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Best Practices and Lessons Learned for Teaching Advanced Concrete Materials and Structural Design

SP-367

Editors: Benjamin Z. Dymond, Jacob Henschen, Armen Amirkhanian

American Concrete Institute
Always advancing

Best Practices and Lessons Learned for Teaching Advanced Concrete Materials and Structural Design

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Best Practices and Lessons Learned for Teaching Advanced Concrete Materials and Structural Design

This Special Publication builds upon common learning theories and methods in concrete engineering education that were introduced in ACI SP-359. The papers in this second volume focus on course-level information, assessment methods and tools, key technical resources, and innovative teaching techniques that form the basis of advanced concrete materials and structural design courses at the university level. The primary goal of this Special Publication is to provide pedagogical resources, ideas, and techniques that can be implemented by anyone that accepts the challenge of teaching advanced concrete materials and structural design, from a new instructor to an experienced professor.

To disseminate effective strategies and resources for teaching advanced concrete topics among a global group of educators and learners, ACI Committee S802 organized two sessions entitled “Best Practices and Lessons Learned for Teaching Advanced Concrete Materials and Structural Design” at the Spring 2026 ACI Convention in Rosemont, IL. The first session was focused on best practices for teaching advanced concrete materials and the second session was focused on best practices for teaching advanced concrete structural design.

The co-editors, Drs. Benjamin Dymond, Jacob Henschen, and Armen Amirkhanian, are grateful for the contributions from the Special Publication authors and sincerely value the time and effort of the authors in preparing the papers in this volume. Furthermore, the Special Publication would not have been possible without the effort expended by the experts who peer reviewed the papers in this volume.

Benjamin Dymond, Jacob Henschen, Armen Amirkhanian
Co-Editors

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Educational Resources for Teaching Advanced Concrete Materials and Structural Design

Sriramya Nair, Cameron D. Murray, Benjamin Z. Dymond

Synopsis: Teaching college students advanced concrete materials and structural concrete design is a challenging task because students have a myriad learning styles, and instructors are often ill equipped to meet students where they are with appropriate experience and teaching-related resources. This disconnect can create several bottlenecks to learning, especially within courses that present advanced concrete topics that are more complex and challenging. This paper outlines a special publication series related to best practices and lessons learned for teaching advanced concrete materials and structural design by experts in the field from across the United States. Furthermore, this introductory paper outlines the history of teaching and learning resources at the American Concrete Institute (ACI) and provides a high-level overview of other technical concrete-focused resources and teaching development resources that can be used to bridge the gap between teaching and learning challenging concrete subjects. The goal of this special publication is to provide a resource for anyone that accepts the challenge of teaching advanced concrete materials and structural design, from a new instructor to an experienced professor.

Keywords: Engineering education, civil engineering, advanced reinforced concrete, advanced concrete materials, educational resources, faculty network, teaching workshop, 318 PLUS, Concrete International