

# Innovative Structural Steel Systems



Think, design, and build with structural



# Connection Solutions



CAST CONNEX simplifies the design and enhances the performance of structures by enabling architects and engineers to integrate steel castings into their designs. CAST CONNEX® standardized products include Universal Pin Connectors™, Architectural Tapers™, Diablo Bolted Splices™, Timber End Connectors, High Strength Connectors™, Cast Bolted Brackets, Scorpion Yielding Connectors™, and High Integrity Blocks®. The company also offers design-build services for custom cast steel nodes and components. CAST CONNEX takes pride in collaborating to create safer, innovative, and more beautiful built environments.



CONXTECH is an innovative Chassis Based Modular™ structural steel building system. ConX enables rapid design, fabrication, and assembly of robust, cost-efficient, and sustainable structures for the industrial, high-density residential, healthcare, data center, and commercial markets. ConX steel connections simply “lower and lock”™ together in the field, allowing two-to four-times-faster assembly vs. conventional steel or concrete structures. The ConX System typically results in cutting total tonnage, eliminating waste in the factory and field and reducing risk with a stronger, safer structure. ConXL™ is OSHPD-approved and published in the *Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications* (AISC 358-16). ConX is LADBS-approved and Cradle to Cradle Certified CM at the silver level.



SidePlate Systems is the most experienced structural steel expert in the industry—we only work on steel building design. Our team takes a steel lateral design and optimizes it with our patented connection designs that feature no procured parts. The results of our optimization are steel tonnage reduction, erection time savings, and a performance-based design that saves money. For the general contractor, SidePlate Systems becomes their extension in the design team. For the engineer, SidePlate Systems becomes the go-to source for steel structure optimization. Working closely with the fabricator, SidePlate Systems supplies detailing tools and hands-on assistance, ensuring the new, lighter, easier to erect steel package is the best job to run through the shop. In the field, erectors like our bolted connection designs that allow faster erection, mitigate weather delays that welded connections struggle with, and, of course, add strength to the building, resulting in high levels of resilience. SidePlate Systems brings a huge bonus to owners by delivering a lighter steel package, faster erection, and multiple areas of savings. For all your steel buildings, SidePlate Systems just makes sense.





The **Hollo-Bolt** is the original expansion bolt for structural steel that is quickly and conveniently installed by simply inserting the fastener into a pre-drilled hole and tightening with a torque wrench, which reduces construction time and labor costs. The Hollo-Bolt is a faster alternative to welding or through-bolting hollow structural sections (HSS) or other steel members where access is restricted to one side. It is also ideal for joining HSS in spliced connections, as demonstrated on Los Angeles' tallest skyscraper, the Wilshire Grand Center. The Hollo-Bolt is approved by the International Code Council (ICC) and compliant with the *International Building Code*. ICC-ES Report ESR-3330 verifies that the Hollo-Bolt is approved for use in all Seismic Design Categories (A through F) for resisting wind loads and seismic loads. In addition, the Hollo-Bolt provides the highest resistance to tensile loading in accordance with AC437 while ensuring compliance with the *International Building Code*.

800.368.2268 | 866.566.2658



The **Yield-Link** connection is made to meet the tough demands and strength requirements necessary for structural steel construction and is the first prequalified SMF connection specifically designed to protect beams and columns from damage during earthquakes. From building owners and engineers to contractors and fabricators, the Yield-Link's state-of-the-art design saves everyone time and money—while providing a connection that keeps structural steel buildings strong and safe. The Yield-Link connection is included in *Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications* (AISC 358-16), Chapter 12, and new larger links (up to 1 in. thick) have been developed to support larger beams and columns (up to W36).

Our software and design support services provide the speed and technical expertise needed to tackle the complex challenges of structural steel connections. To assist designers in streamlining structural analysis and connection design using the Yield-Link connections, we created plugins for SAP2000®/ETABS® and Revit. Simpson Strong-Tie also has a Tekla custom component to assist detailers in locating the beam and column holes at the special moment connection region. Our tools can help you quickly plan, model, and document complete designs according to your project's unique specifications—all while staying on time and within budget.

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ComSlab® is a long-span and shallow composite floor system that helps structural steel compete with low floor-to-floor concrete designs. With depths as low as 10½ in., it can be combined with various proprietary flush beams or conventional AISC sections hidden in the floor section. ComSlab® is a lightweight assembly that has

featuring Deep-Dek® Composite (DDC) is a floor system capable of spans up to 40 ft. It integrates deep-ribbed steel profiles with a structural concrete topping. The deck serves as formwork during construction and strengthens the slab to support service stage loading. Versa-Floor can be placed on beam or wall bearing frame system. Deck ends, for example, can be placed on ledger angles attached to upturned steel beams to help reduce the depth of the beam soffit below the ceiling plane. DDC's 12-in.-wide deck sheets, available in three depths, can be spread individually on the frame or preassembled into panels either on- or off-site. DDC has factory-closed ends so end-closure angles are eliminated. A pneumatic-drive tool forms the deck side-lap connections, which are critical to achieving composite strength.

Prior to placing concrete, longer deck lengths are line-shored at mid-span, and unshored designs are obtainable over mid-span lengths. DDC is ICC-ES evaluated for structural conformance with the *International Building Code*. The system is non-combustible and UL fire-rated and responds predictably to floor vibration. The authors of AISC's vibration design guide customized our vibration analysis software based on the results of extensive field and laboratory testing.

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The most progressive specification for structural shapes in the market, **A 13** steel, produced by quenching and self-tempering, simultaneously combines high-strength with superior weldability, toughness, and ductility characteristics. Available in yield strengths of 50 ksi (345 MPa), 65 ksi (450 MPa), and 70 ksi (485 MPa), ASTM A913 steel is compliant with structural design and fabrication codes throughout the world, including the *International Building Code*, AISC's *Specification for Structural Steel Buildings* (AISC 360) and *Seismic Provisions for Structural Steel Buildings* (AISC 341), CISC's *Handbook of Steel Construction*, ASTM A709 *Standard Specification for Structural Steel for Bridges*, and AWS's *Structural Welding Codes*, among others.



## Modular Solutions



A DIVISION OF ZEKELMAN INDUSTRIES

ZModular, a division of Zekelman Industries, has pioneered a better and more innovative way to build with steel. Using the revolutionary VectorBloc connector and steel hollow structural sections (HSS), ZModular can deliver modular construction that is stronger, taller, faster, smarter, and greener than other current alternatives. Using precise fabrication techniques, the steel modules are built in a factory setting allowing very tight control of fabrication and construction tolerances. Modules are erected quickly onsite without any "tolerance creep." ZModular can provide services that start with the design and engineering of the modules, continue with the fabrication and full fit-out, and end with the erection and installation of a completed modular structure. Whether you are looking to build multi-family housing, hotels, dormitories, small office buildings, or datacenters, ZModular can deliver and take your modular project to new heights.



# Thermal Breaks



ARMATHERM™ provides a combination of low thermal conductivity and high compressive strength and has been used in hundreds of structural steel framing connections transferring load in moment and shear conditions. The material is made of a reinforced, thermoset resin which is fire-resistant, does not readily burn, and has very limited creep under load, making it the ideal material for use in structural and façade thermal break connections.

It can be used anywhere a penetration or transition exists in the building envelope creating a thermal bridge. Situations using Armatherm™ to minimize heat loss include balcony, canopy parapet, masonry shelf angle, cladding/Z-girt, and curtain wall mullion connections. Improvements in the effective U value of wall assemblies can be realized by as much as 60–70%.



FABREEKA-TIM® is a load-bearing thermal break used between flanged steel connections. The primary benefit is that it maintains structural integrity while reducing energy loss. Made in the U.S. from a fiberglass-reinforced laminate composite, Fabreeka-TIM® is stocked in several thicknesses, including ¼-in, ½-in, and 1-in. Fabreeka uses a water jet machine for precise cutting to any configuration. It can be supplied with Fabreeka-TIM® washers, and Fabreeka® bushings, which, when used together in a structural connection, greatly reduce the energy loss rate through conduction.





# Wall Systems



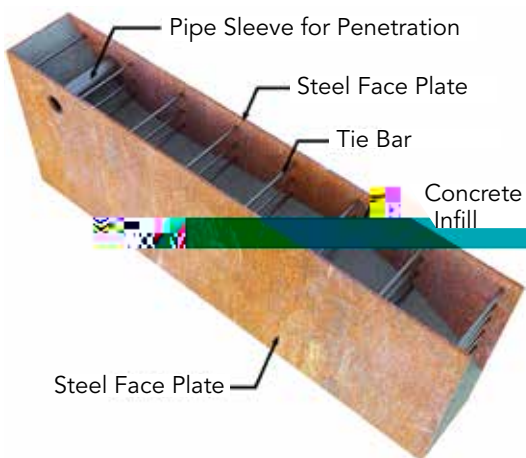
**Pre-Engineered Steel** is an innovative yet simple shop-fabricated structural steel framing system for mid-rise and multi-story residential projects such as apartments, condominiums, hotels, and student housing. It is a conventional system and does not require special code approvals or fabrication techniques. Prefabrication of steel framing results in significantly reduced labor at the site.

Advantages over concrete construction:

- Significant saving in construction cost
- Faster to build—about one week per floor
- Early to market, lower general conditions
- About 40% lighter than a concrete structure, resulting in reduced foundation costs
- Fits within the walls of residential units
- Floor cavities and steel joist web openings allow for horizontal air exhaust for the units, thus eliminating the need for costly fire-rated vertical shafts and scavenger fans on the roof

Advantages over wood construction:

- A higher-quality and more robust system at a very competitive cost
- All noncombustible materials, resulting in lower insurance costs
- No hidden problems due to dry rot
- No shrinkage or warping
- Can go taller than four or five stories, thus adding more units and reducing cost per unit



## SpeedCore

**SpeedCore** is a non-proprietary revolutionary system of composite structural-steel framing that replaces common reinforced concrete core construction. The steel plate composite wall system leverages the speed and accuracy of steel and the stiffness of concrete. The system removes the need for reinforcement placed onsite and the additional time for concrete curing that typically sets the pace for building construction. Embeds are no longer a field-measured installation, reducing onsite coordination. Construction schedule savings and cost savings are dramatically demonstrated in the Rainier Square Tower (Seattle, WA) project, designed by Magnusson Klemencic Associates.

For the latest and greatest innovations, visit [www.aisc.org](http://www.aisc.org). And to add one to our list or learn more about how to use any of these options on your next project, visit [www.aisc.org](http://www.aisc.org) or contact us at [info@aisc.org](mailto:info@aisc.org).

