

SECTION 967 COMPONENTS FOR GUARDRAIL

967-1 Description.

This Section covers the material and fabrication requirements for guardrail components.

967-2 Materials.

All timber and steel components supplied under this Specification shall be from producers currently on the Department's Production Facility Listing. Producers seeking inclusion on the Department's Production Facility Listing must meet the requirements of Section 105.

967-2.1 Timber: Timber products must have a minimum stress grade of 1200 psi and meet the material requirements of Section 954. Timber is to be dressed on four sides (S4S) and treated in accordance with the post requirements in Section 955.

967-2.2 Steel: Steel guardrail materials must meet the component fabrication requirements in 967-3.

Where specified, components must be welded in accordance with the American Welding Society Structural Welding Code ANSI/AWS D1.1 using material conforming to E60XX. Nondestructive testing of welds is not required.

967-3 Fabrication.

967-3.1 Posts: Posts shall not vary more than 1 inch from the specified length shown in the ~~Design~~ Standard Plans.

967-3.1.1 Timber Posts: Posts shall be shaped and drilled prior to wood treatment.

967-3.1.2 Steel Posts: Posts must conform to the requirements of ASTM A6, ~~and~~ ASTM A36 ~~or~~ ASTM A992. Posts must be fabricated from rolled sections with cross-sections defined in the American Institute of Steel Construction (AISC) Manual of Steel Construction. Posts must be drilled or punched prior to galvanizing in accordance with ASTM A123.

967-3.2 Special Steel Posts: Posts and plate materials must meet the requirements of ASTM A6 and ASTM A36. Posts and plates must be drilled, punched, and welded prior to galvanizing in accordance with ASTM A123.

967-3.3 Offset Blocks: Offset blocks must not vary more than 0.25 inch from the specified dimensions in the ~~Design~~ Standard Plans.

967-3.3.1 Steel Offset Blocks: Blocks must meet the requirements for steel posts.

967-3.3.2 Timber Offset Blocks: Blocks must meet the requirements for timber posts.

967-3.3.3 Composite Offset Blocks: Composite offset blocks must be listed on the APL. Manufacturers seeking evaluation of their product for approval must submit an application in accordance with Section 6 and include the following:

1. Test reports from an independent laboratory showing the product meets all crash test requirements of ~~the National Cooperative Highway Research Program, Report 350 (NCHRP 350) or the Manual for Assessing Safety Hardware 2009 (MASH 09)~~.

2. Test reports from an independent laboratory showing the composite material meets the following physical requirements:

Composite Block	Test Method	Requirement
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Composite Block	Test Method	Requirement
Durometer Hardness	ASTM D2240 Shore D	Minimum 50
Durometer Hardness after UV exposure	ASTM D5870	< 15 points change from initial after exposure per ASTM D4329, 1000 hours, cycle C, type UVB-313 lamps

967-3.4 Steel Panels: W-beam, thrie-beam, thrie-beam transitions, terminal connectors, end shoes, end units, and all other compatible panels must meet the requirements of AASHTO M180 (for beams and rails), for either Class shown. Type II zinc coating will be required on all panels.

967-3.5 Bolts: Hex and button head bolts, including nuts, washers, and other accessories, must meet the material requirements of AASHTO M180, except bolts must be galvanized in accordance with ASTM A153.

967-3.6 Barrier Delineators: Barrier delineators must meet the requirements of Sections 705 and 993 and be listed on the APL.

967-3.7 End Delineators: Retroreflective sheeting is to be yellow, Type IV or greater in accordance with Section 994 and listed on the APL.

967-3.8 Steel Plates: Steel plates must meet the requirements of ASTM A36. Drill holes prior to galvanizing in accordance with ASTM A123.

967-3.9 Pipe Rail: Pipe is to be Schedule 40 in accordance with ASTM A53 and, if applicable, welded prior to galvanizing.

967-3.10 Rub Rail: Rail materials must meet the requirements of 967-3.4.

967-3.11 Steel Tube Foundations: Steel tube foundations must meet the requirements of ASTM A500, Grade B. After all punching, drilling, stamping, and welding is complete, steel tube foundations are to be galvanized in accordance with ASTM A123.

Brackets and fixtures must meet the requirements of ASTM A36. Foundations must be drilled or punched prior to galvanizing in accordance with ASTM A123.

967-3.12 Approach Terminal Assemblies: Approach terminals must be listed on the APL.

Manufacturers seeking evaluation of their product for approval must submit:

1. A completed application in accordance with Section 6, including ~~a~~ product drawings meeting the dimensions of ~~Design Standard Plans~~, Index ~~No. 400-536-001~~ and that is signed and sealed by a registered Florida P.E.

2. Independent test reports indicating that the product meets all crash test requirements of MASH ~~09 or NCHRP 350 as applicable.~~

~~3. Documentation showing the assembly is deemed eligible by the Federal Highway Administration for federal funding on the National Highway System (NHS)~~