



Submittal #AB15:

WHAT IS MISSING? FRP-RC/PC RESEARCH NEEDS

Abstract:

For the past decade, the presence of Fiber-Reinforced Polymer (FRP) composites as internal concrete reinforcement in construction projects across North America has significantly increased. Further, the composites market is forecast to continue to grow, specially FRP reinforcement in construction related industries.

The primary reasons to implement why FRP concrete reinforcement has shifted, going beyond the corrosion free and durability properties provided by FRPs, which translate to longer structural service life. It is the enabling attributes of FRPs such as increasing speed of construction and productivity that are driving the current use of FRP reinforcements; as well as the synergetic capacity to make concrete structures more sustainable and resilient.

While the necessary specifications, design guides, and codes are available to support the deployment of FRP for use in reinforced and prestressed concrete (FRP-RC/PC), the full potential of FRP reinforcement remains unrealized. The limitations are part due to short- and long-term applied research needs. This presentation will highlight such needs at a practical level in order to develop a road map to realize the full potential of FRP as a solution for RC/PC applications.

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Bio:

Francisco De Caso, Ph.D., LEED A.P., is a Principal Scientist at the University of Miami, Dept. of Civil and Architectural Engineering. His applied research work is focused on resilient material and structural systems for the built infrastructure; as well as the decarbonization to reach carbon neutrality by 2050 of the concrete and cement industry. He is actively involved in technology transfer as Managing Director of the Center for Integration of Composites into Infrastructure (CICI), an NSF Industry/University cooperative research center, and Manager of the Structures and Materials Center, an ISO 17025 and ISO 17020 accredited laboratory and inspection body, specialized in evaluating and certifying composites materials for building code and infrastructure compliance. Dr. De Caso is actively engaged in sponsored research from federal, state agencies, and private industry.