

Section 4164. Treated Wood Posts

4164.01 GENERAL REQUIREMENTS.

- A. Ensure posts when dried, whether kiln dried or air dried, are free from bends in more than one plane and free from short or reverse bends. Ensure a straight line from the centers of the ends of a post does not deviate from the longitudinal axis of the post at any point by more than 0.5% of the length of the post.
- B. Furnish posts that meet the requirements for one of the classes listed below, as specified in the contract documents:
 - Round Wood Posts
 - Sawed Wood Posts
 - Wood Sign Posts
- C. Arrange inspection according to [Materials I.M. 462](#). Include the cost of inspection in the unit price bid for the material specified.

4164.02 ROUND WOOD POSTS.

A. General.

1. Furnish posts that are cut from live sound, solid trees and contain no unsound knots. Sound knots will be permitted provided the width of the knot does not exceed 30% of the diameter of the piece at the point where it occurs, or a maximum of 2 1/2 inches (65 mm). Ensure posts are free from decayed wood, rot, red heart, ring shake, season checks more than 1/4 inch (6 mm) wide, and splits in the end.
2. Ensure that when measured over the outer 2 inches (50 mm) of a radial line from the pith:
 - Douglas Fir posts show at least five annual rings per inch (25 mm).
 - Pine posts show at least three annual rings per inch (25 mm) and at least 30% summerwood.
3. Ensure posts show no spiral grain exceeding one quarter turn in 10 feet (3 m). Groups of knots, or any combination of defects which impair the strength more than maximum size knots, will not be permitted.

B. Species.

1. Use what is called for in the contract documents.
2. Unless specified otherwise, use:
 - Pine for fence posts.
 - Either Douglas Fir (coast region) or Southern Pine for other posts.

C. Size.

1. The size of posts will be specified by nominal 1 inch (25 mm) increments of diameter at the tip.
2. Posts will be accepted only when the tip diameter equals the specified dimension or exceeds it by no more than 1 inch (25 mm). The diameter is determined by dividing the circumference, after peeling, by pi (3.14).

D. Length.

Furnish round wood posts in the length specified, \pm 2%.

E. Straightness.

1. Ensure posts are free from short or reverse bends and bends in more than one plane.
2. Ensure a straight line from center of tip to center of butt does not deviate from the center of the post by more than 2% of the length of the post.

F. Quality of Work.

1. Ensure posts are peeled for their full length, and bark and inner skin is removed.
2. Ensure the portion of the post which will remain out of the ground is shaved clean and free from glazed surface left by dried sap.
3. Shave knots or projections smooth and flush with the surface of surrounding wood.

4164.03 SAWED WOOD POSTS.

A. Furnish posts that:

- Conform to the shape and nominal dimensions for rough stock, and
- Meet the applicable requirements of [Section 4162](#).

B. Ensure 5 inch by 5 inch (125 mm by 125 mm) and larger treated, sawed wood guardrail posts are a minimum Grade No. 1 or better Douglas Fir (coast region) or No. 1 or better Southern Pine, according to the minimum strength requirements of AASHTO M 168.

4164.04 WOOD SIGN POSTS.

A. Furnish either Douglas Fir (coast region) or Southern Pine posts graded as provided in ASTM D 245 according to rules approved by the Board of Review of the American Lumber Standards Committee.

1. Use Douglas Fir posts free of heart centers and of the following nominal sizes and grades:

- 4 inch by 4 inch (100 mm x 100 mm) - "No. 2" - Structural Light Framing.
 - 4 inch by 6 inch (100 mm x 150 mm) - "Dense No. 2" - Structural Joist and Plank.
2. Use Southern Pine posts of the following nominal sizes and grades:
- 4 inch by 4 inch (100 mm x 100 mm) - No. 2 Dense.
 - 4 inch by 6 inch (100 mm x 150 mm) - No. 1 Dense.
- B.** Nominal 4 inch by 4 inch (100 mm by 100 mm) sign posts in lengths up to 14 feet (4.3 m) may be furnished in species Northern Pine (Norway, Red Pine), Grade No. 1, according to the Northeastern Lumber Manufacturer's Association Rules.
- C.** Furnish posts in the size and length specified complying with the following for the size designated:
1. **Nominal 4 inch by 4 inch (100 mm by 100 mm) Posts.**
- S4S posts sawn square at both ends.
 - 10 holes 7/16 inch (11 mm) in diameter bored at 6 inch (150 mm) spacing (center to center) with the first hole being 3 inches (75 mm) from one end of the post.
 - Spacing and alignment of holes within 1/16 inch (2 mm) of true center line and distance.
2. **Nominal 4 inch by 6 inch (100 mm by 150 mm) Posts.**
- S4S posts sawn square at both ends.
 - 15 holes 7/16 inch (11 mm) in diameter bored through the 6 inch (150 mm) thickness at 6 inch (150 mm) spacing (center to center) with the first hole being 3 inches (75 mm) from one end of the post.
 - Spacing and alignment of holes within 1/16 inch (2 mm) of true center line and distance.

4164.05 PRESERVATIVE TREATMENT.

Complete boring and framing before treatment. Unless provided otherwise, apply [Section 4161](#).

4164.06 INSPECTION.

- A.** Inspect posts before treatment. Follow [Materials I.M. 462](#) for inspection and acceptance. Inspect for quality and straightness before accepting for treatment. Do not allow posts not meeting the quality and straightness requirements to be treated.
- B.** The treating process will be inspected at the treating plant. Posts will be inspected after treatment for straightness. Posts not meeting the requirements will be rejected. Posts rejected after treatment may be subjected to steam treatment in the treating chamber while loaded in such manner as to remove or minimize the bends and bows. They will be inspected for straightness again. Posts so steamed will be accepted if they comply with the requirements for straightness.