

CP RAIL SYSTEM

STANDARD SPECIFICATION FOR HARDWOOD CROSSTIES

1. SPECIES OF WOOD ACCEPTABLE

Beech, Birches, Hard Maples and Oaks are acceptable species. No Elms or Black Ash are acceptable. Minimal amounts of species such as Soft Maple, Hickory, Black Walnut, Red Gum and Black Gum may be acceptable if so specified.

OTHER SPECIES WILL NOT BE ACCEPTED UNLESS APPROVED BY THE DIRECTOR OF MATERIAL MANAGEMENT - ENGINEERING.

2. INSPECTION

2.1 Place

Ties will be inspected at destination only, unless explicitly specified in the purchase order.

2.2 Manner

Inspectors will make a reasonably close examination of the top, bottom, sides and ends of each tie. Each tie will be judged independently, without regard for the decisions on others in the same lot. Ties too muddied for ready examination will be rejected.

3. PHYSICAL REQUIREMENTS

3.1 General Quality

Except as hereinafter provided, all ties shall be free from any defects that may impair their strength or durability as crossties, such as decay, large splits, large shakes, slope of grain or large or numerous holes or knots. Particular attention will be paid to the Rail Bearing Area (RBA) (Figure 1 & 2).

3.2 Decay

Decay is the disintegration of the wood substance due to the action of wood destroying fungi. "Blue stain" is not decay and is permissible in any wood.

3.3 Holes

A large hole is one more than 1/2 in. in diameter and 3 in deep within or more than one-fourth the width of the surface on which it appears and 3 in. deep outside the RBA. Numerous holes are any number equaling a large hole in damaging effect. Such holes may be caused in manufacture or otherwise.

3.4 Knots

Knots which are sound and tight and whose average diameter is less than one-fourth the width of the surface on which it appears are acceptable. Numerous knots, within the RBA, which in total exceed the above diameter are not acceptable.

3.5 Shake

One which is not more than one-third the width of the tie will be allowed, provided it does not extend nearer than 1 in. to any surface.

3.6 Split

A split is a separation of the wood fibers extending from one surface to an opposite or adjacent surface. In unseasoned ties, a split greater than 1/8 in. wide and/or 4 in. long or a four-way (star) split is unacceptable. For seasoned ties please refer to Standard 123 for Nail End Plate Specifications.

3.7 Checks

A check is a separation of wood fibers due to seasoning. which appears on one surface only, extending toward the pith. Ties with a check greater than 1 in. deep and 48 in. long or checks 1/2 in. wide will be rejected.

3.8 Slope of Grain

Except in woods with interlocking grain, a slope of grain in excess of 1 in 15 will not be permitted.

3.9 Bark Seams

A bark seam or pocket is a patch of bark partially or wholly enclosed in the wood. Bark seams will be allowed provided they are not more than 2 in. below the surface and/or 10 in. long, are not loose and are not located in the RBA.

3.10 Manufacture

3.10.1 Except as hereinafter provided all ties shall be straight, square-sawn, cut square at the ends, have bottom and top parallel and have bark entirely removed.

- 3.10.2 A tie will be considered straight when a straight line from a point on one end to a corresponding point on the other end is no more 1 in. from the surface at all points.
- 3.10.3 The top and bottom of a tie will be considered parallel if any difference in the thicknesses at the two sides or ends does not exceed 1/8 in.

4. DESIGN

4.1 Dimensions

- 4.1.1 All No. 1 (U.S. No. 5) cross ties shall be of the following dimensions: 7 in. thick by 9 in. in cross section, with an 8 in. minimum face and shall be either 8'0", 8'6" or 9'0" in length (Fig. 1). U.S. No. 4 cross ties shall be of the following dimensions: 7 in. thick by 8 in. in cross section and shall be 8'6" in length (Fig. 2). All No. 2 (U.S. No. 3) cross ties shall be of the following dimensions: 6 in. thick by 8 in. in cross section with a with a 7 in. minimum face and shall be 8'0" or 8'6" in length (Fig. 2).
- 4.1.2 The lengths, thicknesses and widths specified are minimum dimensions for green ties. Ties over 1 in. longer., 1/2 in. thicker or wider than the dimensions in 4.1.1 will be rejected.
- 4.1.3 All thicknesses and widths apply to the RBA of the tie. All determinations of grade will be made on the top of the tie, which is the narrower of the horizontal surfaces, or the one with narrower or no heartwood if both horizontal surfaces are of the same width.
- 4.1.4 In seasoned ties, thickness and width requirements will be considered met if not more than 1/4" scant of those specified.

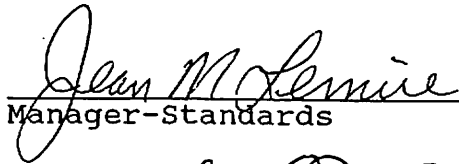
5. DELIVERY

5.1 Risk, Rejection

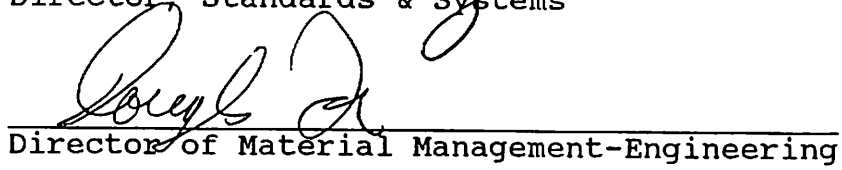
All ties are at the Vendors' risk until inspection and final acceptance. Relected ties will not be returned to Vendors.

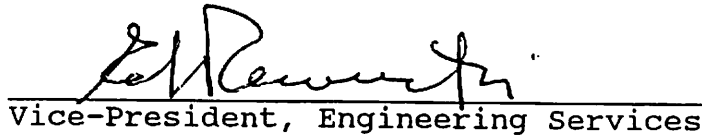
5.2 Shipment

All ties forwarded in railway cars or trucks shall be restricted to one grade and specie per load and must be segregated by age.


Manager-Standards


Director Standards & Systems


Director of Material Management-Engineering


Vice-President, Engineering Services

Engineering Services

MONTREAL, April 10, 1995

FIGURE 1.

CRITICAL MEASUREMENT AREAS OF A
NO. 1 (U.S. NO. 5) CROSS TIE

TABLE "A"	
TIE LENGTH	"A"
8'-0"	8"
8'-6"	11"
9'-0"	14"

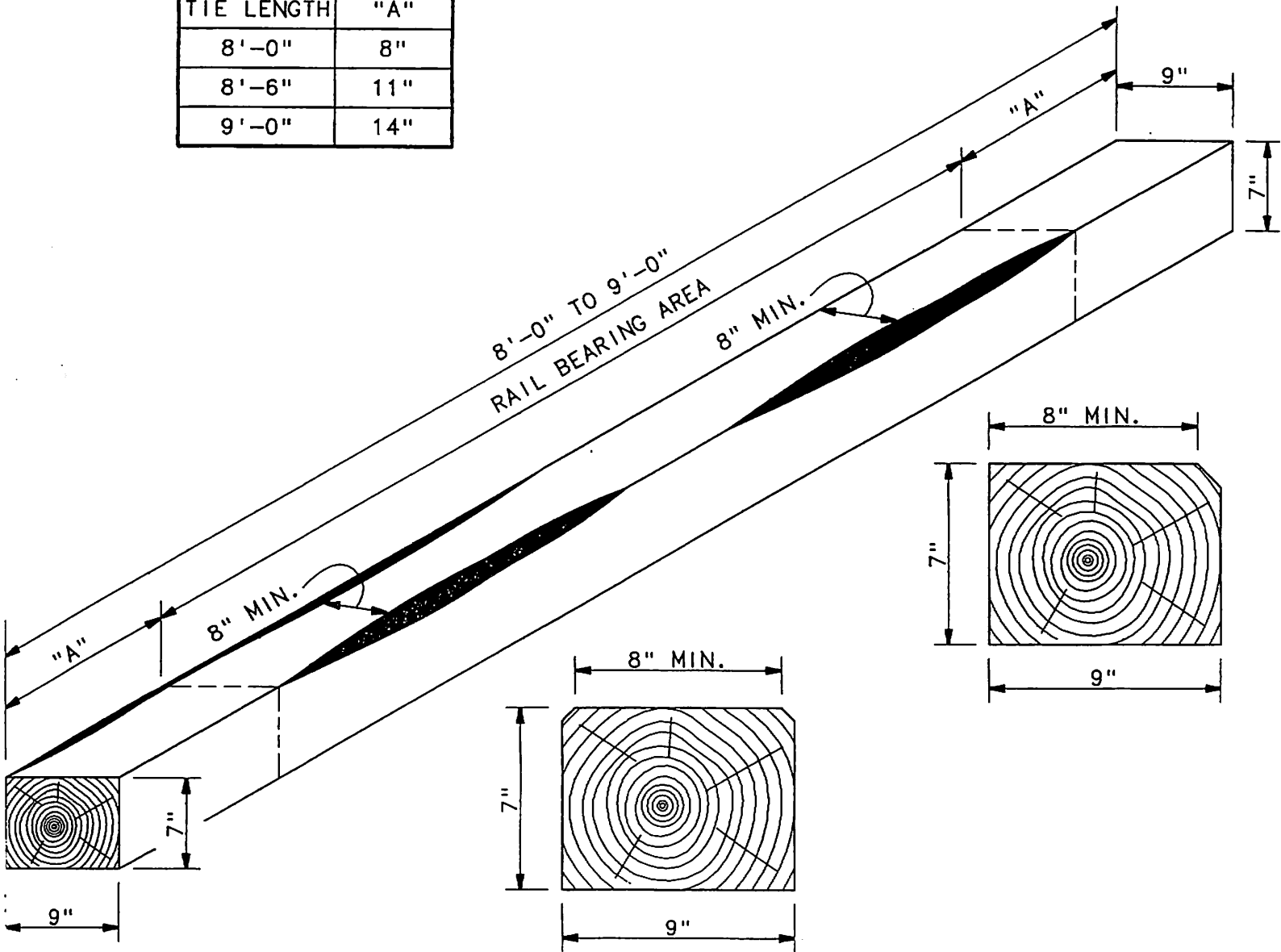


FIGURE 2.

CRITICAL MEASUREMENT AREAS OF
NO. 2 (U.S. NO. 3) AND
NO. 2A (U.S. NO. 4) CROSS TIES

TABLE "A"		
GRADE	"A"	"B"
NO. 2 (U.S. NO. 3)	8" OR 11"	6"
NO. 2A (U.S. NO. 4)	11"	7"

