The Art of Designing Ductile Concrete in the Past 50 Years: The Impact of the PCA Book and Mete A. Sozen, Part 1

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Impact of the Blume, Newark, and Corning Text on the Development of a Composite Core-Wall System for Use in Earthquake-Resistant Tall Buildings

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Composite Core-Wall System – The Devil’s in the Details

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Why a composite core-wall?

Michael E. Kreger is a Professor of Civil Engineering at Purdue University. He received BS, MS, and PhD degrees from the University of Illinois, and is a registered professional engineer in Texas. He joined the faculty at Purdue University in 2004 to serve as the first Director of the Bowen Laboratory for Large-Scale Civil Engineering Research after serving on the faculty at The University of Texas at Austin for 20 years. He is a Fellow of the American Concrete Institute, serves on numerous ACI technical committees, including the ACI Building Code subcommittee for Safety, Serviceability and Analysis, and just completed six years of service on ACI’s Technical Activities Committee. His research related to prestressed concrete has twice received the T.Y. Lin Award from ASCE and has influenced changes in the ACI Building Code, AASHTO Design Specifications, and Indiana DOT and Texas DOT practice.
Typical Core Wall Configuration

Project Phases
- Transverse ties between plates
- Plate-to-plate connection
- Stability of plate assemblies
- Foundation details
- Base connection
- Proof-of-concept wall test
- Development of design procedures

Stability of Plate Assemblies

Foundation Details

Welds between Rebar and Plate
Connection at Base of Wall Plates

Weld Tests

Wall Test - Elevation

Wall Test - Plan
Final Cast

Testing

Plate buckling
Concluding Remarks

- Details
- Flanges at Wall Ends
- Developing Design Procedures