



Rail Specification

Section 34 11 13

Revision 00
September 2026

Rail Specification

Section 34 11 13

Publication Date: September 2026

COPYRIGHT © 2026

Metrolinx,
an Agency of the Government of Ontario

The contents of this publication may be used solely as required for services performed on behalf of Metrolinx or for and during preparing a response to a Metrolinx procurement request. Otherwise, this publication or any part thereof must not be reproduced, re-distributed, stored in an electronic database or transmitted in any form by any means, electronic, photocopying or otherwise, without written permission of the copyright holder. In no event must this publication or any part thereof be sold or used for commercial purposes.

The information contained herein or otherwise provided or made available ancillary hereto is provided "as is" without warranty or guarantee of any kind as to accuracy, completeness, fitness for use, purpose, non-infringement of third-party rights or any other warranty, express or implied. Metrolinx is not responsible and has no liability for any damages, losses, expenses, or claims arising or purporting to arise from use of or reliance on the information contained herein.

Amendment Record

Amendment in Clause No.	Date of Amendment	Description of Changes
Rev 00	September 2026	Initial release for publication.

Contents

1.	General Requirements	3
1.1.	Description of Specification.....	3
1.2.	Reference Standards	3
1.3.	Delivery, Storage, and Handling of Materials.....	3
1.4.	Submittals	4
2.	Detailed Requirements	5
2.1.	Rail Section and Type	5
2.2.	Manufacturing	6
3.	Quality Assurance	6
3.1.	Quality Assurance Plan.....	6
3.2.	Management of Materials.....	7

Tables

Table 1: Acronyms and Abbreviations	2
Table 2: Definitions.....	2
Table 3 - Approved Rail Manufacturers.....	Error! Bookmark not defined.
Table 4 - Rail Hardness Branding Information.....	5

Acronyms and Abbreviations

Table 1: Acronyms and Abbreviations

Abbreviation	Full Name
ESD	Engineering and Safety Division
AREMA	American Railway Engineering and Maintenance-of-Way Association
ASTM	American Society for Testing and Materials
MTS	Metrolinx Track Standards - Heavy Rail

Definitions

Table 2: Definitions

Term	Definition
New Rail	Rail that has never been in service.
Head Hardened Rail	Rail subjected to heat treatment to improve strength and wear resistance.
Brinell Hardness	Measure of material hardness based on indentation using a tungsten carbide ball.
Macroetch Test	A Metallurgical examination method used to reveal and evaluate the macrostructural features, defects, and inclusions within steel and other ferrous alloys

1. General Requirements

1.1. Description of Specification

- 1.1.1. This Specification outlines the requirements for production, quality testing, delivery, storage and handling of New Rail.
- 1.1.2. Laying/installation of New Rail must follow the MTS, and Track Construction Specification 34 72 00.

1.2. Reference Standards

- 1.2.1. This Specification includes references to other publications. These references are noted in the text as appropriate. All tests must be carried out in accordance with the latest revision of the standard test methods referred to in this Specification. In the event of conflict, the most stringent requirement must apply.
 - a) Metrolinx Track Standards - Heavy Rail RC-0506-02TRK;
 - b) Portfolio of GO Track Standard (GTS) Plans;
 - c) Metrolinx Track Construction Specification 34 72 00;
 - d) American Railway Engineering and Maintenance-of-Way Association (AREMA);
 - e) American Society of Testing and Materials (ASTM) Standards;
 - f) ASTM A370, Standard Test Methods and Definitions for Mechanical Testing of Steel Products; and
 - g) ASTM E10, Standard Test Method for Brinell Hardness of Metallic Materials.

1.3. Delivery, Storage, and Handling of Materials

- 1.3.1. Rail handling, and shipping at the manufacturer's facility must be in accordance with AREMA Chapter 4 Section 2.2 Rail Handling Guidance for Shippers.
- 1.3.2. At a minimum, a storage procedure covering the following subjects for storage of running rail at manufacturer's facility must be implemented:
 - a) Permanent color marking with different color per type of rail and delivery location;

- b) Plan layout of storage area, the number of layers of rails, and segregation of rails by type of rail;
 - c) Foundation details, materials, and spacing. Confirm adequacy of ground to support the rail stacks;
 - i) Handling methods in and out of storage, including crane and details of lifting rig;
 - ii) Environmental conditions;
 - iii) Inventory control procedures; and
 - iv) Security of stored materials.
- 1.3.3. Handling and unloading of rail at the destination, storage yards, and within Metrolinx Right-of-Way must conform to MTS Section 4 - Handling and Unloading Rail.

1.4. Submittals

- 1.4.1. The following record of testing, inspections and documentation must be submitted to Metrolinx for review and approval:
- a) A Mill certificate including, but not limited to the following data:
 - i) Rail section and type;
 - ii) Edition year and type of specifications met;
 - iii) Heat number;
 - iv) Number of pieces in each heat;
 - v) Method of hydrogen elimination;
 - vi) Chemical analysis of the rails listed by heat number and the specified chemical analysis;
 - vii) Physical properties including but not limited to tensile test results, and Brinell Hardness of the rails listed by heat number and the hardness pattern for hardened rail;
 - viii) Macroetch test results and a statement that all macroetched samples representing the rails supplied meet the Macroetch requirements; and
 - ix) Heat treatment process description for heat treatment of the heat-treated rail.
 - b) Record of Ultrasonic testing for internal defects and a statement that all rails supplied meet the ultrasonic testing requirements.

- c) Quality assurance statement that confirms compliance with the Specifications.

2. Detailed Requirements

2.1. Rail Section and Type

- 2.1.1. New running Rail to be installed on Metrolinx-owned tracks must be 115RE or 136RE and must conform to:
- a) Standard Plan GTS-1111 – Sheet 1 and AREMA Fig 4-1-6 for 136RE
 - b) Standard Plan GTS-1111 – Sheet 2 and AREMA Fig 4-1-2 for 115RE
- 2.1.2. New Rail for installation on main tracks must be supplied in minimum of 78 ft (20 m) length with blank ends, unless otherwise specified.
- 2.1.3. New Rail must be supplied by the manufacturers outlined in the MTS.
- 2.1.4. Rail weight and surface hardness must be selected in accordance with MTS Appendix P - Rail Usage. Rail hardness branding information can be found in Table 3.

Table 3 - Rail Surface Hardness Branding Information

Branding	Rail Hardening	Branding	Rail Hardening
Blank	Standard Strength (310BHN)	IHHS	Int. Hardness High Strength (350BHN)
SS	Standard Strength (310BHN)	HH	Head Hardened (370BHN)
3HB	Standard Strength (310BHN)	FHH	Fully Head Hardened (370BHN)
IH	Intermediate Strength (350BHN)	DHH	Deep Head Hardened (370BHN)

- 2.1.5. Products listed in this specification may be substituted with approved equivalent products, subject to prior written approval from the Metrolinx Track Engineering department. Requests for approval must include sufficient technical documentation to demonstrate equivalency in performance, durability, and compliance with applicable standards.

2.2. Manufacturing

- 2.2.1. New Rail manufacturing for installation on Metrolinx-owned tracks, must conform to AREMA Chapter 4 Specifications for Steel Rails, including but not limited to:
- a) Chemical Composition for Carbon Rail Steel and Low Alloy Rail Steel
 - b) Mechanical Properties
 - i) Surface Hardness;
 - ii) Internal Hardness of High Strength Rail;
 - iii) Tensile Properties;
 - iv) Section Tolerances;
 - v) Hydrogen Elimination;
 - vi) Ultrasonic Testing;
 - vii) Surface Classification; and
 - viii) Interior Condition/Macroetch Evaluation.
 - c) Branding and Stamping
- 2.2.2. Plant flash-butt welding of rails including all qualification and routine quality assurance testing must comply with AREMA Chapter 4, Section 3.10 Specification for the Quality Assurance of Electric Flash-Butt Welding of Rail and Section 3.11 Specification for the Fabrication of Continuous Welded Rail.

3. Quality Assurance

3.1. Quality Assurance Plan

- 3.1.1. The manufacturer must implement and maintain a quality assurance and quality control program regulating methods, procedures, and processes to ensure all New Rail supplied for Metrolinx comply with the requirements of this Specification and AREMA Chapter 4 Specifications for Steel Rails. The quality assurance program and certification must be made available to Metrolinx upon request.
- 3.1.2. All testing and inspection by the manufacturer shall be performed by fully qualified personnel by virtue of prior experience or training.

3.2. Management of Materials

- 3.2.1. The Contractor must maintain and make available an up-to-date inventory of rail upon request from Metrolinx.
- 3.2.2. The Contractor must provide the necessary management resources for all track materials.
- 3.2.3. The Contractor is responsible for conducting its own quality-assurance program to verify that New Rail meets Metrolinx Track Standards requirements.
- 3.2.4. The Contractor must ensure Metrolinx has access to all facilities required to verify that rails are produced and furnished in accordance with Metrolinx Track Standards.
- 3.2.5. Rail that fails to meet Metrolinx Specifications, whether discovered during tests, inspections, or after acceptance, will be rejected and returned to the Contractor.
- 3.2.6. The Contractor is entitled to a joint inspection of defective rail at Metrolinx premises. Defective rail must be identified before construction, removed from use, and replaced with defect-free material at the Contractor's expense, including handling and transportation in both directions.

End of Section