NEVADA DEPARTMENT OF TRANSPORTATION

RESEARCH DIVISION

OUT-OF-PLANE SEISMIC RESPONSE OF POCKET CONNECTIONS FOR CAST IN PLACE AND PRECAST CONSTRUCTION

Key · Points

Project Number:
494-18-803

Start Date:
August 28, 2018

Duration:
24 months

Project Cost:
$86,722.00

Researcher:
University of Nevada, Reno

Principal Investigator:
Dr. M. Saiidi

NDOT Champions:
Structures Division

PROBLEM

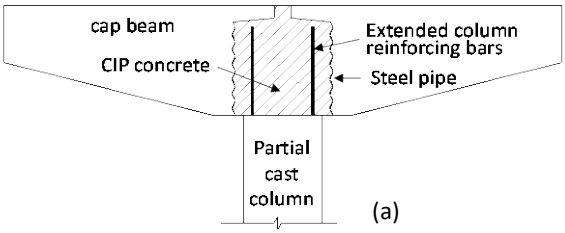
A major impediment to the usage of Accelerated Bridge Construction (ABC) is the limited amount of research on the seismic behavior of prefabricated bridge element connections. Test data is necessary to demonstrate that the detailing practices used for the precast column research can be applied to cast in place and precast construction and still provide adequate performance.

OBJECTIVE

The overall objective is to evaluate the out-of-plane seismic performance of a new design and detailing procedure for Cast in Place (CIP) and precast column pocket connections that will emerge from NDOT Agreement 593-18-803.

METHODOLOGY

The detailing procedure for CIP connections will take advantage of the lessons learned from a significant number of recent studies by the PI and others, to simplify conventional construction by reducing steel congestion in connections. Accomplishing the overall objective of this and NDOT Agreement 593-18-803 will contribute to NDOT's ongoing efforts. The study to be conducted will consist of the following tasks: Task 1 – Update Literature Search and Develop Project Website; Task 2 Develop Details for ABC and CIP Beam-Column Connections and Columns with Steel and Headed CAM Bars; Task 3 Design and Construct Model Test Model for Out-of-Plane Loading; Task 4 Conduct Analytical Studies and Develop Design Methods and Examples; Task 5 Develop Implementation Plan for NDOT; and Task 6 Prepare the Final Report.



(a)


(b)

IMPLEMENTATION POTENTIAL

With the new US administration emphasis on infrastructure renewal and expansion, a large number of highway bridges are likely to be constructed. The research results from this study will help NDOT get through Innovation Stages with the results being translated into step-by-step design procedures and examples to help facilitate implementation in design of new bridges.

Contact Information:
Nevada Department of Transportation – Research Division
Annex 14-15
1263 South Stewart Street
Carson City, NV 89712
(775) 888-7895
www.nevadadot.com