Response to NCST Advisory Committee's 2018 Report to Congress

Sept 06, 2019
NCST Advisory
Committee Meeting

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Background Material on NCST Investigations

- The National Construction Safety Team (NCST) Act authorizes the Director of NIST to:
  - establish NCST Act Teams for deployment after events causing the ***failure of a building or buildings that has resulted in substantial loss of life or that posed significant potential for substantial loss of life***. (15 U.S.C. §7301(a))

- Under the NCST Act established Teams shall:
  (A) establish the likely technical cause or causes of the building failure,
  (B) evaluate the technical aspects of evacuation and emergency response procedures,
  (C) recommend, as necessary, specific improvements to building standards, codes, and practices based on the findings made pursuant to (A) and (B), and
  (D) recommend any research and other appropriate actions needed to improve the structural safety of buildings, and improve evacuation and emergency response procedures, based on the findings of the investigation.
  (15 U.S.C. §7301(b)(2))

Background Material on NCST Investigations

- Under the NCST Act (15 U.S.C. 7301 (b)(1)), the **purpose** of the investigations by Teams is to improve the safety and structural integrity of buildings in the United States.
- Under the NCST Act implementing regulations (15 CFR § 270.100(c)), the number of **fatalities considered to be "substantial"** will depend on:
  - the nature of the event,
  - the event's impact,
  - the event's unusual or unforeseen character,
  - historical norms, and
  - other pertinent factors.
- Under the NCST Act implementing regulations (15 CFR § 270.100(b)), **building failure** may involve one or more of the following:
  - structural system,
  - fire protection (active or passive) system,
  - air-handling system, and
  - building control system.

Background Material on NCST AC

- In accordance with 15 U.S.C. § 7310 (a) and restated in the NCST Advisory Committee Charter, the NCST Advisory Committee (Committee) shall:
  - advise the NIST Director on carrying out the NCST Act, and
  - review the procedures developed under Section 2 (c)(1) of the Act, and
  - review the reports issued as a result of an NCST investigation.

- In accordance with 15 U.S.C. § 7310 (b), on January 1 of each year the Advisory Committee shall transmit to the Committee on Science, Space and Technology of the House of Representatives and to the Committee on Commerce, Science, and Transportation of the Senate a report that includes:
  - an evaluation of Team activities, along with recommendations to improve the operation and effectiveness of Teams, and
  - an assessment of the implementation of the recommendations of Teams and of the advisory committee.

Background Material on NCST AC

- Based on the NCST Advisory Committee Charter (2016), the NCST Advisory Committee shall:
  - meet at least once per year,
  - hold additional meetings, whenever called by the NIST Director or the DFO
  - meet in person annually, and for any additional meetings, meet in person or in the form of telephone conference calls and/or videoconferences.

- Based on the NCST Advisory Committee Charter (2016), NIST may establish subcommittees from among the NCST AC members, as may be necessary:
  - subject to the provisions of FACA (Federal Advisory Committee Act), and its implementing regulations, and applicable Department of Commerce guidance., and
  - whom must report back to the parent committee, and must not provide advice and work products directly to the agency.

NIST Response to 2018 NCST AC Report to Congress

Recommendation	Response
1. NSF NHERI Collaborations The Committee commends the cooperation with Natural Hazards Reconnaissance Facility (RAPID) of the Federally funded Natural Hazards Engineering Research Infrastructure (NHERI) program, and recommends looking for additional opportunities for collaboration with other aspects of NHERI, especially the recently activated SimCenter and the newly established CONVERGE Center.	We agree. NIST awarded a contract for boundary layer wind tunnel testing to the University of Florida's **NHERI Experimental Facility (EF**). Chief of the Materials and Structural Systems Division, Jason Averill, sits on the Advisory Committee of the Natural Hazards Center at UC Boulder to leverage efforts with **NHERI's CONVERGE Facility**. NIST NRC Postdoctoral Fellow, Shane Crawford, In August 2019, joined **NHERI's Structural Extreme Events Reconnaissance (StEER)** network. NIST NRC Postdoctoral Fellow, Shane Crawford, participated in the Joint O.H. Hinsdale Wave Research Laboratory **NHERI Experimental Facility (EF)** and **NHERI RAPID Facility** Workshop. DFS Director, Judith Mitrani-Reiser, invited the Directors of the **NHERI DesignSafe Center** and the **NHERI RAPID Center** to give seminars at NIST. DFS Director, Judith Mitrani-Reiser, held a conference call with **NHERI SimCenter** co-Directors to explore opportunities for collaborations.

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Recommendation	Response
2. Local Social Norms Social science research is a key part of the Hurricane Maria NCST Investigation, and any such research conducted in the field needs to account for local social norms in order to effectively gather information. We believe collaboration with researchers who are resident in the community of interest is necessary to accomplish this, especially in Puerto Rico, and we support the efforts NIST is already making in their plans for that study.	We agree. Three social scientists are members of the Hurricane Maria NCST Investigation Team. NCDMPH (National Center for Disaster Medicine and Public Health) and NIST invited engineers and scientists from various universities in Puerto Rico to participate at a Research Methods Meeting to inform the NCST Technical Investigation of Hurricane Maria's Impacts on Puerto Rico (Hurricane Maria NCST Investigation (Hurricane Maria NCST Investigation). All projects of the Hurricane Maria NCST Investigation have emphasized the inclusion of local talent.

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Recommendation	Response
3. Social Media Data Social media is becoming an important source of disaster information. The Committee recommends that NIST work, and collaborate with others, to develop strategies and research methodologies to ethically access, collect, analyze, and use such data.	We agree. NIST is working with the Office of the Chief Counsel to establish permissions with social media platforms to ethically access, collect, analyze and use social media data in future disaster research.

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Recommendation	Response
4. Implementation of Joplin Recommendations NIST is continuing to work on lessons learned in the study of the Joplin Tornado. The current focus for these new (tornado) maps and provisions is the American Society of Civil Engineers standard (ASCE/SEI 7) that is the source of building code provisions for engineered buildings. Single family homes are a very large fraction of all construction, and the construction of nearly all single-family homes is controlled by the International Residential Code (IRC), rather than the previously cited engineering standards. Therefore, the Committee recommends that NIST also undertake studies to enable improvements to the IRC.	We agree with the goal of improving building codes, including the IRC. The standard for tornado wind speed maps are still evolving, based on feedback from our Stakeholder Workshop and the ASCE 7 Wind Load Subcommittee. Once the final tornado load methodology is nearing completion, NIST will then begin work to develop proposed changes for all of the relevant codes (potentially including the IBC, IEBC, and IRC), in collaboration with other stakeholders.

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Recommendation	Response
5. NCST Investigation Funds In the interest of public safety, the NCST must have sufficient available staff and funding to respond. At the same time, federal agencies must work within fixed annual budgets. As noted in last year's letter, one possible consideration is to include specific allocation for investigations in the funding mechanisms that are created when a Federal disaster is declared.	Immediately following the NIST Director's establishment of an Hurricane Maria NCST Investigation, significant resources were provided, with contributions from NIST, Laboratory, and Division accounts. Additional resources have been budgeted for future years of the Investigation that fully fund plans for the Investigation. The concept of dedicated reserve funds remains under evaluation.

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Questions?

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