

UTC Project Information	
Project Title	MPC-404 – Seismic Performance of Concrete Filled Steel Tube Bridge Columns For Accelerated Bridge Construction
University	University of Utah
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Funding Agencies	USDOT, Research and Innovative Technology Administration
Agency ID or Contract Number	DTRT12-G-UTC08
Project Cost	\$35,124
Start and End Dates	January 1, 2012 – December 31, 2013
Project Duration	2 Years
Brief Description of Research Project	In this study we will evaluate the seismic performance of concrete filled steel tube (CFST) bridge columns for potential use in emergency or accelerated bridge construction (ABC) projects. The main goal of the study is to determine whether CFST columns can be designed to perform adequately under gravitational loads and seismic hazard before the concrete reaches its design strength. Then, we need to investigate the effect of reduced seismic loading for this temporary condition on the CSFT limit states of interest, such as serviceability and ultimate limit state.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	Research outcomes have not been implemented in codes and standards yet. More research is needed to generalize the outcomes of this investigation. For example, current experimental data is missing sufficient number of normal strength concrete / normal strength steel experiments performed with appropriate diameter / steel tube thickness (D/t) ratio and height / diameter ratio. In addition, experimental testing needs to include specimens tested under monotonic loading for the creation of backbone curves. Also, experiments are needed to determine the seismic performance of the CCFTs as a function of time, but additionally, to determine the relation of concrete curing time to the bond strength between the concrete core and the steel tube.
Impacts/Benefits of Implementation (actual, not anticipated)	The research has underlined the relevance of considering temporary loading conditions on bridges, but also the risk of not considering inappropriate temporary loads.

Web Links

- Reports
- Project Website

<https://www.ugpti.org/resources/reports/details.php?id=958>