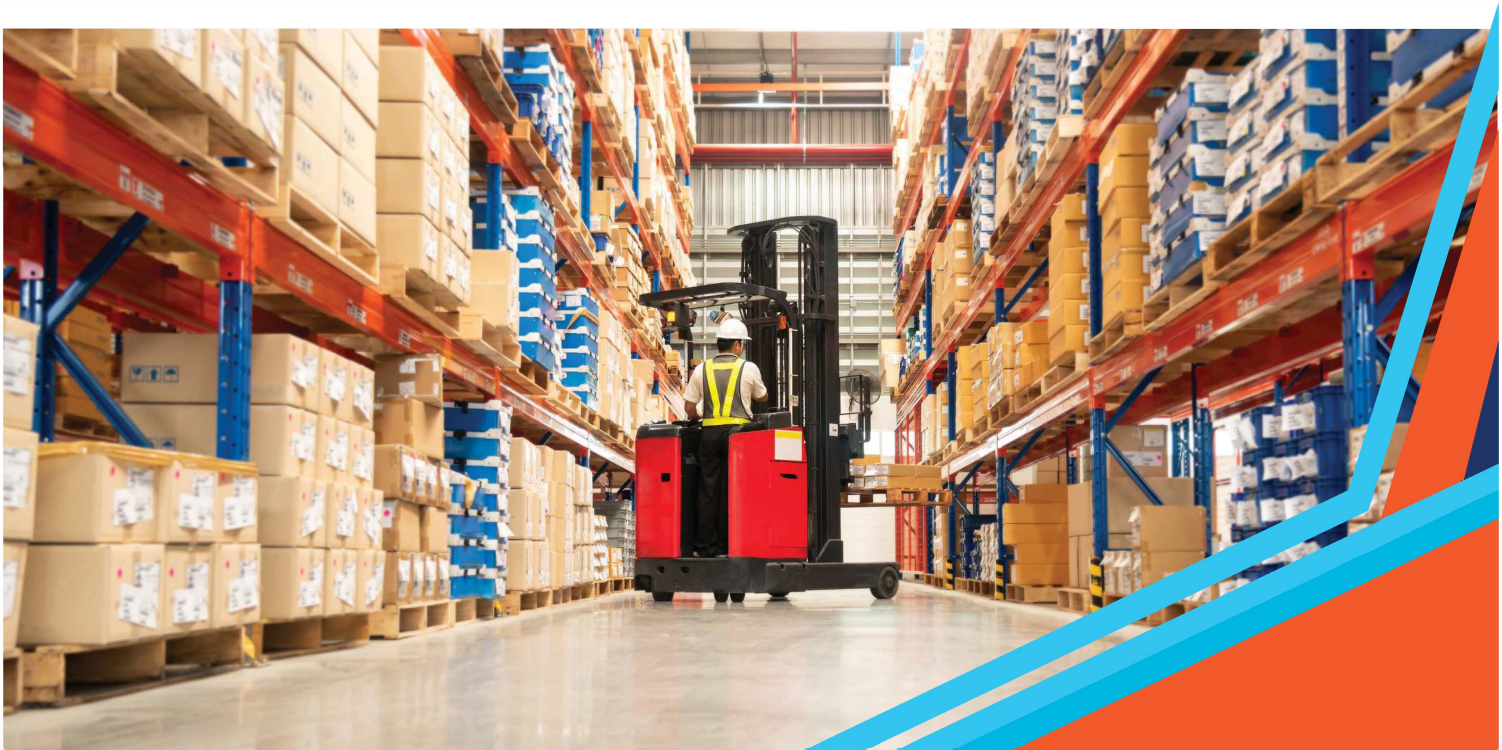
FINAL REPORT OF THE WAREHOUSE SAFETY TASK FORCE

TO:
JB PRITZKER, GOVERNOR
MEMBERS OF THE ILLINOIS GENERAL ASSEMBLY

DECEMBER 2024



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Task Force Background and Acknowledgments

On December 10, 2021, an EF-3 tornado touched down in Edwardsville, Illinois,[1] near Amazon's DLI4 warehouse located there, and then traveled through the warehouse, injuring several workers and killing the following six individuals who were working inside the facility, including:

Clayton Cope, age 29

Kevin Dickey, age 62

Etheria Hebb, age 34

Austin McEwen, age 26

Deandre Morrow, age 28

Larry Virden, age 46

In response to this tragedy and in recognition of the increasing frequency of tornados and extreme weather events in Illinois,[2] the Illinois General Assembly passed the Warehouse Safety Standards Task Force Act[3] to create this Task Force and charge the Task Force with studying warehouse safety standards, providing quarterly updates of its findings, discussions, and decisions to the Governor and General Assembly, and producing this final report of recommendations by January 1, 2025. [20 ILCS 4124/]

As required by statue, members included:

2 members of the House of Representatives, appointed by the Speaker of the House of Representatives;	Rep. Kevin Olickal Rep. Katie Stuart
2 members of the House of Representatives, appointed by the Minority Leader of the House of Representatives;	Rep. Jeff Keicher Rep. Dan Ugaste
2 members of the Senate, appointed by the President of the Senate;	Sen. Chris Belt Sen. Rachel Ventura
2 members of the Senate, appointed by the Minority Leader of the Senate;	Sen. Erica Harriss Sen. Seth Lewis
one representative of an entity representing retail merchants, appointed by the Governor;	Alec Laird

[1] See Appendix A for a map of the tornado path.
[2] *See, e.g.,* Chicago Tribune, "100 Tornadoes in Illinois so Far is Double the Annual Average" https://www.chicagotribune.com/2024/07/19/tornadoes-illinois-climate-change/;
Duane Friend, University of Illinois Extension School blog, "Is Illinois in part of a new tornado alley?" https://extension.illinois.edu/blogs/all-about-weather/2023-09-20-illinois-part-new-tornado-alley
[3] Public Act 102-1115 https://ilga.gov/legislation/publicacts/102/102-1115.htm

one representative of an entity representing manufacturers, appointed by the Governor;	Scott Kunkel
one representative of an entity representing mayors, appointed by the Governor;	Mayor Art Risavy
one representative of the State Chamber of Commerce, appointed by the Governor;	Aaron Harris
one representative of the American Federation of Labor and Congress of Industrial Organizations, appointed by the Governor;	Anna Brown
one representative of a labor union representing warehouse workers, appointed by the Governor;	vacant
one representative of a worker advocacy organization representing warehouse workers, appointed by the Governor; and	Marcos Ceniceros
The Director of Labor or his or her designee, who shall serve as the ex officio chair.	Jane Flanagan

Task Force Meetings

The Warehouse Safety Standards Task Force met between July 2023 and December 2024, in various locations around Illinois, to learn from experts and study warehouse safety standards. The Task Force prepared quarterly reports of its activities[4] for the Governor and Illinois General Assembly, culminating in this final report.

The Task Force met on the following dates:

Date	**Location**	**Topic**
July 18, 2023	Southern Illinois University Edwardsville, Edwardsville, IL	December 2021 Tornado Response
November 2, 2023	Joliet Junior College, Joliet, IL	Warehouse Internal Operations and Procedures
January 30, 2024	IDOL Office, Springfield, IL	Warehouse Structural Safety
April 8, 2024	IDOL Office, Springfield, IL	Occupational Safety and Emergency Response
July 10, 2024	IDOL Office, Chicago, IL	Building Code Enforcement
September 25, 2024	Southern Illinois University Edwardsville, Edwardsville, IL	Discussion of Final Report Format and summary of testimony
November 12, 2024	IDOL Office, Springfield, IL	Consideration of Recommendations
December 3, 2024	IDOL Offices, Springfield and Chicago, IL	Consideration of Recommendations
December 18, 2024	IDOL Offices, Springfield and Chicago IL	Review of Draft Final Report

[4] https://labor.illinois.gov/about/warehouse-safety-task-force.html

Acknowledgements

The work of this Task Force has been made possible by the numerous experts from the fields of emergency response, local government, public safety, building codes, occupational safety, and warehousing, who so generously shared their time and expertise with us.

The Task Force also extends its most sincere appreciation and gratitude to the family of Clayton Cope, who lost their son and brother in the Edwardsville tornado. The Copes tirelessly attended every meeting of this Task Force and kept the Task Force grounded in the importance and urgency of making warehouses safer places to work in the event of a natural disaster.

Summary of Expert Testimony

Background

At the first meeting of the Warehouse Safety Standards Task Force, the members agreed that the format of the Task Force's meetings would include a designated topic for each meeting, with guest experts invited to present testimony on each topic. The Task Force agreed to focus its attention on three areas:

1. Structural safety and building codes;
2. Warehouses' internal policies, protocols for emergencies, and managing staff of multiple employers on-site; and
3. Challenges faced by local emergency response agencies, and best practices for emergency response.

The Task Force received testimony from the following guest experts:

- James Whiteford, Fire Chief, City of Edwardsville (July 2023 meeting)
- Tommy Carden, Warehouse Workers for Justice (November 2023 meeting)
- Dr. Beth Gutelius, University of Illinois at Chicago (November 2023 meeting)
- Dr. Marc Levitan, National Windstorm Impact Reduction Program (January 2024 meeting)
- Greg Bryant, Masonry Structural Coalition (January 2024 meeting)
- Brian Bothast, United States Department of Labor Occupational Safety and Health Administration (April 2024 meeting)
- Bernie Arends, Office of the Illinois State Fire Marshal (July 2024 meeting)
- Tim Schmitz, Government Relations, International Code Council (July 2024 meeting)
- William Bracken, International Code Council (December 2024 meeting)
- Jeff Stehman, City of Collinsville, IL (July 2024 meeting)

Testimony on Emergency Response

Sources: James Whiteford, Fire Chief, City of Edwardsville; Bernie Arends, Office of the Illinois State Fire Marshall.

Background: In Illinois, front line emergency responders to natural disasters such as tornados are generally local fire and EMS departments. Across Illinois, units of local government have very different resources and capacity to deal with large-scale natural disasters such as the December 2021 tornado in Edwardsville.

Expert testimony:

- Chief Whiteford presented an overview of the events of the December 2021 tornado that killed six workers and injured several others in an Amazon warehouse in Edwardsville,

Illinois. As the leader of the emergency response effort that day, Chief Whiteford emphasized the physical challenges the emergency responders faced, such as a second storm wave that passed through Edwardsville during the rescue efforts; and downed electrical wires that presented an electrocution hazard.

- The Chief also emphasized the large scale footprint of this complex and many warehouse complexes. Emergency responders were fortunate in that they had some sense of the layout of this particular facility when they went on site, but Chief Whiteford also emphasized the institutional challenges the emergency response agencies faced, such as the difficulties in coordinating personnel and equipment from a variety of agencies in the geographic region. He recommended that the state should financially invest in the Illinois Mutual Aid Box Alarm System (MABAS), a statewide mutual aid response system for fire, EMS, and specialized incident operational teams.[5]

- Mr. Arends expressed that a major issue in Illinois is that there are many different fire codes across municipalities and other local governments, and many municipalities that have no fire code at all, instead of one unified statewide fire code, which makes enforcement difficult. By comparison, some other states have a statewide fire code, typically reflecting the 2024 International Fire Code[6], and a statewide agency charged with conducting inspections and enforcing those requirements. In Illinois, local government bodies are responsible for inspections and enforcement. He noted the prevalence of large warehouses constructed with little input from the local fire authority regarding safety and suggested the oversight authority might be better administered at the state level since the local governments do not have the necessary resources.

Testimony on Warehousing and Warehouse Safety Planning

Sources: Brian Bothast, US Department of Labor Occupational Safety and Health Administration (OSHA); Tommy Carden, Warehouse Workers for Justice; Beth Gutelius, UIC College of Urban Planning and Public Affairs

Background: Warehousing in the United States has soared in the past decade, from an industry with a little over 700,000 workers to just under 2 million. As an industry, warehousing has high labor demand as technology adoption has been uneven and warehouse operators commonly rely on temporary staffing agencies to cope with labor demand. For this reason, it is common to have a mix of employees of temporary staffing agencies, direct employees of the warehouse owner or operator, and driver delivery services in and out of warehouses.

Warehouses are “large footprint” buildings, which may be owned by one entity and operated by another; and have occupants who might be employees of the warehouse owner or operator,

[5] See Appendix B for information about MABAS.
[6] https://codes.iccsafe.org/content/IFC2024P1

outside contractors or temporary labor staffing agencies, or who might just be in the warehouse incidentally. Because these occupants may have different employers and/or supervisors, workers may not receive the same safety training or know the facility's emergency response protocols. Another challenge is that warehouse occupants have to travel a long distance to get to a designated refuge area. Some employers choose to, but are not required to, conduct emergency response drills.

- Mr. Bothast stated that there was no particular OSHA standard for natural disasters or severe weather, but there is an emergency action plan standard for specific types of employers that are required to have such plans. In the absence of a specific standard, an employer's obligation falls under what is called the "general duty clause"[7] of the Occupational Safety and Health Act, which states that employers have a general duty to provide a place of employment free of recognizable hazards. The general duty clause can be cited by OSHA when there is no specific applicable standard for any given hazard.

- In its investigation of the Edwardsville tornado, OSHA did not find that there has been a violation of the Occupational Safety and Health Act but it did issue a Hazard Alert Letter[8] to Amazon and three other contracted staffing companies (AB&C D.A.D. Inc. of Belleville, IL; Boxify Logistics of St. Louis, MO; and XSeed Delivery of Bolingbrook, IL) which had employed the deceased workers. Specifically, OSHA recommended that Amazon review its severe weather emergency procedures and recommended three areas for improvement, as summarized in an April 26, 2022 OSHA news release:

  > *"OSHA's Hazard Alert Letter recommends three areas for improvement at the Edwardsville warehouse:*
  >
  > - *Ensure that all employees are provided training and participate in emergency weather drills.*
  > - *Include site-specific information in severe weather emergency plans.*
  > - *All audible warning devices and locations of the device should be clearly identified in the severe weather emergency plan and readily accessible."*[9]

Testimony on Structural Safety, Building Codes, and Building Code Enforcement

Sources: Tim Schmitz, International Code Council; Jeff Stehman, City of Collinsville; Dr. Marc Levitan, National Windstorm Impact Reduction Program

[7] https://www.osha.gov/laws-regs/oshact/section_5
[8] https://www.osha.gov/news/newsreleases/region5/04262022
[9] OSHA22599Amazon HAL - 5a1 Letter 4.26.22.pdf

Background: Building code standards and enforcement are largely decentralized in Illinois, with local governments having the authority to adopt building codes, inspect buildings, and hold building owners responsible for compliance.

In 2023, the Illinois General Assembly enacted the State Building and Residential Codes Act[10]. Prior to this Act, units of government that adopted a building code had broad discretion to adopt any code they wanted; but units of government that did not adopt any building code, by default under State law, had to use one of the two most recent versions of the International Building Code. After the State Building and Residential Codes Act, PA 103-0510, takes effect on January 1, 2025, local units of government that adopt their own codes also must choose from a recently-published version of the International Building Code. While this change should lead to greater uniformity in building code adoption in Illinois, the decentralized nature of building code enforcement results in unevenly-applied standards, depending on the local government authority's resources and ability to hire sufficient inspection staff to meet the community's need.

- Dr. Levitan discussed common misconceptions about tornados, such as that they are too rare and too unpredictable to prepare for, or that it is too expensive to build structures to withstand high speeds. He argued that, instead of focusing only on the most severe, highest-profile tornados, an approach that includes designing buildings to withstand modest tornados, which are more common, would significantly address most dangerous situations.[11]

- The International Code Council identifies four "risk categories" for buildings, dependent on building use and occupancy.[12] Since 2015, the International Building Code has required tornado shelters only in schools and emergency response facilities; but states do have the ability to establish requirements above and beyond the IBC standard. In fact, Illinois statutorily enacted requirements that newly constructed schools have tornado shelters even before the 2015 IBC requirement was enacted.

- Dr. Levitan posited that there are two approaches to ensuring tornado safety in buildings: build a tornado shelter inside the structure; or improve the wind resistance of the whole building. Dr. Levitan said the construction of warehouses, with tall heavy walls that rely on a roof for stability, represent a more vulnerable type of construction than traditional steel-frame buildings, and that the state could enact requirements accordingly.

- Mr. Bryant delivered a presentation on best practices for construction. He noted that Illinois experiences a high number of tornados annually. He shared the success story of the Parsons Manufacturing Plant in Roanoke, IL that was hit by a tornado in 2004. The external building was destroyed, but all 140 occupants were able to reach a refuge area in

[10] https://ilga.gov/legislation/publicacts/fulltext.asp?Name=103-0510
[11] See Appendix C for a map of tornados in Illinois.
[12] See Appendix D for the ICC Risk Category Table.

3-5 minutes and there were no fatalities.

- Mr. Bryant discussed that concrete masonry units, a type of storm shelter, can be retrofitted into existing buildings. He discussed 3 types of shelters, in increasing order of protectiveness:

    - Best Available Refuge Areas – designed according to regular building codes and don't necessarily meet the below storm-specific building codes.[13]

    - Storm Shelters – must meet special ICC 500 building code;[14] and

    - Safe Rooms – FEMA funded and must meet FEMA P-361 requirements.[15] All safe rooms exceed the standards for storm shelters, but not all storm shelters qualify as safe rooms.

- Mr. Schmitz of the International Code Council spoke to the importance of code consistency resulting in improved building, efficiency, and safety, and new versions of the codes are published every 3 years to address technological advances. He stated that using the most up-to-date version of the code books means that communities that experience natural disasters can rebuild more quickly and easily. Mr. Schmitz said that the codes do include information on severe weather, but local communities may adopt the International Building Code but include "local amendments" that leave out provisions such as those pertaining to wind resistance. For example, a jurisdiction in Illinois might not need to adopt the ICC section on hurricanes, but a jurisdiction in Florida would.

- According to Mr. Stehman, code officials are responsible for reviewing and permitting construction, ensuring compliance with applicable codes, and managing code enforcement, which is either complaint-driven or through proactive community-wide inspections. He noted that communities cannot amend out structural standards but can amend out minor sections. PA 103-0510 defines structural design as "the capacity of a [building] to withstand forces [such as] snow loads, wind loads, soil loads and hydrostatic pressure, rain loads, and earthquake loads, and to resist flood damage." Similarly, the State could require that certain section be added or adhered to on the municipal level.

- Mr. Stehman argued that jurisdictions should invest in their code enforcement by ensuring the code officials are properly trained and maintain certification; and that the code enforcement departments are properly funded and staffed. He stated that, while some municipalities adopt ICC certification as a requirement for their own code inspector

[13] https://community.fema.gov/ProtectiveActions/s/article/Tornado-Shelter-Building-Go-to-Best-Available-Refuge-Area
[14] https://codes.iccsafe.org/content/ICC5002020P1/icc-nssa-standard-for-the-design-and-construction-of-storm-shelters
[15] https://www.fema.gov/emergency-managers/risk-management/building-science/safe-rooms/funding

employees, there is no statutorily required statewide professional licensure for code enforcement officials, and argued that such a requirement would benefit public safety. He also urged units of government to adopt recent versions of the ICC codes due to changes in industry standards and technology, and said that failure to keep current may result in lack of access to federal FEMA funds and higher insurance rates for the community. He urged the State to adequately fund code enforcement activities. He said that patchwork of code enforcement leaves some communities completely uninspected.

Task Force Recommendations

In November and December 2024, the Task Force met to review all recommendations submitted by Task Force members, experts, and members of the public. Although not all recommendations were adopted unanimously, the majority of the Task Force quorum voted to adopt the following recommendations.

Emergency Response

Invest in the Mutual Aid Box Alarm System with a continuing ongoing appropriation from the General Assembly and determine a formula for the distribution of such funds that takes into account the risk of tornado, the total square footage of warehouse space, and the human population of the warehouse areas during all working hours.

Safety Planning and Procedures

Require site specific emergency plans, based on Federal Occupational Safety and Health guidelines on Tornado Preparation for Employers, to be created for each unique warehouse location and require such plans to be shared with local emergency response teams. Such plans must include the floor plan of the warehouse, and information about the materials that will be stored in the warehouse and must be updated when substantial changes are made. Additionally, require regular safety drills and training, in a language or languages spoken by the employees.

Building Code Enforcement

Require state-wide certification requirements for building code inspectors and use the community college system to help support the preparation of more code inspectors.

Building Code Requirements

Amend Chapter 4, Section 423 of the International Building Code to require tornado shelters for warehouses, based on occupancy and size.[16]

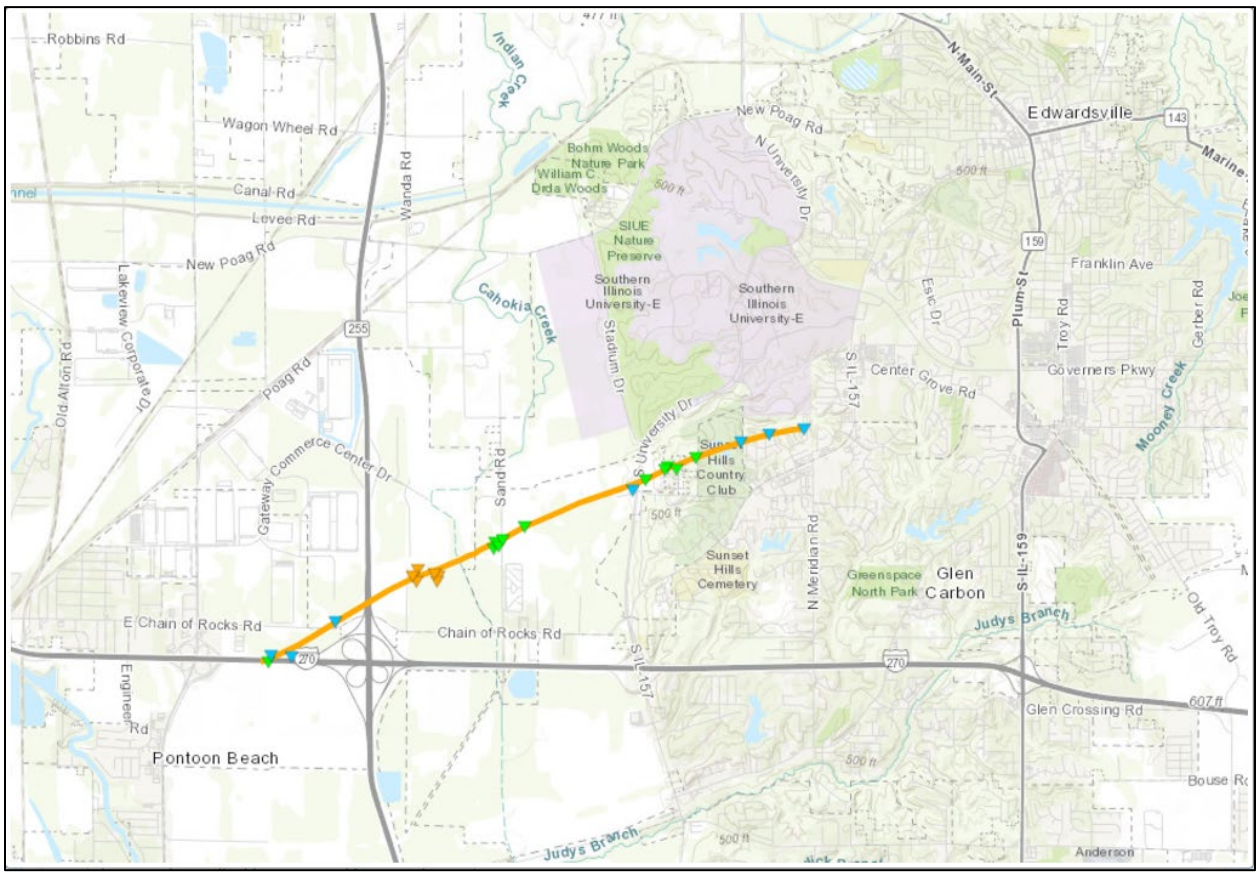
[16] See Appendix E for the text of Chapter 4, Section 423.

Appendices

Appendix A.

December 10th, 2021 Tornado Outbreak Map

Source: National Weather Service St. Louis, MO Office



Appendix B.

https://www.mabas-il.org/about/

WHAT IS MABAS

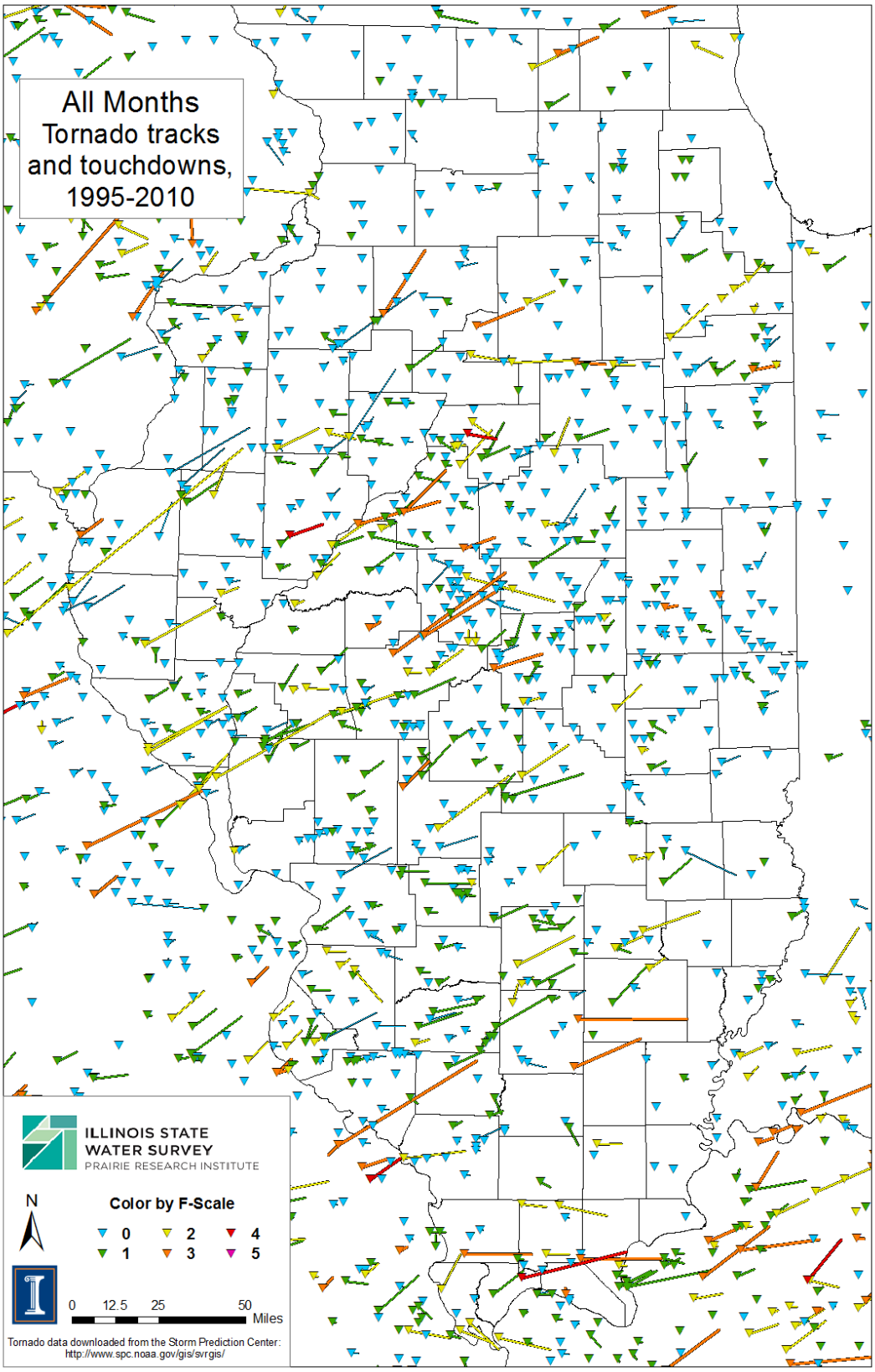
MABAS (Mutual Aid Box Alarm System) in partnership with IEMA (Illinois Emergency Management Agency) has established a statewide, non-discriminatory mutual aid response system for fire, EMS, and specialized incident operational teams. Sharing the effort are representatives from the Office of the State Fire Marshal, Department of Public Health – EMS Division, and Illinois Fire Chiefs Association. The system defines a resource response plan to any location within the state when the Governor orders a Declaration of Disaster. A Memorandum of Understanding was signed on January 16, 2001, and updated in 2006, a first in Illinois fire service history.

MABAS has also become a Partner Agency with Cook County's Department of Homeland Emergency Management & Regional Security. Together, MABAS and CCDEMRS designs and establishes capability-based systems to serve the high-density, urban area.

Historically, IEMA has had the capability through state resources and assets to support disaster-stricken communities in many areas except Fire, EMS, Technical Rescue, Urban Search and Rescue, Water Rescue & Recovery, and Hazardous Materials Operations Teams. Illinois resources like the State Police, Department of Transportation, and numerous other assets are able to mobilize under the direction of the Governor in response to a disaster. Illinois does not own fire departments, EMS ambulances, or specialized operations teams – substantial "system" resources within the control of the state are lacking. The plan provides a system of "one-stop shopping" for IEMA officials to activate and mobilize local municipal fire, EMS, and special operations assets through MABAS.

Statewide mutual aid systems have been in existence since the late 1960s. Pre-September 11th, MABAS was heavily rooted throughout northern Illinois. Since September 11th, MABAS has rapidly grown throughout Illinois, Wisconsin, Indiana, Michigan, and parts of Iowa and Missouri. Day-to-day MABAS extra alarms are designed to provide the fast response of emergency resources to communities during ongoing emergencies.

Appendix C.


All Months
Tornado tracks
and touchdowns,
1995-2010
ILLINOIS STATE
WATER SURVEY
PRAIRIE RESEARCH INSTITUTE
N
Color by F-Scale
0
1
2
3
4
5
0 12.5 25 50
Miles
Tornado data downloaded from the Storm Prediction Center:
http://www.spc.noaa.gov/gis/svrgis/

Appendix D.

TABLE 1604.5

RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV.
III	Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to: • Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300. • Buildings and other structures containing Group E occupancies with an occupant load greater than 250. • Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500. • Group I-2, Condition 1 occupancies with 50 or more care recipients. • Group I-2, Condition 2 occupancies not having emergency surgery or emergency treatment facilities. • Group I-3 occupancies. • Any other occupancy with an occupant load greater than 5,000.a • Power-generating stations, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV. • Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that: Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the International Fire Code; and are sufficient to pose a threat to the public if released.[b]

IV	Buildings and other structures designated as essential facilities, including but not limited to: • Group I-2, Condition 2 occupancies having emergency surgery or emergency treatment facilities. • Ambulatory care facilities having emergency surgery or emergency treatment facilities. • Fire, rescue, ambulance and police stations and emergency vehicle garages. • Designated earthquake, hurricane or other emergency shelters. • Designated emergency preparedness, communications and operations centers and other facilities required for emergency response. • Power-generating stations and other public utility facilities required as emergency backup facilities for Risk Category IV structures. • Buildings and other structures containing quantities of highly toxic materials that: Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the International Fire Code; and Are sufficient to pose a threat to the public if released.[b] • Aviation control towers, air traffic control centers and emergency aircraft hangars. • Buildings and other structures having critical national defense functions. • Water storage facilities and pump structures required to maintain water pressure for fire suppression.

a. For purposes of occupant load calculation, occupancies required by Table 1004.5 to use gross floor area calculations shall be permitted to use net floor areas to determine the total occupant load.

b. Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided that it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

Appendix E.

SECTION 423
STORM SHELTERS

423.1 General.

This section applies to the design and construction of *storm shelters* constructed as separate *detached buildings* or constructed as rooms or spaces within buildings for the purpose of providing protection from tornadoes hurricanes and other severe windstorms during the storm. This section specifies where storm shelters are required and provides requirements for the design and construction of storm shelters. Design of facilities for use as emergency shelters after the storm are outside the scope of ICC 500 and shall comply with Table 1604.5 as a *Risk Category IV Structure*.

423.2 Construction.

Storm shelters shall be constructed in accordance with this code and ICC 500 and shall be designated as hurricane shelters, tornado shelters, or combined hurricane and tornado shelters. *Buildings* or *structures* that are also designated as emergency shelters shall also comply with Table 1604.5 as *Risk Category IV structures*.

Any *storm shelter* not required by this section shall be permitted to be constructed, provided that such *structures* meet the requirements of this code and ICC 500.

423.3 Occupancy classification.

The occupancy classification for a *storm shelter* shall be determined in accordance with this section.

423.3.1 Dedicated storm shelters.

A *facility* designed to be occupied solely as a *storm shelter* shall be classified as Group A-3 for the determination of requirements other than those covered in ICC 500.

Exceptions:

1. The occupancy category for dedicated storm shelters with a design occupant capacity of less than 50 *persons* as determined in accordance with ICC 500 shall be in accordance with Section 303.
2. The occupancy category for a dedicated residential *storm shelter* shall be the Group R occupancy served.

423.3.2 Storm shelters within host buildings.

Where designated *storm shelters* are constructed as a room or space within a host *building* that will normally be occupied for other purposes, the requirements of this code for the occupancy of

the *building*, or the individual rooms or spaces thereof, shall apply unless otherwise required by ICC 500.

423.4 Critical emergency operations.

In areas where the shelter design wind speed for tornadoes in accordance with Figure 304.2(1) of ICC 500 is 250 mph, 911 call stations, emergency operation centers and fire, rescue, ambulance and police stations shall comply with Table 1604.5 as a *Risk Category IV structure* and shall be provided with a *storm shelter* constructed in accordance with ICC 500.

423.4.1 Design occupant capacity.

The required design occupant capacity of the *storm shelter* shall include the critical emergency operations on the *site* and shall be the total occupant load of offices and the number of beds.

Exceptions:

1. Where *approved* by the *building official*, the actual number of occupants for whom each occupied space, floor or *building* is designed, although less than that determined by occupant load calculation, shall be permitted to be used in the determination of the required design occupant capacity for the *storm shelter.*
2. Where a new *building* is being added on an existing site, and where the new *building* is not of sufficient size to accommodate the required design occupant capacity of the storm shelter for all of the *buildings* on the *site*, the *storm shelter* shall accommodate not less than the required occupant capacity of the new building.
3. Where *approved* by the *building official*, the required design occupant capacity of the shelter shall be permitted to be reduced by the design occupant capacity of any existing *storm shelters* on the *site*.

423.4.2 Location

Storm shelters shall be located within the *building* they serve or shall be located where the distance of travel from not fewer than one exterior door of each *building* to a door of the shelter serving that building does not exceed 1,000 feet (305 m), unless otherwise *approved*.

423.5 Group E occupancies.

In areas where the shelter design wind speed for tornados is 250 mph is accordance with Figure 304.2(1) of ICC 500, all Group E occupancies with an *occupant load* of 50 or more shall have a *storm shelter* constructed in accordance with ICC 500.

Exceptions:

1. Group E day care *facilities*.
2. Group E occupancies accessory to *places of religious worship*.
3. *Buildings* meeting the requirements for shelter design in ICC 500.

423.5.1 Design occupant capacity.

The required design occupant capacity of the *storm shelter* shall include all of the *buildings* on the *site* and shall be the total occupant load of the classrooms, vocational rooms and offices in the Group E occupancy.

Exceptions:

1. Where approved by the *building official*, the actual number of occupants for whom each occupied space, floor or *building* is designed, although less than that determined by occupant load calculation, shall be permitted to be used in the determination of the required design occupant capacity for the *storm shelter.*
2. Where a new *building* is being added on an existing Group E site, and where the new *building* is not of sufficient size to accommodate the required design occupant capacity of the *storm shelter* for all of the *buildings* on the site, the *storm shelter* shall accommodate not less than the required occupant capacity for the new *building*.
3. Where approved by the *building official*, the required design occupant capacity of the shelter shall be permitted to be reduced by the design occupant capacity of any existing *storm shelters* on the *site*.

423.5.2 Location.

Storm shelters shall be located within the *buildings* they serve or shall be located where the distance of travel from not fewer than one exterior door of each *building* to a door of the shelter serving that *building* does not exceed 1,000 feet (305 m).

CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE - 2024 INTERNATIONAL BUILDING CODE (IBC)