ICC 500—2020 ICC/NSSA Standard for the Design and Construction of Storm Shelters Commentary
(ICC 500 Commentary—2020)

First Printing: September 2022

ISBN: 978-1-958581-90-2 (soft-cover edition)
ISBN: 978-1-958581-91-9 (PDF download)



PRINTED IN THE USA

T028203

# American National Standard

Approval of an American National Standard requires verification by ANSI that the requirements for due process, consensus and other criteria for approval have been met by the standards developer.

Consensus is established when in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he or she has approved the standards or not, from manufacturing, marketing, purchasing or using products, processes or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

# ICC/NSSA
# Standard for the Design and Construction of Storm Shelters

## FOREWORD

[The information contained in this foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. As such, this foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to this standard.]

### Introduction

In May of 2002 the International Code Council (ICC) and the National Storm Shelter Association (NSSA) initiated a joint project to write a standard for the design and construction of storm shelters. A standard development committee was created, and the first meeting of that committee was in May of 2003. The scope of the standard is to provide minimum design and construction requirements for storm shelters that provide a safe refuge from storms that produce tornadoes, hurricanes and other severe windstorms. Hurricanes and tornadoes generate high winds that produce wind pressures on buildings and structures and that create flying debris at levels and intensities that are higher than those for which most commercial building and residences are designed. The magnitude of the wind speeds associated with these storms is such that building occupants and residents are required to evacuate the area or seek protection in a shelter designed for resistance to extraordinary loads and flying debris. This standard provides design requirements for the main wind-resisting structural system and components and cladding of these shelters, and provides basic occupant life safety and health requirements for these shelters, including means of egress, lighting, sanitation, ventilation, fire safety and minimum required floor space for occupants.

### Development

This is the third edition of the International Code Council (ICC) and National Storm Shelter Association's (NSSA) *Standard for the Design and Construction of Storm Shelters*. Editions were issued in 2008, 2014 and 2020. This standard was developed by the ICC/NSSA Consensus Committee on Storm Shelters (IS-STM), which operates under ANSI Approved ICC Consensus Procedures for the Development of ICC Standards. The consensus process of ICC for promulgating standards is accredited by ANSI. The Storm Shelter Committee is a balanced committee formed and operated in accordance with ICC rules and procedures.

The meetings of the ICC/NSSA IS-STM Consensus Committee were open to the public and interested individuals and organizations from across the country participated. The technical content of currently published documents on storm shelters, including documents of the National Storm Shelter Association, the Federal Emergency Management Agency (FEMA), the Red Cross and the State of Florida, was reviewed and considered by the committee. The information from these documents helped form a basis for the regulations installed in this standard, but the exact provisions adopted by the committee were determined based upon the scope and intent of this standard. The requirements of ICC/NSSA 500 are based on the intent to establish provisions consistent with the scope of the ICC family of codes and standards, which are written to adequately protect public health, safety and welfare; provisions that do not necessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

### Adoption

ICC/NSSA 500 *Standard for the Design and Construction of Storm Shelters* is available for adoption and use by any jurisdiction. Its use within a governmental jurisdiction is intended to be accomplished through adoption by reference in accordance with proceedings establishing the jurisdiction's laws. At the time of adoption, jurisdictions should insert the appropriate information in provisions requiring specific local information, such as the name of the jurisdiction.

### Interpretations

Requests for Interpretations on the provisions of ICC 500—2020 should be addressed to ICC, Central Regional Office, 4051 Flossmoor Road, Country Club Hills, IL 60478. For more information, including how to submit requests by phone or email, go to https://www.iccsafe.org/products-and-services/technical-opinions/.

### Maintenance—Submittal of Proposals

All ICC standards are periodically updated as required by ANSI. Proposals for revising this edition are welcome. Please visit the ICC website at www.iccsafe.org for the official "Call for Proposals" announcement. A proposal form and instructions can also be downloaded from www.iccsafe.org.

This standard is maintained under a continuous maintenance schedule to consider recommended changes to any part of it by action of the consensus body. The Code Council accepts public comments and proposals for this standard on a continual basis and during regular calls for comment. Comments and proposals submitted on ICC Public Comment and Proposal Forms may be submitted to the committee secretariat at kpaarlberg@iccsafe.org.

ICC, its members and those participating in the development of ICC 500—2020 do not accept any liability resulting from compliance or noncompliance with the provisions of ICC 500—2020. ICC does not have the power or authority to police or enforce compliance with the contents of this standard. Only the governmental body that enacts this standard into law has such authority.

### International Code Council/National Storm Shelter Association Consensus Committee on Storm Shelters (IS-STM)

**Consensus Committee SCOPE:** The ICC/NSSA Consensus Committee on Storm Shelters (IS-STM) shall have primary responsibility for minimum requirements to safeguard the public health, safety and general welfare through design, construction and installation requirements for storm shelters.

This standard was processed and approved for submittal to ANSI by the ICC/NSSA Consensus Committee on Storm Shelters (IS-STM). Committee approval of the standard does not necessarily imply that all committee members voted for its approval.

Representatives on the Consensus Committee are classified in one of three voting interest categories. The committee has been formed in order to achieve consensus as required by ANSI Essential Requirements. At the time it approved this standard, the IS-STM Consensus Committee consisted of the following members:

General Interest (G) - User Interest (U) - Producer Interest (P)

**Mr. Brian Bishop, CBO** (G), City of Des Moines, IA

**Mr. Gary J. Ehrlich, P.E.** (P), National Association of Home Builders, Washington, DC

**Mr. John T. Hutton, P.E., S.E.** (U), NCSEA Code Advisory Committee, Atlanta, GA

**Mr. Danny John Kilcollins** (G), Florida Division of Emergency Management, Tallahassee, FL

**Mr. Scott Lambaise, CBO** (G), Massachusetts Building Commissioners and Inspectors Association, Duxbury, MA

**Dr. Marc L. Levitan** (U), National Institute of Standards and Technology, Gaithersburg, MD

**Mr. Andie Lorenz, CBO** (G), Adams County, Othello, WA

**Ms. Bonnie Manly, P.E.** (P), American Iron and Steel Institute, Norfolk, MA

**Mr. Kurt A. Roeper** (P), ASSA ABLOY Americas Door Security Solutions, New Haven, CT

**Ms. Pataya Scott** (G), FEMA, Washington, DC

**Mr. Corey Schultz** (U), Schultz Squared Architects LLC, Wichita, KS

**Mr. Steve Szoke, P.E.** (U), American Concrete Institute, Antioch, IL

**Mr. Paul Taft** (G), Village of Bronxville, NY

**Mr. E. Scott Tezak, P.E.** (U), Atkins, Boston, MA

**Dr. Borjen Yeh, P.E.** (P), APA—The Engineered Wood Association, Tacoma, WA

Committee Secretariat **Kimberly Paarlberg, RA,** Senior Staff Architect, Codes and Standards, International Code Council, Country Club Hills, IL

### Voting Membership in Each Category

| Category | Number |
|---|---|
| General (G) | 5 |
| User (U) | 6 |
| Producer (P) | 4 |
| **TOTAL** | 15 |

### Interest Categories

General Interest: Individuals assigned to the General Interest category are those who represent the interests of an entity, including an association of such entities, representing the general public or entities that promulgate or enforce the provisions within the committee scope. These entities include consumers and government regulatory agencies.

User Interest: Individuals assigned to the User Interest category are those who represent the interests of an entity, including an association of such entities, that is subject to the provisions or voluntarily utilizes provisions within the committee scope. These entities include academia, applied research laboratory, building owner, design professional, government nonregulatory agency, insurance company, private inspection agency and product certification/evaluation agency.

Producer Interest: Individuals assigned to the Producer Interest category are those who represent the interests of an entity, including an association of such entities, that produces, installs or maintains a product, assembly or system subject to the provisions within the committee scope. These entities include builder, contractor, distributor, labor, manufacturer, material association, standards promulgator, testing laboratory and utility.

**NOTE — Multiple Interests:** Individuals representing entities in more than one of the above interest categories, one of which is a Producer Interest, are assigned to the Producer Interest category. Individuals representing entities in the General Interest and User Interest categories are assigned to the User Interest category.

# TABLE OF CONTENTS