

CODE CORNER

READY FOR SOME ... CONFUSION? NEW WIND DESIGN CODES EXPLAINED

Do you remember the confusion that resulted when ASCE 7 changed their wind maps in 1995? Well get ready to go through it all over again ... times three!

ASCE 7-10 has recently been published, and it will be the referenced standard for design loads in the 2012 International Building Code®. Significant changes include the addition of requirements for both performance-based design and general structural integrity as well as revised snow loading, new seismic ground motion maps, and a complete design philosophy change for wind design. This issue of the Code Corner will discuss the changes affecting wind design.

Wind design has changed from an allowable strength-based philosophy, with a load

factor of 1 in the ASD load combination, to an ultimate strength design philosophy, with a load factor of 1 in the strength design load combination, so that wind design has a similar basis as seismic design. So the new load combinations for wind look like this:

Strength Design: 0.9D + 1.0W
Allowable Stress Design: 0.6D + 0.6W

Because of the change in load factor and philosophy, the basic wind speed map had to be altered. In the past, one map was provided, and the design return period was increased for certain occupancies by multiplying the load by an importance factor. In ASCE 7-10, there are three maps provided, so now no importance factor is needed. The return period of the map depends on the risk to human life, health and welfare that would result from the

failure of that type of building. Previously called the Occupancy Category, it's now called the Risk Category.

Risk Category III and IV buildings use a basic wind speed map based on a 1,700-year return period. Risk Category II buildings use a basic wind speed map based on a 700-year return period. And Risk Category I buildings use a basic wind speed map based on a 300-year return period. Because of the higher return period, the

(continued on page 2)



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

PRODUCT SPOTLIGHT

NEW TRUSS RESTRAINTS AND BRACING FOR COLD-FORMED STEEL

The new AHEP adjustable hip-end purlin is a structural purlin that also serves as an installation aid during the truss erection process. The AHEP attaches to the step-down hip trusses at the leading edge eliminating the need for drop top chords and C-stud fillers. The AHEP installs linearly, aligned with the end jacks, to maintain sheathing spacing from eave to hip or peak. Roof sheathing/decking attaches directly to the purlin. Adjustable in length, the AHEP is designed to accommodate a pitch range of 3/12 to 9/12 as a structural purlin and up to 12/12 as an installation aid only.

The S/TSR truss spacer restraint captures the on-center spacing of CFS truss chords and webs, and laterally restrains the truss members, allowing quicker, easier and safer installations. Its tubular shape provides strength in both compression and tension. The S/TSR installs in a linear fashion and has a low profile that can be sheathed over, eliminating the need to remove bracing prior to applying sheathing or decking.

The TBD22 diagonal truss brace travels in a box like a flat strap (160 feet per carton), and is formed into an A-shape as it's pulled from the carton to provide rigidity and prevent sagging between trusses during installation. As the TBD22 is fastened to trusses the brace flattens, allowing sheathing to be installed over it, saving the time typically needed to remove bracing prior to applying sheathing or decking. When used in conjunction with the S/TSR, the TBD22 offers a time-saving substitute for hat channel or C-stud diagonal bracing and helps meet the prescriptive recommendations of CFSBCS1.

For more information about these products and to request a copy of the new *Cold-Formed Steel Connectors* catalog (C-CFS10), visit www.strongtie.com/products/cfs. ■



TBD22



S/TSR



AHEP

COMMUNITY SPOTLIGHT

GIVING BACK TO HAITI

Simpson Strong-Tie® employee Bill Georges is a member of the Tennessee-1 federal Disaster Medical Assistance Team (DMAT) – a team composed of doctors, nurses, paramedics and logistics personnel who are deployed to disaster-stricken areas.

Earlier this year, Bill and his team were sent to Port-au-Prince, Haiti, to provide aid to earthquake victims. Upon arriving at the U.S. Embassy in Haiti, the 35 DMAT members were quickly given several missions. One team was needed at the airport to provide medical care and assist with people waiting to leave the country. Another team was sent to the Love-A-Child orphanage and medical clinic. A third team was sent to offer support to personnel staffing the Disaster Portable Morgue Unit (DPMU). This unit had the difficult job of processing remains of foreign nationals, primarily U.S. citizens that lost their lives in the earthquake. Another team was assigned to the site of the collapse of the five-story Hotel Montana to provide care for the



Habitat for Humanity is helping families construct transitional shelters that can be upgraded to permanent shelters, using Simpson Strong-Tie products.

various international teams recovering bodies from the rubble. Bill was part of the team that stayed at the Embassy and set up a make-shift emergency room. As part of logistics, Bill was involved with equipment and supplies as well as radio and satellite communication with the various off-site teams.

During his stay, Bill had the opportunity to meet some of the Haitian people and found them to be quite amazing. He recounts, “These are a people that, even in good times, deal with poverty, crime and a lack of services that we take for granted. Following the earthquake, even the small comfort of a place to call home and the normal routine of life was taken away and replaced with loss of family members and a small tent if they were lucky. Considering what they had gone through and were facing in the future it was surprising that they would somehow come to the Embassy in clean clothes, wait in line in the mid-day heat without complaining and show gratitude for the assistance we were providing.”

Bill also reflects on the damage caused by the 7.0 magnitude earthquake, “Nearly every building I saw was either completely destroyed or severely damaged. Most of the construction is CMU and the only reinforcement, if any, was at the corners of the building. I watched as sites were cleared of the rubble and rebuilt with the same failed methods as before the quake. Our products could go a long way in providing the necessary structural stability needed for construction.”

To help with the relief and rebuilding effort in Haiti, Simpson Strong-Tie teamed up with Habitat for Humanity and donated \$12,000 in products. The connectors and fasteners are being used to build hundreds of transitional shelters in Haiti. As conditions improve, Habitat’s transitional shelters will be incorporated into permanent housing. In addition to the product donation, Simpson Strong-Tie committed \$20,000 in cash to support Habitat’s long-term rebuilding effort and donated \$25,000 to the American Red Cross. To learn more about Habitat’s relief and response efforts, visit www.habitat.org/haiti. ■

CODE CORNER (continued from page 1)

mapped design wind speed will be much higher than when using previous maps. However, with the lower load factors, actual design loads will be the same – or in many areas lower – due to other changes in the way the map was developed.

To make matters more confusing, the map for Risk Category II buildings was not included into the 2012 International Residential Code®. Because the IRC and its referenced standards are full of design wind speed references that are based on the old ASD-based map, it was decided to

develop a new map for the IRC that showed wind speeds derived by dividing the ASCE 7-10 wind speeds by the square root of 1.6 (the old load factor). Then ANOTHER map was developed to indicate areas where wind design was required, and a third map was added to indicate windborne debris areas. Hopefully, this can be resolved in the 2015 IRC so there are only one set of wind speed maps.

Another change to ASCE 7-10 for wind design is that Exposure D is no longer excluded from hurricane prone regions, so buildings exposed to large bodies of water

in hurricane prone regions will have to be designed for Exposure D.

In addition, the wind load provisions have been reorganized, so that they are contained in six chapters (Chapter 26-31) instead of one (Chapter 6).

Finally, a new simplified method for determining wind loading on buildings of all heights has been included. This is different from the simplified all heights method in the IBC, so it will be interesting to see which method becomes more widely used. ■

WORKSHOPS & TRAINING

NORTHEAST

Deck Framing Connection Seminar

Monroeville, Pennsylvania Wednesday, August 18

Simpson Strong-Tie Anchor Systems® for Engineers and Architects

Newark, New Jersey Wednesday, September 15
 Novi, Michigan Wednesday, September 22
 Eagan, Minnesota Wednesday, October 6

Simpson Strong-Tie® Wall Bracing Workshop

Monroeville, Pennsylvania Wednesday, August 18

SOUTHEAST

Cracked Concrete & Advanced Anchor Topics

Greenville, South Carolina Tuesday, August 24

Effective Selling with Simpson Strong-Tie Anchor Systems®

McKinney, Texas Friday, September 17
 Jacksonville, Florida Thursday, September 23

Introduction to Simpson Strong-Tie Anchor Systems®

McKinney, Texas Thursday, September 16
 Jacksonville, Florida Wednesday, September 22

Multi-Story Wood Framed Construction

Atlanta, Georgia Wednesday, October 6
 Jacksonville, Florida Thursday, October 7
 Charlotte, North Carolina Wednesday, October 13

Seismic Design and Detailing

Charleston, South Carolina Thursday, October 14

NORTHWEST

Building Officials & Inspectors Workshop

Portland, Oregon Thursday, September 30

Contractors, Builders, & Developers Workshop

Pleasanton, California Thursday, September 23

Deck Framing Connection Seminar

Portland, Oregon Thursday, September 30

General Connector Technology

Stockton, California Thursday, September 16

SOUTHWEST

Connector & Lateral Systems Workshop for Building Officials & Inspectors

Brea, California Thursday, August 5

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

Brea, California Thursday, September 2

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

Brea, California Thursday, October 7

Simpson Strong-Tie Anchor Systems® Workshop for All Audiences

Santa Maria, California Thursday, September 30
 San Diego, California Wednesday, October 27

Simpson Strong-Tie Anchor Systems® Workshop for Builders, Contractors, and Installers

Brea, California Thursday, September 16

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.

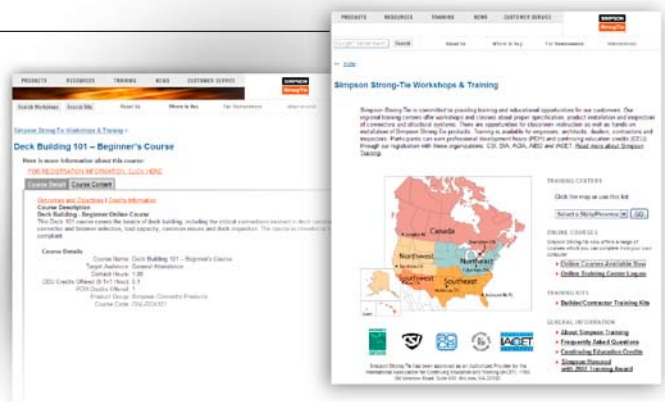
TRAINING UPDATE

EARN CEUs THROUGH ONLINE TRAINING

Simpson Strong-Tie now offers three online courses that can earn attendees Continuing Education Credits (CEUs). Our **Deck Building 101 – Beginners Course** (0.1 credit), **Deck Building 102 – Advanced Course** (0.2 credits) and **Seismic Design for Wood Framed Construction** (0.3 credits) can be taken any time of day, are free of charge and depending on the course, typically take one to three hours to complete.

Here's a brief description of these courses:

Deck Building 101 covers deck building basics, including an overview of the critical connections involved in deck construction and related code requirements per the International Building Code® (IBC) and International Residential Code® (IRC). It also reviews connector and fastener selection, load capacity, corrosion issues and deck inspection. The course is intended to help lumber dealers, contractors starting in the business, landscape architects and do-it-yourselfers ensure decks are safe, strong and code compliant.



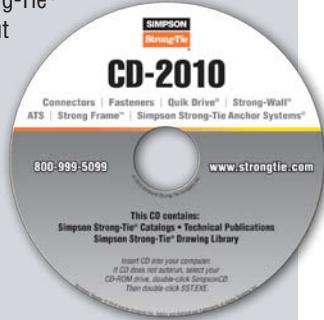
(continued on page 4)

Structural Report is published by Simpson Strong-Tie Company Inc. All information is meant to be relevant and useful. Information provided is for general understanding only. All designs or other information should be evaluated by a qualified design professional. MAILING LIST: To revise your mailing information, contact us at web@strongtie.com and include your old and new information.

LITERATURE UPDATE

NEW 2010 CD-ROM AVAILABLE

The new 2010 Simpson Strong-Tie® CD contains information about our entire product offering of connectors, lateral systems, fastening systems and anchor systems in one convenient place. It includes PDFs of our latest catalogs, fliers, technical bulletins and code reports as well as UPC information and product list prices for the U.S. It also features a Drawing Library with an extensive list of drawing files and orthographic views in DWG format.



Remember you can also download any of these items directly from our website. To request a CD or any of our free literature, visit www.strongtie.com/literature. ■

TRAINING UPDATE (continued from page 3)

Deck Building 102 covers advanced techniques for deck building with an in-depth focus on the critical connections involved in deck construction and the code requirements for those areas. It is intended to help designers, contractors, inspectors and deck professionals ensure that their decks are properly constructed per the IBC and IRC. The class reviews the deck connector system which covers all the hardware needs for deck construction and references the latest code requirements.

Seismic Design for Wood Framed Construction is a technical course intended primarily for structural engineers and architects interested in seismic design for wood-framed construction. Course topics include the 2006 IBC and ASCE 7-05 provisions, and code changes affecting the design. A design example is used for illustrative purposes.

In order to receive CEUs online attendees must first meet all of the workshop completion requirements and then pass the post-online test with a score of 70% or higher. Participants are allowed three attempts at passing the online test associated with the workshop.

Visit www.strongtie.com/workshops to see a complete list of in-class and online training courses, and click on “Frequently Asked Questions” for more information about credits. ■



P.O. Box 10789, Pleasanton, CA 94588
800-999-5099
www.strongtie.com

Inside this issue:

- ▶ **Ready for Some ... Confusion?**
New Wind Design Codes Explained
- ▶ **New Truss Restraints and Bracing for Cold-Formed Steel**
- ▶ **Giving Back to Haiti**
- ▶ **Earn CEUs through Online Training**