

This document reflects the changes to the ICC/NSSA Storm Shelter Standard IS-500 based upon committee meeting on public comments 1/15/07. Only those sections affected are shown and are subject to public comment at this time.

## Chapter 1 – Application and Administration

### 103

#### Conventions

**103.1 Dimensions.** All dimensions that are not stated as “maximum” or “minimum” are nominal ~~absolute~~. All dimensions are subject to conventional industry tolerances unless otherwise noted.

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### 104

#### Occupancy

**104.1 Rooms or spaces within other uses.** Where storm shelters are designated areas normally occupied for other purposes, the requirements of the applicable construction codes for the ~~normal~~ occupancy of the building shall apply unless otherwise stated in this standard.

**104.2 Dedicated facilities.** Where a facility is designed to be occupied solely as a storm shelter, the designated occupancy shall be A-3 as defined by the International Building Code for purposes of determination of applicable requirements that are not included in this standard.

**104.3 Combination Storm Shelters.** Where the purpose of a storm shelter is to provide protection from both tornadoes and hurricanes, the entire storm shelter shall be designed and constructed using the most restrictive requirements for each hazard. ~~applied to the entire storm shelter.~~

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### 106

#### Inspections and Structural Observations

**106.1 General.** Construction of storm shelters and installation of all equipment shall be subject to inspections in accordance with the applicable building code.

106.1.1 Peer Review. Design drawings and specifications for community shelters designed to house greater than 300 occupants shall undergo a peer review prior to submittal for a building permit.

**106.3 Special cases.** Special inspections shall be provided for proposed work comprised of: ~~that is unusual in nature, such as:~~

1. Construction materials and systems that are alternatives to traditional materials and systems prescribed by the applicable code.
2. Unusual design and construction applications.
3. ~~Materials and systems that are required to be installed in accordance with additional manufacturer's instructions that detail requirements not contained in the applicable code, in standards referenced herein, or in this standard.~~

**106.4 Structural Observations.** During construction of community shelters, the building owner shall employ a registered design professional to conduct visual observations of the construction of the structural system for general conformance to the approved construction documents at significant construction stages and at completion of the construction of the structural system. Structural observation shall not obviate the need for other inspections or testing required by this standard or the applicable building code.

Deficiencies shall be reported in writing to the owner and to the authority having jurisdiction. At the conclusion of the work, the registered design professional who made the structural observations shall submit to the authority having jurisdiction a written statement that the site visits have been made and shall identify any reported deficiencies which, to the best of the structural observer's knowledge, have not been resolved.

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**107**  
**Construction Documents**

**107.1 General.** Where required by the authority having jurisdiction, construction documents shall be prepared. Such documents shall contain information as required by the applicable building code and this Section.

**107.2 Information required.** The following information applicable to construction and operation of the storm shelter shall be supplied on the construction documents,

**107.2.1 Design Information.** For the areas of a building designed for occupancy as a storm shelter, the following information shall be provided within the construction documents:

1. A statement that the wind design conforms to the provisions of the ICC/NSSA Standard for the Design and Construction of Storm Shelters, with the edition year specified.
2. The shelter design wind speed, mph.
3. The importance factor, I.
4. The wind exposure category (indicate all if more than one is used.)
5. The internal pressure coefficient, GC<sub>pi</sub>
6. The topographic factor K<sub>zt</sub>
7. The directionality factor K<sub>d</sub>
- ~~8. 7.~~ A statement that the shelter has/has not been constructed within an area susceptible to flooding in accordance with Chapter 4 of this standard.
- ~~9. 8.~~ The Design Flood Elevation and Base Flood Elevation for the site (if applicable)
- ~~10. 9.~~ Documentation showing that components of the shelter envelope will meet the pressure and missile impact test requirements identified in Chapters 3 and 8 of this standard.
- ~~11. 40.~~ A floor plan drawing or image indicating location of the storm shelter on a site or within a building or facility; including drawing or image indicating the entire facility.
- ~~12.~~ The lowest shelter floor elevation and corresponding datum, except for residential shelters outside of special flood hazard areas.
- ~~13. 44.~~ The occupant load of the storm shelter.
- ~~14. 42.~~ The usable storm shelter floor area.
- ~~15.~~ Venting area (sq.in.) provided and locations in the shelter.

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**107.3 Quality Assurance Plan.** The construction documents for community shelters shall contain a quality assurance plan in accordance with Sections 107.3.1 through 107.3.3.

**107.3.1 Detailed requirements.** A quality assurance plan shall be provided for the following:

1. Roof cladding and roof framing connections.
2. Wall connections to roof and floor diaphragms and framing.
3. Roof and floor diaphragm systems, including connectors, drag struts and boundary elements.
4. ~~Vertical~~ Main wind force resisting systems, including braced frames, moment frames, and shear walls.
5. Main wind force resisting system connections to the foundation.
6. Fabrication and installation of components and assemblies of the shelter envelope required to meet missile impact test requirements of Chapter 3.
7. Requirements for components and cladding including and soffits ~~connections.~~
8. Corrosion resistance or protection of metal connectors exposed to the elements that provide load path continually.

9. Requirements for critical support systems connections and debris impact protection of the components and connections.

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**107.3.3 Contractor responsibility.** Each contractor responsible for the construction of a main wind force resisting system or any component listed in the quality assurance plan shall submit a written statement of responsibility to the authority having jurisdiction, the responsible design professional, and owner prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain:

1. Acknowledgement of awareness of the special requirements contained in the quality assurance plan.
2. Acknowledgement that control will be exercised to obtain conformance with the construction documents.
3. Procedures for exercising control within the contractor's organization, the method and frequency of reporting and the distribution of reports.
4. Identification and qualifications of the person(s) exercising such control and their position(s) in the organization.

**Exception:** Prefabricated or panelized storm shelter components which have been inspected and labeled by an approved agency meeting the requirements of the applicable building code.

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## Chapter 2 – Definitions

### 202 Definitions

**Applicable code.** ~~The applicable code is the~~ regulation for design and building construction of buildings and structures adopted by the authority having jurisdiction over the construction of the specific shelter.

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**Collapse Hazards** : See “Hazards, Collapse”

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#### **Hazards**

**Collapse.** Debris from wind damage to adjacent, taller structures which could fall onto the shelter.

**Laydown.** Nearby structures such as towers or large trees that could fall onto the shelter, if the shelter is within the laydown radius of the structure.

**Rollover.** Vehicles and small buildings, such as temporary classroom buildings, that could roll over due to extreme winds and impact the shelter.

**Host Building.** A building that is not designed or constructed as a storm shelter that totally or partially encloses a storm shelter.

**Interior Surface of the Shelter Component.** The inside surface of any structural component of the storm shelter envelope.

**Label.** An identification applied on a product by the manufacturer that contains the name of the manufacturer, the function and performance characteristics of the product or material, and the name and identification of an approved agency and that indicates that the representative sample of the product or material has been tested and evaluated by an approved agency.

**Laydown Hazards.** See “Hazards, Laydown.”

**Local Emergency Planning Committee.** A group of citizens defined by the community as having responsibility for local emergency planning. The committee shall be recognized by the governing body as having this responsibility.

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