

**National Construction Safety Team  
Advisory Committee (NCSTAC) Meeting Summary**

**National Institute of Standards and Technology (NIST)  
Gaithersburg, Maryland  
(meeting conducted via web-conference)**

**December 2, 2019**

**Meeting Summary**

**Advisory Committee Members:**

James Harris, Chair	J. R. Harris & Company
Reginald DesRoches, Vice Chair	Rice University
Ross Corotis	University of Colorado, Boulder
William Holmes	Rutherford + Chekene
Gary Klein	Wiss, Janney, Elstner Associates, Inc.
Jeannette Sutton	University of Kentucky

**NIST Representatives**

Jason Averill	Chief, Materials & Structural Systems Division
Ben Davis	Designated Federal Officer, NCSTAC
Maria Dillard	Acting Director, Disaster and Failure Studies
Howard Harary	Director, Engineering Lab
Judith Mitrani-Reiser	Associate Chief, Materials & Structural Systems Division
Steve Potts	Management and Program Analyst, NWIRP

## **Meeting Summary:**

### **I. Welcome/Opening Remarks**

Designated Federal Officer, Ben Davis, opened the meeting at 1:30 pm EDT.

Dr. Howard Harary welcomed the National Construction Safety Team Advisory Committee (NCSTAC) members and thanked them for their participation. Dr. Harary reminded the Committee of the key items covered in the last in-person Committee meeting including: the implementation activities related to the Joplin Tornado NCST investigation; a summary of methods used in the Hurricane Maria NCST investigation; the program management and communication efforts of the Hurricane Maria NCST investigation; the data security and management considerations for NCST investigations; a summary of the hazard characterization project; the readiness of NCST Teams; and relevant NWIRP research studies of Hurricane Maria. Dr. Harary reiterated that the Committee is charged with providing advice to the NIST Director on carrying out the NCST Act. Specifically, Dr. Harary asked the Committee to evaluate the NIST efforts in Hurricane Maria NCST investigation and the Team's ability to:

- establish the likely technical cause of engineered building failures in Puerto Rico (PR);
- evaluate the technical aspects of evacuation and emergency response procedures; and
- recommend improvements in standards, codes, and practices, as well as future research to improve the structural safety of buildings

Dr. Harary also requested the Committee to:

- provide advice on the composition of the investigation Team, which currently includes combined expertise in structural engineering, social science, complex dynamic systems, risk modeling, epidemiology, meteorology, climate science, and hazard modeling; and
- provide advice regarding NIST's efforts to adhere to any other applicable authorities prescribed in the NCST Act.

Dr. Harary noted that NIST NCST investigations are not about finding fault, responsibility or negligence. The goal is to complete a thorough investigation that will result in recommendations that will improve the safety and structural integrity of buildings.

Dr. Harary made two announcements:

- Dr. Judith Mitrani-Reiser has been appointed to a new position as the Associate Chief of the Materials and Structural Systems Division (MSSD), and
- Dr. Maria Dillard has been appointed as the Acting Director of the Disaster and Failures Studies (DFS) Program.

He described their roles in terms of leveraging the capabilities of the statutory programs to reinforce each other.

### **II. Review of Meeting Goals and Agenda**

Dr. Harris stated the primary goal of the meeting is to finalize the Report to Congress with recommendations to the NIST Director. He announced that Lisa Berger from the International

Code Council (ICC) has registered for the public comment period. Dr. Harris asked if anyone wanted to add any topics of discussion to the agenda. There were none.

### **III. Public Comment Period**

At 2:07 pm the meeting was opened for public comment. There were none.

### **IV. NIST Presentation on Event Scoring**

Dr. Mitrani-Reiser referenced two slides, including information requested by the Committee at the last in-person meeting. One slide, presented at the September 9, 2020 Committee meeting, included all the events scored in FY 2018. The second slide listed all the events that were scored since between September 2018 and December 2019. Dr. Mitrani-Reiser provided additional information on events that NIST dispatched teams to conduct preliminary reconnaissance:

- A team deployed to North Carolina to collect baseline damage data of residential and commercial buildings after Hurricane Florence. The buildings assessed are included in the sample of structures that NIST has been studying over the last few years, as part of a longitudinal study of the impacts and recovery of a community that suffered a significant flood after Hurricane Matthew.
- A team deployed to Florida after Hurricane Michael made landfall in October. The team's field efforts focused on schools and shelters in the panhandle of Florida. NIST coordinated with other teams to optimize time in the field. NIST considered that a lot could be learned about Hurricane Michael's impacts that could influence standards, codes, and practice across the U.S.
- A team deployed to California within a few weeks of the Camp Fire. NIST is reconstructing a timeline of the Camp Fire, which is an ongoing effort in collaboration with CAL Fire (California Department of Forestry and Fire Protection). This effort is not part of NCST.
- A team deployed to Alaska following the earthquake in Anchorage, in collaboration with other teams from academia, practitioners, and federal agencies (e.g., FEMA). NIST staff looked at schools, hospitals, and other buildings. NIST is not pursuing an NCST investigation based on the preliminary reconnaissance.

These efforts provided training opportunities for newer staff, which were fruitful. They learned how to score events within 24 hours, make quick decisions documenting NIST's intentions, and collaborate with others in the field. These efforts also led to new research studies within the Materials and Structural Systems Division and Engineering Laboratory, and will augment existing programs.

Dr. Harris asked if NIST coordinated with the U.S. Air Force (USAF) on Hurricane Michael's impacts on Tyndall USAF Base. Dr. Mitrani-Reiser replied that the USAF was very helpful. Additionally, she indicated that in all of its deployments, NIST has had great engagement with

federal partners, including Tyndall USAF Base. Dr. Harris requested more detail on why the Camp Fire did not result in an investigation. Dr. Mitrani-Reiser replied that NIST has multiple authorities that can be used to do in-depth studies. The firsthand observations collected during preliminary reconnaissance efforts updates NIST's event scores, which support NIST decision making for follow on activities. For example, NIST decided to focus on a fire timeline reconstruction for the Camp Fire, based on available resources and other variables considered when recommending a NCST investigation. NIST has worked closely with collaborators to recreate the fire's timeline and its intensity. A comprehensive report is forthcoming.

Dr. Mitrani-Reiser described how the deployment after the Anchorage earthquake led to the initiation of a research project on the reliability of fiber-reinforced polymer composites in seismic retrofits.

Dr. Harris asked if column failures in Anchorage were due to adhesion failures. Dr. Mitrani-Reiser responded there were no column failures reported based on the limited field data, but NIST would like to investigate the impact of potential degradation of fiber reinforced polymers (FRP) used in retrofits.

Mr. Holmes suggested the NCST scoring form should have an additional criterion added to indicate follow-up efforts. Dr. Mitrani-Reiser said NIST can show how these activities have been integrated into other studies, like the study of the 2018 flood following Hurricane Matthew in Lumberton, North Carolina.

## **V. Committee Editing of the 2019 Report to Congress**

Dr. Harris displayed the draft letter report to Congress for the Committee to review. Some of the most significant comments included the following:

- The working draft of the annual report to Congress was an abbreviated version of the 2018 version of the report. Dr. Harary suggested that since the audience of the report consists mostly of staffers from Congressional offices, and the Committee mentions modifying the NCST Act in the report, it may be best for the Committee to say exactly what modifications it wanted, as Congressional staff are extremely pressed for time.
- There is an important distinction between investigations and studies. According to the NCST Act, investigations allow for NIST to exercise powers (e.g., subpoena powers) it did not have before the Act was passed. Work other than investigations, as defined in the Act, would be considered by NIST to be studies.

Dr. Harris led the Committee members through a series of edits to their draft report. He offered an additional opportunity for public comment at 2:41 pm, but there was no response. When the edits were completed, Dr. Harris went through a roll call to ensure all Committee members were in agreement. The vote was unanimously in favor of the report as edited during the meeting. Dr. Harris stated: "We have a consensus that the report is ready for final proofreading and then we'll send it off to Congress. "

Dr. Mitrani-Reiser stated that NIST had two additional agenda items that could be discussed if time allowed:

- a brief update on trips to Puerto Rico (PR) that Dr. Dillard could provide
- a more in-depth discussion on the scoring process of the Hard Rock Hotel's partial collapse in New Orleans.

Dr. Harris expressed appreciation for the offer and asked NIST to continue.

## **VI. Update on Puerto Rico NCST Investigation**

Dr. Dillard described two deployments during the fall of 2019. One took place at the end of October when four NIST team members and one interpreter visited hospitals as well as several tower locations where NIST is considering having anemometers installed for wind measurements. The team went to the PR Planning Board Permitting Office and visited the University of Puerto Rico (UPR) campus to meet with colleagues.

The second deployment took place during the first week of November with a team of five investigators and two interpreters. They went to four emergency management zones and talked to multiple representatives from the Puerto Rican government. They also met with one of NIST's academic colleagues. These efforts furthered the projects examining hurricane impacts on infrastructure and electricity, and also included visits to the Department of Health. NIST collaborated with FEMA's Joint Recovery Office (JRO) on infrastructure projects, and shared data with local entities. Both visits added to the Team's connections with key institutions and officials, and informed decisions about multiple projects.

Dr. Mitrani-Reiser added that navigating the new space of security and privacy of data necessitated new practices for the Team. NIST developed agreements with FEMA on how the agency will store and protect data that is shared. This should make future engagements and data sharing with federal agencies more straightforward. During the November trip, the team obtained data from FEMA consistent with the new agreement.

Dr. Dillard said that the care NIST is showing with data seems to have been well communicated to the agencies in Puerto Rico. These agencies appeared to be very comfortable handing over data based on NIST's written explanations of limitations of use.

## **VII. NIST Assessment of Hard Rock Hotel Collapse**

Dr. Mitrani-Reiser said this event was challenging to score because NIST was dependent on publicly available information coming out of New Orleans. The score of 4.3 was driven by the number of people who perished, and those exposed at the construction site. Both of these numbers fluctuated over several days resulting in multiple updates to the score. Additionally, NIST reached out to the U.S. Occupational Safety and Health Administration (OSHA), who were on the scene soon after the collapse. NIST described its authorities and technical capabilities to the OSHA Directorate of Construction. OSHA has started its investigation, and NIST offered assistance.

Dr. Harris suggested that if the building utilized an innovative construction system, it might be beyond OSHA's capabilities to investigate, and might be a good reason for NIST to be involved. Dr. Mitrani-Reiser agreed and said the conversations with OSHA were ongoing. She described a

meeting with the National Transportation Safety Board (NTSB), where authorities and scope of work were shared. NIST is planning to do the same thing with OSHA and set up a meeting where scope and authorities are shared. This investigation has reinvigorated the relationship between NIST and OSHA, and we plan to continue that in the future.

Mr. Klein asked if OSHA has the same authority regarding implementing lessons learned about failure or safety. Dr. Mitrani-Reiser responded that they are expanding what would normally be included in their investigations to include the design of the hotel. NIST will maintain contact with OSHA to ensure an understanding of the scope of that agency's investigation. At this point, OSHA indicated that it is planning a comprehensive investigation. Mr. Klein expressed concern that OSHA can make findings but may not have sufficient charge to implement recommendations. He suggested that it may be wise for NIST to take further action if recommendations are warranted.

Dr. Mitrani-Reiser indicated that she will explore options with OSHA and will report back at the next meeting.

### **VIII. Closing**

Mr. Ben Davis adjourned the meeting at 3:05 pm EDT.