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The National Academies of Sciences, Engineering, and Medicine's
ResilientAmerica Roundtable and the Board on Infrastructure and the Constructed Environment
In collaboration with the SEI/ASCE Advances in Information Technology Committee

The Role of Advanced Technologies in Structural Engineering for More Resilient Communities

September 26, 2017
Beckman Center
Irvine, Ca

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Purpose: This workshop will bring together researchers, experts, practitioners, and noted leaders to explore the role of innovative technologies and smart infrastructure in building more resilient and sustainable communities; including:

- How can advanced technologies and structural performance data in structural engineering support the design of infrastructure and built systems that enhance resilience and promote faster recovery?
- What are today's most promising innovations in technology and how are communities benefiting?
- What is the future role of advanced technologies and design practice-- what does a resilient city's built infrastructure look like in the future?
- What are the research gaps or opportunities in development and use of advance technologies and design for building resilient infrastructure?

8:30 – 8:40 am **Welcome and Introductions**
Dr. Lauren Alexander Augustine, Director, Program on Risk, Resilience, and Extreme Events, National Academy of Sciences, Engineering and Medicine

8:40 – 9:00 am **Setting the Stage: From Resilient Infrastructure to Resilient Communities: how can emerging technologies support community efforts to become more resilient?**
Mr. Chris Poland, Consulting Engineer

9:00-10:15 am **Enabling Community Resilience: Innovative Technologies in the Built Environment**
Moderator: Ms. Arrietta Chakos, Policy Advisor/Consultant, Urban Resilience Strategies

Panelist 1: Dr. Janice Barnes, Global Resilience Director, Perkins+Will

Panelist 2: Mr. Steve Moddemeyer, Principal, CollinsWoerman Architects

Panelist 3: Dr. Reginald DesRoches, Dean of Rice University's George R. Brown School of Engineering

- *What roles or functions do technologies and infrastructure play in a resilient community?*
- *How can infrastructure investments today ensure resilience in communities in the future and across the design life of the infrastructure?*
- *How can technologies and infrastructure be integrated into current systems and planning to build resilience?*

10:15 – 10:45 am **Break**

10:45 – 12:30 pm **Innovative Technologies: What are they now, what could they be in the future?**
Moderator: Seymour Spence, Assistant Professor, Department of Civil and Environmental Engineering, University of Michigan

Speaker 1: Dr. Jerome Lynch, Professor, University of Michigan

Speaker 2: Mr. Daniel Hiller and Dr. Alex Stolz, Fraunhofer

Speaker 3: Dr. Maria Feng, Renwick Professor, Columbia University

Speaker 4: Dr. Robert D. Moser, Senior Research Civil Engineer, Engineering Systems and Materials Division – Research Group, Geotechnical and Structures Laboratory, U.S. Army Engineer Research and Development Center (ERDC)

Speaker 5: Dr. Oral Buyukozturk, Professor, MIT

- *What is the vision for built infrastructure in resilient communities of the future? How can we better apply these technologies to benefit society?*
- *What is the "out of the box" thinking for the future? What does the next wave of research and design entail?*

12:30 – 1:45 pm **Lunch**

1:45 -2:15 pm **Featured Speaker – How are cities thinking about the role of technologies and structural engineering for the future?**

Mr. Paul Brown, President, Paul Redvers Brown, Inc.

2:15 – 3:30 pm **Visions of the Future: Enabling Design and Integration of Emerging Technologies**
Moderator: Mr. Ron Eguchi, President & CEO, ImageCat Inc.

Panelist 1: Mr. Craig A. Davis, Water System Resilience Program Manager, Los Angeles Department of Water and Power

Panelist 2: Mr. David Mar, President, Mar Structural Design (confirmed)

Panelist 3: Mr. Peter Marx, Vice President of Advanced Concepts, GE Digital

- *How could emerging technologies and innovations be integrated into the built environment? What are the potential challenges?*
- *How can decision makers build flexibility into their current decisions and initiatives to account for innovation and technological advances to come?*
- *How can decision makers, planners, and other stakeholders effectively use emerging technologies and innovations with current infrastructure projects and initiatives? And future ones?*

3:30 – 4:00 pm **Break**

4:00 – 4:30 pm **Where Are We & What's Next**
Dr. Farzad Naeim, President, Farzad Naeim, Inc.
Dr. Ting Lin, Assistant Professor, Marquette University

4:30 pm **Closing Remarks**

5:00 – 6:30 pm **Evening Reception**