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| **UTC Project Information** | |
| Project Title | MPC-404 – Seismic Performance of Concrete Filled Steel Tube Bridge Columns For Accelerated Bridge Construction |
| University | University of Utah |
| Principal Investigator | Luis Ibarra |
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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 |