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Simpson Strong-Tie® Yield-Link® moment connections used in a commercial building.

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About Simpson Strong-Tie

Mission
We provide solutions that help people design and build safer, stronger structures.

Vision
To provide the most trusted construction solutions on jobs worldwide.

Values
1. Relentless customer service
2. Long-range view
3. High-quality products
4. Be the leader
5. Everybody matters
6. Enable growth
7. Risk-taking innovation
8. Give back
9. Be humble, have fun

The Simpson Strong-Tie Quality Policy
We help people build safer structures economically. We do this by designing, engineering and manufacturing No-Equal structural connectors and other related products that meet or exceed our customers’ needs and expectations. Everyone is responsible for product quality and is committed to ensuring the effectiveness of the quality management system.

Karen Colonias
Chief Executive Officer

We Are ISO 9001 Registered
Simpson Strong-Tie is an ISO 9001 registered company. ISO 9001 is an internationally recognized quality management system that lets our domestic and international customers know they can count on the consistent quality of Simpson Strong-Tie products and services.
Simpson Strong-Tie Philosophy

For more than 65 years, Simpson Strong-Tie has focused on creating structural products that help people build safer and stronger homes and buildings. Considered a leader in structural systems research, testing and innovation, Simpson Strong-Tie works closely with industry professionals to provide code-listed, field-tested products and value-engineered solutions. Its structural products are recognized for helping structures resist high winds, hurricanes and seismic forces. The company’s extensive product offering includes engineered structural connectors, fastening systems, lateral-force-resisting systems and anchoring systems as well as products that repair, protect and strengthen concrete.

From its first years of operation, Simpson Strong-Tie has led the industry in engineered structural connector design. Today, we have more than 65 engineers on staff, and the legacy of innovative product development lives on through the work we do every day. We have several test facilities, giving us the capability to test everything from the single products to the largest systems, and they are accredited, increasing confidence in the test results. The work we do in our labs gives us a better understanding of how structures perform, advances our design technology and improves building safety.

Simpson Strong-Tie Supports the US Resiliency Council

The mission of Simpson Strong-Tie is to provide solutions that help people design and build safer, stronger structures. This makes us a perfect partner for the U.S. Resiliency Council. We are proud to be a founding member and to support their work to improve the resilience and sustainability of our communities and livelihoods through natural hazard-building rating systems.

Research and Development — Product and System Testing

Test Facilities

Research and Development Laboratories (accredited to ISO 17025)

- Connector, Fastening & Materials Laboratory – Pleasanton, California
- Tyrell Gilb Structural Systems Research Laboratory – Stockton, California
- Concrete Anchoring & Chemistry Laboratories – West Chicago, Illinois

Regional and Quality Laboratories

Simpson Strong-Tie has quality labs located strategically at various manufacturing facilities and also research facilities at our branches (CA, TX, IL and TN) to address regional construction issues and to train and support local customers.
University-grade Research and Testing Labs

To better understand how structures perform, Simpson Strong-Tie regularly collaborates with other researchers and research facilities across the United States. We often donate products to universities for testing purposes, and our engineers volunteer their time to teach courses. We also lend financial support to further research efforts. Examples of our support include donations to Washington State University (WSU), Pullman, WA, establishing the Simpson Strong-Tie Excellence Fund and Simpson Strong-Tie® Research and Testing Lab, and to California Polytechnic State University (Cal Poly), San Luis Obispo, CA, for the construction of the Simpson Strong-Tie® Materials Demonstration Lab. Our ongoing collaboration with academia enables us to learn from others, share our expertise and provide a broader knowledge of structural safety. That helps the industry as a whole to build safer, stronger structures. We’re adding additional capacity in our own structural systems research lab to be able to apply higher forces (up to 1 million pounds!), which will allow us to develop solutions for larger/stronger steel and concrete structures.

New Product Testing in a Virtual Environment

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

We’ve always rigorously tested our products, while ensuring that our test results are verified by independent and accredited test laboratories. Our test process typically consists of physical laboratory tests and HPC-aided simulations. Our FEA engineering uses HPC in virtually testing construction materials.

Using FEA, we’re able to simulate wood, steel and concrete test setups, and use the results to iterate more quickly, investigate many more options prior to physical testing, and understand the stress patterns that are difficult to capture in physical testing. The simulations help minimize the labor and time required to physically test prototypes and can significantly reduce total product development time, resulting in getting products that solve important structural issues into the hands of customers sooner.
Continuous Load Path Considerations for Load-Bearing Construction

Modern design and construction practices use structural connectors to form a continuous load path of reinforcement from the roof all the way to the foundation that can enable structures to effectively resist wind and seismic forces.

Simpson Strong-Tie® connectors are designed to enable structures to resist the movement, stress and loading that results from natural events such as earthquakes and high-velocity winds. When properly specified and installed, our connectors will perform as stated by our literature and website.

Simpson Strong-Tie products and systems are some of the most thoroughly tested and evaluated products in the industry. They are value-engineered for the lowest installed costs at the highest-rated performance levels. Because our products and systems save contractors time in the field, when properly specified they typically provide an easier installation at a lower installed cost.

The building code requires a complete load path that can transfer loads from their origin to load-resisting elements. The connections from one structural member to another are critical to ensuring that the building will perform under loading as desired. A continuous load transfer path from the roof to the foundation is depicted here.
Challenge
Support ultramodern façade design with contemporary expansive interiors. Diagonal beam bracing would have created architectural intrusions.

The Harlan project has many wide-open spaces on the north and south sides. The architectural design of the structure would not accommodate regular shearwalls or cross-bracing to address the lateral-resisting elements. Gouvis also had to consider the feasibility of the construction in their final design.

Solution
A steel special moment frame that required no lateral-beam bracing or welding. An added benefit of the bolted Yield-Link joint technology is the ability to replace the links and get the structure back in service quickly if there is damage after a large earthquake.

Once the decision to use a moment frame solution was made, Gouvis did some preliminary analysis to determine the sizes of the columns and beams and determined that the welding and installation would be much more difficult than going with a prefabricated product. The moment frames allowed the architectural design to remain intact because there was no interference with the design’s expansive openings on the north and south sections of the building.

Results
The Strong Frame special moment frames reduced the need for diagonal bracing. They also reduced installation time by 10% and installed costs by 50%.

For more information, visit strongtie.com/strongframe.
Challenge

Restore and strengthen older masonry walls after an earthquake.

A 6.1 magnitude earthquake shook Napa, California, in 2014. The Napa County Courthouse sustained significant damage during the earthquake. When ZFA first surveyed the building, it looked relatively intact but it had clear damage in one of the jury rooms and there was some diagonal cracking throughout the entire building. The most important aspect of the project was restoring the historical character of the building.

Solution

FRCM strengthened, restored and preserved the historical structure of the building. A wide range of solutions exists for repairing brick, starting with simply repointing and grout-injecting the cracks and proceeding all the way to a partial teardown and replacement of the bricks. Other solutions include adding steel brace frames or shotcrete shearwalls. However, adding these systems would add new structural elements to the existing building.

When ZFA Engineers chose the Simpson Strong-Tie® FRCM product, it was going to be used in a new application. To ensure that the project would be installed properly, mockups were set up at the Simpson Strong-Tie facility in Stockton, California. Because it was a new product in a new application, Simpson Strong-Tie supported the project by working with and certifying all the installers through the entire process of design, detailing and installation.

Results

The FRCM product allowed ZFA Engineers and Pullman Restoration Contractors to confidently restore the historic Napa County Courthouse and maintain all the building’s historical features and character.

For more information, visit strongtie.com/frcm.
Case Study

**Project**  Veterans Affairs Building — Redding, CA (new construction)
**Client**  Nicols, Melburg & Rosetto
**Product**  Yield-Link® Moment Connection

**Challenge**
Meet the AISC bracing requirements with a top metal deck and steel joist design.

The design of the Veterans Affairs building consisted of a top metal deck and steel joists that were challenging to connect. The intersecting beams would require beam bracing in a traditional RBS design. The bracing requirements in the AISC seismic provisions were difficult to achieve with the RBS connection in this case.

**Solution**
The Simpson Strong-Tie® Yield-Link moment connection that can be designed with no lateral beam bracing.

The Yield-Link moment connection does not require lateral bracing that would otherwise be required in the RBS design. The developer, who was also the contractor, was pleased with the benefit of eliminating field welding and special inspection and moving to a bolted connection.

Since the RAM model was already set up for the RBS design, it was an easy and straightforward process to redesign the building with the Yield-Link moment connections. Simpson Strong-Tie provided an Excel spreadsheet that allows the engineer to enter the forces and member sizes based on the RAM model.

**Results**
The drift was a little higher with the Yield-Link moment connection requiring the design be slightly adjusted for the beam and column sizes. Moment frames are designed not just for strength but also for drift control. The Yield-Link moment connection is a fully-bolted connection with potential cost savings and resiliency advantages when compared to traditional welded moment frames.

For more information, visit strongtie.com/yieldlink.
Challenge
Construct and retrofit homes that will meet and exceed the code minimums to increase resiliency.

Mexico Beach is not a town that has historically seen many hurricanes, and certainly nothing like Hurricane Michael. The intensification at the very end of the storm prior to landfall was something the city was not prepared for.

A person building or buying a house may not always know that the building code actually is the minimum standard. It is there for life safety, which raises a serious question: Is building just to the code going to be enough or do homeowners want to go above the code?

The homeowners of the Mexico Beach house wanted to design a home that could withstand the violent hurricane season. The engineers discussed the code and then looked for products and methods that would help them go above and beyond code requirements. The house was built to the homeowners’ comfort level and used the building code as a guide and bare minimum in the design process.

Solution
Use Simpson Strong-Tie hurricane ties and straps to create a continuous load path.

The roof is the toughest part of the engineering process and is held down with hurricane ties. Connections need to be made all the way down into the point of resistance, which is the foundation. If a step is skipped, then a potential failure can occur somewhere down the load path.

Results
After the hurricane, the area was assessed. The house was one of the few Mexico Beach structures that withstood Hurricane Michael.

For more information, visit strongtie.com/highwind.
Both our Yield-Link® moment connection and Strong Frame® product lines use our Yield-Link structural fuse technology. Our Yield-Link connections are all field-bolted connections that allow for faster installation and are replaceable after a significant earthquake, protecting the beam/column connection. The Yield-Link moment connection and Strong Frame are included in HB Risk’s Seismic Performance Prediction Platform (SP3) as solutions for designers when considering recovery time and repair cost as well as life safety. Our moment connections have been shown to be the most resilient design of current prequalified connections in the SP3 program.

Yield-Link Moment Connections
Simpson Strong-Tie® Yield-Link moment connections are precision made to meet the tough demands of structural steel construction. From building owners to engineers, to contractors and fabricators, the Yield-Link’s state-of-the-art fuse technology and design tools save everyone time and money, while providing a connection that keeps structural steel buildings strong and safe.

Strong Frame Special Moment Frames
Simpson Strong-Tie Yield-Link moment connections are precision made to meet the tough demands of structural steel construction. From building owners to engineers, to contractors and fabricators, the Yield-Link’s state-of-the-art fuse technology and design tools save everyone time and money, while providing a connection that keeps structural steel buildings strong and safe. Strong Frame includes the beam and column members as well as the Yield-Link connection technology and is designed to be incorporated into wood frame construction. It is ideal for soft story retrofits. The full frame comes with pre-attached wood nailers.
Strong-Wall® Shearwalls

Strong-Wall shearwalls from Simpson Strong-Tie offer consistent, reliable performance no matter what the lateral-strength design variables are. Our innovative wood and steel options provide maximum flexibility, ease of installation and code-listed, industry-leading strength for every job. Backed by our unparalleled technical and field support, your shearwall installations will be faster, stronger and smarter than ever.

Strong-Wall High-Strength Wood Shearwall

The Strong-Wall® WSWH high-strength wood shearwall is a prefabricated engineered wood panel. Combining design flexibility with performance, this code-listed shearwall is field adjustable with the ability to be trimmed and drilled onsite. It can also be customized to accommodate varying heights or rake walls.

Steel Strong-Wall

The Steel Strong-Wall shearwall is a prefabricated, steel panel that helps structures resist lateral forces, such as those created by earthquakes and high winds. Designed with easy installation in mind, the Steel Strong-Wall features some of the highest allowable loads in the industry. This code-listed shearwall is suitable for residential or commercial construction.

Strong-Rod® Systems

Simpson Strong-Tie® Strong-Rod Systems have become a popular continuous rod tiedown solution for light-frame, multistory wood construction. Our anchor tiedown system for shearwall overturning restraint and our uplift restraint system for roofs address many of the design challenges specifically associated with multistory buildings that must withstand seismic activity or wind events.

To complement its research and design expertise, Simpson Strong-Tie has all the components needed to optimally design and build a continuous rod tiedown system for withstanding shearwall overturning forces. From our threaded rod to our plates and nuts, to our latest shrinkage compensators.

The Simpson Strong-Tie Strong-Rod uplift restraint system for roofs (Strong-Rod URS) is a continuous rod tiedown solution designed to provide a complete load path to resist uplift (suction) pressure on the roof by transferring these forces through the structure to the resisting elements (typically the foundation).
Fastening Systems

In the fastener marketplace, Simpson Strong-Tie stands apart from the rest. Quality and reliability is our top priority. That is why we hire PhDs, metallurgists, materials engineers, mechanical engineers and structural engineers to create the best possible fasteners. And also why each production run goes through rigorous testing to ensure our products can handle higher loads, resist corrosion and make installation more efficient.

Wood Construction Connectors

Through precision engineering and rigorous testing, we push the boundaries of wood construction connector design to match the most demanding applications with the fastest, easiest and strongest products available.

Our advancements in steel connectors have led to countless improvements in construction, including better ways to protect homes from earthquakes and high winds. From hangers to hurricane ties and holdowns, our broad range of connectors supply the versatility, reliability and high-performance needed by today’s construction professionals.

**Strong-Drive® SDS HEAVY-DUTY CONNECTOR Screw**

The Simpson Strong-Tie Strong-Drive SDS Heavy-Duty Connector screw is a ¼"-diameter high-strength structural screw ideal for various connector installations as well as wood-to-wood and engineered wood applications. It installs with no predrilling and has been extensively tested in various applications. The SDS has been improved with an easy-driving Type-17 point and a corrosion-resistant double-barrier coating.

**Strong-Drive SDWC TRUSS Screw**

The Strong-Drive SDWC Truss screw provides a stud-to-bottom plate or stud-to-top plate connection as well as fastening trusses and rafters to top plates. The full-threaded shank engages the entire length of the fastener, providing a secure connection. The SDWC is tested in accordance with ICC-ES AC233 (screw) and AC13 (wall assembly and roof-to-wall assembly) for uplift and lateral loads between wall plates and vertical wall framing, and between the top plate and the roof rafters or trusses.

**HU Heavy Face-Mount Joist Hanger**

The HU is designed for structures requiring additional strength and load resistance. Some models of this heavy-duty, face-mount hanger can be special ordered with a skewable seat and a seat that slopes as far as 45°.

**HDU Holdown**

The HDU is designed for use in shearwalls and braced wall panels, as well as other lateral applications in wood construction. The HDU uses Strong-Drive® SDS Heavy-Duty Connector screws, which install easily, reduce fastener slip and maintain a greater net section of wood compared to bolts.
Repair, Protection and Strengthening Systems

Simpson Strong-Tie provides the most comprehensive repair, protection and strengthening product offering to serve infrastructure, commercial, industrial and residential construction markets. These innovative products are the result of more than 40 years of laboratory development, field study and contractor input and have passed the rigorous performance and quality assurance testing you have come to expect from Simpson Strong-Tie. We will continue to expand upon this line of products and provide our customers with industry leading jobsite, technical and customer support.

Our Fabric-Reinforced Cementitious Matrix (FRCM) solutions combine a high-performance sprayable cementitious matrix with a carbon-fiber grid to create a thin structural layer that will not add significant weight or volume to the existing structure. The Fiber-reinforced polymer (FRP) systems are high-strength and lightweight reinforcements created by combining carbon (CFRP) or E-glass fibers with a polymer material. The FRP systems provide significant flexural, axial or shear strength gains with an easy-to-apply composite that does not add significant weight or mass to the structure over traditional retrofit methods. Leverage our expertise to help with your composite strengthening designs.

Anchoring Systems

Our full array of anchors and fasteners for concrete and masonry provide innovative solutions for residential, infrastructure, commercial and industrial construction.

**SET-3G™ High-Strength Epoxy Adhesive**

SET-3G is a 1:1 ratio, two-component, adhesive for anchoring in concrete (cracked and uncracked). SET-3G installs and performs in a variety of environmental conditions and temperature extremes.

**Titen HD® Heavy-Duty Screw Anchor**

A high-strength screw anchor for use in cracked and uncracked concrete, as well as uncracked masonry, the Titen HD offers low installation torque and outstanding performance. Designed for use in dry, interior, noncorrosive environments or temporary outdoor applications.

The stainless-steel Titen HD is the optimal choice for applications in corrosive or extreme environments, such as salt water, or when chemical or corrosive solutions are present.
Products and Solutions

Mass Timber

Strong-Drive® SDCF TIMBER-CF Screw CBH Concealed Beam Hanger

With over 65 years of leadership in structural product offerings, Simpson Strong-Tie is now proud to offer smart solutions for mass timber. As the first North American-based company to embrace the challenge, we’re leveraging our dual passions of service and innovation to meet this industry’s unique demands.

From our rigorously tested products that provide design flexibility, to a nationwide supply network that delivers exactly what you need, when you need it — our expertise and dedication ensure that mass timber builds faster, easier and stronger than ever.

Software, Services and Support

Specification Tools and Software

Our comprehensive collection of specification tools and software, covering all our product lines, allows designers, engineers/specifiers and builders to quickly and accurately specify the correct products, sizes and quantities for each application.

Service

At Simpson Strong-Tie, we have a legacy of unparalleled customer support. Whether you have a simple product question, or need insight into a technical issue or project design, our experts are here to assist at a moment’s notice. On the phone, online or on the jobsite — problem solving is our passion. And we do it on your schedule, not ours.

- 65+ licensed engineers on staff to take your call
- 200+ field sales representatives to meet you at the office or jobsite
- Five accredited full-scale labs to verify product solutions
- Extended customer service hours to help you meet your deadlines

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About the USRC Industry Partner Committee

The USRC established the industry Partner Committee (IPC) in 2020 to leverage the knowledge and expertise of its industry members to improve understanding of the performance of structures during seismic and other natural hazard events. USRC Industry Partners have committed to providing technical information, support and options for improving expected building performance, which can thereby help to improve a structure’s resilience and USRC rating.