



Co-Chairs:
Chris D. Poland
 Chairman & Senior Principal
 Degenkolb Engineers

Stephen A. Cauffman
 Deputy Chief
 Materials and Construction Research Division
 Engineering Laboratory
 National Institute of Standards and Technology

**ANSI Homeland Security Standards Panel
 Workshop on:
 Standards for Disaster Resilience for Buildings
 and Physical Infrastructure Systems**

Thursday, November 10, 2011

Final Agenda

Crystal Gateway Marriott
 1700 Jefferson Davis Highway
 Arlington, VA 22202

8:15am – 9:00am	Registration
9:00am – 9:30am	Welcome/Opening Remarks <ul style="list-style-type: none"> • Stephen A. Cauffman, Deputy Chief, Materials and Construction Research Division, Engineering Laboratory, National Institute of Standards and Technology
9:30am – 10:45am	Panel 1 – Introduction to Resilience of the Built Environment <ul style="list-style-type: none"> • Introduction to Resilience for Buildings and Infrastructure Systems <ul style="list-style-type: none"> ◦ Therese McAllister, PhD PE, Research Structural Engineer, National Institute of Standards and Technology (NIST) • Community Planning for Resilience – SPUR <ul style="list-style-type: none"> ◦ Chris D. Poland, Chairman & Senior Principal, Degenkolb Engineers • Questions and Discussion
10:45am – 11:00am	Morning Break
11:00am – 12:15pm	Panel 2 – Focus on Building Systems <ul style="list-style-type: none"> • Standards for Building Systems <ul style="list-style-type: none"> ◦ James R. Harris, Owner & Principal, JR Harris Company • Insurance Perspective on Building and Infrastructure Resilience <ul style="list-style-type: none"> ◦ Dan Howell, Senior Engineer, FM Global • Questions and Discussion
12:15pm – 1:00pm	LUNCH
1:00pm – 3:15pm	Panel 3 – Focus on Lifelines <ul style="list-style-type: none"> • Standards for Electric Power Systems

	<ul style="list-style-type: none"> ○ Woody Savage, University of Nevada, Las Vegas • Standards for Transportation Systems <ul style="list-style-type: none"> ○ Steve Ernst, Senior Bridge Engineer, Safety & Security, Federal Highway Administration • Standards for Water and Wastewater Systems <ul style="list-style-type: none"> ○ Don Ballantyne, PE, Principal, Degenkolb Engineers • Questions and Discussion
3:15pm – 3:30pm	Afternoon Break
3:30pm – 4:45pm	Panel 4 – Path Forward <ul style="list-style-type: none"> • Proposed Framework/Roadmap for Developing Resilience Standards <ul style="list-style-type: none"> ○ Moderator: Therese McAllister, PhD PE, Research Structural Engineer, National Institute of Standards and Technology (NIST) • Questions and Discussion <ul style="list-style-type: none"> ○ Workshop participants will be requested to provide input on the proposed framework and to develop consensus where possible.
4:45pm – 5:00pm	Closing Remarks Workshop Co-Chairs: <ul style="list-style-type: none"> • Chris D. Poland, Chairman & Senior Principal Degenkolb Engineers • Stephen A. Cauffman, Deputy Chief, Materials and Construction Research Division, Engineering Laboratory, National Institute of Standards and Technology
5:00pm	Adjournment

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Appendix A – Attendance list for HSSP Plenary Meeting and Workshop as of November 2, 2011

<u>First Name</u>	<u>Last Name</u>	<u>Organization</u>
Don	Ballantyne	Degenkolb Engineers
Dan	Bart	Valley View Corporation
Christina	Baxter	U.S. Department of Defense (DoD)
Victor	Benavides	U.S. Department of Homeland Security (DHS)
S. Joe	Bhatia	American National Standards Institute (ANSI)
William	Billotte	National Institute of Standards and Technology (NIST)
Jami	Blackmon	Environmental Security International
Joseph	Booth	Stephenson Disaster Management Institute
Jerry	Brashear	ASME - Innovative Technologies Institute
Paul	Brenner	ICF International
John	Bridges	The National Graduate School of Quality Management
Joe	Broz	Defense Capital Advisors, LLC
Wayne	Bryden	FLIR Systems
Lydia	Canda	U.S. Department of Homeland Security (DHS)
Jessica	Carl	American National Standards Institute (ANSI)
Stephanie	Carroll	American National Standards Institute (ANSI)
John	Catlett	Department of Code Administration
Stephen	Cauffman	National Institute of Standards and Technology (NIST)
Robert	Chapman	National Institute of Standards and Technology (NIST)
Robert	Connors	Raytheon
Jerome	Conrad	U.S. Department of Homeland Security (DHS)
Richard	Cooper	U.S. Chamber of Commerce
Bert	Coursey	National Institute of Standards and Technology (NIST)
Matthew	Davenport	U.S. Department of Homeland Security (DHS)
Don	Davidson	U.S. Department of Defense (DoD)
Michelle	Deane	American National Standards Institute (ANSI)
Tamara	Dickinson	Office of Science and Technology Policy, EOP
Lucy	DiGhionno	U.S. Department of Homeland Security (DHS)
Robert	Dix	Juniper Networks
Robert	Domenici	HyGie-Tech USA, Inc.
Paul	Domich	CIP-Consulting, Inc.
Chris	Dubay	National Fire Protection Association (NFPA)
Leonardo	Duenas-Osorio	Rice University
Lorraine	Eide	U.S. Department of Homeland Security (DHS)
John	Elinski	Battelle Memorial Institute
Jean-Paul	Emard	ATIS
Elizabeth	English	University of Waterloo School of Architecture
Steve	Ernst	FHWA
Alim	Fatah	National Institute of Standards and Technology (NIST)
Mathew	Francis	URS
Gordon	Gillerman	National Institute of Standards and Technology (NIST)
Sandra	Gogol	U.S. Department of Homeland Security (DHS)
David	Goldbloom-Helzner	U.S. Environmental Protection Agency
Dave	Gorshkov	Digital Grape Business Services
Jennifer	Goupil	Structural Engineering Institute
Pamela	Greenlaw	U.S. Department of Homeland Security (DHS)
James	Harris	JR Harris Company

First Name	Last Name	Organization
Jay	Harris	National Institute of Standards and Technology (NIST)
William	Haskell	National Institute for Occupational Safety & Health
Renee	Hendricks	U.S. Department of Homeland Security (DHS)
Gwainevera	Hess	U.S. Department of Homeland Security (DHS)
Kathleen	Higgins	U.S. Department of Homeland Security (DHS)
Dan	Howell	FM Global
Lawrence	Hudson	National Institute of Standards and Technology (NIST)
George	Huff	American Bar Association
David	Karmol	International Code Council (ICC)
Fran	Kernodle	FKA, Inc.
Siraj	Khan	U.S. Department of Homeland Security (DHS)
Kristin	Korte	FLIR Systems
John	Kulick	Siemens USA
John	Laws	U.S. Department of Homeland Security (DHS)
Philippe	LeGoff	HyGie-Tech USA, Inc.
Hai	Lew	National Institute of Standards and Technology (NIST)
Alison	Littlepage	U.S. Department of Homeland Security (DHS)
Jennifer	Marshall	National Institute of Standards and Technology (NIST)
John	Martin	U.S. Department of Homeland Security (DHS)
Harry	Massey	National Electrical Manufacturers Association (NEMA)
Phillip	Mattson	U.S. Department of Homeland Security (DHS)
Evette	Maynard-Noel	U.S. Department of Homeland Security (DHS)
Terri	McAllister	National Institute of Standards and Technology (NIST)
Nancy	McNabb	National Institute of Standards and Technology (NIST)
David	McWhorter	Catalyst Partners
John	Milam	Dynamis
Peter	Misuinas	U.S. Department of Homeland Security (DHS)
Ashley	Moore	U.S. Department of Homeland Security (DHS)
Kevin	Morley	American Water Works Association (AWWA)
Kenneth	O'Dell	MHP, Inc. Structural Engineers
Stephan	Parker	Transportation Research Board, National Academies
Nicholas	Paulter	National Institute of Standards and Technology (NIST)
Will	Peart	William H. Gordon Associates, Inc.
Charles	Piersall	Chairman, ISO/TC 8 (Ships and marine technology)
Chris	Poland	Degenkolb Engineers
Nancy	Pomerleau	U.S. Department of Homeland Security (DHS)
Erik	Puskar	National Institute of Standards and Technology (NIST)
Irmak	Renda-Tanali	University of Maryland University College
James	Rossberg	ASCE
Fahim	Sadek	National Institute of Standards and Technology (NIST)
Mary	Saunders	National Institute of Standards and Technology (NIST)
Woody	Savage	University of Nevada Las Vegas
Fran	Schrotter	American National Standards Institute (ANSI)
Bill	Schweigart	U.S. Department of Homeland Security (DHS)
Everett	Sedgwick	Federal Emergency Management Agency (FEMA)
Peter	Shebell	U.S. Department of Homeland Security (DHS)
Steve	Skalko	Portland Cement Association
Robert	Stenner	Pacific Northwest National Laboratory (PNNL)
Carolyn	Tabarini	U.S. Department of Homeland Security (DHS)
William	Taylor	Washington Metropolitan Area Transit Authority (WMATA)

First Name	Last Name	Organization
Adam	Theil	Alexandria Fire Department
Cathy	Tilton	Daon
Richard	Vandame	U.S. Department of Homeland Security (DHS)
Robert	Vondrasek	National Fire Protection Association (NFPA)
Randy	Wagoner	Federal Emergency Management Agency (FEMA)
Erin	Walsh	U.S. Department of Homeland Security (DHS)
Nick	Weber	U.S. Department of Homeland Security (DHS)
Richard	Weisman	U.S. Environmental Protection Agency
Jefferson	Welch	Carnegie Mellon Software Engineering Institute
Heiko	Werner	Federal Agency for Technical Relief (THW) - Germany
Kenneth	Willette	National Fire Protection Association (NFPA)
Marcus	Williams	Homeland Security Studies and Analysis Institute
Kevin	Wong	National Institute of Standards and Technology (NIST)
Robert	Zimmerman	Homeland Security Studies and Analysis Institute

Appendix B – Speaker Bios

Donald Ballantyne

Donald Ballantyne, PE is a Principal with Degenkolb Engineers. He received a BSCE from Rensselaer Polytechnic Institute, and an MSCE from the SUNY @ Buffalo. He has 37 years experience focusing on seismic performance and design of water and wastewater utilities. He has conducted over 65 system seismic risk assessments and upgrades, many for major west coast cities. Post-earthquake reconnaissance has been a major contributor to Mr. Ballantyne's expertise, having conducted assessments following 13 earthquakes including 1989 Loma Prieta, 1994 Northridge, 1995 Kobe, 2001 Nisqually, and 2007 Peru.

Mr. Ballantyne is widely published having written or given over 85 papers and presentations. He was the lead author for the NIST publication "Reliability and Restoration of Water Supply Systems for Fire Suppression and Drinking Following Earthquakes." For the American Water Works Association he wrote, "Minimizing Earthquake Damage, A Guide for Water Utilities." And for the American Lifelines Alliance, Mr. Ballantyne wrote, "Wastewater System Performance Assessment Guideline".

He has been active in professional organizations associated with earthquake mitigation. He is the former chair of the ASCE Technical Council on Lifeline Earthquake Engineering, and a former member of the Board of Directors of the Earthquake Engineering Research Institute.

Stephen Cauffman

Mr. Stephen Cauffman is the Deputy Chief of the Materials and Structural Systems Division in the National Institute of Standards and Technology Engineering Laboratory. He manages NIST's program on Structural Performance under Multi-Hazards, and leads NIST's work on Disaster Resilient Buildings, Infrastructure and Communities. Mr. Cauffman led NIST's reconnaissance of building and infrastructure performance in Hurricanes Katrina and Rita. He was also the program manager for NIST's investigation of the World Trade Center disaster. Mr. Cauffman holds a Bachelor of Science degree in Physics from George Mason University.

Steve Ernst

Steve is a registered professional engineer in Virginia with a BSCE from the University of Arkansas and a BS in English from Arkansas State University. He has worked with the Federal Highway Administration for 27 years, including 9 years as a bridge designer with Eastern Federal Lands Highway Division and 16 years as a structural engineer in Federal Highways' Office of Bridge Technology. He is currently responsible for bridge technology programs, including policies, procedures, standards and practices related to safety and security in bridge structures engineering.

Steve is the FHWA lead for risk management of critical infrastructure and for interaction with the Department of Homeland Security and other federal agencies on bridge and tunnel security issues. He is the FHWA liaison to the AASHTO Technical Committee on Security and the AASHTO Special Committee on Security. Through the US Army Corps of Engineers, he developed workshops to train engineers to understand and mitigate security threats to highway assets and is involved with efforts to develop research for structural hardening. He is currently developing new training for blast design of concrete structures and serves as liaison to the NCHRP panel investigating fire on bridges.

He was the FHWA lead for the Blue Ribbon Panel on Bridge and Tunnel Security, co-chair for an international scan for underground structures operations, safety and emergency response, and currently leads an engineering assessment team that evaluates critical bridges and tunnels for security and delivers training on bridge vulnerability and risk management to terrorist threats.

James Harris

Dr. Harris is a structural engineer and Owner and Principal of J.R. Harris & Company in Denver, Colorado. He was elected to the National Academy of Engineering in 2005. He is active in the development of standards of practice, serving on numerous committees of the American Society of Civil Engineers, the American Concrete Institute, the American Institute of Steel Construction, and the Building Seismic Safety Council. He also served as a member of the ASCE/SEI Pentagon Team, and the SEI Chile Earthquake Assessment Team in 2010. He received his PhD in Civil Engineering from the University of Illinois at Urbana-Champaign.

Dan Howell

MS Structural Engineering, University of Illinois at Urbana-Champaign
BS Civil Engineering, University of Massachusetts at Lowell

Structural PE – Vermont, Maine, Massachusetts

20 years of engineering experience, including:

13 years of structural design and resident engineering experience on a wide variety of projects; and

7 years at FM Global where he has authored or co-authored several FM Global loss prevention engineering data sheets related to natural hazards exposure, building envelope systems, structural behavior, and structural fire protection; conducted physical testing for various natural hazard exposures at the FM research facility; and evaluated losses at FM insured facilities.

Therese McAllister

Dr. McAllister is a research structural engineer at the National Institute of Standards and Technology in Gaithersburg, MD. She is conducting research on the resilience of building and infrastructure systems and on the performance of structures in fire. She serves on several standards and technical committees of the American Society of Civil Engineers and on a task group for the National Research Council's Strategic Highway Research Program. She was a co-leader for the Structural Fire Response and Collapse of the NIST WTC Investigation and a member of the U.S. Army Corps of Engineers risk analysis team for the levees around New Orleans. She received her PhD in Civil Engineering from Johns Hopkins University.

Chris Poland

Chris Poland's structural engineering career spans over 35 years and includes a wide variety of new design work, seismic analysis and strengthening of existing buildings, structural failure analysis, and historic preservation. He currently leads Degenkolb's New Technologies Group and consults on a wide variety of the firm's projects. As an internationally recognized authority on earthquake engineering, Mr. Poland routinely participates in policy-changing research projects sponsored by the NSF, USGS, NIST and FEMA. As a passionate advocate and voice for seismic safety, he actively participates in the academic, ethical and social advancement of his field and lectures often. He has served in multiple leadership roles within EERI, ASCE, SEAOC, and ATC.

Chris presides as Chair of the congressionally mandated Advisory Committee on Earthquake Hazards Reduction for the National Earthquake Hazards Reduction Program. His latest interests, involving advocacy for Resilient Cities, lead to his involvement in the SPUR Resilient City Initiative as the chair of the Seismic Hazard Mitigation Taskforce. That work led to his Co-Chair appointment to the San Francisco Lifelines Council. He chairs the ASCE Standards Committee on Seismic Rehabilitation, led the effort needed to produce the ASCE 31 and ASCE 41 Standards, and is currently leading the update of both standards. He is a member of the Board of Directors for the San Francisco Chamber of Commerce and the San Francisco Planning and Urban Research Association. He is the 2006 recipient of the Alfred E. Alquist award from the California Earthquake Safety Foundation, and was recently elected to the National Academy of Engineering in recognition of his career long work in support of Performance Based Earthquake Engineering

William Savage

After finishing his PhD in Seismology at the University of Nevada in Reno and a postdoc with the USGS in Menlo Park in 1974, Woody joined Woodward-Clyde Consultants in San Francisco and Pasadena, CA and spent 12 years working primarily on nuclear power plant siting and licensing, and seismic studies for major dams and other critical facilities.

He then spent 15 years in the Geosciences Department at PG&E in San Francisco, where he was a member of the Diablo Canyon Long Term Seismic Program leadership team and managed cooperative PG&E research projects with the USGS, the PEER Center at UC Berkeley, the California Energy Commission, and the Southern California Gas Company. He also managed PG&E's Seismic Risk Management Program, a company-wide seismic preparedness activity for the natural gas and electric systems.

In 2001, Woody joined the US Geological Survey in Menlo Park, CA, as the National Strong-Motion Coordinator, National Strong-Motion Project Chief, and Lifelines Coordinator. In 2007, he was assigned as the USGS Seismotectonics Senior Scientist and Science Advisor to the Yucca Mountain Project in Las Vegas through 2010.

During 1999 to 2005, Woody represented PG&E and the USGS as a member of the American Lifelines Alliance, a FEMA-supported public-private partnership to reduce risk to utility and transportation systems from natural hazards and manmade threats.

Woody is currently an Adjunct Professor in the Department of Geosciences at the University of Nevada, Las Vegas, and works in the Applied Geophysics Center. He is also an Emeritus Scientist with the USGS.