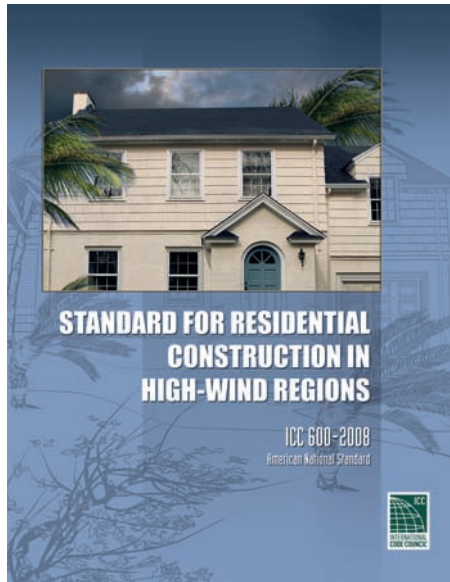


R301.2.1.1

Design Criteria



CHANGE TYPE: Modification

CHANGE SUMMARY: The IRC now recognizes structural insulated panel (SIP) construction for high wind areas, bringing the list of design alternatives to six. The new ICC-600 standard for high wind areas has replaced the legacy code standard SSTD 10. Additional text clarifies that building elements not addressed in the referenced methods of construction need to comply with the provisions of the IRC.

2009 CODE: R301.2.1.1 Design Criteria. Construction In regions where the basic wind speeds from Figure R301.2(4) equal or exceed 100 miles per hour (45 m/s) in hurricane-prone regions, or 110 miles per hour (49 m/s) elsewhere, the design of buildings shall be designed in accordance with one of the following methods. The elements of design not addressed by those documents in Items 1 through 4 shall be in accordance with this code.

1. American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One- and Two-Family Dwellings* (WFCM); or
2. ~~*Southern Building Code Congress International Standard for Hurricane Resistant Residential Construction* (SSTD 10);~~ *International Code Council (ICC) Standard for Residential Construction in High Wind Regions (ICC-600)*; or
3. *Minimum Design Loads for Buildings and Other Structures* (ASCE 7); or
4. American Iron and Steel Institute (AISI), *Standard for Cold-Formed Steel Framing—Prescriptive Method for One- and Two-Family Dwellings (COFS/PM) with Supplement to Standard for Cold-Formed Steel Framing—Prescriptive Method For One- and Two-Family Dwellings (AISI S230)*.
5. Concrete construction shall be designed in accordance with the provisions of this code.
6. Structural insulated panel (SIP) walls shall be designed in accordance with the provisions of this code.

CHANGE SIGNIFICANCE: Prior to the 2006 edition, the IRC generally limited the prescriptive design of structures to those areas having a wind speed less than 110 mph. For wind speeds of 110 mph or greater, the code stipulated a design in accordance with one of the referenced standards, including an engineered design in accordance with ASCE 7, as referenced by the IBC. The 2006 IRC further lowered prescriptive wind design to less than 100 mph in hurricane prone regions. This change establishing different thresholds depending on the region was in response to observation and structural analyses of widespread hurricane damage compared with the effects of relatively localized and short-lived thunderstorm activity. While maintaining the wind speed criteria, the 2009 IRC clarifies the intent that the wind speed limits apply to only the prescriptive wind design for elements covered in the referenced standards. For other elements of the building, the provisions of the IRC apply.

The new ICC-600 *Standard for Residential Construction in High Wind Regions* replaces the legacy code standard SSTD 10. The older standard was based on fastest mile wind speeds and wind loads of the *Standard Building Code*. ICC-600 provides contemporary requirements, including design for three-second gust wind speeds that are consistent with the wind provisions of the IBC and ASCE 7 and that supplement the IRC provisions.

The 2004 edition of AISI-PM has been updated to the 2007 AISI S230 *Standard for Cold-Formed Steel Framing—Prescriptive Method for One- and Two-Family Dwellings*. Notably, the allowable number of stories using the prescriptive methods for cold-formed steel framing has increased from two- to three-story buildings. The new standard also revises structural provisions related to anchor bolt washers, bearing stiffeners, connections, braced walls, and design of gable end walls.

Previously, when the building location exceeded the threshold wind speeds, the IRC referenced four standards for high wind design, including an engineered design in accordance with ASCE 7 and compatible with design requirements in the IBC. It also recognized prescriptive concrete construction designed in accordance with other provisions of the IRC because such construction is considered adequate in resisting high wind events. The IRC now provides an additional option for structural insulated panel (SIP) wall construction. In accordance with Section R613.2, the prescriptive provisions for SIP wall construction are limited to sites with a maximum design wind speed of 130 mph in Exposure A, B, or C and are not subject to the design wind speed limitations of Section R302.1.1.