

IOWA DEPARTMENT OF TRANSPORTATION

To Office Bridges and Structures Date January 1, 2009
Attention All Employees Ref No. 521.1
From Gary Novey
Office Bridges and Structures
Subject Methods Memo 207 (Policy for use of steel cover plates for concrete barrier rail expansion joint openings and limits on conduit size and number in concrete barrier rails)
Article 5.8.1 Railings – Policy overview

Steel cover plates for concrete barrier rails

A question was brought up on the office's guidelines for expansion joint openings for concrete barrier rails and when cover plates should be used to protect the openings. Therefore, the following guidelines have been adopted for concrete barrier expansion openings and should be followed on both new bridge projects and rail retrofits repairs.

When the maximum expansion joint opening in a concrete barrier rail is 4 inches or greater:

1. The entire barrier rail joint opening (front and back) shall be covered by a minimum 3/8 inch galvanized steel plate that shall extend a minimum of 9 inches past the expansion opening. Larger plate thicknesses should be considered for openings over 6 inches.
2. The plate shall be fabricated to conform to the front face of the barrier including the top. In addition, a separate back plate shall be used that meets the front plate at the top of the barrier rail.
3. The joint where the 2 plates meet shall be sealed with light gray non-sag latex caulking sealer marketed for outdoor use.
4. The exterior face of the plates shall be recessed a 1/4 inch below the surface of the rail to reduce snagging potential.
5. The cover plate will allow for the full thermal movements required at that joint location plus any setting factors that are required for the joint.
6. This policy does not apply to open rails.

Limits for conduit size and number in concrete barrier rails

In addition, a question was brought up on the office guidelines for conduits in concrete barrier rails and the number and size that can be used in a single barrier rail. There is a safety concern with the casting of large conduit or multiple smaller sizes in our concrete barrier rails. Therefore, the office's policy will be to limit conduit size and diameter to a

maximum of two (2) rigid steel conduits per rail. The rigid steel conduit sizes shall be limited to 2 - 2 inch (ID) diameter or 1 - 2 inch (ID) and 1 - 3 inch (ID) diameter. These limits apply to all concrete barrier rails including open rails and rail retrofits.

These new policies shall be used on both new bridge projects and rail retrofits. If you have any question please check with me.

GAN/dgb/bj