



Composites for Construction: Structural Design with FRP Materials

By Lawrence C. Bank

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The first textbook on the design of FRP for structural engineering applications

Composites for Construction is a one-of-a-kind guide to understanding fiber-reinforced polymers (FRP) and designing and retrofitting structures with FRP. Written and organized like traditional textbooks on steel, concrete, and wood design, it demystifies FRP composites and demonstrates how both new and retrofit construction projects can especially benefit from these materials, such as offshore and waterfront structures, bridges, parking garages, cooling towers, and industrial buildings.

The code-based design guidelines featured in this book allow for demonstrated applications to immediately be implemented in the real world. Covered codes and design guidelines include ACI 440, ASCE Structural Plastics Design Manual, EUROCOP Design Code, AASHTO Specifications, and manufacturer-published design guides. Procedures are provided to the structural designer on how to use this combination of code-like documents to design with FRP profiles.

In four convenient sections, Composites for Construction covers:

- * An introduction to FRP applications, products and properties, and to the methods of obtaining the characteristic properties of FRP materials for use in structural design
- * The design of concrete structural members reinforced with FRP reinforcing bars
- * Design of FRP strengthening systems such as strips, sheets, and fabrics for upgrading the strength and ductility of reinforced concrete structural members
- * The design of trusses and frames made entirely of FRP structural profiles produced by the pultrusion process

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Editorial Review

From the Back Cover

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About the Author

Lawrence C. Bank, PE, PhD, is Professor in the Department of Civil and Environmental Engineering at the University of Wisconsin–Madison. He has over twenty years of experience in research, consulting, and education in FRP composites for construction. He is the founding editor and former editor in chief of the ASCE Journal of Composites for Construction and a Fellow of the ASCE and the International Institute for FRP in Construction (IIFC) based in Hong Kong. He is a member of ACI Committee 440 (FRP Reinforcement) and of ASTM Committees D-20 (Plastics) and D-30 (Composite Materials). He has received the Walter L. Huber Civil Engineering Research Prize, the Thomas Fitch Rowland Prize, and the Richard R. Torrens Award from ASCE for his work related to composites for construction.

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