
STEEL ROCKER BEARINGS

Background

Structural steel rocker bearings were a commonly utilized expansion bearing for structural steel superstructures. When the rocker bearings are in good condition, they provide a robust vertical support along with unrestrained longitudinal translation of the superstructure to accommodate the daily effects of expansion and contraction due to temperature.

Bearings protected from the weather typically provide a long service life. Bearings under an expansion joint typically exhibit signs of deterioration.

Scoping

When designing and scoping bridge projects, including bridge painting projects, the engineer should evaluate the existing rocker bearings. Bearings located under expansion joints should be considered for replacement with a modern bearing type. If any bearing at a support requires replacement, all of the bearings at that support should be replaced to avoid a variation in bearing stiffness. For a bridge widening project, bearings of the same type should be used with the added beam or girder lines.

Bearings that are not located under expansion joints should be inspected and evaluated for serviceability and condition for each project.

Design

When rocker bearings are replaced with elastomeric bearings, the elastomeric bearings transfers some force into the substructure. The designer should consider these force effects when evaluating the bridge substructure and the appropriateness of different bearing replacement options.

Bridge seat size should accommodate the new bearing size, side retainers if required, side clearances for the bearing and anchor bolts, and the minimum seismic support length. If necessary, the existing bridge seat size should be increased. When the pier cap must be widened to accommodate the new bearing assemblies special care should be given to ensure that epoxy anchors will not be used in an application that will place them in sustained tension.

When an end bent is converted from expansion to semi-integral, existing rocker bearings should be removed prior to pouring the new semi-integral end bent diaphragm. All temporary

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support for the superstructure should be located outside of the limits of the proposed end bent.

For additional questions regarding this Bridge Design Aid, please contact:

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