



CHARLES PANKOW  
FOUNDATION



*Providing the AEC industry  
with a better way to design  
and build.*



# 2014

## ANNUAL REPORT

The Charles Pankow Foundation initiates collaborative projects in areas critical to the future of the design and construction industries.



Richard M. Kunnath, PE, DBIA  
President  
CHARLES PANKOW FOUNDATION

## PRESIDENT'S MESSAGE

### Focus on Four Major Initiatives

Building upon new vision and mission statements as well as a strategic approach to research, 2014 was a watershed year for the Charles Pankow Foundation. We identified four key initiatives that have seen significant progress, due to our shift in focus from funding diverse research projects toward being a catalyst for larger research programs.

First, the Foundation released the 95-percent draft of the roadmap to integrate high-strength reinforcing steel into the reinforced concrete building codes. This project lays the groundwork for one of the most ambitious research efforts ever undertaken in the field of structural engineering.

Second, the Foundation continues efforts to improve the interoperability of building information modeling (BIM). BIM research has been sponsored by the Foundation since 2006, and work continues in the areas of precast concrete, cast-in-place concrete, and, in conjunction with the National Concrete Masonry Association, masonry BIM. The precast concrete BIM work will be completed in early 2015.

Third, we are pleased to announce that the *Design Management Guide*, originally published by the Foundation in 2011, has been updated and re-released as the *Professional's Guide to Managing The Design Phase of a Design-Build Project*. The Foundation wishes to thank the many subject-matter experts that contributed to this publication.

Our fourth initiative of 2014 was to increase research activities in the AEC industry. Members of the Foundation have made numerous presentations throughout the country, drawing attention to the critical role research plays in advancing our industry and maintaining the relevance of our profession. We firmly believe we are making progress despite the enormous challenges.

Above all, this year affirmed the importance of collaboration. Industry issues can only be addressed by industry-wide coalitions. The Charles Pankow Foundation is proud of the progress we've made in bringing together major industry players with diverse agendas to work together for the common goal of a better industry.

Best always,  
Richard M. Kunnath, PE, DBIA  
President  
Charles Pankow Foundation

## New Edition Expands on Popular *Design Management Guide*



The Charles Pankow Foundation's *Professional's Guide to Managing the Design Phase of a Design-Build Project* incorporates industry input and expands upon the first version of the book, *Design Management Guide for the Design-Build Environment*, also sponsored by the Foundation. This improved resource offers better tools for target-based design and design schedule monitoring, as well as updates on building information modeling (BIM), legal considerations, and cloud-based file management—as each pertains to the design phase of a design-build project. The updated guide also distills new topics such as specification management and fast-tracked delivery implications.

Design-Build Institute of America, (ISBN: 978-1-55701-841-0)

Order at DBIA bookstore (<http://dbiabooks.com/shopexd.asp?id=8990>)





## CHARLES PANKOW FOUNDATION ATC 115 PROJECT

### High-Strength Reinforcing Steel: Bringing the ACI 318 Building Code into the 21<sup>st</sup> Century

The last comprehensive update to the building code requirements for structural concrete (ACI 318) related to the strength of reinforcing steel was made in 1971. More than 40 years later, in 2012, the Charles Pankow Foundation began to investigate the feasibility of incorporating high-strength reinforcing steel (with a yield strength in excess of 60 ksi) into the ACI 318 Building Code. Structural engineering practitioners, structural concrete constructors, and key academic researchers all felt that higher-strength reinforcing steel could provide a significant benefit to the industry.

Initial feasibility studies commissioned by the Foundation confirmed the technical feasibility of using high-strength reinforcing bar in design. Concurrently, reinforcing bar producers verified that higher strength reinforcing bars could be manufactured and distributed. An unrelated study (NIST GCR 14-917-30), *Use of High-Strength Reinforcement in Earthquake-Resistant Concrete Structures*, confirmed the feasibility of using high-strength reinforcing steel for seismic design.

The next task was to determine the research needed to support an ACI 318 update. Collaborating with the Applied Technology Council (ATC), the Foundation recently completed the *Roadmap for the Use of High-Strength Reinforcement in Reinforced Concrete Design*. The final report can be found on the Foundation's website, [www.pankowfoundation.org/ATC115](http://www.pankowfoundation.org/ATC115).



As we begin 2015, four ongoing Foundation-sponsored research grants will determine key tensile and bending properties of high-strength reinforcing steel. Concurrently, the Concrete Reinforcing Steel Institute and its members are spearheading an effort to add A615, Grade 100 reinforcing bar into the ASTM specifications.

As one of the Foundation's most significant research efforts to date in the field of structural engineering, this global code update will provide positive impacts to the AEC industry for decades.

## Pankow Legacy Project Makes Two Key Additions to Digital Archive

The Pankow Legacy Project is a multi-phased effort by the Charles Pankow Foundation that included a video, *Beyond Building: The Charles Pankow Legacy*; a book, *A Better Way to Build: A History of the Pankow Companies*; and a digital archive, *Advancing the Construction Industry Through Innovation*. The Charles Pankow Foundation is pleased to announce that the oral histories of **Rosser Edwards** and **David Boyd** have been added to the digital archive. Both men played prominently in the history of the Pankow Companies and in the construction industry on the West Coast.

The digital archive is housed at the **Purdue University Libraries** and can be accessed at <http://collections.lib.purdue.edu/pankow/>.



## ALWAYS IMPORTANT, ALWAYS IMPACTFUL: Our Research Grants

The Charles Pankow Foundation's grant awards address a research need in actual building design and construction practice. With a focus on larger and more impactful concepts, the research currently funded by the Foundation will provide practical and immediate benefits to U.S. building, design and construction teams.

### Research Grants Awarded in 2014

GRANTEE	AMOUNT	RESEARCH TOPIC
Georgia Tech	\$98,145	Building Information Modeling for Masonry Phase II Project; BIM for Masonry Benchmark
University of Texas at Austin	\$247,240	Defining Structurally Acceptable Properties of High-strength Steel Bars through Material and Column Testing (ATC-115 Project)
University of Kansas	\$112,000	High-strength Steel Bars in Reinforced Concrete Walls: Influence of Mechanical Properties of Steel on Deformation Capacity (ATC-115 Project)
University of Wisconsin - Madison	\$214,240	Linking Concrete Tensile Performance and Seismic Response of Fiber Reinforced Concrete Coupling Beam
University of California, Berkeley	\$418,869	Performance Characterization of Beams with High-strength Reinforcement (ATC-115 Project)
Wiss, Janney, Elstner Associates, Inc. (WJE)	\$70,000	Development of Tentative Specification for High-strength Steel Reinforcing Bar (ATC-115 Project)

### Research Grants Completed in 2014

GRANTEE	PRINCIPAL INVESTIGATOR	RESEARCH TOPIC
University of California, Los Angeles	John Wallace	Composite Concrete Coupling Beams
University of California, San Diego	Tara Hutchinson	Design Procedures for Precast Cladding Subsystems
Lehigh University	Steve Pessiki	Unbonded Post-tensioned Cast-in-place Concrete Walls for Seismic Resistance
Wiss, Janney, Elstner Associates, Inc. (WJE)	Conrad Paulson	Development of Tentative Specifications for High-strength Reinforcing Bar (ATC-115 Project)
ASCC Education, Research & Development Foundation	Ward Malisch	User's Guide to Green Concrete in Building Construction
Purdue University	Mike Kreger	Design Procedures for Dual-plate Composite Shear Walls
Georgia Tech	Chuck Eastman	Precast Concrete National BIM Standard



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