

## Construction Specification 014 Timber Fabrication and Installation

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### SCOPE

This work shall consist of furnishing all materials, equipment, and the labor necessary for the installation of timber structures and timber portions of composite structures.

### MATERIALS

Materials for timber and composite structures shall conform to the following requirements:

1. Wood

All wood shall be Grade 2 which has been pressure treated with an oil-base or waterborne preservative listed in Table 1. The following species are applicable to this specification:

Douglas Fir-Larch (North) Douglas Fir South

Hem-Fir (North) Red Oak Ponderosa Pine Red Pine

Southern Yellow Pine Western White Pine White Oak\*

White Woods (Western Woods)

White Oak, while not normally treated, is included in this specification as an applicable wood species because of its application in timber construction.

The wood shall be sound, new and free of decay. No pieces of exceptionally light weight shall be accepted.

All lumber and timber dimensions refer to nominal size and the material furnished shall be in American Standard dressed sizes. Posts and planks used in the construction shall be relatively straight throughout their length.

Planks shall have square ends and shall be of uniform width and thickness.

2. Preservatives and Treatment

Unless otherwise specified on the construction plans, all wooden posts and planks, except white oak, shall be treated by a method listed in Table 1. The method used shall meet the applicable American Wood Protection Association (AWPA) Standard or possess an Evaluation Service Report (ESR) recognized by the International Code Council (ICC). A complete list of ICC recognized ESRs can be found at <http://www.icc-es.org>.

Unless otherwise specified on the construction plans, the minimum retention values shall be as listed in Table 1.

**Table 1 Preservative Treatment Retention (lbs/ft3)**

Treatment Method	UC4A	UC3B	Applicable Standard or ESR2
	Retention (lbs/ft3) 2 Posts & Planks with Ground Contact	Retention (lbs/ft3) Planks with No Ground Contact	
Creosote Solution1	10.0	8.0	AWPA P1
Copper Napthenate (CuN)	0.06	0.04	AWPA P9
Pentachlorophenol	0.40	0.30	AWPA P8

Treatment Method	UC4A Retention (lbs/ft <sup>3</sup> ) <sup>2</sup>	UC3B Retention (lbs/ft <sup>3</sup> )	Applicable Standard or ESR <sup>2</sup>
	Posts & Planks with Ground Contact	Planks with No Ground Contact	
Alkaline Copper Quaternary (ACQ), Type B, C, D	0.40	0.15	AWPA P5
Chromated Copper Arsenate (CCA), Type A, B, or C	0.40	0.25	AWPA P5
Copper Azole – Type B (CA-B)	0.21	0.10	AWPA P5
Micronized Copper Azole (MCA)	0.15	0.06	ESR
Micronized Copper Quaternary (MCQ)	0.34	0.15	ESR
<sup>1</sup> Oil-base preservatives containing creosote-petroleum are not recommended with the wood species identified in this specification. <sup>2</sup> ESR numbers are dependent on supplier and must be listed on the ICC website: <a href="http://www.icc-es.org/reports/index.cfm?list=list">http://www.icc-es.org/reports/index.cfm?list=list</a>			

At a minimum, posts and planks for general use with ground contact shall meet AWPA Use Category UC4A\*. Planks for exposed, no ground contact applications shall, at a minimum, meet AWPA Use Category UC3B\*. Posts and planks for structural building components shall be as specified by the designer.

*\*AWPA U1-10 Use Category System: User Specification for Treated Wood, May 2010.*

### 3. Hardware

Stainless steel fasteners and connectors shall be used if the wood has preservative treatments ACQ, MCQ, CA-B or MCA. Fasteners, connectors, and any other metal contacting other wood preservative treatment may be galvanized or stainless steel. Galvanizing for fasteners shall conform to ASTM A153. Galvanizing for connectors made from steel sheet shall conform to ASTM A653, Class G185. Galvanizing for all other metal in contact with preservative treated wood shall conform to ASTM A123.

Stainless steel shall be AISI Type 304 or 316.

### 4. Marking

Each treated wood item delivered to the job site shall be identified with a label, brand, or stamp that lists: the product name or logo or treatment company name, name of the preservative, treatment end use category, minimum retention, and the applicable AWPA treatment standard or the number of the ESR. If the label, brand, or stamp is missing, acceptable documentation that the wood item meets the requirements of this specification must be provided to the Technician prior to installation.

## **HANDLING AND STORING WOOD MATERIALS**

Lumber stored on the work site shall be close stacked off the ground. The ground beneath the stacked lumber shall be cleared of weeds and rubbish. Materials stacked on the work site for more than seven days shall be protected by a suitable waterproof covering.

## **CONSTRUCTION**

Care shall be exercised during installation to avoid damage to the treated surface. All abrasions, saw cuts, and drill holes shall be treated with 3 coats of the same preservative used in the original treatment process, if available, or a wood preservative product that contains a minimum of 2 percent copper metal. The treatment material may be applied by brushing, spraying, or swabbing the entire surface in 3 successive applications.

Posts that have a field-cut and treated end should be installed with the treated end placed into the ground.

Backfill materials placed around the post shall be well consolidated. Sand/gravel backfill shall be compacted in layers not thicker than 4 inches. Concrete backfill shall be placed in layers not thicker than 12 inches before consolidation.

Planks used in wood walls, pumping docks, etc. shall have the end joints staggered except at a point of grade change in any adjacent concrete slab. If the drawings specify that the planks be double thickness, the joints shall not be at the same location. All joints shall be at a post. Nails shall be driven so the heads are flush with the surface of the wood. Deep setting shall be avoided.

Treated wood requires careful handling and disposal. Shirts with long sleeves, full length pants, and waterproof gloves should be worn to minimize skin contact with the wood during handling and installation. A dust mask and eye protection is recommended when sawing treated wood. Dispose of treated wood by ordinary trash collection or burial. The wood shall not be burned in open fires.

## Specific Site Requirements