
*****GENERAL REWRITE - PLEASE READ CAREFULLY.*****

WOOD TREATMENT PLANT REQUIREMENTS

INSPECTION OF TREATED WOOD PRODUCTS BY THE TREATER

A charge is defined as the entirety of all wood products treated in a cylinder container at one time. The treater shall record the test results for each charge of material tested on the quality control records. A shipment is defined as the entirety of all wood products in each delivery to a supplier's stock or to the project site. The treatment plant shall be considered the source for treated wood material. The Iowa DOT reserves the right to conduct acceptance inspection and/or monitor testing of wood products at the project site or from an approved supplier's stored stock (warehouse stock) destined for Iowa DOT Projects.

Each treatment plant shall have a Treatment Quality Control (QC) Program and qualified personnel to perform the treatment service. The Treatment Quality Control Program shall include testing of wood products and preservatives through the use of x-ray fluorescence spectroscopy. Quality control reports shall be maintained for two years by the treater. Quality control reports shall be made available to the Iowa DOT upon request. Each supplier shall have a Material Handling Quality Control Program to maintain record of approved stock of treated wood material.

Inspection of treated wood products shall be conducted before and after treatment. The treater's quality control (QC) personnel shall be responsible for conducting before-and-after treatment inspection at a minimum rate of once per charge.

The treater shall be responsible for maintaining all records of quality control and verifying data, and types of treatments, and meeting the requirements of the appropriate American Wood Preservers Association (AWPA) Specifications as well as those of the Iowa DOT. The treater shall furnish treatment test results for each charge of inspected and accepted material. The treatment test results shall contain the information as prescribed in the Documentation Section and [Appendix C](#) of this IM.

When timber is processed at a lumber mill and shipped to another location for preservative treatment, the inspection prior to, and after treatment shall be performed at the preservative treatment plant and by the treater's personnel.

Before Treatment Inspection:

The treater's QC personnel shall conduct the *before-treatment inspection* in accordance with AWPA M2 Part A, Section 2. The inspection prior to treatment (i.e., untreated wood inspection) shall be made after the products are completely processed and ready for treatment. The inspection prior to treatment shall ensure that all wood products are free of incipient decay and conform to the species, grade, quality, nominal dimensions, straightness, and other requirements under which it was specified. The treater shall have the responsibility to verify that all sawn wood material contains a visible quality grade mark prior to treatment.

The treatment plant's QC personnel shall perform the following prior to treatment:

1. Quality of Material: The plant's QC personnel shall inspect the material for evidence of decay, damage, and processing defects. Wood posts shall be inspected for species, size, length, quality and straightness prior to treatment according to [Section 4164](#).
2. Seasoning of Material: When sawed material is to be treated with waterborne preservatives, the moisture content prior to treatment, as determined by resistant type moisture meter, shall not be more than 20% if kiln-dried, or more than 23% if air-dried. The moisture content shall be measured from a depth equivalent to the required penetration up to a maximum of 1.5 inches (38 mm). Moisture reading data shall be incorporated into the QC records.
3. Quality Grade Mark: Treated wood products that require a grade shall have a legible and visible quality grade mark from an American Lumber Standards Committee accredited agency. Refer to the Wood Product Markings Section of this IM. In addition, the QC personnel shall verify that the grade of lumber is appropriate for the intended use of the product as described in Table 1.

TABLE 1: Grades for Treated Timber & Lumber

Material	Species	Nominal Size	Grade	Moisture Content Prior to Treatment	Notes
Sawed Wood Posts	Southern Pine	Per contract documents	No. 1 or better	See Section 4161	1, 3
	Douglas Fir	Per contract documents	No. 1 or better	See Section 4161	1, 2, 3
Wood Sign Posts	Southern Pine	4"x4"	No. 2 Dense	See Section 4161	
		4"x 6"	No. 1 Dense	See Section 4161	
	Douglas Fir	4"x 4"	No. 2	See Section 4161	2
		4"x 6"	Dense No. 2	See Section 4161	2
All other	Douglas Fir	Per contract documents	See Section 4162	See Section 4161	1, 2
	Southern Pine	Per contract documents	See Section 4162	See Section 4161	1

1. Material less than 3 ft. in length does not require a grade mark; however, a certification of grade must be provided. Round material does not require a grade.

2. Douglas Fir (Coastal Region) shall be incised.
3. Terminal posts that are 45 inches in length used for guardrails shall be stamped **MFG No. 1** to indicate that the terminal posts were cut from an original piece graded as a No. 1. Wane requirements shall be waived.

Any wood products not conforming to the Iowa DOT requirements shall not be accepted for treatment.

After Treatment Inspection:

Inspection *after treatment* shall be conducted by the treater's quality control personnel in accordance with AWWA M2 Part A, Section 4. Penetration test results of preservatives shall be in conformance with the appropriate AWWA standard for the commodity and species being considered.

Retention shall be determined by x-ray fluorescence spectroscopy in accordance with AWWA A9 for waterborne preservatives and pentachlorophenol. For creosote, retention shall be determined in accordance with AWWA A6. Retention levels of preservatives shall be in conformance with the minimum preservative retention requirements table in [Section 4161.03](#) of the Standard Specifications for the species and preservative being treated.

The treater shall perform the following after-treatment inspection:

1. Quality of Material: Material shall be inspected for any evidence of decay, processing requirements and defects, in addition to any damage to the material due to the treatment process. Wood posts shall be inspected after treatment for straightness. (Section 4164.)
2. Moisture Content: Lumber 2 inches (50 mm) or less in nominal thickness that is treated with a waterborne preservative shall be dried after treatment to a moisture content of not more than 20% if kiln-dried, or not more than 23% if air-dried unless otherwise specified.
3. Penetration & Retention Tests: Core samples shall be obtained to perform penetration and retention tests in accordance with the applicable Iowa DOT and AWWA Specifications. See Appendix D for additional information
4. Treatment Plant Identification Stamp: The treater shall ensure that all treated wood products bear a legible brand/stamp/tag as prescribed in the Wood Products Markings Section of this IM.
5. It is the treater's responsibility to verify that all required product markings are on the material at the end of the inspection. Refer to the Wood Product Markings Section of this IM.
6. The treater shall furnish a treatment test report according to the guidelines as described in the Documentation Section and [Appendix C](#) of this IM.

QUALITY CONTROL OF TREATMENT PROCESS

The treater shall be responsible for conducting and documenting all quality control procedures. Quality control shall be conducted before, during, and after treatment in accordance with AWPA Standard M3 Part A, and M2 Part A. The treater shall ensure that all quality control data has been properly documented and shall make quality control reports available for review.

TREATMENT INSPECTION REPORT GUIDELINES

The following information is the minimum requirements for the inspection report prepared by the approved treatment plant inspection agencies as listed in Appendix A. The treatment plant inspection agency shall furnish an inspection report for each charge of material inspected. The inspection report shall include a certification statement in which the treatment plant inspection agency certifies that the material has been inspected according to the appropriate AWPA Standards. In addition, the certification statement from the treatment inspection agency shall clearly express that the material has been inspected and it complies with the applicable Iowa DOT Specifications.

MINIMUM REQUIRED INFORMATION

General Information:

1. Name of Treatment Plant
 2. Name or Identification Number of QC Personnel Performing the Inspection
 3. Location of Treatment Plant
 4. Applicable Product Specification or Standard (**NOTE:** The material shall be inspected according to Iowa DOT Specifications and it shall be stated in the inspection report.)
 5. Charge Number(s) Inspected: If the material is inspected in lots, the inspection report shall identify the charge numbers inspected in each lot.
 6. Date of Treatment
 7. Type of Material
 8. Number of Pieces By Size
 9. Species
 10. Degree of Seasoning: Provide moisture content readings prior to treatment.
 11. Processing (incised, rough surfaced, etc.)
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