

CONSTRUCTION SPECIFICATION

NV-83. TIMBER FABRICATION AND INSTALLATION

1. SCOPE

This work shall consist of the construction of timber structures and timber portions of composite structures.

2. MATERIALS

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

a. Wood

All wood shall be Grade 2 that has been pressure treated with an oil-base or water-borne preservative. White Oak, while not normally treated, is included in this specification as an applicable wood species because of its application in timber construction. 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)

*Not normally treated

The wood shall be sound, new and free of decay. No pieces of exceptionally lightweight 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.

Plywood shall be new and of exterior grade. Plywood for underground shall be pressure treated.

b. Preservatives and Treatment

The preservatives shall conform to the requirements of Federal Specification TT-W-571 and American Wood Preservers Association (AWPA) Standard P5. Preservatives shall be either oil-base or water-borne. Water-borne preservatives shall be either Ammoniacal Copper Arsenate (ACA), Chromated Copper Arsenate (CCA) Type I, II, or III, Ammoniacal Copper Quaternary Type B (ACQ-B), or Alkaline Copper Quaternary Type D (ACQ-D).

Water-borne preservatives that are not allowed are: Acid Copper Chromate (ACC), Chromated Zinc Chloride (CZC), or Fluor Chrome Arsenate Phenol (FCAP).

Oil-base preservatives shall be either creosote, solutions containing creosote, or pentachlorophenol. Oil-base preservatives containing creosote-petroleum are not recommended with the wood species identified in this specification.

Posts and planks or other timbers shall be treated to the minimum preservative retention value shown as follows:

PRESERVATIVE TREATMENT RETENTION LB/FT ³		
<u>Treatment</u>	<u>Planks</u>	<u>Posts</u>
Creosote solution	8.00	10.00
Pentachlorophenol	0.40	0.50
Ammoniacal Copper Arsenate (ACA)	0.40	0.60
Chromated Copper Arsenate (CCA)	0.40	0.60
Ammoniacal or Alkaline Copper Quaternary (ACQ)	0.40	0.60

Planks shall be kiln dried after treatment or air-dried to 19 percent moisture content.

c. Hardware

All bolts, nuts, and washers shall be galvanized or cadmium plated. The size and length shall be as shown on the drawings.

All nails shall be of the type and size as shown on the drawings.

Staples used to fasten fence wire or galvanized wire panels to posts shall be 9 gage galvanized wire with a minimum length of 1-1/2 inches.

3. HANDLING AND STORING WOOD MATERIALS

All timber and lumber stored at the site of the work shall be neatly stacked on supports at least 12 inches above the ground surface and protected from the weather by suitable covering. Untreated material shall be so stacked and stripped as to permit free circulation of air between the tiers and courses. Treated timber shall be close-stacked. The ground underneath and in the vicinity of all stacks shall be cleared of weeds and rubbish. The use of cant hooks, peaveys, or other pointed tools, except end hooks will not be permitted in the handling of structural timber or lumber. Treated timber shall be handled with rope slings or other methods that will prevent the breaking or bruising of outer fibers, or penetration of the surface in any manner.

4. 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 or a wood preservative product that contains a minimum of 2 percent copper naphthenate. 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 field-cut 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.