June 6, 2016

The Honorable Barbara Comstock
Chairwoman
Subcommittee on Research and Technology
Committee on Science, Space, and Technology
United States House of Representatives
Washington, DC 20515

Dear Madam Chairwoman:

I am pleased to submit the 2016 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. The Committee met at the Engineering Laboratory, NIST on May 3 in Gaithersburg, MD at which time we were briefed on activities under the Act.

The Committee notes that NIST has conducted three investigations under the Act—World Trade Center collapse, Station Night Club fire and Joplin tornado. NIST staff have also participated in reconnaissance teams organized by other agencies to investigate damage from such events as the attack on the Pentagon, Hurricane Sandy, and Amarillo, TX and Waldo Canyon, CO wildland-urban interface fires. The Committee believes that NIST has a special role in collecting and translating data into building code provisions, and that despite investigations by NIST under the Act and by other agencies, important opportunities to improve building safety may be being missed. The special expertise possessed by NIST staff and their building safety orientation strongly suggest that their ability to investigate tornado events other than Joplin and wildland-urban interface fires would be highly beneficial. The Committee supports the concept of Reconnaissance Decision Criteria used by NIST to guide decisions on whether to deploy a team. However, even high scores do not always trigger deployment. Examples include South Carolina rain-induced flooding (1000-year flood connected to Hurricane Joaquin, October 2015, score 3.9/5) and earthquakes in Taiwan (3.8/5) and Japan (4.3/5). Constraints on deployment appear to include funding limitations. Possibly this has led to developing deployment criteria so stringent as to rule out all but the most catastrophic events. The Committee urges NIST to review the criteria in the context of apparent climate change; and to consider ways of stretching its resources, perhaps by reducing the length and complexity of reporting in order to conduct more investigations.

Responding to a request by NIST for suggestions to enhance safety of NIST investigators, the Committee points out that fire departments are usually responsible for personnel safety. Coordination with local fire departments before and during any NIST deployment is prudent. In the longer term, safety training of the type undertaken quarterly by FEMA search and rescue teams may be considered. Participation by NIST personnel in the safety training of other agencies may be feasible.

a damaged site, possibly six months to a year after an event, permits exploring what changes in building safety have been implemented and whether damage models are reliable for resilience planning.

The Committee continues to find the NCST program highly valuable and relevant to the security of the nation's building stock.

Yours,

Jeremy Isenberg, PE, PhD, NAE, Hon. Memb. ASCE

June 6, 2016

The Honorable Ted Cruz
Chairman
Subcommittee on Space, Science,
and Competitiveness
Committee on Commerce, Science,
and Transportation
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

I am pleased to submit the 2016 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. The Committee met at the Engineering Laboratory, NIST on May 3 in Gaithersburg, MD at which time we were briefed on activities under the Act.

The Committee notes that NIST has conducted three investigations under the Act—World Trade Center collapse, Station Night Club fire and Joplin tornado. NIST staff have also participated in reconnaissance teams organized by other agencies to investigate damage from such events as the attack on the Pentagon, Hurricane Sandy, and Amarillo, TX and Waldo Canyon, CO wildland-urban interface fires. The Committee believes that NIST has a special role in collecting and translating data into building code provisions, and that despite investigations by NIST under the Act and by other agencies, important opportunities to improve building safety may be being missed. The special expertise possessed by NIST staff and their building safety orientation strongly suggest that their ability to investigate tornado events other than Joplin and wildland-urban interface fires would be highly beneficial. The Committee supports the concept of Reconnaissance Decision Criteria used by NIST to guide decisions on whether to deploy a team. However, even high scores do not always trigger deployment. Examples include South Carolina rain-induced flooding (1000-year flood connected to Hurricane Joaquin, October 2015, score 3.9/5) and earthquakes in Taiwan (3.8/5) and Japan (4.3/5). Constraints on deployment appear to include funding limitations. Possibly this has led to developing deployment criteria so stringent as to rule out all but the most catastrophic events. The Committee urges NIST to review the criteria in the context of apparent climate change; and to consider ways of stretching its resources, perhaps by reducing the length and complexity of reporting in order to conduct more investigations.

Responding to a request by NIST for suggestions to enhance safety of NIST investigators, the Committee points out that fire departments are usually responsible for personnel safety. Coordination with local fire departments before and during any NIST deployment is prudent. In the longer term, safety training of the type undertaken quarterly by FEMA search and rescue teams may be considered. Participation by NIST personnel in the safety training of other agencies may be feasible.

The Committee encourages NIST to consider follow up of its investigations. One reason is to assess and update amendments to the deployment criteria, which include 'Consequences to Resilience'. Revisiting a damaged site, possibly six months to a year after an event, permits exploring what changes in building safety have been implemented and whether damage models are reliable for resilience planning.

The Committee continues to find the NCST program highly valuable and relevant to the security of the nation's building stock.

Yours,

Jeremy Isenberg, PE, PhD, NAE, Hon. Memb. ASCE

June 6, 2016

The Honorable Eddie Bernice Johnson Ranking Minority Member Committee on Science, Space, and Technology United States House of Representatives Washington, DC 20515

Dear Representative Johnson:

I am pleased to submit the 2016 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. The Committee met at the Engineering Laboratory, NIST on May 3 in Gaithersburg, MD at which time we were briefed on activities under the Act.

The Committee notes that NIST has conducted three investigations under the Act—World Trade Center collapse, Station Night Club fire and Joplin tornado. NIST staff have also participated in reconnaissance teams organized by other agencies to investigate damage from such events as the attack on the Pentagon, Hurricane Sandy, and Amarillo, TX and Waldo Canyon, CO wildland-urban interface fires. The Committee believes that NIST has a special role in collecting and translating data into building code provisions, and that despite investigations by NIST under the Act and by other agencies, important opportunities to improve building safety may be being missed. The special expertise possessed by NIST staff and their building safety orientation strongly suggest that their ability to investigate tornado events other than Joplin and wildland-urban interface fires would be highly beneficial. The Committee supports the concept of Reconnaissance Decision Criteria used by NIST to guide decisions on whether to deploy a team. However, even high scores do not always trigger deployment. Examples include South Carolina rain-induced flooding (1000-year flood connected to Hurricane Joaquin, October 2015, score 3.9/5) and earthquakes in Taiwan (3.8/5) and Japan (4.3/5). Constraints on deployment appear to include funding limitations. Possibly this has led to developing deployment criteria so stringent as to rule out all but the most catastrophic events. The Committee urges NIST to review the criteria in the context of apparent climate change; and to consider ways of stretching its resources, perhaps by reducing the length and complexity of reporting in order to conduct more investigations.

Responding to a request by NIST for suggestions to enhance safety of NIST investigators, the Committee points out that fire departments are usually responsible for personnel safety. Coordination with local fire departments before and during any NIST deployment is prudent. In the longer term, safety training of the type undertaken quarterly by FEMA search and rescue teams may be considered. Participation by NIST personnel in the safety training of other agencies may be feasible.

a damaged site, possibly six months to a year after an event, permits exploring what changes in building safety have been implemented and whether damage models are reliable for resilience planning.

The Committee continues to find the NCST program highly valuable and relevant to the security of the nation's building stock.

Yours,

Jeremy Isenberg, PE, PhD, NAE, Hon. Memb. ASCE

June 6, 2016

The Honorable Dan Lipinski
Ranking Minority Member
Subcommittee on Research and Technology
Committee on Science, Space, and Technology
United States House of Representatives
Washington, DC 20515

Dear Representative Lipinski:

I am pleased to submit the 2016 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. The Committee met at the Engineering Laboratory, NIST on May 3 in Gaithersburg, MD at which time we were briefed on activities under the Act.

The Committee notes that NIST has conducted three investigations under the Act—World Trade Center collapse, Station Night Club fire and Joplin tornado. NIST staff have also participated in reconnaissance teams organized by other agencies to investigate damage from such events as the attack on the Pentagon, Hurricane Sandy, and Amarillo, TX and Waldo Canyon, CO wildland-urban interface fires. The Committee believes that NIST has a special role in collecting and translating data into building code provisions, and that despite investigations by NIST under the Act and by other agencies, important opportunities to improve building safety may be being missed. The special expertise possessed by NIST staff and their building safety orientation strongly suggest that their ability to investigate tornado events other than Joplin and wildland-urban interface fires would be highly beneficial. The Committee supports the concept of Reconnaissance Decision Criteria used by NIST to guide decisions on whether to deploy a team. However, even high scores do not always trigger deployment. Examples include South Carolina rain-induced flooding (1000-year flood connected to Hurricane Joaquin, October 2015, score 3.9/5) and earthquakes in Taiwan (3.8/5) and Japan (4.3/5). Constraints on deployment appear to include funding limitations. Possibly this has led to developing deployment criteria so stringent as to rule out all but the most catastrophic events. The Committee urges NIST to review the criteria in the context of apparent climate change; and to consider ways of stretching its resources, perhaps by reducing the length and complexity of reporting in order to conduct more investigations.

Responding to a request by NIST for suggestions to enhance safety of NIST investigators, the Committee points out that fire departments are usually responsible for personnel safety. Coordination with local fire departments before and during any NIST deployment is prudent. In the longer term, safety training of the type undertaken quarterly by FEMA search and rescue teams may be considered. Participation by NIST personnel in the safety training of other agencies may be feasible.

a damaged site, possibly six months to a year after an event, permits exploring what changes in building safety have been implemented and whether damage models are reliable for resilience planning.

The Committee continues to find the NCST program highly valuable and relevant to the security of the nation's building stock.

Yours,

Jeremy Isenberg, PE, PhD, NAE, Hon. Memb. ASCE

June 6, 2016

The Honorable Bill Nelson Ranking Minority Member Committee on Commerce, Science, and Transportation United States Senate Washington, DC 20510

Dear Senator Nelson:

I am pleased to submit the 2016 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. The Committee met at the Engineering Laboratory, NIST on May 3 in Gaithersburg, MD at which time we were briefed on activities under the Act.

The Committee notes that NIST has conducted three investigations under the Act—World Trade Center collapse, Station Night Club fire and Joplin tornado. NIST staff have also participated in reconnaissance teams organized by other agencies to investigate damage from such events as the attack on the Pentagon, Hurricane Sandy, and Amarillo, TX and Waldo Canyon, CO wildland-urban interface fires. The Committee believes that NIST has a special role in collecting and translating data into building code provisions, and that despite investigations by NIST under the Act and by other agencies, important opportunities to improve building safety may be being missed. The special expertise possessed by NIST staff and their building safety orientation strongly suggest that their ability to investigate tornado events other than Joplin and wildland-urban interface fires would be highly beneficial. The Committee supports the concept of Reconnaissance Decision Criteria used by NIST to guide decisions on whether to deploy a team. However, even high scores do not always trigger deployment. Examples include South Carolina rain-induced flooding (1000-year flood connected to Hurricane Joaquin, October 2015, score 3.9/5) and earthquakes in Taiwan (3.8/5) and Japan (4.3/5). Constraints on deployment appear to include funding limitations. Possibly this has led to developing deployment criteria so stringent as to rule out all but the most catastrophic events. The Committee urges NIST to review the criteria in the context of apparent climate change; and to consider ways of stretching its resources, perhaps by reducing the length and complexity of reporting in order to conduct more investigations.

Responding to a request by NIST for suggestions to enhance safety of NIST investigators, the Committee points out that fire departments are usually responsible for personnel safety. Coordination with local fire departments before and during any NIST deployment is prudent. In the longer term, safety training of the type undertaken quarterly by FEMA search and rescue teams may be considered. Participation by NIST personnel in the safety training of other agencies may be feasible.

a damaged site, possibly six months to a year after an event, permits exploring what changes in building safety have been implemented and whether damage models are reliable for resilience planning.

The Committee continues to find the NCST program highly valuable and relevant to the security of the nation's building stock.

Yours,

Jeremy Isenberg, PE, PhD, NAE, Hon. Memb. ASCE

June 6, 2016

The Honorable Gary Peters
Ranking Minority Member
Subcommittee on Space, Science,
and Competitiveness
Committee on Commerce, Science,
and Transportation
United States Senate
Washington, DC 20510

Dear Senator Peters:

I am pleased to submit the 2016 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. The Committee met at the Engineering Laboratory, NIST on May 3 in Gaithersburg, MD at which time we were briefed on activities under the Act.

The Committee notes that NIST has conducted three investigations under the Act—World Trade Center collapse, Station Night Club fire and Joplin tornado. NIST staff have also participated in reconnaissance teams organized by other agencies to investigate damage from such events as the attack on the Pentagon, Hurricane Sandy, and Amarillo, TX and Waldo Canyon, CO wildland-urban interface fires. The Committee believes that NIST has a special role in collecting and translating data into building code provisions, and that despite investigations by NIST under the Act and by other agencies, important opportunities to improve building safety may be being missed. The special expertise possessed by NIST staff and their building safety orientation strongly suggest that their ability to investigate tornado events other than Joplin and wildland-urban interface fires would be highly beneficial. The Committee supports the concept of Reconnaissance Decision Criteria used by NIST to guide decisions on whether to deploy a team. However, even high scores do not always trigger deployment. Examples include South Carolina rain-induced flooding (1000-year flood connected to Hurricane Joaquin, October 2015, score 3.9/5) and earthquakes in Taiwan (3.8/5) and Japan (4.3/5). Constraints on deployment appear to include funding limitations. Possibly this has led to developing deployment criteria so stringent as to rule out all but the most catastrophic events. The Committee urges NIST to review the criteria in the context of apparent climate change; and to consider ways of stretching its resources, perhaps by reducing the length and complexity of reporting in order to conduct more investigations.

Responding to a request by NIST for suggestions to enhance safety of NIST investigators, the Committee points out that fire departments are usually responsible for personnel safety. Coordination with local fire departments before and during any NIST deployment is prudent. In the longer term, safety training of the type undertaken quarterly by FEMA search and rescue teams may be considered. Participation by NIST personnel in the safety training of other agencies may be feasible.

The Committee encourages NIST to consider follow up of its investigations. One reason is to assess and update amendments to the deployment criteria, which include 'Consequences to Resilience'. Revisiting a damaged site, possibly six months to a year after an event, permits exploring what changes in building safety have been implemented and whether damage models are reliable for resilience planning.

The Committee continues to find the NCST program highly valuable and relevant to the security of the nation's building stock.

Yours,

Jeremy Isenberg, PE, PhD, NAE, Hon. Memb. ASCE

June 6, 2016

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

Dear Mr. Chairman:

I am pleased to submit the 2016 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. The Committee met at the Engineering Laboratory, NIST on May 3 in Gaithersburg, MD at which time we were briefed on activities under the Act.

The Committee notes that NIST has conducted three investigations under the Act—World Trade Center collapse, Station Night Club fire and Joplin tornado. NIST staff have also participated in reconnaissance teams organized by other agencies to investigate damage from such events as the attack on the Pentagon, Hurricane Sandy, and Amarillo, TX and Waldo Canyon, CO wildland-urban interface fires. The Committee believes that NIST has a special role in collecting and translating data into building code provisions, and that despite investigations by NIST under the Act and by other agencies, important opportunities to improve building safety may be being missed. The special expertise possessed by NIST staff and their building safety orientation strongly suggest that their ability to investigate tornado events other than Joplin and wildland-urban interface fires would be highly beneficial. The Committee supports the concept of Reconnaissance Decision Criteria used by NIST to guide decisions on whether to deploy a team. However, even high scores do not always trigger deployment. Examples include South Carolina rain-induced flooding (1000-year flood connected to Hurricane Joaquin, October 2015, score 3.9/5) and earthquakes in Taiwan (3.8/5) and Japan (4.3/5). Constraints on deployment appear to include funding limitations. Possibly this has led to developing deployment criteria so stringent as to rule out all but the most catastrophic events. The Committee urges NIST to review the criteria in the context of apparent climate change; and to consider ways of stretching its resources, perhaps by reducing the length and complexity of reporting in order to conduct more investigations.

Responding to a request by NIST for suggestions to enhance safety of NIST investigators, the Committee points out that fire departments are usually responsible for personnel safety. Coordination with local fire departments before and during any NIST deployment is prudent. In the longer term, safety training of the type undertaken quarterly by FEMA search and rescue teams may be considered. Participation by NIST personnel in the safety training of other agencies may be feasible.

a damaged site, possibly six months to a year after an event, permits exploring what changes in building safety have been implemented and whether damage models are reliable for resilience planning.

The Committee continues to find the NCST program highly valuable and relevant to the security of the nation's building stock.

Yours,

Jeremy Isenberg, PE, PhD, NAE, Hon. Memb. ASCE

June 6, 2016

The Honorable John Thune Chairman Committee on Commerce, Science, and Transportation United States Senate Washington, DC 20510

Dear Mr. Chairman:

I am pleased to submit the 2016 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. The Committee met at the Engineering Laboratory, NIST on May 3 in Gaithersburg, MD at which time we were briefed on activities under the Act.

The Committee notes that NIST has conducted three investigations under the Act—World Trade Center collapse, Station Night Club fire and Joplin tornado. NIST staff have also participated in reconnaissance teams organized by other agencies to investigate damage from such events as the attack on the Pentagon, Hurricane Sandy, and Amarillo, TX and Waldo Canyon, CO wildland-urban interface fires. The Committee believes that NIST has a special role in collecting and translating data into building code provisions, and that despite investigations by NIST under the Act and by other agencies, important opportunities to improve building safety may be being missed. The special expertise possessed by NIST staff and their building safety orientation strongly suggest that their ability to investigate tornado events other than Joplin and wildland-urban interface fires would be highly beneficial. The Committee supports the concept of Reconnaissance Decision Criteria used by NIST to guide decisions on whether to deploy a team. However, even high scores do not always trigger deployment. Examples include South Carolina rain-induced flooding (1000-year flood connected to Hurricane Joaquin, October 2015, score 3.9/5) and earthquakes in Taiwan (3.8/5) and Japan (4.3/5). Constraints on deployment appear to include funding limitations. Possibly this has led to developing deployment criteria so stringent as to rule out all but the most catastrophic events. The Committee urges NIST to review the criteria in the context of apparent climate change; and to consider ways of stretching its resources, perhaps by reducing the length and complexity of reporting in order to conduct more investigations.

Responding to a request by NIST for suggestions to enhance safety of NIST investigators, the Committee points out that fire departments are usually responsible for personnel safety. Coordination with local fire departments before and during any NIST deployment is prudent. In the longer term, safety training of the type undertaken quarterly by FEMA search and rescue teams may be considered. Participation by NIST personnel in the safety training of other agencies may be feasible.

a damaged site, possibly six months to a year after an event, permits exploring what changes in building safety have been implemented and whether damage models are reliable for resilience planning.

The Committee continues to find the NCST program highly valuable and relevant to the security of the nation's building stock.

Yours,

Jeremy Isenberg, PE, PhD, NAE, Hon. Memb. ASCE