GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Transportation and Works
Highway Design Division

SECTION 590
WOOD PRESERVATION

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590.01 SCOPE

This specification covers the requirements for the preservation treatment of any wood or wood products as may be required in the construction of Departmental projects.

The specification covers the particular requirements for the pressure impregnation of woods with chemical preservatives and other compounds and the specific requirements for the handling, storage, and placement of treated materials.

590.02 GENERAL

All preservation treatments, unless otherwise specified, shall be applied through the use of approved pressure impregnation processes by licensed operators as issued by the appropriate governing authorities.

All operations associated with treatment (before, during, and after treatment) shall be carried out in complete accordance with the Canadian Standards Association (CSA), Standard 080-M89, Wood Preservation, and with the American Wood Preservers Association (AWPA) Standards. These standards are complimentary and as such, the CSA standard or the AWPA standard may be considered incomplete if read separately.

590.03 MATERIALS

All materials to be pressure treated with chemical preservatives shall be sound, of good quality, and of satisfactory species and grade as required in the plans and Supplementary General Conditions.

All species shall be treated with specified chemical preservatives to the required tolerances or the minimum acceptable tolerances as outlined in the CSA Standard "080-M89 Wood Preservation" and the "AWPA Standards".

These standards cannot give complete instructions for all conditions and all uses. The net retentions required shall be governed by the severity of the service conditions and by a number of other considerations, such as, service life desired, cost of replacement, climate, ground contact, exposure to weather, exposure to insect attack, size of material and depth of sapwood. The specified net retentions therefore, may be greater than indicated in the applicable standards and the supplementary specifications shall take precedence.

590.04 PREPARATION AND HANDLING

All materials to be pressure treated with chemical preservatives shall be prepared in a manner as required by the particular treatment process to be undertaken and shall be in accordance with appropriate sections of the CSA and AWPA Standards.

All pressure preserved materials shall be transported, stored, stacked, and handled or otherwise used in a manner that will avoid damage or field fabrication causing alteration of the original pressure preserved surface.

In particular, the use of cant hooks, peavies, pickaroons, and end hooks shall not be permitted on the side surface of treated materials. The handling of pressure preserved piles, poles, ties, lumber or timber with such pointed tools shall be confined to end grain only.

Any pressure treated materials damaged through improper handling or misuse by the Contractor, shall be repaired or replaced at cost to the Contractor under the direction of the Engineer.

Insofar as practicable, all adzing, boring, chamfering, framing, graining, incising, surfacing, or trimming shall be undertaken prior to treatment.

590.05 FIELD TREATMENT

590.05.01 Material Requirements

Any unavoidable damage or necessary field fabrication shall be field treated in an approved manner with appropriate preservatives.

Preservatives for field treatment shall be at the same type and chemical composition as those used in their original treatment and shall be obtained from the supplier of the pressure preserved material or other licensed authority and shall be applied in the following manner.

590.05.02 Requirements for Field Application of Creosote and Creosote Mixtures

Creosote for field treatment of material originally treated with creosote or any creosote solution, shall meet the requirements of Commodity Standards P1 and P7 of CSA Standard -080, with the temperature of the solution while being applied, maintained at 65^{o}C to 95^{o}C. Where particularly heavy coatings are required, a suitable plastic compound shall be prepared by mixing 10 to 20 percent of creosote with 80 to 90 percent of pitch.

590.05.03 Requirements of Field Application of Oil-Borne Preservatives

Pentachlorophenol used for field treatment of material originally treated with this preservative shall consist of a solution prepared with solvent conforming to Commodity Standard P9 of CSA Standard 080. The toxicant concentration shall be a minimum of 5 percent of the solution weight. The Contractor shall prepare material for field treatment and field treatment with these preservatives shall be as directed by the manufacturers of the preservative or as directed by the Engineer.

590.05.04 Requirement of Field Application of Water-Borne Preservatives

The concentration of water-borne preservatives shall be 3 to 5 times greater than the concentration of the original treating solution.

590.05.05 Requirements for Application of Field Treatment

All cuts, holes, and injuries, including all abrasions and unused nail and spike holes and other damage to the surface of treated material shall be field protected by liberal brushing, spraying, dipping, soaking, or coating of preservatives.

Any procedures for field application of preservative shall be as the manufacturers recommend and as certified by the Engineer.

Any cuts, damages, and other like damages shall be cleaned of all deleterious substances and thoroughly saturated with two coats of field preservative.

All holes, including horizontal holes bored in pressure preserved material shall be poured full of appropriate preservative. The use of pressure equipment in the application of preservatives to boreholes is recommended.

All bolt holes having a diameter equal to or greater than the diameter of the bolt shall be treated with preservative. Bolt holes having a diameter of 15 mm less than the bolt diameter shall not require application.

All unused bore holes and spike holes shall be poured full of preservatives and plugged with tight-fitting treated plugs.

Where the on-site application of wood preservative is necessary, the Contractor shall where practical, apply the wood preservative at a location at least 15 m from the nearest watercourse of waterbody. The application shall in all cases by carried out carefully, so as to prevent spillage or leakage.

The Contractor shall be aware of Section 140.03.03 "Spill Reporting and the Required Procedures".

590.06 SPECIFIC REQUIREMENTS FOR FIELD TREATMENT OF PILES

590.06.01 General Requirements

Immediately after making final cut-off, the cut area should be given two applications of preservative followed by a heavy application of coal-tar pitch, or other sealer. Piles shall be cut square, except in the case of piles to be capped with masonry.

Piles which will have the cut-off surface exposed in the structure shall be further protected by the application of two thickness of tar saturated fabric which cover the cut-off and overlap the side of the pile at least 50 mm. The overlap should be folded down along the side and glued in place with the sealer used. The fabric should then be coated with one coat of sealer.

In addition, under no circumstances shall treated piles be chopped or sawn to permit installation of sway bracing or other framing members. To avoid the necessity of cutting, piles shall, as far as possible, be selected of uniform size for each bent. Treated filler blocks shall be used when necessary to fill spaces between piles or caps and sway bracing.

590.06.02 Alternative Procedures

The Engineer may, if it is determined to be necessary (based upon insect or decay hazards or other economic or environmental considerations) require the Contractor to provide additional protection or implement special procedures as the case may be.

The application of preservative to pile cut-off may be undertaken using procedures as follows:

a. **Steel Ring**

A 2.6 mm sheet metal ring 100 mm in height and of a diameter slightly less than that of the pile at the point of cut-off should be driven into the pile so that the untreated center of the cut-off is enclosed by the ring. The ring should be driven into the wood until it forms an oil tight seal. The space enclosed by the ring should be filled to a depth of at least 50 mm above with preservatives chosen for field treatment. Treatment should continue until the flow of preservative liquid into the end grain of the pile ceases. The ring can be removed for reuse.

b. **Jacket Ring**

A strip of roofing felt or thin metal tightly bonded to the pile at the cut-off point to form a cup extending 100 mm from the end of the pile may be used in place of a more rigid ring as above. The penetration procedure and reuse of the material are as indicated above.

590.07 METHOD OF PAYMENT

No separate payment shall be made for the preservative treatment of any wood or wood products to be incorporated into department projects.