Code Connection

IRC 2006: What's Coming

Times are a-changing, and so are the codes.

by Richard Zimmermann

Beginning as early as January 2007, some code jurisdictions will be implementing either or both the 2006 International Residential Code (IRC) and/or International Building Code (IBC). Since a high percentage of the building projects that use either trusses or other structural building components are in one- and two-family dwellings or townhomes, this article will focus on the changes from the 2003 IRC to the 2006 IRC. State and/or municipal code adoption information is available at: www.iccsafe.org/government/adoption.html. Note that there may be state-specific versions of codes. A few states make their codes available at no charge—check the following website: www.ecodes.biz.

The following table is a quick overview of the revisions by chapter of the base edition of the IRC and does not reflect local amendments. Note that in both the printed and electronic versions of the IRC, changed sections are indicated in the margin with a vertical black line and deleted sections are indicated with an arrow.

Part 1 - Administration	Minor modifications, mostly related to flood requirements.
Part 2 - Definitions	Minor modifications.
Part 3 - Building Planning & Const.	Significant changes throughout all chapters. - see details.
Chapter 3 - Building Planning	Significant revisions to basic design requirements
Chapter 4 - Foundations	Significant revisions to basic design requirements
Chapter 5 - Floors	Revised Header table R502.5(1) to include up to 70 psf ground snow.
Chapter 6 - Walls	Revised Fastener Table R602.3(1) to include actual nail sizes & alternate attachments. Significant braced wall line revisions
Chapter 7 - Wall Coverings	Added horiz. gypsum board diaphragm & waterproof backing to R702.3
Chapter 8 - Roof/Ceiling Const.	Added applicability limits for snow design to 0.7pg.
Chapter 9 - Roof Assemblies	Significant changes to roof coverings and fasteners, including consideration of hail concerns.
Chapter 10 - Chimneys	Significant changes to masonry heaters and fireplaces.
Part 4 - Energy Conservation	Not reviewed
Part 5 - Mechanical	Not reviewed
Part 6 - Fuel Gas	Not reviewed
Part 7 - Plumbing	Not reviewed
Part 8 - Electrical	Not reviewed
Part 9 - Referenced Standards	Changes not marked. Review with care for specific applications.
Chapter 43	AF&PA NDS-05, APA E30-03, ASCE 7-05, NFPA 13-02

The chart on page 25 lists some specific changes to be aware of:

at a glance

- The 2006 IRC changes that apply to roof framing or roof trusses include: R301.5 attic loading; R802.10.2.1 snow loading; R802.10.3/R502.11.2 reference to BCSI; R802.3.1 rafter/ceiling joist connections; and R806.4 conditioned attic spaces.
- The 2006 IRC changes that apply to wall panels include: R302, R309 exterior wall; R317 unit separation; R502.2.1 load path through floor at braced wall lines; R602.3.2 wall plate splices; R602.10 braced wall lines; and R703 exterior wall covering and fasteners.
- The 2006 IRC general changes that impact component design include: R301.2.1 wind speed; R301.2.2.2 seismic; and R319 fasteners and treated wood.

Subject	Code Section	Comments
Wind speed limitations	R301.2.1.1	Design for wind within the IRC is limited to 100 mph in hurricane prone regions, 110 mph elsewhere.
Protection of openings	R301.2.1.2	In debris prone regions, design using internal pressure is no longer allowed.
Weights of materials for seismic	R301.2.2.2.1	Clarifies that average dead loads for combined roof and ceiling assemblies are 15 psf on a horizontal projection.
Seismic limitations	R301.2.2.2.2	Prescriptive construction as regulated by this code shall not be used for irregular structures located in Seismic Design Categories C, D_0, D_1 and D_2. *[seismic design category D_1 has been divided into 2 categories with the addition of category D_0. All category D_1 references throughout the IRC have been adjusted accordingly. Although few specific prescriptive changes have been made, this allows for some design adjustments where justified by analysis.]*
Minimum Live Loads:	Table R301.5	For additional details see the August 2004 edition of ***SBC Magazine***.
Attics without storage *[10 psf uniform load]*		"b. Attics without storage are those where the maximum clear height between joist and rafter is less than 42 inches, or where there are not two or more adjacent trusses with the same web configuration capable of containing a rectangle 42 inches high by 2 feet wide, or greater, located within the plane of the truss. For attics without storage, this live load need not be assumed to act concurrently with any other live load requirements." *[footnote b is applicable to the 10 psf attic without storage load]*
Attics with limited storage *[20 psf uniform load]*		"g. For attics with limited storage and constructed with trusses, this live load need be applied only to those portions of the bottom chord where there are two or more adjacent trusses with the same web configuration capable of containing a rectangle 42 inches high or greater by 2 feet wide or greater, located within the plane of the truss. The rectangle shall fit between the top of the bottom chord and the bottom of any other truss member, provided that each of the following criteria is met: 1. The attic area is accessible by a pull-down stairway or framed opening in accordance with Section R807.1; and 2. The truss has a bottom chord pitch less than 2:12. h. Attic spaces served by a fixed stair shall be designed to support the minimum live load specified for sleeping rooms." *[footnote g is applicable to the 20 psf limited storage attic load]*
Location on lot	R302	Revised text and added Table R302.1 to clarify minimum fire resistance rating for exterior walls and building separation distance. May impact wall panel design.
Garages	R309	Added requirements regarding penetrations and protection for dwellings when garage is separated by less than 3 feet. May impact wall panel design.
Two-family fire separation	R317.1	A new exception has been added not requiring separation wall extension through attic space when the ceilings are protected with 5/8 inch Type X gypsum
Townhouse separation	R317.2.1	The definition for continuity has been revised as follows: "The fire-resistance-rated wall or assembly separating townhouses shall be continuous from the foundation to the underside of the roof sheathing, deck or slab. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed accessory structures."
Fasteners used with treated wood	R319	Adds an exception for fasteners, other than nails and timber rivets, permitting mechanically deposited zinc coated steel fasteners "with coating weights in accordance with ASTM B695, Class 55, minimum." Not just any mechanical galvanizing is acceptable.
Floor framing at braced wall lines	R502.2.1	Requires a load path for lateral forces between floor framing and braced wall panels located above or below a floor. This addition to the code draws attention to the fact that that floor systems need to be detailed to transfer braced wall panel loads between structural elements. However, no prescriptive load path detailing for floors is provided. In the absence of a building designer, design responsibility is the permit holder or his agent.
BCSI reference	R502.11.2 & R802.10.3	Refers to BCSI instead of HIB
Wall plate splices	R602.3.2	For double top plates, does not require that splices occur at studs.
Braced wall lines	R602.10.6	Extensive revisions. Review carefully for wall panel design. The most significant changes are to the continuously sheathed wall requirements of R602.10.5 and garage openings, and alternate braced wall panel construction at R602.10.6, especially as related to panels adjacent to door or window openings.
Wall coverings (exterior)	R703	Adds significant new material regarding wall envelope protection which may impact exterior vapor barrier requirements.
Siding	R703.4	Changes to minimum thickness and fastening requirements
Rafter/ceiling joist connections	R802.3.1	Review for changes where conventionally framed roof/ceiling construction is used.
Applicability limits for truss construction	R802.10.2.1	Allows use of 0.7 times ground snow for truss construction in buildings no greater than 36 ft in width and 60 ft in length. Additional limitations, review with care.
Conditioned attic spaces	R806.4	Adds new requirements. Review if applicable.

For a more detailed comparison of changes that may be of interest to the structural building components industry, including the IBC 2006 and ASCE 7-05, a downloadable spreadsheet is available at: www.sbcindustry.com/loads.php. SBC

For more information about how to get involved in the code process, contact WTCA staff at 608/274-4849 or codes@sbcindustry.com.

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