



**FORMED STEEL BEAM RAILING
CABLE RAIL & ANCHOR CABLE****GENERAL**

Rail elements, fasteners and terminal sections will meet the requirements of AASHTO M 180. Rail elements and terminal sections will be Class A, Type I unless a greater thickness is required by the plans. Acceptance will be based on an approved Brand Registration Guarantee and compliance of all test results on any random samples secured from the project or the supplier.

BRAND REGISTRATION AND GUARANTEE

Prior to furnishing materials for a project the fabricator will furnish a Brand Registration and Guarantee in accordance with all the requirements of AASHTO M 180 for approval of the engineer. Detailed drawings and samples of each rail component will also be submitted with each request. The above requirements apply to each fabricating plant even though the Brand Registration may be the same. A Brand Registration and Guarantee will be submitted annually for approval.

Approved Fabricator Brand Registrations and Guarantees are listed in Appendix A.

ACCEPTANCE

Material shall be accepted on the basis of manufacturer certification, approved brand registration and guarantee, as required by AASHTO M180. If there is evidence of misbranding as determined by random sampling and detection of inadequate tensile strength, yield strength, elongation, improper chemical composition, inadequate or improper coating, deficient thickness or improper fabrication, the material shall be rejected and approval for further use withdrawn until subsequently re-approved. Samples for test of any material offered for use may be taken at any time deemed desirable by the engineer.

Prior to incorporation into a project, the markings on the beam element end sections and backup plates will be in accordance with AASHTO M 180 requirements and will be checked for name or brand of manufacturer and will be documented in the field book. Markings for end sections and back-up plates may be on durable tags securely attached to each section or bundle in lieu of the above on the individual pieces.

The beam elements will be identified as follows:

1. Name and brand of manufacturer
2. Identification symbols or code for heat number and coating lot

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3. AASHTO Specification Number
 4. Class and type

CABLE RAIL AND ANCHOR CABLE

Cable rail will meet the requirements of AASHTO M30, Type I, Class A.

Anchor cable will meet the requirements of AASHTO M30, Type II, class A.

MONITORING SAMPLING AND TESTING

For direct shipments only, the District Materials Office will secure monitor samples periodically. The frequency may be based on the quantity of material furnished for use in each District. A minimum of one sample should be secured annually for each fabricator with an approved Brand Registration and Guarantee. The sample size will be a piece one 1 in. (25.4 mm) by 12 in. (304.8 mm) secured from the edge of beam railing. One set per size of nuts, bolts, and washers will be secured at random for testing.

SAMPLING AND REPORTING AT THE SUPPLIER WAREHOUSE

Sampling and inspecting will be done at the supplier warehouse on each shipment of guardrail material. Once the shipment is approved, the District Materials Engineer will report the material on a project-by-project basis.

MATERIAL REQUIREMENTS

- Beam, transition section, end and buffer shall meet the requirements of AASHTO M180, Class A, where the base metal nominal thickness is 0.105 inch (2.67 mm), 12 gauge, tensile strength min, 70,000 psi, elongation 2 inch (50 mm) minimum
 - Zinc shall be Type I and shall meet the requirements of AASHTO M120 or ASTM B6. Zinc coating, minimum single-spot 1.80 oz./ft.² (550 g/m²)
 - Bolts and Nuts: Unless otherwise specified, Bolts shall meet the requirements of ASTM A307, Grade A. **NOTE:** All connections or splices shall be formed with oval shoulder button headed bolts to minimize projections on the roadside of the guardrail. Nuts shall meet the requirements of ASTM A563 DH, Heavy Hex. Washers shall be flat and shall meet the requirements of ASTM F844. Bolts, nuts and washer shall be galvanized in accordance with ASTM A153, Class C. **NOTE:** Zinc-coated nuts shall be tapped over-size as specified in ASTM A563
 - Cable shall meet the requirements of AASHTO M30 or ASTM A741, Type I, Class A
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- Anchor bolts, nuts and washers used to attach beam rail to bridge barrier rail shall meet the requirements of ASTM F1554, Grade 55 and shall be full-length, galvanized. Nuts shall meet the requirements of ASTM A563 DH, Heavy Hex, Class 2B. Washers shall meet the requirements of ASTM F436, Type I. Anchor bolts, nuts and washers shall be galvanized and shall meet the requirements of ASTM A153, Class C.