

Seismic

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Project Title:
Development of Structural Design
Guide for Ultra High-Performance
Concrete

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Development of Structural Design Guide for Ultra High-Performance Concrete Transportation Pooled Fund Program, TPF-5(366)

Develop a comprehensive guide that can be used for structural design of Ultra-High-Performance Concrete.

WHAT IS THE NEED?

Led by the Iowa Department of Transportation, the research team is set out to develop a comprehensive guideline that can be used for structural design of Ultra-High-Performance Concrete (UHPC) for California Department of Transportation (Caltrans) design engineers.

UHPC has been recognized by many states as an alternative for mitigating bridge infrastructure challenges related to maintenance and construction. In recent years, UHPC is gaining popularity and becoming a more commonly used material for bridge and highway infrastructure projects.

Since a formal design guidance does not exist in North America, a comprehensive effort is needed to formulate recommended guidelines regarding design, application, and materials testing.

WHAT ARE WE DOING?

Using existing literature, design methods and outcomes from ongoing research, the research team will develop a comprehensive guide that can be eventually implemented or cited by other standards and codes.

The scope of this study includes finalization of the UHPC product suppliers and a tension test method; preparation for casting of UHPC specimens; and final selection of proposed testing labs.

Furthermore, the researchers will systematically study the tensile strength issue and include that in the design guidelines.



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California's transportation system

WHAT IS OUR GOAL?

The overall objective of this study is to facilitate advancement in the state-of-the-practice for UHPC in the US highway sector, which will include development of a design and construction guide specification. These advancements will also focus on other critical needs that are currently hindering the wider use of UHPC.

WHAT IS THE BENEFIT?

Caltrans will be able to take advantage of the efficiencies associated with the use of BIM in transportation structures once a comprehensive strategic plan by the American Association of State Highway Transportation Officials is established.

WHAT IS THE PROGRESS TO DATE?

Planned testing of the samples were delayed due to COVID-19.