
Part 1 General

1.1 DESCRIPTION

- .1 This section specifies the requirements for preservative treatment of wood products.

1.2 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 31 53 13 - Timber Cribwork

1.3 REFERENCES

- .1 American Wood-Preservers' Association (AWPA)
 - .1 AWPA M2-15, Standard for Inspection of Treated Wood Products.
 - .2 AWPA M4-15, Standard for the Care of Preservative-Treated Wood Products.
- .2 Canadian Standards Association (CSA International)
 - .1 Complete CSA O80 Series-02(R2012) - O80S2-05, Wood Preservation.
 - .1 CSA 080.4 - Pressure Treatment of Poles.
 - .2 CSA 080.18 - Pressure Treated Piles and Timbers in Marine Construction.
 - .2 CSA 080.201-M89, This Standard covers hydrocarbon solvents for preparing solutions of preservatives.

1.4 SUBMITTALS

- .1 Submit Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Quality assurance submittals:
 - .1 Submit certificates in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 For products treated with preservative by pressure impregnation submit following information certified by authorized signing officer of treatment plant:
 - .1 Information listed in AWPA M2 and revisions specified in CSA O80 Series, Supplementary Requirement to AWPA M2 applicable to specified treatment.
 - .2 Moisture content after drying following treatment with water-borne preservative.
 - .3 Acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.

1.5 QUALITY ASSURANCE

- .1 Plant inspection of products treated with preservative by pressure impregnation will be carried out by designated testing laboratory to AWPA M2, and revisions specified in CSA 080 Series, Supplementary Requirements to AWPA M2.

1.6 DELIVERY, STORAGE, AND HANDLING

- .1 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.7 MEASUREMENT FOR PAYMENT

- .1 No separate measurement or payment will be made for this item. Preservative treatment to be considered incidental to cost of supply of wood products under other sections of this specification.

1.8 QUALITY ASSURANCE

- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

1.9 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 Preservative: to CSA-080 Series.
- .2 Preservatives: maximum VOC limit 350 g/L.
- .3 Solvent: to CSA-080.201.

Part 3 Execution

3.1 APPLICATION: PRESERVATIVE

- .1 Treat all timbers to CSA080.18 - Treatment of Piles and Timbers for Marine Construction.

3.2 APPLICATION: FIRE-RETARDANT

- .1 Not Applicable.

3.3 APPLICATION: FIELD TREATMENT

- .1 Comply with AWPA M4 and revisions specified in CSA 080 Series, Supplementary Requirements to AWPA M2.
- .2 Remove chemical deposits on treated wood to receive applied finish.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.

1.2 REFERENCE STANDARDS

- .1 CAN/CSA-080 Series M89 (or latest edition) - Wood Preservation (including CSA preliminary standard 080.31-M1989).
- .2 Copper naphthenate containing 2% copper for Brush or Spray Treatment of Field Cuts.
- .3 NLGA standard grading rules for Canadian Lumber 1980 edition or most recent edition at time of tendering.
- .4 CAN/CSA-G164-M92 (or latest edition) - Hot Dip Galvanizing of Irregularly Shaped Articles.
- .5 ASTM A307-94 (or latest edition), Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.
- .6 ASTM B111-1974 (or latest edition), Wire Nails, Spikes and Staples.
- .7 CSA 086.1-94 (or latest edition), Engineering Design in Wood (Limit States Design).
- .8 ASTM D4637-96 (or latest edition), EPDM Sheet Used In Single-Ply Roof Membrane.
- .9 CAN/CSA-O56-10(R2015), Round Wood Piles.

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 Measurement for payment will be 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 Fender Pile Timbers (Round): Southern Yellow Pine or Red Pine to CSA 056, preservative treated.
- .3 Hardwood Timber: Sound merchantable grade yellow birch, hard maple, red or white oak conforming to grading rules approved by the National Hardware Lumber Association.
- .4 Timber Treatment:
 - .1 Preservative treatment to CAN/CSA-080 Series-M89 for Marine Construction Coastal Waters. Where assay retentions are not indicated, they are not 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 preservation used, duration of treatment, gauge retention, species of wood; and make arrangements with the treatment plant to located bundles, move bundles, break open bundles and carry out other measures to facilitate the inspection.
 - .2 Filling in and submitting a preprinted form, agreed to by the *Departmental Representative*, containing the above information.
- .5 Miscellaneous Hardware: 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 CSA G164, with minimum zinc coating of 600 g/m².
 - .4 All hardware will be galvanized unless otherwise shown on plans.

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 1.5 mm smaller in diameter than bolt and for full length of bolt. Boreholes for machine bolts to be the

DIMENSION TIMBER

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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 measure 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.

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- .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 MISCELLANEOUS DIMENSIONAL TIMBER

- .1 Supply and install all miscellaneous dimensional timber as detailed on the drawings.

END OF SECTION

Part 1 General

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1.2 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 31 53 13 - Timber Cribwork

1.3 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A48-03(2012), Standard Specification for Gray Iron Castings.
 - .2 ASTM D1761-88(2000), Standard Test Methods for Mechanical Fasteners in Wood.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
 - .2 CAN/CSA-G164-M92(R2003) Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CSA O121-08(R2013)], Douglas Fir Plywood.
 - .4 CSA O141-05(R2014), Softwood Lumber.
 - .5 CSA O151-09(R2014), Canadian Softwood Plywood.
 - .6 CSA O153-13, Poplar Plywood.
 - .7 CAN/CSA-O325-07(R2012), Construction Sheathing.
- .3 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2014.

1.4 SUBMITTALS

- .1 Submit Submittal submissions: in accordance with Section 01 33 00 - Submittal Procedures.

1.5 QUALITY ASSURANCE

- .1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood in accordance with CSA standards.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Do not dispose of preservative treated wood through incineration.
- .3 Do not dispose of preservative treated wood with materials destined for recycling or reuse.
- .4 Dispose of treated wood, end pieces, wood scraps and sawdust at sanitary landfill approved by a Departmental Representative.
- .5 Dispose of unused wood preservative material at official hazardous material collections site approved by a Departmental Representative.
- .6 Do not dispose of unused preservative material into sewer system, into streams, lakes, onto ground or in other locations where they will pose health or environmental hazard.

1.7 MEASUREMENT FOR PAYMENT

- .1 No separate measurement or payment will be made for this item. Rough carpentry to be considered as incidental to the requirements of other sections of this specification.

1.8 QUALITY ASSURANCE

- .1 Lumber Grading Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

Part 2 Products

2.1 MATERIALS

- .1 Lumber: unless specified otherwise to be softwood to CSA 0141 with moisture content 19% (S-dry) or less.
 - .1 Species: D-fir or Hemlock
 - .2 Grade: No. 1 or better
 - .3 Grading to NLGA Standard Grading Rules for Canadian Lumber.
 - .4 Type: pressure treated.
 - .5 Sound seasoned wood with ends square.
 - .6 Dimensions as indicated.
 - .7 Straight, free from loose knots, sweep, stakes, rot, and checks.
- .2 All timber shall be treated with CCA (chromate copper arsenate) preservatives in accordance with Section 06 05 73 - Wood Treatment and CSA 080 Series with water borne salt preservative. Use of creosote oil is not permitted.

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- .3 Miscellaneous Steel:
 - .1 Bolts, nuts and washers to ASTM A307, galvanized finish unless indicated otherwise.
 - .4 Nails and spikes:
 - .1 In accordance with CSA Standard B111.
 - .5 Ogee timber washers:
 - .1 Castings to ASTM A48.
 - .6 Galvanizing:
 - .1 To CAN/CSA-G164.

Part 3 Execution**3.1 PREPARATION**

- .1 Store wood products.

3.2 INSTALLATION

- .1 Comply with requirements of NBC 2010 Part 9 supplemented by following paragraphs.
- .2 Install members true to line, levels and elevations, square and plumb.
- .3 Construct continuous members from pieces of longest practical length.
- .4 Install spanning members with "crown-edge" up.
- .5 Select exposed framing for appearance. Install lumber and panel materials so that grade-marks and other defacing marks are concealed where materials are left exposed.
- .6 Install wood curbs and other wood supports as required and secure using galvanized steel fasteners.
- .7 Use dust collectors and high quality respirator masks when cutting or sanding wood panels.

3.3 ERECTION

- .1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .2 Countersink bolts where necessary to provide clearance for other work.

3.4 SCHEDULES

- .1 Electrical equipment mounting boards:
 - .1 Plywood, DFP or CSP

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- .1 B1 grade minimum.
 - .2 Square edge.
 - .3 19 mm thick
 - .4 Board to be pressure treated with wood preservative for marine environment to Section 06 05 73 - Wood Treatment.

END OF SECTION