



ACCELERATED BRIDGE CONSTRUCTION
UNIVERSITY TRANSPORTATION CENTER

UTC Project Information	
Project Title	Development of ABC Course Module – Seismic Connections
University	UW
Principal Investigator	Stanton, J. Calvi, P.
PI Contact Information	stanton@uw.edu pmc85@uw.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	ABC-UTC funds: \$20,000 Match Fund by UW: \$10,000
Total Project Cost	\$30,000
Agency ID or Contract Number	Accelerated Bridge Construction University Transportation Center (ABC-UTC) 69A3551747121
Start and End Dates	2019/01/01 - Active
Brief Description of Research Project	<p>The great majority of ABC bridges are built using components that need to be connected on site. The size of the components, and therefore the number of connections, varies according to the ABC method used. For example, in construction using SPMTs, the entire superstructure is typically brought to the site in a single piece. In bridges constructed from precast concrete beams and columns, many more connections may be needed. However, in all cases connections are an integral part of the methodology.</p> <p>They are most conveniently located at the intersection of linear elements, such as beams and columns, which also happen to be the usual location of the largest bending moments. Thus, the on-site connection must be designed to be easy and quick to complete, which usually implies the need to accommodate dimensional discrepancies, but at the same time be sufficiently robust to sustain severe inelastic deformations due to the seismic loading. Those characteristics of constructability and robustness are nearly mutually exclusive, so designing to achieve both simultaneously constitutes a significant challenge.</p> <p>In the past two decades, great strides have been made in developing such connections, and they have made ABC viable even in severe seismic regions. Efforts have been made to standardize some of the results, and to create Guide Specifications for their design and construction (NCHRP 12-102, NCHRP 12-105). However, they have been developed by many different agencies, and their variations are legion, with the result that an engineer may find difficulty in determining</p>

	<p>their relative advantages and shortcomings, and therefore in selecting the connection most appropriate for the job.</p> <p>The objective is to create an educational module that will explain the nature of the different connection types, their strengths and weakness, and the circumstances in which they are likely to provide the greatest benefits. This will require careful categorization of the different types so that they can be presented in a clear and logical way.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here</p>	<p>This is an active research project. Upon completion, outcomes will be reported.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>This is an active research project. Upon completion, impacts/benefits will be reported.</p>
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project website 	<p>https://abc-utc.fiu.edu/research-projects/uw-research-projects/development-of-abc-course-module-seismic-connections/</p>