

**National Construction Safety Team Advisory Committee  
National Institute of Standards and Technology**

January 27, 2014

The Honorable John D. Rockefeller IV  
Chairman  
Committee on Commerce, Science, and Transportation  
United States Senate  
Washington, D.C. 20510

Dear Mr. Chairman:

I am pleased to submit the 2013 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) and our opinions and recommendations expressed in this letter reflect our views as an independent, private sector body.

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- Findings based on the reconnaissance of the Newcastle-Moore, OK tornado of May 2013
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- NIST response to Committee recommendations made in its report of December 2012.

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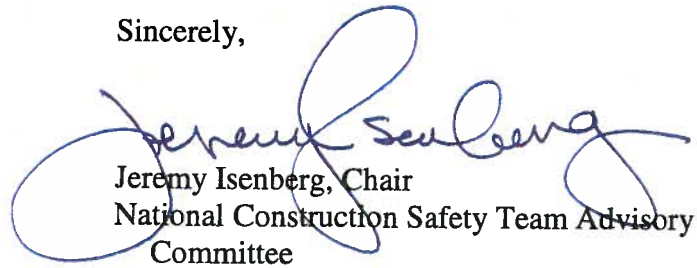
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Sincerely,

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Jeremy Isenberg, Chair  
National Construction Safety Team Advisory  
Committee

Identical letter sent to:  
The Honorable John Thune  
Ranking Minority Member

**National Construction Safety Team Advisory Committee  
National Institute of Standards and Technology**

January 27, 2014

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United States Senate  
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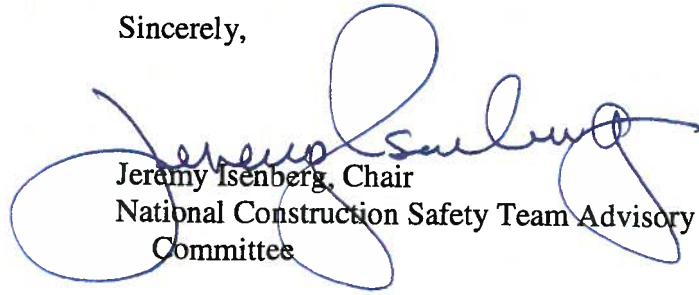
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Identical letter sent to:  
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National Institute of Standards and Technology**

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The Honorable Bill Nelson  
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Committee on Commerce, Science, and Transportation  
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Identical letter sent to:  
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Ranking Minority Member

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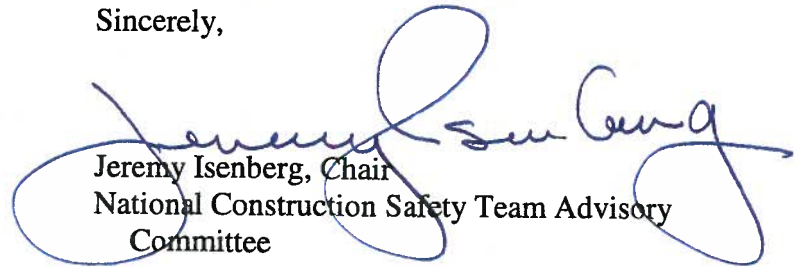
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The Honorable Lamar Smith  
Chairman  
Committee on Science, Space, and Technology  
United States House of Representatives  
Washington, D.C. 20515

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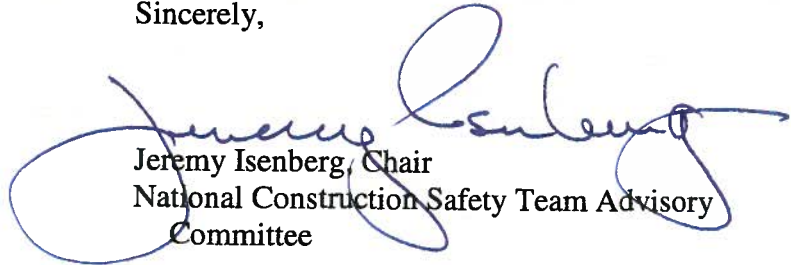
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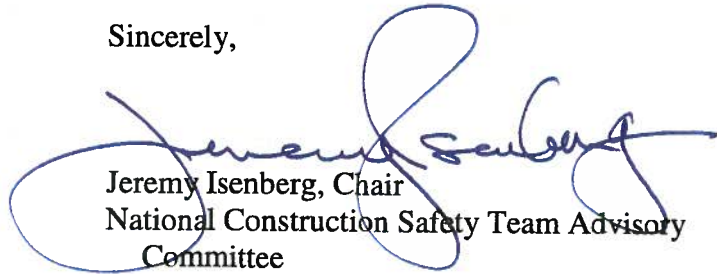
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The Committee is pleased that NIST evaluated our recommendations made a year ago and has made significant progress toward implementing them. Again, the Committee urges that the NCST Act be broadened to include lifeline incidents in order that future NIST investigations may address and achieve a balance between investigation of buildings and infrastructure. This is consistent with the growing recognition of resilience as a primary goal in protecting communities from the effects of natural hazards.

Sincerely,

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Jeremy Isenberg, Chair  
National Construction Safety Team Advisory  
Committee

Identical letter sent to:  
The Honorable Lamar Smith  
Chairman

**National Construction Safety Team Advisory Committee  
National Institute of Standards and Technology**

January 27, 2014

The Honorable Larry Bucshon  
Chairman  
Subcommittee on Research and Technology  
Committee on Science, Space, and Technology  
United States House of Representatives  
Washington, D.C. 20515

Dear Mr. Chairman:

I am pleased to submit the 2013 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) and our opinions and recommendations expressed in this letter reflect our views as an independent, private sector body.

The Committee met face-to-face at NIST in Gaithersburg, MD on December 10-11, 2013. Public comments were invited for this meeting; however, none were received.

Topics of discussion included:

- Findings and recommendations based on NIST investigation of the Joplin, MO tornado of May 2011
- Findings based on the reconnaissance of the Newcastle-Moore, OK tornado of May 2013
- Post-fire data collection response to Waldo Canyon, CO Wildland Urban Interface fire of June-July 2012
- Update on NIST participation in the FEMA-led investigation of Hurricane Sandy
- NIST response to Committee recommendations made in its report of December 2012.

**Joplin, MO tornado of May, 2011**

The committee commends the excellent investigation, interpretation and report by NIST Staff on the Joplin, MO tornado of May 2011. The approach is methodical and scientific, leading to findings that support a coherent list of 16 recommendations that, if implemented, will enhance safety and community resilience in similar future events. Indeed, though the report has undergone valuable improvements and refinements during 2013, the committee believes the results to be so important and beneficial that we wish the recommendations had been published in draft form a year ago.

The committee endorses the recommendation by NIST that a probabilistic tornado hazard map be prepared in a format similar to those for seismic and conventional wind hazards. Recommendations should be developed enabling engineers to generate design loads in the manner of ASCE/SEI 7, the standard design loads document used in the United States. This document is advisory and may be implemented in local building codes at the discretion of the local authority.

The committee also endorses the recommendation by NIST to develop a nationwide protocol defining standards for the technology and use of public alert systems. In the absence of national guidelines, local jurisdictions develop their own protocols without benefit of advice on modern technology such as reverse 9-1-1 cell phone communication. The goal of this recommendation is to warn the public in an unambiguous and timely manner.

In addition to alerting the public to an imminent threat, the committee encourages a program of public education as to the nature of tornado threats and how to respond to alerts. The committee recommends that NIST develop an education package based on a standard response plan than could be adapted by local safety officials. The investigation of public response to alerts prior to touchdown of the Joplin, MO tornado uncovered a degree of misunderstanding about the nature of tornado hazards and about the reality of the threat to Joplin. A standardized, authoritative education package can be the basis of helping citizens to protect themselves.

The committee recognizes that the 16 recommendations contained in the NIST report on the Joplin, MO tornado are mutually supporting and if implemented would lead to significant mitigation of tornado hazards. The committee recommends that NIST develop a strategic plan for implementing the 16 recommendations, recognizing the bureaucratic, financial and human obstacles that it will face.

The Committee commends NIST for making a valuable addition to the literature on the response of structures to extreme loads. The distinction between design wind speed (90 mph for most of the U.S. interior in 2011) and the wind speed that could cause structural damage in a properly-designed building (110-115 mph) was recognized and appropriately emphasized in the evaluation of building performance.

#### **Wildland-Urban Interface (WUI) Fires**

The Committee recommends that NIST consider science and engineering methodologies similar to those that reduce the fire risk in building interiors to reduce the fire risk of building exteriors in WUI fires. Such methodology could lead, for example, to methods for fire hardening of the exterior of the structures that could significantly reduce the damage from firebrands and flame radiation in WUI fires

#### **Data Repository**

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Identical letter sent to:  
The Honorable Dan Lipinski  
Ranking Minority Member

**National Construction Safety Team Advisory Committee  
National Institute of Standards and Technology**

January 27, 2014

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