

Standard Drawing Reference Report

RBR-035-13 GUARDRAIL END TREATMENT TYPE 4A

Effective with the July 18, 2025 Letting

Design Notes

The Type 4A end treatment is a proprietary, single-sided guardrail end treatment known as the MFLEAT. It is manufactured and sold by Road Systems Inc. as well as its authorized representatives. Detailed information is contained in the manufacturer's installation manual (see QR code on Standard Drawing).

The MFLEAT is a flared, energy-absorbing guardrail end terminal that meets MASH Test Level 3 crash testing criteria. It is used with MGS 31-inch tall W-beam barrier and installed with a 3-foot lateral offset at the terminal's end, in accordance with the manufacturer's assembly instructions. The flared design helps reduce nuisance impacts from errant vehicles at shallow angles. The system is engineered to redirect, gate, or bring vehicles to a controlled stop, depending on the angle and severity of impact.

The Type 4A end treatment is used at the leading end of a guardrail run where there is sufficient lateral space for the flare, or at the trailing end when it is within the clear zone of opposing traffic. Adequate clear zone must be provided behind this gating terminal to allow for vehicle recovery.

Review drainage and grading conditions near the Type 4A end treatment early in the roadway design process. Additional right of way may be required to accommodate necessary grading and drainage features in this area. Because the Type 4A end treatment provides structural support for the entire guardrail system, inadequate grading at the terminal location may compromise its performance.

The Type 4A end treatment gates at Posts 1 – 4. This means the end treatment allows an impacting vehicle to pass through the end of the barrier, rather than redirecting or containing it. Therefore, the end treatment is not intended to shield fixed objects located within the gating zone, which extends perpendicular to Posts 1 – 4. Installation of the end treatment must keep this area free of obstacles. If fixed objects are present within the proposed gating area, consider extending the guardrail to shift the gating zone beyond the fixed object.

From Post 4 onward, the guardrail system anchored by the Type 4A end treatment is designed to redirect impacting vehicles. Ensure no rigid objects are placed adjacent to the barrier within the system's working width — 60 inches for Midwest Guardrail System — as they may interfere with guardrail performance.

When curb and gutter are present with guardrail, transition to lip curb and gutter or island curb and gutter (see RPM-100) at Post 10 of the Type 4A end treatment. Continue the selected curb and gutter type along the normal guardrail line, extending it alongside the Type 4A end treatment and for 50 feet beyond Post 1.

References

KYTC Standard Specifications for Road and Bridge Construction

- Section 719 – Guardrail
- Section 814 – Guardrail Systems

Highway Design Guidance Manual

- HD-800 ROADSIDE DESIGN
- HD-801.6 END TREATMENTS & CRASH CUSHIONS

Crash Test Reports

FHWA Letter CC-143 (4-10-2019)

Related Standard Drawings

RBB-002	GUARDRAIL AND BRIDGE END DRAINAGE FOR TWIN STRUCTURE
RBI-001	TYPICAL GUARDRAIL INSTALLATIONS
RBI-002	TYPICAL GUARDRAIL INSTALLATIONS
RBI-005	GUARDRAIL INSTALLATIONS AT BRIDGE COLUMNS
RBI-006	GUARDRAIL INSTALLATIONS AT SIGN SUPPORTS
RBR-001	STEEL BEAM GUARDRAIL ("W" BEAM)
RBR-018	GUARDRAIL SYSTEM TRANSITION

Standard Drawing Revision History

Revision Date	Description of Changes
SEPIA 035	<ul style="list-style-type: none">➤ Updated guidance for Guardrail End Treatment Type 4A on the Standard Drawing➤ Added a QR code linking to the MFLEAT assembly instructions
DATE: 2025-6-11	