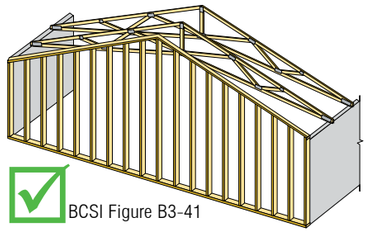
Technical Q & A

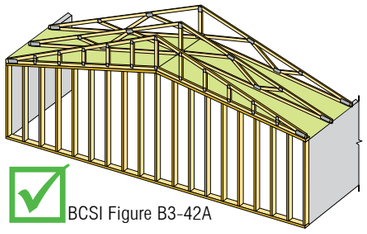
New Code Requirements for Bracing Wall Panels

by Larry Wainright

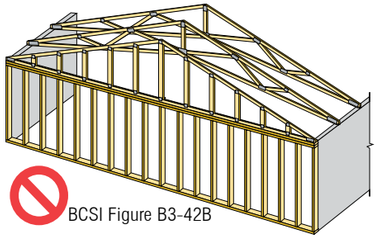
Read about new IRC provisions concerning panels.



BCSI Figure B3-41



BCSI Figure B3-42A



BCSI Figure B3-42B

at a glance

- ❑ Continuous studs are required to eliminate hinge points in gable end walls per the 2009 IRC.
- ❑ The "all walls" language has been clarified by allowing mixing of braced wall methods.
- ❑ The wall bracing section of the 2009 IRC has been extensively rewritten and reorganized.

Wall panels are manufactured to the prescriptive provisions in the building code; therefore, they are not engineered and do not require sealed wall panel design drawings. For buildings falling within the scope of the International Residential Code (IRC), the design and construction of walls is specified in Chapter 6, Section R602.10, which contains the prescriptive wall bracing requirements. These provisions, which were somewhat simple when first included in the 2000 IRC, have undergone modifications in the three latest IRC editions—2003, 2006 and 2009. The 2003 and 2006 editions of the IRC contained modest revisions to wall bracing requirements. However, significant changes were introduced into the 2009 IRC via the 2007 IRC Supplement and additional proposed changes at last year's code hearings. Additionally, an ICC Ad Hoc Committee on Wall Bracing (AHC-WB) has been charged with looking into the bracing requirements for future editions of the code. (Information on the committee can be found online at: www.iccsafe.org/cs/cc/ahc-wb/index.html.) Needless to say, with all the changes and variability involved, wall bracing has been a hot topic in the residential code.

One significant change in the 2009 IRC is a requirement that wall studs be continuous from the anchorage at the bottom of the wall to the anchorage at the top of the wall. Section R602.3 states:

> **2009 IRC R602.3 Design and construction**. ...Studs shall be continuous from a support at the sole plate to a support at the top plate to resist loads perpendicular to wall. The support shall be a foundation or floor, ceiling or roof diaphragm or shall be designed in accordance with accepted engineering practice.

This language effectively prohibits the use of flat bottom chord gable trusses at the end of volume ceilings (e.g., cathedral and scissors) since the studs are not continuous to the top support. A similar requirement is included in Section 2308.9.1 of the 2009 International Building Code.

Another significant change is the so-called "all walls" language that was in the earlier versions of the code. The 2006 IRC, section R602.10.5 read as follows:

> **R602.10.5 Continuous wood structural panel sheathing.** When continuous wood structural panel sheathing is provided in accordance with Method 3 of Section R602.10.3 on all sheathable areas of all exterior walls, and interior braced wall lines, where required, including areas above and below openings, bracing wall panel lengths shall be in accordance with Table R602.10.5…

This was misunderstood by many to believe that if the continuous sheathing method was required on a wall with narrow sections, such as the panels next to a garage door, then the entire building needed to be continuously sheathed with structural wood panels. The 2007 supplement to the 2006 IRC corrected this language to appropriately clarify the application of the continuously sheathed method as follows:

> **R602.10.4 Continuously-sheathed braced wall line using Method 3 (wood structural panel).** Continuously sheathed braced wall lines using wood structural panels shall comply with this section. Different bracing methods shall not be permitted within a continuously sheathed braced wall line. Other bracing methods prescribed by this code shall be permitted on other braced wall lines on the same story level or on different story levels of the building.

SBCA THE LOAD GUIDE

Finally, the 2009 IRC wall bracing provisions have been extensively reorganized and the provisions modified with the intent of making this section of the code easier to understand and apply. Tables that required the user to calculate wall length percentages have been replaced with tables that specify the required length directly. The various bracing methods, along with several alternate methods have been renamed using acronyms to make it easier for users to recall and the requirement for a minimum of two braced wall panels per braced wall line has been restored. With all of the changes that have occurred in the wall bracing sections of the code, users will need to be well informed of the changes and how they will affect their business.

SBCA's *The Load Guide (TLG): Guide to Good Practice for Specifying & Applying Loads to Structural Building Components* contains more detailed information on the requirements contained in the IRC. TLG Beta Version 1.03 was released in November and is a free download available through SBCA's website: www.sbcindustry.com/loads.php.

For those currently using the 2006 IRC, ***SBC Magazine*** published a **TQ&A** article in January/February 2008 issue that provides a closer look at the wall bracing provisions contained in that version of the code. It can be found in the online archives at www.sbcmag.info. SBC

To pose a question for this column, call the SBCA technical department at 608/274-4849 or email technicalqa@sbcmag.info.

editor's note:

Correction to November's Technical Q&A

In the article on page 10 of the November 2008 issue, we inadvertently omitted the source of the truss arching data presented. The information in the article was reproduced from Section 20 of WTCA's First Edition of the *Metal Plate Connected Wood Truss Handbook* (1993). In addition, Figure 1 of the article was reprinted from Figures 20.7.7 and 20.7.8 in the handbook. Specifically, Section 20.7 discusses partition separation, and references a technical note written by Professor Don Percival of the University of Illinois at Urbana-Champaign for the Small Homes Council-Building Research Council. (Prior to publishing the handbook, WTCA obtained permission from Professor Percival to reprint his technical note.) We apologize for any inconvenience caused by our omission. SBC

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