ICC 600-2020

Standard for Residential Construction in High-Wind Regions

American National Standard

International Code Council
500 New Jersey Avenue, NW, 6th Floor
Washington, D.C. 20001

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American National Standards Institute
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American National Standard

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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. 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 2002, upon direction from the International Code Council (ICC) Board of Directors, the ICC Standards Council appointed a consensus committee to write a standard for the design and construction of residential buildings in high-wind regions. The scope of the standard was to specify prescriptive methods to provide wind-resistant designs and construction details for residential buildings constructed in high-wind regions.

Development

This is the third edition of ICC 600, *Standard for Residential Construction in High-Wind Regions*. This updated standard was developed by the ICC Consensus Committee on Multi-Hazard Resiliency for Residential Construction (IS-MHRRC) that 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 IS-MHRRC Committee is a balanced committee formed and operated in accordance with ICC rules and procedures.

The meetings of the IS-MHRRC Committee were open to the public, and interested individuals and organizations from across the country participated. The technical content of currently published documents on residential construction in high-wind regions, including hurricane-prone regions, was reviewed and considered by the committee. The information from these documents helped form a basis for the regulations provided in ICC 600, but the exact provisions adopted by the committee were determined based on the scope and intent of ICC 600. The requirements of ICC 600 are based on the intent to establish provisions consistent with the scope of the ICC family of codes and standards that 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 600, *Standard for Residential Construction in High-Wind Regions*, 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.

Interpretations

Requests for interpretations of the provisions of ICC 600-2020 should be addressed to: International Code Council, Central Regional Office, 4051 Flossmoor Road, Country Club Hills, IL 60478.

Maintenance – Submittal of Proposals

All ICC standards are revised 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.

ICC, its members and those participating in the development of ICC 600-2020 do not accept any liability resulting from compliance or noncompliance with the provisions of ICC 600-2020. 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 Consensus Committee on Multi-Hazard Resiliency for Residential Construction (IS-MHRRC)

Consensus Committee Scope: The Consensus Committee (CC) on Multi-Hazard Resiliency for Residential Construction (IS-MHRRC) shall have primary responsibility for minimum requirements to safeguard the public health, safety and general welfare through requirements for building and other structures.

This standard was processed and approved for submittal to ANSI by the ICC Consensus Committee on Multi-Hazard Resiliency for Residential Construction (IS-MHRRC). 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 to achieve consensus as required by ANSI Essential Requirements. At the time it approved this standard, the IS-MHRRC Consensus Committee consisted of the following members:

Bruce K. Artia [D], Los Angeles, CA

Jon-Paul Cardin, PE [A], Coeur d'Alene, ID

Kelly Cobeen, CE, SE [D], Emeryville, CA

Anne Cope, PhD, PE [I], Richburg, SC

Brian Craigo, MCP [H], Houma, LA

Bradford K. Douglas, PE [C], Leesburg, VA

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Eric Haefli, AIA [I], Bloomington, IL

Medard Kopczynski, CBO [H] – Chair, Keene, NH

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Tien Peng [A], Silver Spring, MD

Robert E. Raymer, PE [B], Sacramento, CA

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George J. Wiggins, CBO [H] – **Vice Chair,** Winter Park, FL

Borjen Yeh, PhD, PE [A], Tacoma, WA

Alternates (ALT)

Andrew Kosydar, Sacramento, CA – ALT for Bob Raymer

Eric Stafford, Hoover, AL – ALT for Anne Cope

Larry Stevig, SE, CBO, Bloomington, IL – ALT for Eric Haefli

Committee Secretary: **Lawrence C. Novak, SE, F.SEI, F.ACI, CERT, LEED AP,** Chief Structural Engineer, Codes and Standards Development, International Code Council, Country Club Hills, IL

Voting Membership in Each Category

Category	Number
Manufacturer [A]	4
Builder [B]	2
Standards Promulgator / Testing Laboratory [C]	1
User [D]	3
Utility [E]	0
Consumer [F]	1
Public Segment [G]	0
Government Regulator [H]	5
Insurance [I]	3
TOTAL	19

Interest Categories

A. **Manufacturer:** Individuals assigned to the Manufacturer Interest category are those who represent the interests of an entity, including an association of such entities that produces an assembly or system subject to the provisions within the committee scope.

B. **Builder:** Individuals assigned to the Builder Interest category are those who represent the interests of an entity, including an association of such entities that builds, installs, or maintains an assembly or system subject to the provisions within the committee scope.

C. **Standards Promulgator/Testing Laboratory:** Individuals assigned to the Standards Promulgator/Testing Laboratory Interest category are those who represent the interests of an entity, including an association of such entities, that provides independent standards promulgation or laboratory testing of an assembly or system subject to the provisions within the committee scope.

D. **User:** 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 the provisions within the committee scope, including designers, architects, consultants and building owners.

E. **Utility:** Individuals assigned to the Utility Interest category are those who represent the interests of an entity, including an association of such entities, that supplies power or water or accepts wastewater from an assembly or system subject to the provisions within the committee scope.

F. **Consumer:** Individuals assigned to the Consumer Interest category are those who represent the interests of an entity, including an association of such entities, representing the ultimate purchaser of the assembly or system subject to the provisions within the committee scope.

G. **Public Segment:** Individuals assigned to the Public Segment Interest category are those who represent the interests of an entity, including an association of such entities, representing a particular group of the public that benefits from the assembly or system subject to the provisions within the committee scope.

H. **Government Regulator:** Individuals assigned to the Government Regulator Interest category are those who represent the interests of an entity, including an association of such entities, representing the entities that promulgate or enforce the provisions within the committee scope.

I. **Insurance:** Individuals assigned to the Insurance Interest category are those who represent the interests of an entity, including an association of such entities, that insures subject to the provisions or voluntarily utilizes the provisions within the committee scope, including insurance-related inspection agencies.

PREFACE

Most regions in the United States face windstorm threats. Hurricanes strike the Gulf and Atlantic coastal states one or more times per year, with a single storm capable of causing billions of dollars in damage. On average, 10 named storms occur each Atlantic hurricane season, with an average of 6 becoming hurricanes and 2 becoming major hurricanes (Category 3 or greater). The 2005 Atlantic hurricane season produced a record-breaking 28 named tropical storms, including a record 15 hurricanes, of which seven were rated as a "major hurricane." Of these, a record four reached Category 5 strength, the highest categorization for hurricanes on the Saffir-Simpson Hurricane Scale. Five of the 15 were major landfall hurricanes causing damage in Cuba, Mexico and the US states of Florida, Alabama, Mississippi, Louisiana and Texas. Currently, the average wind damage to constructed facilities exceeds $3 billion yearly and is rising with accelerated coastal development and the migration of people to hurricane-prone coastlines. In 2004 and 2005 wind-related damage exceeded $20 billion each year. Much of this damage can be attributed to the inadequate resistance of nonengineered buildings to high winds.

If property damage is to be mitigated in the high-wind regions of this country, increased engineering attention must be given to residential construction. During the 1990s and first half of the 2000s, material associations including wood, masonry and steel, together with academics, product producers, engineers and code officials, were engaged in developing guidelines and standards that applied engineering knowledge and analysis to housing.

The International Code Council legacy standard SSTD 10-99 and its predecessors were the first US standards for high-wind construction of residential structures. The ICC SSTD 10 document was based on the Standard Building Code wind loads and used fastest-mile wind speeds. The SSTD 10 standard was well received by builders and building officials in many parts of the country.

In 2001, both wood and steel associations published construction manuals and standards, respectively, that dealt with high-wind design with their materials. These were based on the ASCE 7 Wind Loads that now allow the basis for defining wind loads in the *International Building Code* (IBC) and the *International Residential Code* (IRC).

This standard provides a set of specifications that is consistent with the IBC and ASCE 7 wind loads, wind speed maps and conventions. See Appendix A for design load assumptions.

The primary focus of the update effort has been to provide a contemporary set of prescriptive requirements that supplement the IRC provisions. The prescriptive requirements contained herein are based on the latest engineering knowledge and are intended to provide minimum requirements to improve structural integrity and improve building envelope performance within the limitations in building geometry, materials and wind climate specified, improving building resiliency.

Currently recognized within the IBC and IRC family of codes, the AWC Wood Frame Construction Manual (WFCM), PCA 100-2017, Prescriptive Design of Exterior Concrete Walls for One- and Two-Family Dwellings and the AISI Standard for Cold-Formed Steel Framing—Prescriptive Method for One and Two Family Dwellings (ANSI/AISI S230) are consensus documents that provide design guidance for wood frame and cold-formed steel-framed buildings, respectively. These documents are adopted by reference in Chapter 4 for above-grade concrete wall systems and Chapter 5 for design of light-frame construction of wood or cold-formed steel, respectively.

The committee responsible for developing this standard recognized that a large number of alternatives were available to a designer or builder for providing wind resistance. The provisions given are not intended to prevent the use of alternative materials or methods permitted by Section 104.11 of the 2021 IBC and IRC. Neither the ICC nor any of the reviewers make any representation or warranty of any kind, whether expressed or implied, concerning the accuracy, completeness and utility of any information provided in this publication and assumes no liability for use of the information. This information should not be used without obtaining competent advice concerning its suitability for the application under consideration. Anyone using this information assumes all liability arising from its use.

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