

PRODUCT UPDATE

STRONG FRAME™ ORDINARY MOMENT FRAME: NEW CATALOG, SIZES AND PRODUCT ENHANCEMENTS

Over the last year, Simpson Strong-Tie has been busy making some exciting changes and additions to the Strong Frame™ ordinary moment frame (OMF) product line and has created a new catalog (C-SF10) to highlight those changes. One of the main updates was to streamline the catalog to focus on engineered designs. We also refined and expanded the anchorage tables to provide more optimized, cost-effective solutions. Prescriptive wall bracing information has been removed from the catalog and will remain on our website. Some of the other changes you will see in the catalog and the product line are detailed below.

New Frame Sizes

We started off with 196 frame configurations and now we're up to 368 standard catalog offerings. We were able to add 172 sizes by designing and manufacturing a 16' tall column and 14', 18' and 20' wide beams. All of these new sizes will be inventoried items and featured in the catalog and on the website.

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CODE CORNER

HISTORY AND NEW IMPROVEMENTS OF ROOF TIEDOWN IN THE INTERNATIONAL RESIDENTIAL CODE[®]

The roof tiedown requirements in the residential building code have gradually improved over the last 20 years. However, if either RB154 or RB156 is approved this year, there will be significant improvements to this section of the International Residential Code[®] (IRC).

Prior to the development of the IRC, the CABO *One and Two Family Dwelling Code* (OTFDC) was the code that specifically governed residential structures. The OTFDC included a Design Wind Loads table that was based on Main Wind Force Resisting System (MWFRS) loads. It also contained a roof tiedown capacity table that specified the required tiedown amount based on the Design Wind Loads. However, the roof tiedown (*above and beyond the required toenails*) only was required when Design Wind Loads exceeded 20 lbs. per square foot (psf).

Drafters of the IRC used the OTFDC as their starting source, but made two major

changes in wind design. First, the scope of the IRC was changed to only apply to areas with a design wind speed of less than 110 mph. This limitation did not exist in the OTFDC. The drafting committee realized that there were too many construction and design details required for higher wind areas that could not be economically included in a prescriptive code. Second, the MWFRS Design Wind Load table was removed and Table R301.2(2) containing Component and Cladding (C&C) loads was added, due to increased emphasis on design and selection of windows, doors and other exterior components. Since the new C&C load table contained the only wind loads specified in the code, this table was used to determine the 20 psf limit when uplift connections were required. However, using C&C pressures for roof tiedown is incorrect because overall wind uplift pressures are a MWFRS load. Table R802.11, which specified the capacity of the required roof tiedown connection, was carried over from the OTFDC.

Meanwhile, the Structural Committee drafting the IBC structural requirements had developed their own uplift connection table for conventional construction and determined that tiedown connections should be required in all wind zones since, using code calculations, net uplift occurs in light-frame construction even at 85 mph wind speed.

The 2003 IRC was amended to include the IBC connection capacity table, but the 20 psf trigger remained, and it was still incorrectly tied to the C&C load table. Further, Section R802.10.5 was added that required a 175-lb. rated connector for fastening trusses to walls, regardless of design wind speed. This proposal came from building officials who were finding that in colder climates the toenails were splitting trusses, and the use of a connector would move the nails further from the edge of the wood. In addition, the code technically did not contain requirements for fastening

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OMF Non-Catalog Custom-Order Sizes

In May, Simpson Strong-Tie is launching a made-to-order Strong Frame™ OMF program to quickly specify, manufacture and deliver any sized frame, using our current plate girder geometries. Clear opening frame sizes are available in widths 6'-0" to 20'-4" and heights 6'-0" to 19'-10½". There is an extended lead time of four to six weeks for custom-size, non-catalog components.

New Strong Frame™ Ordinary Moment Frame Selector Software

To help designers with specification, we've created a new Strong Frame Selector Software. By simply inputting loads, height, width and available space for columns, the program will create a list of available frames, ranked according to relative price, and provide anchorage options. The new software is available on our website in May.

New Code-Listed Applications

Simpson Strong-Tie also is in the final stages of IAPMO code approval for all catalog-size frames and any custom-size frames within the ranges mentioned above.

New Catalog Layout

To make it easier to follow and use our catalog as a design tool, we have re-formatted the layout. All of the design concepts and details are summarized on two pages and are color coded to match the section in the catalog where those items are explained in detail. We have included alternate loading detail sheets (*also available on www.strongtie.com/strongframe*) so designers can input loads for needs not addressed in the catalog and then fax them to us for frame design assistance. We also have enhanced design example pages to make it easier to design and select the most economical frame to fit your needs.

We are very excited to bring you an expanded offering of the Strong Frame ordinary moment frame. We encourage comments from the field, so we can continue to improve the product line and meet your project needs. ■

CODE CORNER (continued from page 1)

trusses to top plates, since Table R602.3(1) only contained fastening for "Rafter to Top Plate." However, the truss industry saw this as an unfair requirement, since rafters could use toenails, but trusses required connectors.

In the 2006 IRC, the wind speed limitation for prescriptive construction was changed to 100 mph. An analysis performed by the insurance industry had shown several areas where IRC requirements were lacking in resistance to wind speeds exceeding 100 mph. Roof tiedown requirements were not changed.

During the 2007/2008 code change cycle, a significant effort was made to correct these deficient areas so the wind speed limit could be raised back to 110 mph. Improvements in wall bracing and wall uplift connections were recommended along with a proposal to "fix" the roof-to-wall connection requirements. This proposal was developed by a diverse group that included NAHB, IBHS, AF&PA, WTCA (now SBCA), and Simpson Strong-Tie. However, at the final action hearing, questions about enforceability caused the

roof tiedown proposal to fail. Because of that, the ICC membership was unable to approve the proposal to increase the wind speed limit to 110 mph.

This year, many members of the same group proposed RB154. At the same time, the NAHB proposed RB156. Both proposals are very similar and do the following:

- Increase the fastening for rafters and trusses to top plate from two toenails to three toenails to increase the uplift resistance of the basic connection
- Remove the requirement that only trusses require connectors for their top plate connection
- Revise the roof tiedown capacity table, including adding reductions for high-sloped roofs and hip roofs
- Remove the reference to a 20 psf component and cladding load trigger, and instead set a limit that can be found directly in the table, making it easier to determine and enforce.

The primary difference between the proposals is the tiedown requirement. RB154 maintains the 200-lb. capacity allowed for the toenails

that was proposed last year by the original group. Alternately, RB156 changes the allowance for toenails to 230 lbs., well above the calculated capacity that the code would allow, which is 138 to 147 lbs. RB154 also makes a change to the braced wall panel uplift requirements, revising the 200-lb. connection capacity that was proposed by the Wall Bracing Committee in the last code cycle.

While the IRC Code Change Committee approved both of these code changes, it would be difficult to implement both because of the conflicts between them. The ICC membership will consider at least two public comments on these changes at the upcoming hearings in Dallas. But as long as one is approved, significant improvements will be made to the roof tiedown requirements in the IRC. ■



The code corner is written by our code specialist Randy Shackelford, P.E. You can reach Randy by email at rshackelford@strongtie.com.

WORKSHOPS & TRAINING

NORTHEAST

Continuous Load Path Wood Framed Structures

West Long Branch, New Jersey Wednesday, May 12

Deck Framing Connection Seminar

Evansville, Indiana Wednesday, May 5
 Indianapolis, Indiana Thursday, May 6
 Columbus, Ohio Wednesday, May 19
 Rock Island, Illinois Tuesday, May 25
 Waukesha, Wisconsin Tuesday, June 8
 Green Bay, Wisconsin Wednesday, June 9
 Blacksburg, Virginia Tuesday, June 15
 Fredericksburg, Virginia Wednesday, June 16

Simpson Strong-Tie Anchor Systems® for Engineers and Architects

Waukesha, Wisconsin Wednesday, June 2
 Columbus, Ohio Wednesday, June 16

SOUTHEAST

Building Officials & Inspectors Workshop

Jacksonville, Florida Thursday, May 6
 McKinney, Texas Thursday, May 13

Designing with Simpson Strong-Tie Anchor Systems®

McKinney, Texas Friday, June 11
 Jacksonville, Florida Thursday, June 17

Multi-Story Wood Framed Construction

Dallas, Texas Tuesday, July 20
 Houston, Texas Thursday, July 22

Seismic Design and Detailing

Memphis, Tennessee Tuesday, May 18
 St. Louis, Missouri Wednesday, May 19

NORTHWEST

Building Officials & Inspectors Workshop

Eureka, California Tuesday, May 18
 Eureka, California Wednesday, May 19

Deck Framing Connection Seminar

Eureka, California Tuesday, May 18
 Eureka, California Wednesday, May 19

General Connector Technology

Pleasanton, California Thursday, May 6
 Redding, California Wednesday, May 26

SOUTHWEST

Connector & Lateral Systems Workshop for All Audiences

San Luis Obispo, California Friday, May 14
 North Las Vegas, Nevada Thursday, May 27
 Santa Barbara, California Thursday, June 24

Connector & Lateral Systems Workshop for Contractors, Builders, & Developers

Brea, California Thursday, June 10

Connector & Lateral Systems Workshop for Engineers, Architects, & Specifiers

Brea, California Thursday, May 6
 Brea, California Thursday, July 8

Simpson Strong-Tie Anchor Systems® Workshop for Contractors, Builders, & Developers

Brea, California Thursday, May 20

For more information regarding workshop content and for a complete schedule, visit the Workshops and Training section of our website at www.strongtie.com/workshops.

INDUSTRY NEWS

NEW MADRID FAULT STUDY

Last October, the Mid-America Earthquake Center released a study entitled, "Impact of New Madrid Seismic Zone Earthquakes on the Central USA." The report analyzes the impact of a 7.7 magnitude earthquake on the New Madrid fault region. The New Madrid Seismic Zone stretches from northeast Arkansas to southern Illinois, passing through Missouri, western Tennessee and western Kentucky. The results of the report indicate that if a 7.7 magnitude earthquake was to strike this area (*which researchers believe is highly likely*), the impact would be severe. They're predicting the quake will cause nearly 86,000 injuries and fatalities, displace 7.2 million people and damage 715,000 buildings. The recent earthquake in Haiti and the 200th anniversary of the New Madrid/Missouri quakes in 2011 is prompting even more predictions of when the next big earthquake will hit the central U.S. To view the study, go to <http://mae.cee.uiuc.edu/publications/2009/09-03.htm> (scroll to bottom of page and click on "View Report"). ■

LONG-TERM HOUSING FORECASTS REMAIN HIGH

NAHB economists project that the industry will need to deliver 16 million homes over the next 10 years to keep pace with demand. As the excess inventory is worked off, which is likely by the end of 2012, the long-run demand for new housing – based on population growth, immigration and the replacement of losses from the housing stock – will average approximately 1.5 million single-family and 300,000 multifamily units annually, or about 1.8 to 1.9 million total starts. NAHB is forecasting 647,000 total housing starts in 2010 and 991,000 in 2011. ■

NEW PRODUCTS

NEW STRUCTURAL WOOD SCREWS FOR FASTENING MULTI-PLY TRUSSES AND EWP

Simpson Strong-Tie is launching a new series of structural wood screws for fastening multi-ply truss and engineered-wood assemblies. The new Strong-Drive® SDW screws install from one side, firmly cinching plies together while eliminating the need to flip heavy girders.

The bold thread design of the SDW allows installers to fasten 2-, 3- and 4-ply trusses or 1¾" engineered lumber from one side, saving time. Unlike typical hex-style screws, the SDW features a large, flush head which makes applying drywall to structural composite lumber much simpler since the head doesn't protrude from the girder. The flush head also causes less interference when handling trusses and installing connectors. In addition, the screw's deep head recess reduces bit pop-out, making installation faster and easier while the high shear strength of the SDW cuts down the number of fasteners required, reducing material and labor cost.

The Strong-Drive SDW screw series is offered in eight lengths from 2⅞" to 6¾". For additional information, visit www.strongtie.com/fasten. ■



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