Hardware

.1 Hardware must meet the following specifications:

.1 Machine bolts, lag bolts, drift bolts, anchor bolts, nuts, round plate washers: to ASTM A307.

.2 Spikes: to CSA B111.

.3 Hot dip galvanized hardware, bolts, nuts, washers and spikes to ASTM A123/A123M, with minimum zinc coating of 610 g/m^2,.

.4 All hardware will be galvanized unless otherwise shown on plans. Bolts and threaded rod are not to be cut after galvanizing.

PART 3 - EXECUTION

3.1 General

.1 Supply and install dimension timbers to details shown on drawings or as specified. Treated timber to be supplied in pre-cut lengths to suit.

.2 Boreholes for drift bolts to be 1.5mm smaller in diameter than bolt and for full length of bolt. Boreholes for machine bolts to be same diameter as bolts. Boreholes for lag bolts to be same diameter as shank for unthreaded portion and 0.70 times the shank diameter for the threaded portion. Threaded portion of lag bolts will be installed using a wrench, not by driving.

.3 All countersunk holes to be recessed 25 mm and shall receive two coats of Copper Naphthenate, allowing sufficient time between applications to permit total absorption. The cost of supply and application of Copper naphthenate will not

be measured for payment but will be considered incidental to the work.

3.2 Handling Timber

.1 Timber will be protected during handling, shipping, offloading and field handling, by use of suitable equipment and procedures. Use rope or fabric strap slings on site for moving bundles or individual timbers, rather than metal grabs, chains or cables.

.2 Tops of vertical untreated timber to be field treated with minimum two liberal coats of Copper Naphthenate.

3.3 Handling Treated Timber

.1 Handle treated material to avoid damage causing alteration in original treatment.

.2 Treat in field, spike holes, boreholes, plugged holes, cuts and any damage to treated material, using Copper Naphthenate, as specified herein, regardless of plant treatment type. Fill all unused bored holes and any other holes with tight fitting treated wooden plugs prior to any exposure to water containing marine borers.

.3 Provide methodology pertaining to heating and application. Apply to dry surfaces, wherever possible.

.4 Treat boreholes, using a pressurized container with an extension rod, to produce a fine spray in the holes with one application. Alternately a cylindrical brush may be used.

.5 Treat field cuts and any abrasions with minimum of two liberal applications, using either spray or brush.

.6 In addition, field cuts and underwater damaged areas will receive a coating of plastic compound, capped with lead flashing secured with galvanized roofing nails. Plastic compound not to be water soluble and is subject to approval.

.7 Environmental Concern: Ensure no spillage or excess application of field preservative. Provide workmen with sufficient training and protective gear to properly and safely handle the treated materials and to apply field treatment, so as to prevent undue hazard to themselves, others, or the environment.

.8 Contain all debris and leachates (films on water surface) within the area of the work by using containment facilities such as floating booms or screens.

3.4 Deck Plank

.1 Install decking in accordance with CSA 086.1 controlled random pattern.

.2 Attach decking to each stringer with 250 mm galvanized spikes. Use one spike per timber per support excepting as follows:
Two at ends of splice
Two at ends of timber
Two per timber per support for timbers wider than 150 mm.

.3 Predrill holes to receive deck spikes.

.4 Joints: splice only over centre line of stringer and only one per wharf width. Splices shall be staggered on each stringer and shall be minimum 4 deck planks apart. Minimum length of timbers: 2400 mm.

.5 Maintain 12 mm spacing between each course of plank decking.

.6 Prior to placing deck planks, cover tops of supporting timbers with 1.14 mm (0.045 inches) thick non-reinforced EPDM membrane conforming with ASTM D4637M. This membrane is for the purpose of shedding water and is to be 50 mm wider on each side than the member covered. For example use 250 mm wide sheet for a 150 mm wide member. Cost is incidental to work.

.7 All decking for the Work to be planed-one-side to uniform thickness prior to preservative treatment. Install rough side up.