



# Illinois Department of Transportation

## Memorandum

To: ALL BRIDGE DESIGNERS

22.5

From: Jayme F. Schiff

Subject: Railing Library Update

Date: September 30, 2022

A handwritten signature in blue ink that reads "Jayme F. Schiff".

In the Fall of 2021, the Department issued several new and updated bridge railings to comply with the 2016 AASHTO Manual for Assessing Safety Hardware (MASH). MASH testing and evaluations have continued, and this memorandum summarizes the latest status of select railings in our Railing CADD Cell Library. Please note that railings which have been removed and archived may still be requested for projects if a suitable MASH Test Level railing is not available and when approved by the Bureau of Bridges and Structures.

**R-23A (Type S-1):** This railing has been removed and archived. It is geometrically and structurally deficient for MASH Test Level 1. The R-34 (Type SM) is MASH Test Level 2 and is suggested as a suitable alternative.

**R-24A (Type T-1):** This railing has been removed and archived. The curb component and connection are not recommended. The MASH Test Level 2, R-34CWSC (Type SM) railing is a similar side mounted railing with curb and is suggested as a suitable alternative.

**R-25 Steel Railing (Temporary):** This railing has been removed and archived. It is very similar to the Type S-1 railing except it is top mounted. Therefore, it is considered geometrically and structurally deficient for any MASH Test Level requirements. Past usage data indicates that this railing is only used for rare, staged construction projects where there is not adequate space for a temporary concrete barrier and drilling into the concrete deck is allowed.

Should a project require a top-mounted temporary steel railing, details for the TxDOT T631 Bridge Railing are available at <https://www.roadwayspecialties.com/pdf/rlstd038-18.pdf> and the crash test report is available at <https://www.roadsidepooledfund.org/longitudinal-barrier/txdot-t631-bridge-rail-2/>. The TxDOT T631 Bridge Railing is crash tested to a MASH level 3. Due to the low usage of the R-25 railing, the Department is not currently maintaining standard details for this railing type. If it is shown that there is sufficient demand for this railing type, the Department will create and maintain standard details.

**R-26 (Type TP-1):** This railing has been removed and archived. The railing is mounted on an open sidewalk and has deficient geometry. The R-28 (Bridge Fence Railing) and R-32 (Bridge Fence Railing, Curved) are suitable alternative railings on an open sidewalk.

**R-28 (Bridge Fence Railing):** This railing has been updated. An expansion splice was added for the handrail to provide a continuous railing per ADA requirements and details were updated through discussions with fabricators. Similar railings are currently being evaluated for MASH. The Department anticipates that a MASH Test Level designation will be provided next year, but until then this railing may continue to be used on applicable projects.

**R-29 (Bicycle Railing and Parapet Railing):** The parapet railing was recently successfully crash tested for MASH Test Level 4 subject to the new modifications at the expansion splice. Drafting and related details were also updated. The bicycle railing has remained similar. It does not require a MASH evaluation since it is behind the combination parapet and parapet railing.

**R-30 (Type WT):** This railing has been removed and archived. It is geometrically and structurally deficient for MASH. The R-34HMAWS (Type SM) is a similar side mounted railing for HMA wearing surfaces. It is MASH Test Level 2 and is suggested as a suitable alternative.

**R-31 (Type 2399):** This railing has been removed and archived. It has been replaced with R-42 (Type CO-10) which is MASH Test Level 4.

**R-32 (Bridge Fence Railing, Curved):** This railing has been updated similar to R-28 and the Department anticipates a MASH Test Level designation will be provided next year. Until then, this railing may continue to be used on applicable projects.

**R-33 (Bicycle Railing, Curved and Parapet Railing):** This railing has been updated similarly to R-29. The parapet railing satisfies MASH Test Level 4. Drafting and related details were also updated. The railing "Bicycle Railing, Curved" has remained similar. It does not require a MASH evaluation since it is behind the combination parapet and parapet railing.

**R-39 (Bicycle Railing, Parapet):** This railing has been removed and archived. The MASH Test Level 4 parapet railing as detailed on the R-29 and R-33 railings has replaced this railing for both new and existing conditions when required.

#### **Implementation**

The revised Railing CADD Cell Library base sheets dated 9-1-2022 shall be effective for all applicable projects with Type, Size and Location (TSL) plans approved after September 1, 2022 and may also be implemented for projects currently under design as determined by the District. Please direct questions to Mark Shaffer of the Policy, Standards and Final Plan Control Unit Chief, by telephone at (217) 785-2914 or email at [mark.shaffer@illinois.gov](mailto:mark.shaffer@illinois.gov).