



ACCELERATED BRIDGE CONSTRUCTION
UNIVERSITY TRANSPORTATION CENTER

UTC Project Information	
Project Title	Application of Methacrylate Polymers for Seismic ABC Connections
University	UNR
Principal Investigator	Moustafa, M
PI Contact Information	mmoustafa@unr.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	ABC-UTC funds: \$80,000 Match fund from UNR: \$30,000
Total Project Cost	\$11,000
Agency ID or Contract Number	Accelerated Bridge Construction University Transportation Center (ABC-UTC) 69A3551747121
Start and End Dates	2020/01/01- Active
Brief Description of Research Project	<p>Previous research has demonstrated the validity and effectiveness of grouted ducts filled with advanced materials such as UHPC for seismic ABC column-to-footing and column-to-cap beam connections. Both proprietary and non-proprietary UHPC have been considered and shown to be feasible and effective for this connection. Nonetheless, there is always needs for more alternatives in case of temporary market changes such as domestic steel fibers availability. Polymer-based materials can provide a good candidate for this application, but more research is needed to identify best polymer-based materials and demonstrate its validity using large-scale testing, which is the goal of this project. Our approach for this proposed study is mainly an experimental approach with the main activity is large-scale structural test at UNR Earthquake Engineering Laboratory. The specific research objective of this study is to identify and select a polymer-based material with superior anchorage and bond behavior to apply and demonstrate using large-scale testing for seismic ABC connections. The results from this study will be compared to results from a recent Caltrans study that used non-proprietary UHPC for seismic grouted ducts connections.</p>

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	Transportation Industries provided polymer concrete for research project.
Impacts/Benefits of Implementation (actual, not anticipated)	This is an active research project. Upon completion, impacts/benefits will be reported.
Web Links <ul style="list-style-type: none">• Reports• Project website	https://abc-utc.fiu.edu/research-projects/unr-research-projects/application-of-methacrylate-polymers-for-seismic-abc-connections/