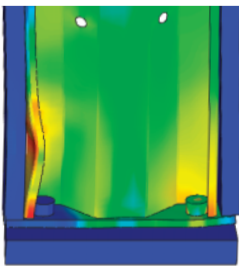


TECHNICAL UPDATE

NEW PRODUCT TESTING IN A VIRTUAL ENVIRONMENT

Investing in product development is fundamental to helping us find new, cost-effective solutions for our customers. Reducing product development time and physical testing cycles is essential to bringing products to market more quickly. Using High Productivity Computing (HPC) systems to conduct Finite Element Analysis (FEA) is becoming an increasingly important tool in our product development process.



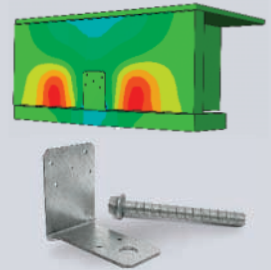
Steel flange buckling occurs during shearwall product testing; the FEA results closely mimic real world test results, demonstrating the credibility and usefulness of the virtual environment.

We have always rigorously tested our products with results verified by independent test laboratories. Our test process typically consists of physical laboratory tests and HPC-aided computer simulations. Our FEA engineering is pioneering the use of HPC in testing building construction materials. Although the types of test applications are common within this virtual environment, the materials our products are used on (*wood and concrete*) are not, so we are forging new ground in this area.

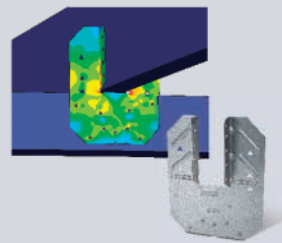
Using FEA, we are able to simulate wood, steel and concrete test setups, and use the results to eliminate certain prototype models or configurations that do not meet the structural requirements. The simulations help minimize the labor and time required to physically test prototypes and can significantly reduce total product development time – getting products that solve important structural issues in the hands of customers sooner. ■

Finite Element Analysis helped in the development of these new products:

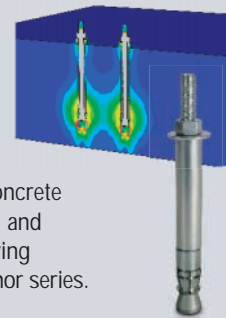
FWAZ – This product connects foundation walls to the floor system to resist lateral loads from soil pressure. This connection is called out in the International Building Code® and International Residential Code®.



H10A – This hurricane tie attaches to double top plates and provides up to 1,340 lbs. of uplift resistance when attached to a Southern Pine truss.



Torq-Cut™ Self Undercutting Anchor – The latest addition to our mechanical anchors, designed to meet or exceed the 2003 and 2006 IBC requirements. It performs in both cracked and uncracked concrete under static and seismic loads, and provides the highest load carrying capacity in our mechanical anchor series.



CODE CORNER

CONNECTOR ALLOWABLE LOAD DETERMINATION

Connectors, such as joist hangers, are used frequently to fulfill building code requirements. In one case, joist hangers may be used to comply with the purely prescriptive requirement that joists bear on a minimum of 1½ inch of wood or metal, as specified in IBC Section 2308.8.1 or IRC Section R502.6. In other cases, a joist, beam or truss hanger must meet specific download and/or uplift performance requirements that are determined by a designer using the load combinations in the IBC.

In any of these scenarios, the designer needs to be confident that the hanger will perform as expected. When specifying Simpson Strong-Tie® connectors, designers can have that confidence because the company follows the requirements of the International Building Code.

Although the IBC does not have a requirement that says you must use a joist hanger, it does say, in Section 2304.9.3, that “Connections depending on joist

hangers or framing anchors, ties and other mechanical fastenings not otherwise covered are permitted where approved. The vertical load-bearing capacity, torsional moment capacity and deflection characteristics of joist hangers shall be determined in accordance with Section 1715.1.”

Section 1715.1 contains very specific requirements for determining the allowable loads of joist hangers. Section 1715.1.1

(continued on page 2)

PRODUCT SPOTLIGHT

FIRST AUTO-FEED SCREW FASTENING TOOL FOR STANDING-SEAM METAL ROOFING

Standing-seam metal roofs have become a formidable roofing material, offering such qualities as durability, longevity, low maintenance, and a range of colors and styles. In the past, attaching the roof's interlocking panels required a screw gun and bulk screws. Simpson Strong-Tie has introduced the first auto-feed screw driving system for standing-seam metal roofing that cuts fastener installation time in half.

The new Quik Drive® System PROPP150G2 features the patent-pending Precision Placement™ nosepiece, which is specifically designed to drive fasteners into the pre-existing hole of a standing-seam clip. It does this in close proximity to the clip bend without interference by the tool. With the collated screw strips, there is no more fumbling for bulk screws, which also minimizes screw waste. The PROPP150G2 is lightweight and allows installers to drive screws with one hand, greatly increasing productivity. The tool also speeds up installation of trim details.

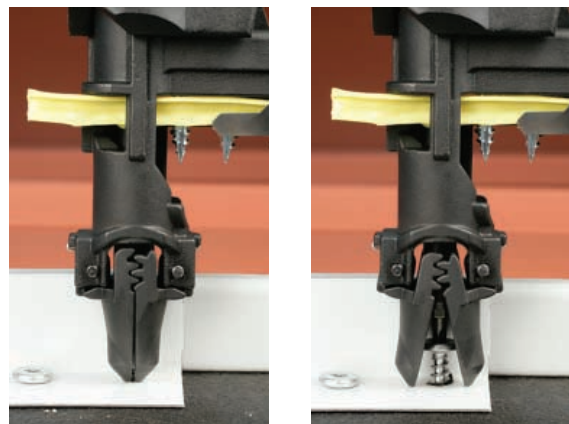
"We saw a 50% increase in speed when we used the tool with our 10' panels," said Lindoll Wallace, supervisor at Collis Roofing in central Florida. "Since the tool uses collated screws, the guys aren't bent over as far, which reduces back strain. Plus, they aren't holding individual screws in their mouths or slipping and driving the bit into their fingers."

The tool's attachment works with most brands of screw guns and two types of Quik Drive fasteners. There's a full line of pancake head self-drilling and self-piercing fasteners for standing-seam metal roofing as well as ultra-low profile pancake fasteners for use with snap-and-seam profile metal panels. As with all of the Quik Drive systems, the PP150 tool comes with a limited lifetime warranty.

For more information, visit www.strongtie.com/quikdrive. ■



PROPP150G2



Innovative Precision Placement nosepiece allows for easy location of the hole in the panel clip to drive the screw.

MAY IS DECK SAFETY MONTH®

The number of reported injuries and deaths due to deck failures continues to grow each year. It's estimated that of the 40 million existing decks, roughly half need to be rebuilt or retrofitted. To help increase public awareness about deck safety, the North American Deck and Railing Association (NADRA) has declared May as Deck Safety Month®. NADRA is encouraging homeowners to regularly inspect and maintain their decks and to make sure new decks are built properly. Simpson Strong-Tie is educating the public about deck safety and proper construction, and offers a *Deck Framing Connection Guide* to help with building a safe, code-compliant deck. To download a copy, visit www.strongtie.com/safedeck.

CODE CORNER *(continued from page 1)*

specifies that hangers must be tested in accordance with ASTM D 1761, using lumber with a specific gravity no less than 0.49 and no greater than 0.55, as determined in accordance with AF&PA NDS. Section 1715.1.2 indicates a minimum of three tests must be run and at least six tests when one of the results varies by more than 20% from the average result. It then goes on to discuss how to interpret the test data. It specifies that the allowable load is the lowest of the following:

1. The lowest load of the three tests divided by three.
2. The average of six or more tests divided by three.
3. The average of the load values that result in 1/8 inch deflection.

4. The calculated load value of the fasteners and the calculated bearing capacity of the wood in the seat of the hanger. These calculations must be in accordance with the version of the NDS (*National Design Specification for Wood Construction*) referenced in the IBC.
5. The design load value for the wood members forming the connection.

The next section, 1715.1.3, describes how to determine the torsional moment capacity of hangers. Finally, section 1715.1.4 specifies that allowable loads calculated by #4 or #5 (*above*) can be modified by load duration factors from the NDS where applicable, but loads determined by testing in #1 through #3 cannot be modified.

All this information has to be contained in the IBC because ASTM D 1761 only provides methods for testing, not methods for evaluating test results. Eventually, this will change when the new ASTM standard for joist hangers, ASTM D 7147-05, is implemented. This ASTM standard contains the latest specifications on how to test and how to derive allowable loads from test data, which will significantly simplify IBC Section 1715 by referring to this new standard. ■

Code Corner is written by engineer Randy Shackelford, P.E. of Simpson Strong-Tie. When he's not attending code hearings, he can be reached at rshackelford@strongtie.com.

WORKSHOPS & TRAINING

NORTHEAST

Continuous Load Path - Wood Framed Structures

Patchogue, New York	Wednesday, May 7
Columbus, Ohio	Wednesday, May 14
Indianapolis, Indiana	Wednesday, June 4

Simpson Strong-Tie Anchor Systems® for Engineers & Architects

Novi, Michigan	Wednesday, May 14
Ft. Mitchell, Kentucky	Wednesday, July 16

Residential High Wind Design for Architects & Engineers

Plymouth, Massachusetts	Wednesday, June 11
Patchogue, New York	Wednesday, June 25

Simpson Strong-Tie Wall Bracing Workshop (½ Day Program)

Columbia, Maryland	Wednesday, May 14
Naperville, Illinois	Wednesday, May 28

SOUTHEAST

Builders, Contractors, & Developers

McKinney, Texas	Thursday, May 8
Houston, Texas	Thursday, July 17

Introduction to High Wind Design & Construction

Corpus Christi, Texas	Wednesday, May 14
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Construction Using the High Wind Framing Connection Guide

Corpus Christi, Texas	Thursday, May 15
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Designing with Simpson Strong-Tie Anchor Systems®

McKinney, Texas	Friday, June 13
Jacksonville, Florida	Thursday, June 19

Wall Bracing Requirements of the International Residential Code®

Houston, Texas	Wednesday, July 16
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NORTHWEST

Engineers, Architects, & Specifiers Workshop

Stockton, California	Thursday, June 12
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General Connector Technology

Santa Rosa, California	Tuesday, May 6
Eureka, California	Thursday, May 8
Boise, Idaho	Tuesday, May 13
Redding, California	Tuesday, May 20

SOUTHWEST

Connector Workshop For Building Officials & Inspectors

Brea, California	Thursday, May 8
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Connector Workshop For Contractors, Builders, & Developers

Brea, California	Thursday, June 5
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Connector Workshop For Design Professionals

Brea, California	Thursday, July 10
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Cracked Concrete & Advanced Anchor Topics

San Diego, California	Wednesday, July 30
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General Connector Technology

San Luis Obispo, California	Friday, May 2
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General Connector Technology (.4 CEU)

Goleta, California	Monday, May 12
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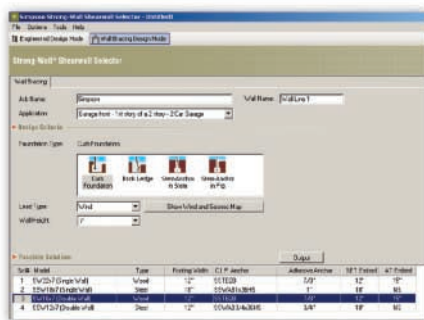
Simpson Strong-Tie Anchor Systems®

Brea, California	Thursday, May 22
San Diego, California	Thursday, July 31

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.



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SOFTWARE UPDATE

DOWNLOAD NEW SHEARWALL SELECTOR SOFTWARE

Our new and improved Strong-Wall® shearwall selector software helps specifiers find cost-effective solutions for engineered and prescriptive (*wall bracing*) designs using our Wood or Steel Strong-Wall® shearwalls. This free, easy-to-use software offers many new features, including updated load values for the 2006 IBC, single, two-story and balloon-frame wall solutions, cumulative overturning analysis for two-story applications, and anchorage design solutions. Visit www.strongtie.com/products/strongwall to download a free copy. ■

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 or to be added to the mailing list, sign up on our website at www.strongtie.com/newsletter. If you have article ideas, send them to chudak@strongtie.com.

SERVICE UPDATE

NEW SIMPSON STRONG-TIE® FACILITY

To better serve its Mid-Atlantic customers, Simpson Strong-Tie is setting up shop in Jessup, Maryland. The 39,600 sq. ft. facility will operate as a product distribution center and a will-call desk for local area customers, significantly decreasing shipping time for product orders. The new facility is scheduled to open in May. For a list of all of the company's locations, go to the website and click on About Us – Locations. ■



OUR TESTING CAPABILITIES – JUST A CLICK AWAY

We've recently created four new videos featuring our product research and testing capabilities. The overview video captures the breadth of our research and development efforts. The three lab videos feature product and systems testing from our Tyrell Gilb Research Laboratory in Stockton, California, our Connector Laboratory in Pleasanton, California, and our Anchor Systems Laboratory in Addison, Illinois. See all four videos at www.strongtie.com/videolibrary. ■

LITERATURE UPDATE

PICK UP THE NEW QUIK DRIVE® CATALOG

Our Quik Drive line of auto-feed screw driving systems has expanded. We continue to develop new tools to fasten a wide range of building materials. Pick up the new catalog (C-QD08) and see the latest Quik Drive systems for metal roofing, decks and docks, subfloor, underlayment, siding and more. To download a copy, visit www.strongtie.com/quikdrive.

To see the Quik Drive tools in action, watch our *Introduction to Quik Drive* video at www.strongtie.com/videolibrary. ■



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Inside this issue:

- ▶ *New Product Testing in a Virtual Environment*
- ▶ *Connector Allowable Load Determination*
- ▶ *First Auto-Feed Screw Fastening Tool for Standing-Seam Metal Roofing*