



**FORMED STEEL BEAM RAILING, CABLE RAIL, ANCHOR CABLE,
& STEEL POST FOR GUARDRAIL****BEAM RAILING**

Rail elements, fasteners and terminal sections shall meet the requirements of AASHTO M 180. Rail elements and terminal sections shall be Class A, Type I unless a greater thickness is required by the plans. Acceptance shall 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 & 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 shall be submitted annually for approval.

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

CABLE RAIL & ANCHOR CABLE

Cable rail shall meet the requirements of AASHTO M30, Type I Construction, Class A Coating, or ASTM A741.

Anchor cable shall meet the requirements of AASHTO M30, Type II Construction, Class A Coating, or ASTM A741.

STEEL POST

Steel posts shall meet the requirements of ASTM A36/A36M Structural Steel and of the dimensions shown in the contract documents. Steel posts shall be galvanized in accordance with the requirements of ASTM A123. Bolt holes shall be provided in accordance with Section 2408.39B. Galvanizing shall be done after fabrication and after all bolt holes have been drilled.

ACCEPTANCE OF BEAM RAILING

Material shall be accepted on the basis of manufacturer certification, approved brand registration (listed in Appendix A) 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deficient thickness or improper fabrication, the material shall be rejected and approval for further use shall be withdrawn until subsequently re-approved. Samples of the materials for testing may be secured from the project site.

Prior to incorporation into a project, the markings on the beam element end sections and backup plates shall be in accordance with AASHTO M180 requirements and shall be checked for name or brand of manufacturer and shall be documented in the field book. Markings for end sections and back-up plates may be accepted on durable tags securely attached to each section or bundle in lieu of the above on the individual pieces.

The beam elements shall be identified as follows:

1. Name and Brand of Manufacturer
2. Identification Symbols or Code for Heat Number
3. Coating Lot
4. AASHTO Specification Designation Number
5. Class and Type

ACCEPTANCE OF STEEL POST

Acceptance of steel posts to be incorporated into a project shall be based on a Certified Mill Test Analysis of the steel.

MONITORING SAMPLING & 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 shall be 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 shall be secured at random for testing.

SAMPLING & 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 shall 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 for beam railing shall be Type I and shall meet the requirements of 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 F436. 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
- 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.
- Steel posts shall meet the requirements of ASTM A36/A36M.
- Galvanizing of steel posts shall be in accordance to ASTM A123.
- **Types:** Type I – Zinc-coated 1.80 oz./ft.² (550 g/m²) minimum single spot
Type II- Zinc-coated 3.60 oz./ft.² (1100 g/m²) minimum single spot
- **Classes:** Class A – Base metal nominal thickness 0.015 in. (2.67 mm)
Class B – Base metal nominal thickness 1.0135 in./ (3.43 mm)