R&D Briefing:

Des Plaines Task Group
C & NW study

STUDY SITE:

C & NW Main Line
Des Plaines, Illinois

PURPOSE:

Evaluate performance of various configurations of crosstie spacing and sizes.

METHOD:

Performance study of eight test sections, consisting of 3,449 creosote treated ties of varying sizes and spacings.

Over twenty years of service.

In summer of 1967, a test section of crossties was installed on the C & NW main line as part of a joint project between the AAR, the RTA and the C & NW.

Ties of various sizes and lengths were placed at different spacings. Eight different test sections were created with respect to the spacing and sizes of the crossties.

Tie length.

Tie length does not appear to be a significant factor. Ten foot ties, however, appear to offer slightly improved performance over the 8½′ and 9′ ties.

Measuring gage and cross-level.

7″ x 9″—8′6″ ties on 23⅝″ centers.

Tie cross-section.

Ties with a cross sectional area of 7″ x 9″ are performing better than 6″ x 8″ ties. Dowel laminated ties, with their large cross sectional area, appear to be performing somewhat better than the standard 7″ x 9″ ties.

7″ x 12″—8′6″ two-piece, dowel-laminated ties.

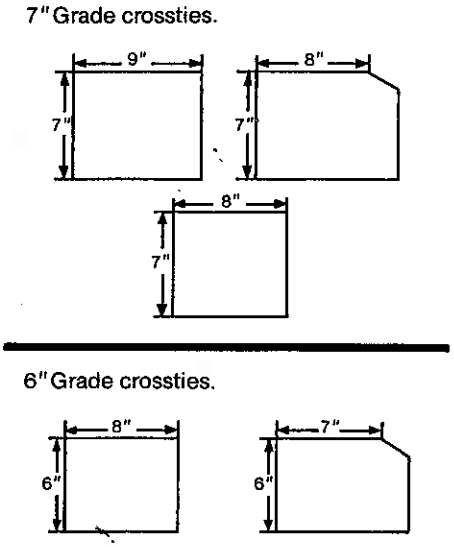
Tie spacing.

An increase in spacing of 7″ x 9″ crossties reduces the performance of the tie. Similarly, increased spacing of dowel laminated ties also reduces tie performance.

Descriptions of test sections:

Section	Crosstie Size	Crosstie Spacing
1	6x8x9′	19½″
2	7x9x10′	19½″
3	7x9x9′	19½″
4	7x9x8.5′	19½″
5	7x9x8.5′	23⅜″
6	7x9x8.5′	27½″
7*	7x12x8.5′	29¼″
8*	7x12x8.5′	23⅜″

*It should be noted that sections 7 and 8 consist of dowel laminated 6″ x 7″ crossties examined at two different tie spacings.



Size categories for 7″ and 6″ crossties.

Wood tie performance.

In determining tie performance, the following factors are carefully considered: plate cutting, wood deterioration, movement of rail, holding of gage, holding of line, creeping, wear of rail, pulverization of ballast, and drainage.

Results and reports.

Throughout the test period, inspections have been conducted at various intervals, with reports being issued by the AAR and by RTA's research and product development committee. The above results are provided by RTA's research and development committee, and are based on the May 1988 inspection. At that time 941 ties were marked for replacement for various reasons. Many of these ties will be analyzed by AAR as part of the experimental tests. Additional reports on the Des Plaines study will be available in coming months.

To receive a copy of these reports, fill out and return the enclosed reply card. The RTA will forward the reports as they become available.

Tagging for tie identification.

Note:

The 3,449 creosote-treated wood crossties used in the Des Plaines study were donated by members of the Railway Tie Association.