



UTC Project Information	
Project Title	Upgrading and Protecting Steel Columns using UHPC
University	Florida International University
Principal Investigator	Abbas Khodayari, Ph.D.
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Funding Source(s) and Amounts Provided (by each agency or organization)	ABC-UTC funds: \$70,000 Match funds : \$35,000
Total Project Cost	\$ 105,000
Agency ID or Contract Number	69A3552348322
Start and End Dates	January 1, 2024 - June 30, 2025
Brief Description of Research Project	<p>The proposed research project aims to investigate the application of Ultra-High Performance Concrete (UHPC) for the retrofitting and upgrading of steel columns. Steel columns, while providing high tensile strength and ductility, are prone to deterioration from corrosion, fatigue, and buckling under extreme loading conditions. This vulnerability necessitates innovative solutions to enhance their performance and durability. Further, wrapping steel columns with UHPC will significantly reduce noise pollution. As an example the “L” metro system in Chicago consists of many steel columns that contain corrosion and very noisy during the passage of trains. Wrapping these steel columns with UHPC will help addressing corrosion issue and significantly reducing the noise pollution problem. Experimental studies and analytical modeling, including finite element analysis, will be conducted to investigate the behavior of UHPC-encased steel columns under seismic loads. The research is expected to result in design guidelines for the application of UHPC in upgrading steel columns, considering a variety of shapes, sizes, and loading scenarios</p>
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	The outcomes will be tracked and reported once they are identified.

Impacts/Benefits of Implementation (actual, not anticipated)	The impacts will be tracked and reported once they are identified.
Web Links <ul style="list-style-type: none">• Reports• Project website	https://abc-utc.fiu.edu/research-projects/upgrading-and-protecting-steelcolumns-using-uhpc/