

BULLETIN NO. 9

Stronger Building Codes



A new report in draft form has been issued by the National Institute of Standards and Technology (NIST) on the subject of the 2011 Joplin, Missouri tornado. Its major conclusion: buildings in tornado-prone areas should be constructed to withstand strong winds, similar to requirements in coastal areas for hurricane-resistant construction.

Four major categories were studied: tornado characteristics, building performance, human behavior, and emergency communications.

The report's scope includes:

- examination of how wind pressures and windborne debris damaged and destroyed thousands of buildings;
- emergency communications before and during the tornado and the public response;
- the influence of tornado hazards, public response and buildings/shelters performance on survival and injury; and,
- current codes, standards and practices for buildings and emergency communications that warrant revision.

The 16 recommendations in the report include:

- new standards for community storm shelters,
- better public warning systems, and,
- improved detection of tornado wind speeds at ground level.

The report recommends that storm shelters should be installed in schools, multi-family residential and commercial buildings, and assembly buildings such as theaters and churches.

"Multiple factors contributed to a delayed or incomplete response by people in the tornado's path, including lack of awareness of the tornado's approach, confusion about or distrust of the emergency messages prior to the tornado's arrival, and an inability to perceive risk due to the conflicting information."

An earlier report by the American Society of Civil Engineers concluded that most of the Joplin damage was caused by winds of 135 mph or less (EF2 tornado), and none by the EF5 winds (in excess of 200 mph. 84% of the Joplin fatalities were inside buildings and died from blunt force trauma from falling walls and flying debris.

Following publication of the final report, NIST will work with code development organizations to advocate improvements to model building codes for tornado safety.

The final report will not have the force of law, but rather be an important voice for improved safety. An abstract and copy of the full draft report may be downloaded at http://www.nist.gov/manuscript-publication-search.cfm?pub_id=914787.

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The Iowa School Safety Coalition was formed in December 2012. Participating organizations include Iowa Homeland Security & Emergency Management, Iowa State Fire Marshal, Iowa Division of Intelligence and Fusion Center, Iowa Department of Education, Iowa Emergency Management Association, Des Moines Police Department, Iowa State Education Association, Iowa Association of School Boards, School Administrators of Iowa, American Institute of Architects – Iowa Chapter, EMC Insurance Companies.

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