

Evaluation of Spliced Sleeve Connections for Precast Reinforced Concrete Bridge Piers

Description

Meta Fields

Category : Completed Projects

Group : Seismic

Subject : Grouted Couplers

Abstract :

Connections between precast concrete elements must be able to withstand significant stresses and deformations in earthquakes. The splice sleeve connection is being considered for connecting such elements in Accelerated Bridge Construction (ABC). There is limited data for use of this connection in bridges located in moderate to high seismic regions. The proposal aims at performing cyclic tests to verify the capacity of the splice sleeve connection for precast concrete elements such as columns connected to footings or bent cap beams. A recent study has developed a different connection than the one proposed for bent cap systems in seismic regions. A recent state-of-the art review has determined that there is an urgent need for research that would provide substantiation of the design, construction, and seismic performance of bar coupler systems such as grouted sleeves. The objectives of this proposal are: (1) to perform quasi-static cyclic tests of precast concrete column to footing connections using a splice sleeve connection, and precast concrete column to bent cap beam connections using a mechanical sleeve connection, and (2) to evaluate to what extent the sleeve connections behave in a manner consistent with the earthquake resisting elements that would be expected with traditional construction methods, as described in the AASHTO Guide Specification for LRFD Seismic Bridge Design.

Key Words :

Bents; Bridge construction; Bridge piers; Cyclic tests; Earthquake resistant design; Precast concrete; Structural connection

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