

**National Institute of Standards and Technology
National Construction Safety Team Act
Annual Report**

Fiscal Year (FY) 2009

Summary

This annual report to Congress for FY 2009 is required by the National Construction Safety Team (NCST) Act. NIST did not undertake any new NCST investigations, nor did it continue any NCST investigations in FY 2009. The National Institute of Standards and Technology (NIST) did conduct a study of the Dallas Cowboys Indoor Practice Facility that collapsed on May 2, 2009 during a thunderstorm. The collapse injured 12 people, one seriously. NIST issued its draft final report on the collapse, including one recommendation, on October 6, 2009. NIST is also continuing work on its study of a fire that occurred on June 18, 2007, in the Sofa Super Store in Charleston, South Carolina. Both studies are being conducted under other NIST legal authorities.

Introduction

In October 2002, the President signed into law the National Construction Safety Team Act (P.L. 107-231), which authorized the Director of the NIST to establish National Construction Safety Teams for deployment after events causing the failure of a building or buildings that result in substantial loss of life or that pose significant potential for substantial loss of life.

The purpose of these investigations is to improve the safety and structural integrity of buildings in the United States. A team 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 subparagraphs (A) and (B); and,
- (D) recommend any research and other appropriate actions needed to improve the structural safety of buildings, and improve the evacuation and emergency response procedures, based on the findings and recommendations of the investigation.

Under Section 10 of the NCST Act, NIST is to provide by February 15 of each year a report that includes:

- (1) a summary of the investigations conducted by Teams during the prior fiscal year;
- (2) a summary of recommendations made by Teams in reports issued under Section 8 during the prior fiscal year and a description of the extent to which those recommendations have been implemented; and,

- (3) a description of the actions taken to improve building safety and structural integrity by the National Institute of Standards and Technology during the prior fiscal year in response to reports issued under Section 8.

This report summarizes NIST's activities under the NCST Act for FY 2009.

1. Investigations Conducted by NIST During FY 2009

a. Investigations Conducted by Teams During FY 2009

NIST did not undertake any new investigations under the National Construction Safety Team Act during fiscal year 2009, nor did it continue any NCST investigations during fiscal year 2009.

b. Investigations Conducted by NIST Under Other Legal Authorities in FY 2009

Under its other authorities, NIST conducted a study of a fabric-covered, steel frame practice facility owned by the National Football League's Dallas Cowboys that collapsed during a thunderstorm on May 2, 2009 injuring twelve people, one seriously. Information on the study, including the final report, may be found on the NIST website at <http://www.bfrl.nist.gov/investigations/investigations.htm>.

NIST continues to reconstruct a fire that occurred on June 18, 2007, in the Sofa Super Store in Charleston, South Carolina. Nine fire fighters from the City of Charleston Fire Department lost their lives in the fire. A draft of the technical study report is being completed, which describes the path and rapid growth of the fire, why the extent of the fire was not discovered early in the fire service response, and the impact of ventilation on the fire behavior. The report also analyses and compares building and fire codes and practices. The final report will recommend appropriate actions needed to improve the structural safety of buildings based upon the findings of the technical study.

2. Summary of Recommendations Made by Teams in Reports Issued Under Section 8 of the NCST Act During FY 2009

During FY2009, NIST did not issue a report under Section 8 of the NCST Act.

3. Actions Taken to Improve Building Safety and Structural Integrity During FY 2009

a. Actions Taken to Improve Building Safety and Structural Integrity During FY 2009 in Response to Reports Issued Under Section 8 of the NCST Act

The International Code Council's (ICC) code development hearings for the 2012 edition of the International Codes were held October 24-November 11, 2009. The ICC's technical committees approved additional significant code change proposals based on the NIST/World Trade Center (WTC) Investigation recommendations at the recently completed code development hearings in Baltimore, MD (See attachment). Any appeals to these proposals via public comments will be considered at the final action hearings to be held in 2010 where ICC's government members will vote on the appeals. Proposals that are not appealed will be automatically included in the 2012 edition of the International Building Code (IBC). A few of the code change proposals were not approved by the technical committees. Some of these will be submitted for re-consideration during the public comment process. The technical committees also disapproved two code change proposals that would have repealed or diluted the increased fireproofing bond strength requirements that were approved for and are included in the 2009 edition of the IBC. A chart tracking the progress toward implementation of the NIST WTC Investigation Recommendations may be found at <http://wtc.nist.gov>.

b. Actions Taken to Improve Building Safety and Structural Integrity During FY 2009 in Response to Studies Conducted Under Other NIST Authorities

NIST issued its final report on the collapse of the Dallas Cowboys Practice Facility in January 2010. NIST has briefed the American Society of Civil Engineers Committee on Tensioned Fabric Structures on the findings and recommendation of the study. NIST has also offered to brief the International Code Council's (ICC) Code Technology Committee on the findings and recommendation of the study. This briefing will be scheduled at an upcoming meeting of the committee.

4. Other NIST Activities Related to the NCST Act

In FY 2009 NIST received 29 requests under the Freedom of Information Act (FOIA) for information that NIST collected and created during the NIST WTC Investigation. NIST also continued to process eight FOIA requests received prior to FY 2009 for similar information. In total, from FY 2006 through FY 2009, NIST received 99 FOIA requests for information related to the NIST WTC Investigation. Six of these FOIA requests have resulted in litigation.

Documents responsive to the FOIA requests include the tens of thousands of photographs and videos collected by NIST during the WTC Investigation, interviews NIST conducted with first responders and building occupants, and thousands of documents provided to NIST related to the construction and maintenance of the WTC buildings, as well as the models created by NIST during the WTC Investigation. The processing of FOIA requests and participation in the litigation have proven to be extremely labor intensive, requiring significant commitment of NIST and other federal resources, including NIST technical and administrative staff and NIST, Department of Commerce, and Department of Justice legal staff.

In responding to the WTC Investigation-related FOIA requests, where appropriate NIST has withheld certain types of information using the statutory FOIA exemptions found in paragraphs 7(c) and 7(d) of the NCST Act. Section 7(c) prohibits NIST from disclosing voluntarily provided safety-related information if that information is not directly related to the building failure being investigated and the NIST Director finds that the disclosure of the information would inhibit the voluntary provision of that type of information. Section 7(d) prohibits NIST from publicly releasing any information it receives in the course of an investigation under the NCST Act if the NIST Director finds that the disclosure of that information might jeopardize public safety.

Attachment 1

Results of the International Code Council 2009/2010 Code Development Hearings October-November 2009

The following code change proposals were accepted by the respective code committees during the International Code Council's (ICC) Code Development Hearings held October 24 through November 11, 2009 in Baltimore, MD.

- G49 09/10. Fire Service Access Elevator. This proposal requires two elevators with a minimum 3500 lb capacity serving every floor of the building to serve as fire access elevators. An exception would allow a single elevator of 4000 lb capacity instead of two elevators of 3500 lb capacity.
- E1 09/10 Fire Safety and Evacuation Plans. This proposal requires fire safety and evacuation plans for all occupancies and buildings where required by the International Fire Code. This provision will provide consistent requirements for jurisdictions regarding fire safety and evacuation plans.
- F25 09/10 Fire Command Center. This proposal requires the inclusion of a Building Information Card to be located at the Fire Command Center. The Building Information Card will put critical response information for a building in a user-friendly format and medium.
- G159 09/10. Phase I Emergency Recall Operation. This proposal requires an independent key-operated "Fire Recall" switch and the designated level for each fire service elevator or group of fire service elevators. It also requires that an activation of any building fire alarm also initiate Phase I emergency recall of all fire service elevators. All other elevators will remain in normal service unless a Phase I emergency recall is manually initiated.
- G162 09/10. Water Protection. This proposal requires an approved method of preventing water from entering the elevator hoistway due to operation of the automatic sprinkler system outside the fire service access elevator lobby. The language is similar to that in G174 09/10 for occupant egress elevators.
- G176 09/10. Lobby Doorways. This proposal requires each doorway to a fire service access elevator lobby or an occupant evacuation elevator lobby, other than the hoistway door, to have a ¾ hour fire door assembly.
- G164 09/10. Access. This proposal requires that the exit enclosure containing the standpipe shall have access to the floor without passing through the fire service access lobby. This will prevent smoke from entering the fire service access elevator lobby possibly causing a recall of the elevators.

- G167 09/10. Fire Service Access Elevator Symbol. This proposal requires a standardized pictorial symbol designating which elevators are fire service access elevators and specifies size and location of the symbols.
- G171 09/10. Phase I Emergency Recall Operation. This proposal requires an independent, key-operated three-position “Fire Recall” switch at the designated level for each occupant elevator.
- G172 09/10. Occupant Elevator Activation. This proposal provides requirements for the activation of occupant evacuation elevators in the event of activation of an automatic sprinkler system, activation of smoke detectors, or approved manual controls.
- G174 09/10. Water Protection. This proposal requires an approved method of preventing water from entering the elevator hoistway due to operation of the automatic sprinkler system outside the occupant evacuation elevator lobby. The language is similar to that in G162 09/10 for fire service elevators.
- F27 09/10 Emergency Responder Radio Coverage. This proposal completes the necessary modifications to the code to ensure that emergency responder radios have coverage throughout new and existing buildings.
- G3 09/10 Secondary Members. This proposal clarifies the definition of secondary structural members by including roof construction that does not have direct connections to the building columns.
- E22 09/10 Minimum Egress Width. This proposal clarifies the multiple requirements related to egress width. There are no technical changes associated with this proposal.
- G158 09/10. Automatic Sprinkler System. This proposal clarifies the prohibition against locating sprinklers in elevator machine rooms, elevator machine spaces, and elevator hoistways of fire service elevators. The proposal also clarifies the prohibition against the installation of shunt trip devices in fire service elevators.
- G163 09/10. Lobby Enclosure. This proposal clarifies the requirement for enclosed fire service elevator access lobbies to state that they are not required at the level of exit discharge (defined term) rather than at street level.
- G166 09/10. Protection of Wiring or Cables. This proposal clarifies that wiring and cables that provide control signals to fire service access elevators are not required to be protected provided that the wiring or cables do not serve Phase II emergency in-car operation.
- E21 09/10 Means of Egress. This proposal reinstates the width requirements for stairs and other egress components in buildings with sprinklers and adds a requirement for an emergency voice/alarm communication system in these buildings.

The following proposals were not approved by the respective committees but will be reviewed for possible submission as a public comment to be considered at the final action hearing.

- G39 09/10. Compartmentation. The chair of the ICC Ad-Hoc Committee-Terrorism Resistant Buildings (AHC-TRB) will review this proposal with the AHC-TRB. It is likely this proposal will not be resubmitted.
- G40 09/10. Structural Integrity of Exit Stairway and Elevator Hoistway Enclosures. The Gypsum industry would like to see impact data for the configurations tested by NIST. The AHC-TRB Chair is working to obtain independent input on loads for gypsum wall assemblies to get support from the industry.
- G44 09/10. Video Surveillance System. This proposal was narrowly defeated (6-5) by the committee. The AHC-TRB Chair will revise the proposal based on the comments received and resubmit for consideration at the Final Action Hearings.
- G84 09/10. Vulnerability Assessment. The AHC-TRB Chair will revisit the proposal with the AHC-TRB. It is not likely that this proposal will be resubmitted for consideration at the Final Action Hearings.

The technical committees also disapproved two code change proposals that would have repealed or diluted the increased fireproofing bond strength requirements that were approved for and are included in the 2009 edition of the IBC. The increased bond strength requirements that were included in the 2009 edition of the IBC will remain in the 2012 edition of the IBC.