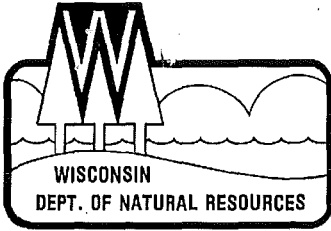


CR 94-102



George E. Meyer
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

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STATE OF WISCONSIN)
)
DEPARTMENT OF NATURAL RESOURCES) SS

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, George E. Meyer, Secretary of the Department of Natural Resources and custodian of the official records of said Department, do hereby certify that the annexed copy of Natural Resources Board Order No. CA-39-94 was duly approved and adopted by this Department on December 8, 1994. I further certify that said copy has been compared by me with the original on file in this Department and that the same is a true copy thereof, and of the whole of such original.



IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the Department at the Natural Resources Building in the City of Madison, this 27th day of February, 1995.

George E. Meyer
George E. Meyer, Secretary

(SEAL)



6-1-95

ORDER OF THE STATE OF WISCONSIN NATURAL RESOURCES BOARD
AMENDING AND CREATING RULES

IN THE MATTER of amending ch. NR 6(title);
and creating ch. NR 6 subch. I(title) and
subch.II of the Wisconsin Administrative
Code relating to snowmobile rail crossings.

CA-39-94

Analysis Prepared by the Department of Natural Resources

Statutory authority: ss. 350.137 and 227.11(2)(a), Stats.
Statutes interpreted: ss. 350.137, 350.138, 350.139 and 350.1395, Stats.

1993 Wisconsin Act 120 established a system of regulating snowmobile railroad crossings that are not located on public highways or streets. Under the law, only a snowmobile organization may construct a crossing and it must have a permit issued by the Department of Natural Resources to do so. Only a snowmobile organization may maintain a railroad crossing and it must have a permit unless the crossing has been used by snowmobiles for at least 5 winters in the last ten years. The law establishes procedures and requirements for the Department, snowmobile organizations and rail authorities including:

1. Conditions under which the Department may approve or deny a permit application.
2. Requirement for a snowmobile organization to have liability insurance to indemnify the rail authority in an amount of at least \$1 million.
3. Establishes terms of the permit and the maximum charge for a permit application review (\$150).
4. Conditions under which the Department may close or remove a railroad crossing subject to a permit or an established railroad crossing.
5. Authorizes the Department to make periodic inspections to determine that the snowmobile organization is maintaining the crossing in conformance with standards.

The law directs the Department to establish by rules uniform design and construction standards and uniform maintenance standards.

Chapter NR 6 currently contains procedures for the certification of snowmobile equipment standards and establishes requirements for snowmobile races and derbies. The rule will be expanded to create a subchapter describing the standards for uniform maintenance standards and uniform design and construction standards for snowmobile rail crossings.

SECTION 1. Chapter NR 6 (title) is amended to read:

NR 6 (title) SNOWMOBILE STANDARDS CERTIFICATION AND SNOWMOBILE RAIL
CROSSINGS

SECTION 2. Chapter NR 6 subch. I (title) is created to read:

SUBCHAPTER I (title)

SNOWMOBILE STANDARDS CERTIFICATION

SECTION 3. In the following sections where the term chapter appears, substitute subchapter:
NR 6.01, 6.02 and 6.03.

SECTION 4. Chapter NR 6, subch. II is created to read:

SUBCHAPTER II

SNOWMOBILE RAIL CROSSINGS

NR 6.40 PURPOSE. The purpose of this subchapter is to establish maintenance, design and construction standards for snowmobile railroad crossings.

NR 6.41 DEFINITIONS. In this subchapter these definitions shall apply:

(1) "Established snowmobile rail crossing" has the meaning given in s. 350.139(1)(a), Stats.

(2) "Rail authority" has the meaning given in s. 350.138(1)(b), Stats.

(3) "Snowmobile organization" has the meaning given in s. 350.138(1)(f), Stats.

NR 6.42 MAINTENANCE STANDARDS FOR ESTABLISHED SNOWMOBILE RAIL CROSSING. A snowmobile organization shall maintain an established snowmobile rail crossing in the following manner:

(1) Adequate drainage shall be maintained, both in the snowmobile and non-snowmobile season to prevent the pooling of water along the grade or the saturation of the track subgrade.

(2) Crossbucks, crossing placards and snowmobile STOP signs shall be maintained in a legible condition. No other signs may be posted on the crossbuck warning signs. Temporary caution signs on the trail as identified in NR 50.09(4)(c)3.b. and the railroad advance warning sign, W10-1, Manual of Uniform Traffic Control Devices, erected to slow snowmobile traffic and warn of the impending crossing shall be posted and inspected on a regular basis to insure their presence.

(3) During the winter season, no snow may be compacted over the surface of the crossing by snowmobile trail grooming machinery . The rail crossing for this purpose is considered 2 feet on either side of each rail.

Note: The Manual on Uniform Traffic Control Devices, MUTCD, is available from the Federal Highway Administration, Washington, D.C. or the Government Printing Office, Washington, D.C.

NR 6.43 NEW SNOWMOBILE RAIL CROSSING STANDARDS. (1) DESIGN AND CONSTRUCTION STANDARDS. (a) Horizontal alignment. The intersection between the snowmobile trail and the railroad track shall be as close to 90 degrees as possible, but may not be less than a 70 degree angle on either side of the track. The alignment within 30 feet of the outside rail on either side shall be a straight line.

(b) Vertical alignment. The crossing surface shall be in the same plane as the top of the rails for a distance of 2 feet outside of the rails. The surface, without snow, of the snowmobile trail approaching the crossing for a distance of 28 feet from 2 feet outside the nearest rail may not be higher than one foot lower than the top of the nearest rail or 1.5 foot lower than the top of the nearest rail.

(c) Drainage. Where the grade of the snowmobile trail approach descends toward the crossing, provisions shall be made to intercept surface and subsurface drainage and discharge it laterally. Routing of drainage may require ditches, culverts, french drains, piping, geotextile fabrics or combinations of these improvements.

(d) Train speed. Public snowmobile trail crossings may not be sited across rail lines where the maximum allowable speeds through the section of track exceed 69 miles per hour.

(e) Sight distances. The snowmobile rail crossing shall be located so that when stopped on the crossing approach at the crossbuck and posted Stop sign, the snowmobile operator has a sight distance along the tracks in both directions, free of obstructions, to determine whether a train is approaching. The position from which the sight distance is

measured is 15 feet outward from the nearest rail. The sight distances for the following maximum allowable train speeds shall be minimum distances that clear vision is available in both directions to determine the approach of a train:

Maximum Allowable Train Speed (mph)	19	29	39	49	59	69
Distance Along Railroad from Crossing (feet)	240	480	720	960	1200	1440

(2) SIGNS. (a) Signs at the crossing. A railroad crossing sign, commonly identified as a crossbuck, R15-1, MUTCD, shall be used to notify the snowmobiler of the railroad crossing. The crossbucks shall be 48 " long by 9 " in width and shall consist of white reflectorized background with reflective black lettering. The sign shall be constructed with commercially manufactured reflective sheeting applied to an aluminum or treated wood backing. Where physically possible, the crossbuck sign shall be located on the right hand side of the trail. Where circumstances do not allow posting of the crossbucks on the right hand side on both approaches, crossbucks may be posted back to back. The railroad crossing sign shall be erected 10 feet outward from the nearest rail and no further from the trail edge than 6 feet. The crossbucks shall be mounted approximately 9 feet above the bare ground on a preservative treated 4"x 6" post. A minimum of one crossbuck is to be used on each approach to the crossing. If the number of pairs of tracks is 2 or more, the number of pairs of tracks is to be indicated on a reflectorized auxiliary placard, R15-2, placed beneath the crossbuck. At least one STOP sign that complies with s. NR 50.09(4)(c)3.b. shall be posted beneath the crossbuck. An additional STOP sign may be posted on the left hand side of the trail.

(b) Signs prior to the crossing. Prior to the snowmobile rail crossing, the trail shall be signed with the appropriate caution signs identified in s. NR 50.09(4)(c)3.b. , including the

railroad advance warning sign, W10-1, MUTCD, in such a manner to enable a snowmobile to come to a safe stop on the 30 foot approach prior to the rail crossing.

(3) DESCRIPTION OF CONSTRUCTION. (a) The construction consists of the installation of a grade crossing with the length not to exceed 12 feet.

Note: The intent of these design standards is to utilize the existing track bed, ballast, ties and rails and construct a crossing by installing materials between tracks and outside tracks to provide a reasonably smooth surface for the crossing of snowmobiles and related trail maintenance and grooming equipment.

(b) The snowmobile organization shall schedule the crossing construction with the appropriate railroad authority and Diggers Hotline (800-242-8511). Barricades shall be provided that comply with the Manual on Uniform Traffic Control Devices.

(c) The crossing surface material used by the snowmobile organization shall be consistent with the type of crossing material used on similar crossings constructed by the rail authority. The types of crossing materials include wood plank, aggregate or asphalt.

(d) Flangeway construction shall be either 2 rail, which has a flange rail placed inside each running rail, or 3 rail, which has a flange rail placed inside each running rail and a guard rail placed outside of each running rail. Flange and guard rail material shall be wood plank or rail. The choice of flangeway construction by the snowmobile organization shall be consistent with the flangeway construction standards used by the rail authority on similar crossings under its jurisdiction. The materials used for the construction of the flange rail and the guard rail, if appropriate, shall be consistent with the materials used by the rail authority on similar crossings under its jurisdiction.

(4) MATERIALS REQUIRED AND THEIR DESCRIPTION. The following materials shall be used for a snowmobile rail crossing under this section and shall conform to Wisconsin Department of Transportation (DOT) Standard Specifications for Railroad Construction Rev. 1/94 and the American Railway Engineering Association (AREA).

Note: The address for the Wisconsin Department of Transportation is 4802 Sheboygan Avenue, Madison, WI, 53705. The address for the American Railway Engineering Association is 50 F Street, NW, Suite 70072, Washington, D. C. 20001.

(a) Tie plates. All tie plates furnished shall be new or secondhand of good relay quality, manufactured in accordance with AREA Manual, Chapter 5, and Wisconsin DOT specification 11.1, Standard Specifications for Railroad Construction, with 4 rail holding spike holes, and shall be a minimum of 7" by 10" with single or double shoulders. If double shoulder tie plates are used, both shoulders shall fit snug against the rail.

(b) Track spikes. All track spikes furnished shall be new 5/8" x 6" and shall conform to current AREA Manual, Chapter 5, Section 2, and Wisconsin DOT specifications 16.0, Standard Specifications for Railroads.

(c) Tie plugs. Tie plugs shall be new, 5/8" X 4 1/2", and shall conform to Wisconsin DOT specifications 23.1, Standard Specifications for Railroads.

(d) Steel rails. Steel rails used for flange or guard rail shall be a minimum of 9020 and shall meet Wisconsin DOT specification 10.1, Standard Specifications for Railroad Construction. The minimum length of the rails shall be 12'.

(e) Asphalt. Asphalt material used for a crossing shall conform to Section 404, Wisconsin DOT Standard Specifications for Road and Bridge Construction.

(f) Wood plank. Wood plank used for a crossing shall be full depth from tie to top of rail or a minimum of 5.125" thick with shims which shall have a minimum thickness of 1.625". Wood plank shall be pressure treated with 8# creosote solution consistent with American Wood Preservers Association, AWP, process P2-89. Wisconsin DOT specification 17.1, Standard Specifications for Railroad Construction shall also apply with current AWP guidelines. The minimum length of the wood plank shall be 12'.

(g) Crushed aggregate. Crushed aggregate shall be grade 2 or 3 in accordance with Section 304 of the Wisconsin DOT Standard Specifications for Road and Bridge Construction.

(h) New materials. All materials shall be new, unless so indicated in this section. Materials shall conform to Wisconsin DOT Standard Specifications for Railroad Construction Rev. 1/94, and the AREA Manual.

(5) INSTALLATION AND COMPONENTS. (a) The work to be performed under this item shall follow the "Manual for Railway Engineering" of the AREA.

Note: The AREA Manual for Railway Engineering is available at DOT District Offices.

(b) Flange rails. 1. Steel flange rail. a. Steel flange rails shall be the same height and shape as the running rails. They shall be installed inside running rails leaving a space at least 2 1/2" deep x 3" wide adjacent to the inside top of the running rail for the flange of the railroad wheels. The remaining space between the flange rail and the running rail may be filled with asphalt, wood plank or crushed aggregate. The steel flange rails shall be fastened with a minimum of 2 railroad spikes per tie. The ends of the flange rails shall taper down 3" over a 12" length. This shall be accomplished by removing a wedge of web material and bending down the top of the rail.

b. Steel flange rails shall be fully tie plated. Tie plates shall be placed so as to have full uniform bearing on ties and placed with shoulders snug against the base of the rail.

c. Spikes shall be driven vertically and square with the rail and driven to allow 1/8 inch space between the underside of the heads of the spike and the top of the base of the rail. Crooked or bent spikes shall be removed and replaced. When spikes are withdrawn, the hole shall be plugged with a standard treated tie plug. No spikes may be driven against the ends of joint bars, or within 2" of the end of a joint bar, unless in contact with the face of the bar, or in slots of the joint bars.

2. Wooden flange rail. a. The top of the wooden flange rails shall be equal in height to the running rail. They shall be installed inside the running rail leaving a space at least 2 1/2" deep x 3" wide adjacent to the inside top of the running rail for the flange of the railroad wheels. The remaining space between the flange rail and the running rail may be filled with

asphalt, wood plank or crushed aggregate. The bottom of the wood plank shall be mitered to provide clearance for the tie plates and spike heads for the running rail. The ends of the wood planks shall taper down 3" over a 12" length.

b. Wood planks shall be fastened to ties with pole barn nails which shall penetrate at least 3" into the tie. There shall be at least 2 nails per plank per tie. The heads of the pole barn nails shall be installed flush with the top of the plank.

(c) Guard rails. 1. Steel guard rail. a. Steel guard rails shall be the same height and shape as the running rails. They shall be installed outside running rails and the space between the guard and running rail filled with asphalt, wood plank or crushed aggregate. The steel guard rail shall be fastened with a minimum of 2 railroad spikes per tie. The ends of the guard rail shall taper down 3" over a 12" length. This shall be accomplished by removing a wedge of web material and bending down the top of the rail.

b. The specifications for tie plates and spikes are the same as for steel flange rails.

2. Wood plank guard rail. a. Wood plank guard rails shall be the same height as the running rails. The bottom of the wood plank shall be mitered to provide clearance for the tie plates and spike heads for the running rail. The ends of the wood planks shall taper down 3" over a 12" length. They shall be installed outside running rails and the space between the guard and running rail filled with asphalt, wood plank or crushed aggregate.

b. Wood planks shall be fastened to ties with pole barn nails which shall penetrate at least 3" into the tie. There shall be at least 2 nails per plank per tie. The heads of the pole barn nails shall be installed flush with the top of the plank.

(d) Crossing surface. 1. Asphalt surfaced crossings shall be in conjunction with steel or wood flange rails. Asphalt shall be a minimum thickness of 3", installed in 2 equal thickness layers. The top of the asphalt between the 2 flange rails shall be equal in height to the running rails. The ends of the asphalt area shall taper down 3" over a 12" length. If asphalt is not installed full depth from tie to top of running rail, the base may consist of crushed aggregate

allowing for the 3" minimum asphalt surface. The crushed aggregate shall be thoroughly compacted with a roller vibrator and hand tamped with tamping bars in the spaces between the ties.

2. Wood planks shall be used in conjunction with steel or wood flange rails. The wood planks shall be installed between flange rails flush with a height equal to the top of the running rails. Wood planks shall be fastened to ties with pole barn nails which shall penetrate at least 3" into the tie. There shall be at least 2 nails per plank per tie. The heads of the pole barn nails shall be installed flush with the top of the plank.

3. Crushed aggregate shall be used in conjunction with steel or wood flange rails. The crushed aggregate shall be installed between flange rails to a height equal to the top of running rails. The crushed aggregate shall be thoroughly compacted with a roller vibrator and hand tamped with tamping bars in the spaces between the ties.

(e) Approaches. The approaches may be all aggregate or aggregate and asphalt combination. The height of the approach shall be equal to the height of the guard rail or running rail where no guard rail is used for a distance of 2' outside the running rail. The crushed aggregate shall be thoroughly compacted with a roller vibrator and hand tamped with tamping bars in the spaces between the ties. Where asphalt is used in combination with a crushed aggregate base, the asphalt shall be a minimum thickness of 3", installed in 2 equal thickness layers.

(g) Crossing materials removed. All unused materials from the construction of a crossing shall be disposed of by the snowmobile organization.

(h) A snowmobile organization may contract out the construction of the crossing to a contractor.

(6) CLOSURE OF CROSSING FOR NON SNOWMOBILE USE. The snowmobile organization shall be responsible for erecting a gate or barrier on both sides of the crossing and securing the gate or barrier to prevent the use of the crossing by other vehicles when not

actively used for snowmobiling. The gate or barrier shall span the entire width of the crossing. The gate or barrier shall be signed with the standard barrier markers as specified under s. NR 50.09(4)(c)3.b. The placement of the gate or barrier shall be at the same location as the existing right-of-way fence or if no fence exists, the right-of-way line.

(7) RAIL CROSSING CONSTRUCTION PERMIT. (a) A snowmobile organization may not construct a rail crossing under this subchapter without obtaining a permit approved by the department.

(b) A separate permit is required for each snowmobile rail crossing constructed under this subchapter.

(c) A snowmobile organization may contact department district offices for prescribed application forms and instructions. The application submitted shall include adequate descriptions and drawings showing the proposed location of the snowmobile rail crossing, the design of the rail crossing, a list of materials needed to construct the crossing, and the location of snowmobile trails that connect with the snowmobile rail crossing. The completed application form with necessary attachments may be submitted to the appropriate department district office. The department may reject an application within 15 days after it is submitted if the application is incomplete or is not sufficiently detailed to determine whether to approve or deny the application.

Note: Copies of permit application forms and instructions are available from District Department of Natural Resources Offices located at:

Western District
1300 W. Clairemont Avenue
P.O. Box 4001
Eau Claire WI 54702

Southeast District
2300 N. Martin Luther King Jr. Dr.
P.O. Box 12436
Milwaukee WI 53212

Southern District
3911 Fish Hatchery Road
Fitchburg WI 53711

Northwest District
Hwy 70 W., P.O. Box 309
Spooner WI 54801

Lake Michigan District
1125 N. Military, P.O. Box 10448
Green Bay WI 54307

North Central District
107 Sutliff Avenue, P.O. Box 818
Rhinelander WI 54501

(d) Permits shall be issued for all snowmobile rail crossings without the requirement of engineering detail on the permit application that are the result of an order from the Wisconsin Office of the Commissioner of Rails or are the result of a written agreement between the rail authority and the snowmobile organization.

NR 6.44 MAINTENANCE STANDARDS FOR NEW RAIL CROSSINGS. A snowmobile rail crossing subject to a permit under this subsection shall be maintained in the following manner by the snowmobile organization holding the permit:

(1) Vertical clearance over the crossing shall be maintained free of obstructions for a height of 23 feet over the crossing.

(2) Adequate drainage shall be maintained, both in the snowmobile and non-snowmobile season to prevent the pooling of water along the grade or the saturation of the track subgrade.

(3) Crossbucks, crossing placards and snowmobile STOP signs shall be maintained in a legible condition. No other signs may be posted on the crossbuck warning signs. Temporary signs on the trail as identified in NR 50.09(4)(c)3.b. and the railroad advance warning sign, W10-1, MUTCD, erected to slow snowmobile traffic and warn of the impending crossing shall be posted and inspected on a regular basis to ensure their presence.

(4) Portions of the crossing that become worn or damaged as a result of use shall be repaired as soon as practical under the same material and installation constraints as the installation of the original crossing.

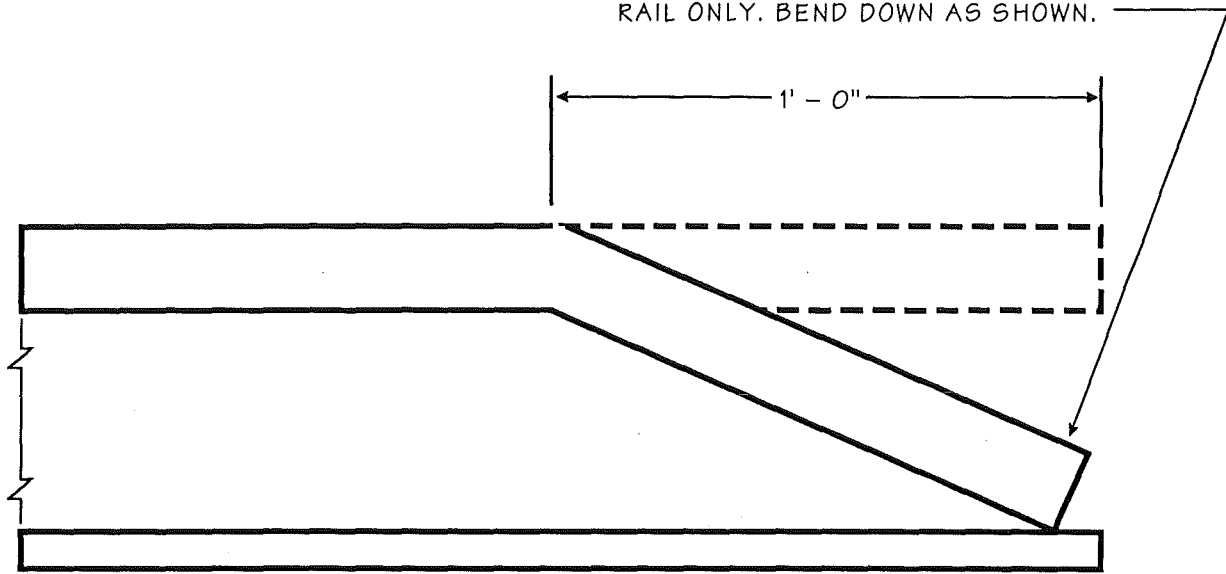
(5) During the winter season, no snow may be compacted over the surface of the crossing by snowmobile trail grooming machinery. The surface of the rail crossing for this purpose is considered 2 feet on either side of each rail.

(6) Gates or barriers erected to prevent vehicular use of the crossing during non snow seasons shall be maintained in a functioning, working order. Barrier markers specified under s. NR 50.09(4)(c)3.b., shall be affixed to the gates and maintained in a legible manner.

NR 6.45 VARIANCES. The department may approve in writing variances from nonstatutory requirements of this subchapter upon request of a snowmobile organization when the department determines that the variances are essential to effect necessary permit actions or the department's snowmobile program objectives, and where special circumstances make variances in the best interests of public safety and the snowmobile program. Before granting a variance, the department shall take into account factors such as good cause and circumstances beyond the control of the snowmobile organization.

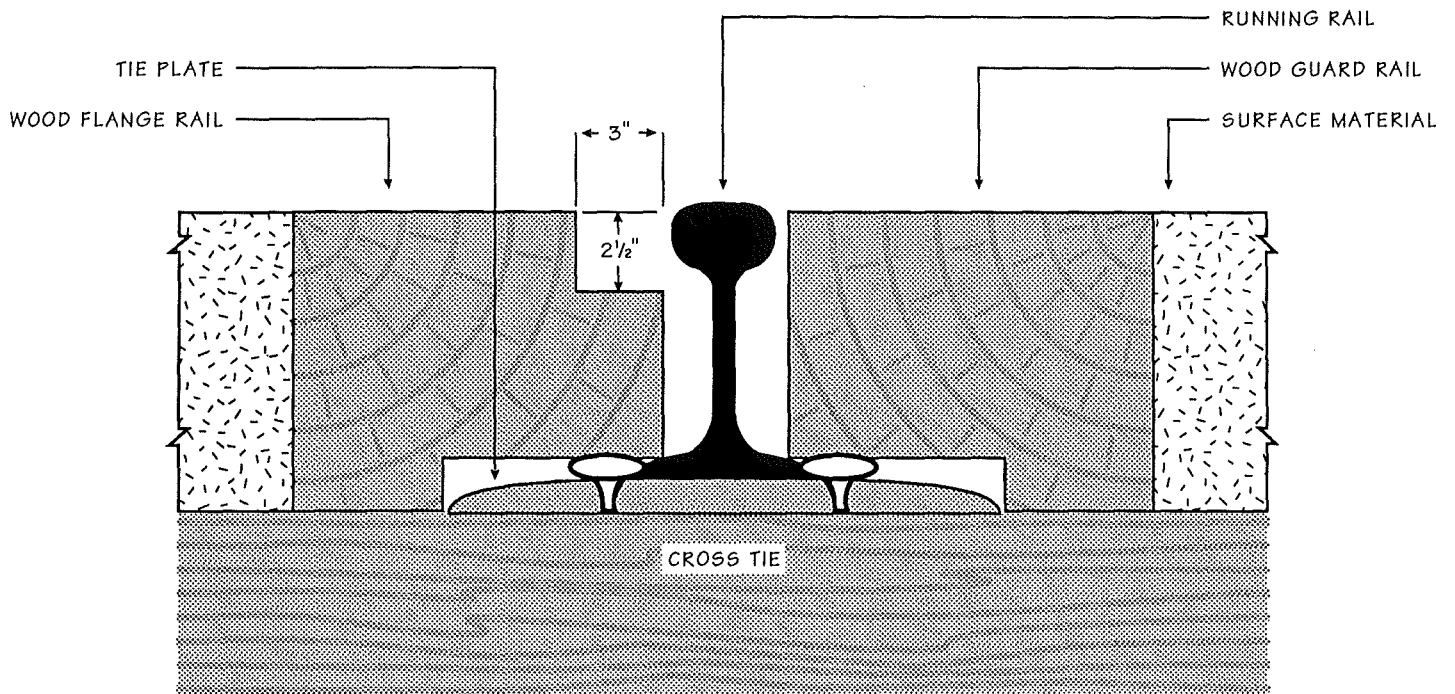
Note: The following illustrations graphically describe construction details outlined in the installation and components section:

CUT OUT WEB AT ENDS OF FLANGE
RAIL ONLY. BEND DOWN AS SHOWN.



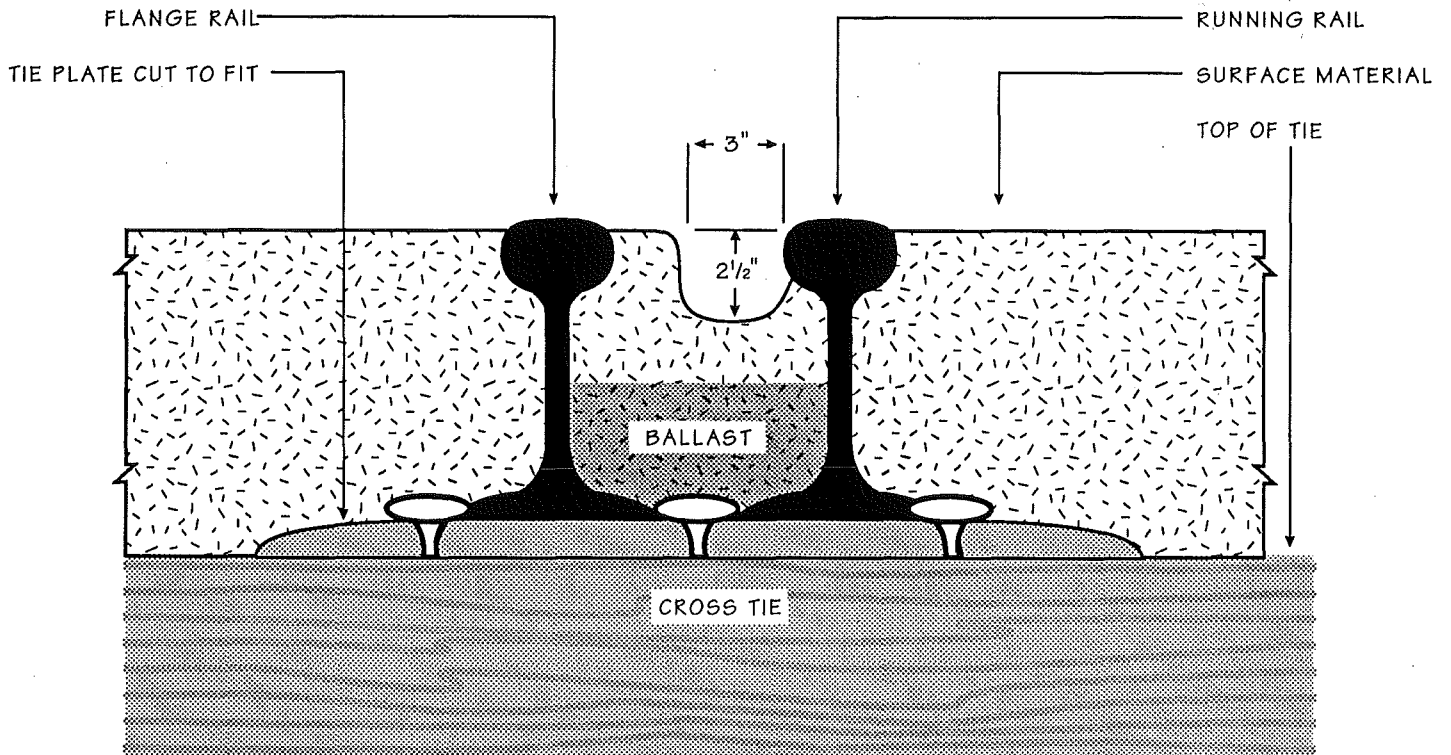
FLANGE RAIL END

DETAIL



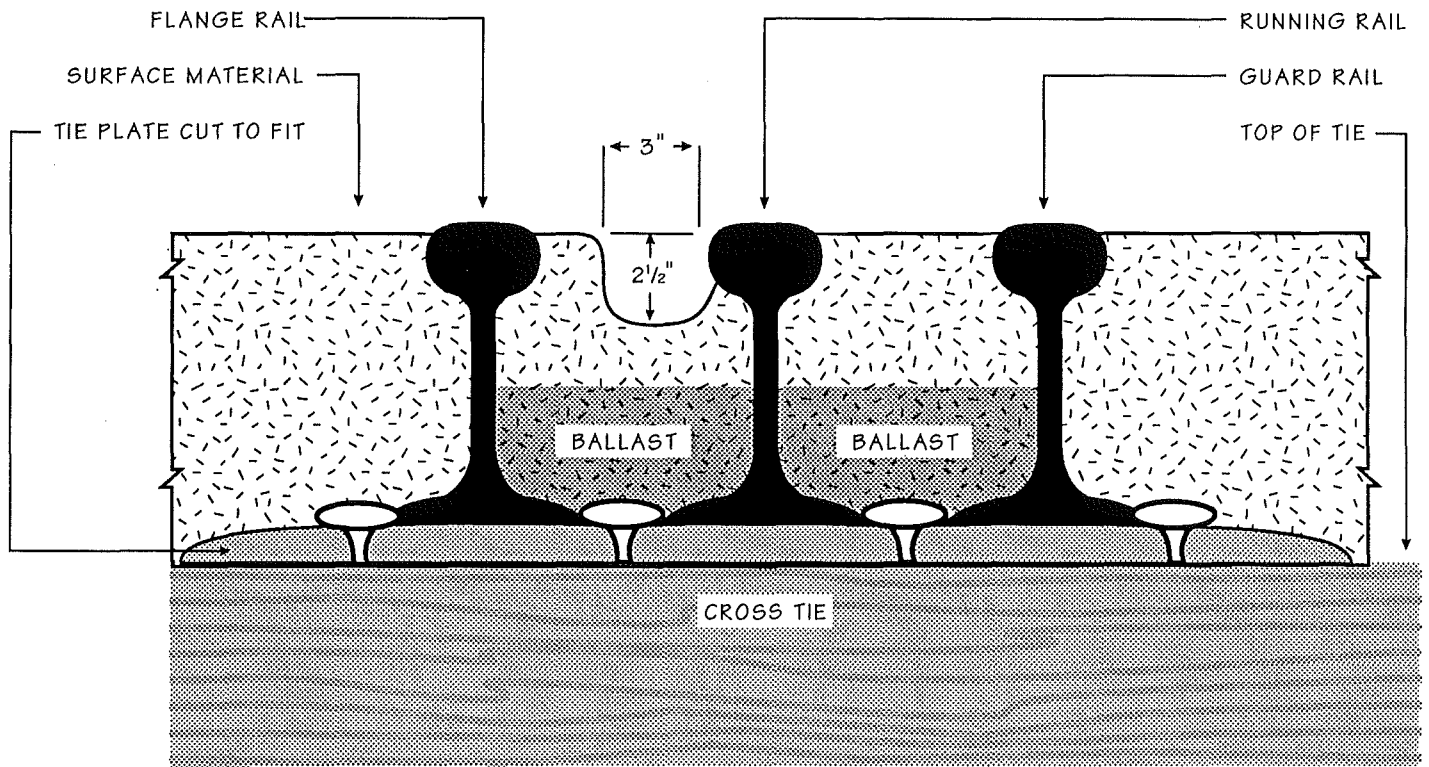
WOOD FLANGE & GUARD RAILS

CROSS SECTION



2 RAIL — STEEL

CROSS SECTION



3 RAIL — STEEL

CROSS SECTION

The foregoing rule was approved and adopted by the State of Wisconsin Natural Resources Board on December 8, 1994.

The rule shall take effect on the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22(2)(intro.), Stats.

Dated at Madison, Wisconsin February 27, 1995

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By George E. Meyer
George E. Meyer, Secretary

(SEAL)

