



CHARLES PANKOW  
FOUNDATION



# ANNUAL REPORT



Leading the way for positive change in the AEC industry with thoughtful research and collaboration.

# Looking Back on a Successful Decade



Richard M. Kunnath, PE

The close of 2015 marks the Charles Pankow Foundation's 10th anniversary! We're proud to have funded more than 50 research grants plus many other AEC industry-focused activities and publications, resulting in more than \$13 million worth of progress toward our mission of providing the architecture, engineering, and construction industry with a better way to design and build. With this anniversary edition of our annual report, we offer our heartfelt thanks to all who have contributed to our success.

We completed nine research projects in 2015 and made the research products available to the public at no cost on our website. While we only started two new research grants in 2015, we made considerable progress on several research subjects, including high-strength rebar, thermal breaks in steel structures, and steel fiber reinforced concrete use in coupling beams. We also completed the initial phase of the BIM-Masonry (BIM-M) project under a highly successful collaboration with the masonry industry.

The Charles Pankow Foundation (CPF) also put considerable effort into contemplating research areas for the future. We held many meetings with potential research partners and cofunders to find areas of common interest. We made a major effort to broaden our reach of like-minded partners and approach future research as a part of a research coalition. In early 2016, CPF will release an updated list of research topics of interest that will reflect a wider scope of our work and hopefully lead to a more productive and diverse research agenda.

One of the foundation's continuing challenges is convincing other trade associations and private foundations to invest in research to advance the AEC industry. Many organizations are well structured to fund research, but for a variety of reasons find research funding a daunting proposition. We'll continue to invest the time, effort, and leadership to cultivate the funding coalitions necessary to address the major challenges of the AEC industry. We feel certain that being part of a funding coalition, rather than going solo, is the only way to maximize the foundation's impact.

There were several good-news stories to round out 2015:

- The research project *Seismic Design Methodology for Precast Concrete Diaphragms* is to receive the Charles Pankow Award for Innovation at the 2016 ASCE OPAL Awards Gala.
- We attended, along with 1,000 others at the DBIA Convention in Denver, an outstanding presentation of the CPF research project *Owner's Guide to Maximizing Success in Integrated Projects* by Greg Gidez, Keith Molenaar, and others.
- The research project *Performance-Based Seismic Design Guidelines for Tall Buildings* was recognized as the "Exceptional Public- and Private-Sector Research and Development (R&D) Program" as determined by a panel of judges at the 2nd ATC-SEI Conference on "Improving the Seismic Performance of Existing Buildings and Other Structures." CPF has begun work on updating this document in 2016.

Congratulations to all the participants on these very successful research projects!

We're very proud of what we've accomplished from a standing start in 2006 to setting the standard for research leadership and funding in the AEC industry 10 years later. Based on what we've learned along the way, we can say with confidence that the next 10 years will be even better.

Richard M. Kunnath, PE  
Charles Pankow Foundation  
Board President

## Here's what the Charles Pankow Foundation is working on today:

### RESEARCH GRANTS AWARDED IN 2015

GRANTEE	Georgia Tech	University of Texas-Austin
AWARD AMOUNT	\$77,431	\$78,951
RESEARCH TOPIC	Building Information Modeling for Masonry Phase II/III Project; Masonry Wall Model Definition	Setting Bar-Bending Requirements for High-Strength Steel Bars

### RESEARCH GRANTS COMPLETED IN 2015

GRANTEE	University of Washington	University of California-Davis	University of California-Davis
PRINCIPAL INVESTIGATOR	Laura Lowes, PhD	Amit Kanvinde, PhD	Amit Kanvinde, PhD
PROJECT	Performance-Based Seismic Design of Concrete Walls	Design of Embedded Base Column Connections	Tensile Capacity of Braced Frame Anchor Bolt Groups

# Why Investing in R&D Matters



Ron Klemencic, PE, SE

The Charles Pankow Foundation (CPF) was built on a singular vision: providing a better way to design and build, the term “better” being the operative. For the high stakes in our AEC industry—people’s safety, health, welfare, and quality of life—“better” demands innovation.

We believe that a robust, deeply ingrained research and development ethic is one of the only ways the AEC industry will move beyond the status quo and into the realm of innovation. Other industries such as biotechnology, communications, information technology, and automotive, sustain a never-ending, always-progressing attitude toward improving the products offered to the consumer.

It’s remarkable how little our multi-billion-dollar industry invests in making itself better. We aim to change this.

CPF has spent the past 10 years investing in projects that advance our industry. Singular in this pursuit, CPF has made significant progress in providing tools to better design and build buildings. But we can’t do it alone.

For the next 10 years, we’ll continue our initiative to inspire cofunders and collaborators. Many of our industry’s most significant organizations, such as the American Institute of Architects, American Society of Civil Engineers, American Concrete Institute, American Institute of Steel Construction, Applied Technology Council, Precast/Prestressed Concrete Institute, and National Institute of Standards and Technology, are now exploring how they, too, might support and engage in relevant and promising research that will empower the entire AEC community to advance our practices.

These organizations are some of our most important collaborators, and the research resulting from our teamwork is significant. A perfect example? Our recent Diaphragm Seismic Design Methodology project (see right).

We encourage each and every one of you to consider how you might contribute to this movement. Whether it be encouraging your favorite trade organization to participate, or in the case of my company, Magnusson Klemencic Associates, forming your own foundation to support research and development in the AEC industry.

In 10 years from now, we hope to look back and reflect upon the AEC industry’s amazing transformation, shifting from a “profit now” point of view to a long-term view of reinvestment, shifting toward innovation to build a better world.

Ron Klemencic, PE, SE  
Charles Pankow Foundation  
Director



DSDM Research Project Receives

2016

**CHARLES PANKOW AWARD FOR INNOVATION**

at the ASCE  
OPAL Awards Gala

## PROGRESS IS POSSIBLE!

The Diaphragm Seismic Design Methodology research effort was prompted by performance flaws discovered in precast concrete parking structures after California’s 1994 Northridge earthquake. Our multiuniversity research team and a funding coalition that included the PCI, the NSF, NEES, and CPF, conducted large-scale testing on the shake table at the University of California, San Diego. This groundbreaking research, conducted through the outstanding effort of engineers and precast concrete experts around the country, resulted in codification of revisions to Chapters 12 and 14 of ASCE/SEI 7-14 regarding precast concrete diaphragms.

## RESEARCH GRANTS COMPLETED IN 2015 (CONTINUED FROM PAGE 2)

Kansas University	University of Colorado	Georgia Tech	Applied Technology Council	Georgia Tech	Georgia Tech
David Darwin, PhD, PE	Keith Molenaar, PhD	T. Russell Gentry, PhD	Jon Heintz, PhD, CE, SE	T. Russell Gentry, PhD	T. Russell Gentry, PhD
Anchorage of High-Strength Reinforcing Bars with Standard Hooks	Owner’s Guide to Maximizing Success in Integrated Projects	Building Information Modeling for Masonry Phase II Project: Masonry Unit Model Definition	The Development of a Roadmap On the Use of High-Strength Reinforcement in Reinforced Concrete Design	Building Information Modeling for Masonry Phase II Project; BIM for Masonry Benchmark	Building Information Modeling for Masonry Phase II/III Project; Masonry Wall Model Definition

# Special Thanks to Our Collaborators

The success of Charles Pankow Foundation's first decade would not have been possible without the contributions of many professional organizations. We are grateful to all of you for your contributions to fulfill the legacy of Charles Pankow.

## RESEARCH AFFILIATIONS



## RESEARCH UNIVERSITIES

Georgia Tech University	University of Arizona	University of Illinois
Lehigh University	University of California–Berkeley	University of Kansas
Northeastern University	University of California–Davis	University of Michigan
Oregon State University	University of California–Los Angeles	University of Nebraska
Penn State University	University of California–San Diego	University of Notre Dame
Purdue University	University of Cincinnati	University of Texas
San Diego State University	University of Colorado	University of Washington
San Jose State University	University of Florida	University of Wisconsin



CHARLES PANKOW  
FOUNDATION

*The Charles Pankow Foundation wishes to thank the following individuals who have been valuable advisers to the foundation since our beginning in 2006:*

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