

THIRD RAILS

METRO-NORTH COMMUTER RAILROAD

POWER DEPARTMENT

SPECIFICATION NO. PD-801, REV. 1 (10/31/05)

THIRD RAILS

PART 1 – SCOPE

- 1.1 This Specification covers the manufacture, classification, finishing, branding, marking, and loading for shipment of low-carbon open-hearth steel rails for use as the electric current carrying third rail of electrified railroad.

PART 2 – PHYSICAL CHARACTERISTICS

- 2.1 Material: The rails shall be rolled from open-hearth steel, the chemical characteristics of which are left to the discretion of the manufacturer, to produce a rail having the lowest electrical resistance consistent with good manufacturing practice. Rails may be rolled from low-carbon steel, as they are not subject to wheel wear, but they shall have sufficient stiffness to retain their shape during shipment and installation.

- 2.2 Length: The standard length of rail shall be forty (40) feet at a temperature of sixty (60) degrees F.

A variation of one-half (1/2) of an inch from the specified length will be allowed.

- 2.3 Section: The section of the rail shall be 150 NMC and shall conform accurately to that shown on the latest issue of Metro-North Standard Plan STD-301. A variation of one sixty-fourth (1/64) of an inch under and one thirty-second (1/32) of an inch over the specified height, and a variation of one sixteenth (1/16) of an inch in the width of head and flange will be allowed.

- 2.4 Finish: All rails, while on the cooling beds, shall be protected from snow and water. The distance between supports of rails in the gaging press shall be not less than forty-two (42) inches.

All rails after finishing shall be smooth on heads and bases, straight in line and surface, without twists, kinks, waves, or defects of any kind.

All rails shall be sawed square at the ends. A variation of not more than one thirty-second (1/32) of an inch will be allowed. Rough burrs shall be removed and made smooth.

Rails shall be straight in line and surface when leaving gauging beds. Spreaders shall be used in handling rails to insure their arrival at destination in proper condition.

- 2.5 Weight: The weight of rail shall as nearly as possible equal 150 pounds per linear yard. A variation in weight of two (2) percent in any one rail and of one (1) percent from the calculated weight of section as applied to the entire amount of rail called for will be allowed.

Rails accepted will be paid for according to actual weight.

- 2.6 Branding: The name of the maker, rail classification and the month and year of manufacture shall be rolled in raised letters and figures on the web of each rail. The number of the heat and the letters O.H. (to indicate the process of manufacture) shall be stamped or rolled on the web of each rail.

- 2.7 Drilling: All drilling will be in accordance with the latest issue of Metro-North Standard Plan STD-301.

PART 3 – ELECTRICAL CHARACTERISTICS

- 3.1 The rails furnished in accordance with these specifications will be used to conduct electric current and low electrical resistance is essential. The electrical resistance shall not exceed six and eighty-five hundredths (6.85) times the resistance of pure copper (International Annealed Copper Standard) of equal cross section and at corresponding temperature.

Resistance tests shall be made of at least two (2) rails from each heat, one from the beginning and one from the end of the heat, and the average of these tests taken together with all additional tests that may be considered necessary by the Railroad Inspectors shall be considered as the resistance of all of the rails of the heat.

PART 4 – CLASSIFICATION OF RAILS

- 4.1 No. 1 rails shall meet all the requirements of these specifications and be free from injurious defects and flaws of all kinds.
- 4.2 Rails not to exceed fifteen (15) percent of the total order, which conform to the following requirements, will be accepted as No. 2 rails:

- (a) Rails containing surface imperfections or flaws not more than 1/4-inch deep in the head or 3/8-inch deep in the flange, provided these imperfections or flaws do not occur in sufficient number nor are of a character which, in the judgment of the Inspector, may render the rail unsuitable for use as contact rail.
 - (b) Rails showing an electrical resistance of over six and eighty-five hundredths (6.85), but not exceeding seven (7) times that of pure copper.
- 4.3 Marking: Both ends of each short length of No. 1 rails shall be painted green, and both ends of each No. 2 rail shall be painted white.

PART 5 – SHIPMENT

- 5.1 All rails must be loaded with heads up and with separators between tiers, and shall arrive at the destination in the same condition as when loaded. The mill shall furnish the Railroad with seven (7) copies of the shipping notice.

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