



Code Connection

Wall Panels

by WTCA Staff

Take a few minutes to demystify the codes as they relate to wall panels so that future plan approvals and inspections will be less of a headache.

Panelized walls are becoming increasingly integrated into some component manufacturers' business plans. While the manufacture of walls is a relatively simple process, there can be confusion in the marketplace as to how panelized walls are considered for plan approval or during inspections.

Wall panels can fall into one of two categories, or a combination of the two:

- Those that follow prescriptive design: the International Residential Code (IRC), the International Building Code (IBC) Section 2308, or the American Forest & Paper Association's (AF&PA) Wood Frame Construction Manual—prescriptive provisions.
- Those that follow engineered design: the IBC or AF&PA's Wood Frame Construction Manual—engineered provisions.
- Those that follow a combination of prescriptive and engineered design.

When the structure in which the wall panels are to be installed falls within the scope of the IRC (see Figure 1) and utilizes the included prescriptive plate, stud, header, sheathing and bracing requirements, the panelized walls should be treated the same as site-built walls and are subject to the same approval and inspection requirements. The same is true for structure that fall within the scope and limitations of IBC Section 2308 (see Figure 2).

R101.2 Scope. The provisions of the International Residential Code for One- and Two-Family Dwellings shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories in height with a separate means of egress and their accessory structures.

Figure 1.

2308.1 General. The requirements of this section are intended for conventional light-frame construction. Other methods are permitted to be used provided a satisfactory design is submitted showing compliance with other provisions of this code. Interior nonload-bearing partitions, ceilings and curtain walls of conventional light-frame construction are not subject to the limitations of this section. Alternatively, compliance with the following standard shall be permitted subject to the limitations therein and the limitations of this code: American Forest and Paper Association (AF&PA) Wood Frame Construction Manual for One- and Two-Family Dwellings (WCFM).

2308.2 Limitations. Buildings are permitted to be constructed in accordance with the provisions of conventional light-frame construction, subject to the following limitations, and to further limitations of Sections 2308.11 and 2308.12.

Figure 2.

However, if the panelized walls are completely engineered or include portions that are engineered, then the engineered portions may require sealed drawings and/or calculations as required by the code authority having jurisdiction per IBC Section 2301.2 (see Figure 3).

2301.2 General design requirements. The design of structural elements or systems, constructed partially or wholly of wood or wood-based products, shall be based on one of the following methods.

2301.2.1 Allowable stress design. Design using allowable stress design methods shall resist the applicable load combinations of Chapter 16 in accordance with the provisions of Sections 2304, 2305 and 2306.

2301.2.2 Load and resistance factor design (LRFD). Design using load and resistance factor design (LRFD) methods shall resist the applicable load combinations of Chapter 16 in accordance with the provisions of Sections 2304, 2305 and 2307.

2301.2.3 Conventional light-frame wood construction. The design and construction of conventional light-frame wood construction shall be in accordance with the provisions of Sections 2304 and 2308.

Exception: Buildings designed in accordance with the provisions of the AF&PA Wood Frame Construction Manual for One- and Two-Family Dwellings shall be deemed to meet the requirements of the provisions of Section 2308.

Figure 3.

In the case of structures built within the IBC provisions, the requirements for wall design are described at Section 2304.3 (see Figure 4).

2304.3 Wall framing. The framing of exterior and interior walls shall be in accordance with the provisions specified in Section 2308 unless a specific design is furnished.

Figure 4.

In the case of structures built within the provisions of the IRC, the design of engineered portions is covered at R301.2.3 (see Figure 5).

R301.1.3 Engineered design. When a building of otherwise conventional construction contains structural elements exceeding the limits of Section R301 or otherwise, not conforming to this code, these elements shall be designed in accordance with accepted engineering practice. The extent of such design need only demonstrate compliance of non-conventional elements with other applicable provisions and shall be compatible with the performance of the conventional framed system. Engineered design in accordance with the International Building Code is permitted for all buildings and structures, and parts thereof, included in the scope of this code.

Figure 5.

In today's market, wall design is generally performed through the use of code prescribed tables and provisions. The installation details are also provided by the code. It is certainly conceivable, at some point in the future, that wall construction will be designed in a manner similar to roof and floor trusses utilizing the engineered design provisions of the building code. This will help our industry progress into a more sophisticated design process for buildings that fully utilize structural components. **SBC**

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

STRONG • LIGHTWEIGHT • STABLE

BUILDING A TRADITION OF QUALITY PRODUCTS

- LVL Attractive Beams & Headers
- LVL Structural Stair Stringer Blanks
- LVL Specialty Plywood
- LVL Truss Chords (Alpine™ & MiTek® plate values)
- LVL 3-1/2" One-Piece Garage Door Headers
- LVL Scaffold Plank & Other Industrial Applications

We produce thousands of products from wood... The only limit is your imagination.

finnforest Finnforest USA
Engineered Wood Division
www.finnforestus.com • 800/622-5850 • Fax: 586/296-8773

For reader service, go to www.sbcmag.info/finnforest.htm

WTCA

Many Thanks to Our TTT Online Training Partners

For details, contact WTCA at 608/274-4849 or visit www.woodtruss.com.

WTCA

For reader service, go to www.sbcmag.info/wtca.htm

STRUCTURAL BUILDING **COMPONENTS**TM

THE FUTURE OF FRAMING

www.sbcmag.info

Dear Reader:

Copyright © 2006 by Truss Publications, Inc. All rights reserved. For permission to reprint materials from **SBC Magazine**, call 608/310-6706 or email editor@sbcmag.info.

The mission of **Structural Building Components Magazine (SBC)** is to increase the knowledge of and to promote the common interests of those engaged in manufacturing and distributing of structural building components to ensure growth and continuity, and to be the information conduit by staying abreast of leading-edge issues. SBC will take a leadership role on behalf of the component industry in disseminating technical and marketplace information, and will maintain advisory committees consisting of the most knowledgeable professionals in the industry. The opinions expressed in SBC are those of the authors and those quoted solely, and are not necessarily the opinions of any of the affiliated associations (SBCC, WTCA, SCDA & STCA).



6300 Enterprise Lane • Suite 200 • Madison, WI 53719
608/310-6706 phone • 608/271-7006 fax
www.sbcmag.info • admgr@sbcmag.info