The Honorable Lamar Smith, Chairman
House Committee on Science, Space & Technology
2321 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Smith:

I am pleased to submit the 2018 Annual Report of the National Construction Safety Team (NCST) Advisory Committee (Committee) of the National Institute of Standards and Technology (NIST). The Committee serves as NIST’s advisor on implementation of the NCST Act (P.L. 107-231; the ‘Act’), and the opinions and recommendations expressed in this letter reflect our views as an independent, private sector body. This year the committee met by teleconference on February 20, May 16, and November 27 and in person at NIST in Gaithersburg, MD, on August 30. Except for the November 27 teleconference, these meetings have been used to brief the Committee on activities performed under the Act and closely related activities performed by NIST under other authorities.

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1. Evaluation of Team activities
2. Assessment of the implementation of recommendations of the Team and the Committee.

In recent years NIST has developed a system to rate the need and appropriateness of performing formal studies associated with each event and has conducted preliminary reconnaissance investigations of several important events, including Hurricanes Matthew and Harvey, the wildland-urban interface fire in Gatlinburg, Tennessee, and the Fuse-47 construction fire in Silver Spring, MD. Many of these studies involved collaboration with other Federal agencies, especially FEMA and NOAA. The Committee has reviewed the scoring criteria and applauds the proactive approach to search for learning opportunities.

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.

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National Institute of Standards and Technology

studies. The Committee believes the decision is well founded and looks forward to the findings from the studies. We anticipate there will be subsequent recommendations for ways to mitigate the impacts of future events.

The death toll from Maria has been a subject in the news. Death certificates are the primary and official source of mortality statistics, but, as NCST experts pointed out, they typically do not provide the information needed to determine if a death results from a disaster. Since the number of deaths will remain the most important measure of the severity of a disaster, more consistent methods are needed to measure deaths and injuries that are attributable to the event, and great care is needed both to communicate such information clearly to the public and for comparison with other events, past and future. The Committee highly commends NCST for initiating studies into measuring deaths and injuries from disasters. We look forward to the development of standards for measuring this mortality.

Social science research is a key part of the Maria study, 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.

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.

NIST is continuing to work on lessons learned in the study of the Joplin Tornado. One of the recommendations from that study has been an important factor in the re-examination of the historical database of tornado occurrence and the development of new analytical models for predicting tornado hazards. The first draft of new maps of tornado windspeeds that could be useful in building codes is scheduled for January 2019. The Committee sees this as an important result of the Joplin study and specifically in line with the “Purpose” stated in the Act to improve the safety and structural integrity of buildings in the United States. We expect these maps eventually will have a significant effect upon the design and construction of buildings in tornado-prone regions. The current focus for these new 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.

Disasters and building failures are inherently unpredictable. Nevertheless, 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. Additionally, consistent with past practices, annual budgets should include a base-line allowance for responding to new
events, as well as budgeted amounts for long-term studies that can be deferred so resources can be shifted to new unbudgeted events. The Committee urges Congress to support needed flexibility in funding and resource allocation.

In summary, the Committee finds the NCST program to be highly valuable and relevant to the safety of our population. We commend the current administration at NIST for their diligence in evaluating events for worthwhile study and the commitment to finding the funding to carry out the studies when justified. Related to that, we also want to restate our recommendation to Congress that the Act be revised, for the reasons given in our report one year ago. The effects of the failure of the power grid in Puerto Rico on the functionality of essential buildings is just one example that supports our recommendations on this subject. The specific changes that we recommend are appended to this letter.

Sincerely yours,

James Robert Harris, P.E., Ph.D., NAE, Hon. Memb. ACI
Chair, National Construction Safety Advisory Committee

Attachment
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And Sec. 2, paragraph (b)
“(1) PURPOSE.—The purpose of investigation by Teams is to improve the safety and structural integrity of buildings the built environment in the United States.

And replace the term “buildings” with “the built environment” in Sec. 2 paragraph (b)(2)(D)

And replace the term “building standards, codes, and practices” with “engineering standards, practices, and building codes” at the following locations:
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And replace the term “building failure” with “failure” at the following locations:
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And replace the term “building components” with “components” at the following locations:
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And broaden Sec. 4, paragraph (d) on Interagency Priorities to include other agencies that have legislative mandates for the investigation of the failure of selected types of failures, such as the Army COE for dams and levees, the NRC nuclear power generation, the DOE for nuclear weapons facilities, and the DOT for vehicular bridges. [Such mandates are assumed, not verified, by this advisory committee]

Lastly, unrelated to the preceding, consider updating Sec. 2 paragraph (c)(1)(J) by adding a reference to the National Windstorm Impact Reduction Program.
December 3, 2018

The Honorable Eddie Bernice Johnson, Ranking Member
House Committee on Science, Space & Technology
2321 Rayburn House Office Building
Washington, DC 20515

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National Construction Safety Team Advisory Committee  
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December 3, 2018

The Honorable Barbara Comstock, Chairlady
Subcommittee on Research and Technology
House Committee on Science, Space & Technology
2321 Rayburn House Office Building
Washington, DC 20515

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National Construction Safety Team Advisory Committee
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National Construction Safety Team Advisory Committee
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December 3, 2018

The Honorable John Thune, Chairman
Senate Committee on Commerce, Science, & Transportation
512 Dirksen Office Building
Washington, DC 20510

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December 3, 2018

The Honorable Bill Nelson, Ranking Member  
Senate Committee on Commerce, Science, & Transportation  
512 Dirksen Office Building  
Washington, DC 20510

Dear Senator Nelson:

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Lastly, unrelated to the preceding, consider updating Sec. 2 paragraph (c)(1)(J) by adding a reference to the National Windstorm Impact Reduction Program.
December 3, 2018

The Honorable Ted Cruz, Chairman
Subcommittee on Space, Science, and Competitiveness
Senate Committee on Commerce, Science, & Transportation
512 Dirksen Office Building
Washington, DC 20510

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Subcommittee on Space, Science, and Competitiveness
Senate Committee on Commerce, Science, & Transportation
512 Dirksen Office Building
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