

An Overall Strong Year for Steel Expected, Companies Say

Some Government Projects Cut Back as Commercial Jobs Grows

By Larry Kahaner

Companies in the steel fabrication business are expecting a strong 2014 as firms continue to innovate, improve their existing products and focus on their particular sectors.

“We are seeing some strong activity in large commercial construction projects in select metropolitan areas. These are primarily high-rise residential properties,” says Kevin Bates, Vice President Sales & Marketing at MMFX Steel Corporation, (www.mmfx.com) in Irvine, California. “We have seen some slowing in highway and bridge construction recently, but this has really varied state by state in the U.S. States having robust bridge construction markets have put through state level highway funding appropriations versus being highly dependent on federal money. Additionally, states that have some level of acceptance to allow Public-Private Partnerships are seeing good construction activity.”

At the Vulcraft/Verco Group (www.nucor.com) in Norfolk, Nebraska, Michael Klug, Marketing Coordinator, New Products and Market Development, notes: “The re-shoring of American jobs will surely push our market in the right direction; this is, in large part, due to our domestic energy supply that continues to grow and create an environment that is conducive for manufacturing.”

Others, like Bob Allen, U.S. Construction Hardware Product Manager of ITW Building Components Group, (www.itwbcg.com) in Pompano Beach Florida, suggest that companies that have survived the past downturn will do well simply because they have weathered a severe storm and have come out stronger. “They all believe that the worst is behind them. There’s a lot less of them to meet market demand, so from that standpoint, I feel the ones that survived are going to be in good shape.”

Allen notes that his company will be introducing a series of face mount hangars within the next 30 days. “It’s a new series for us, one that will serve as a replacement for up to four different series that our competitors currently offer.” He adds: “That, by itself, will be a huge advantage. The load carrying capacity of these face

“We are seeing some strong activity in large commercial construction projects in select metropolitan areas.”

mount hangars will be the highest in the industry... It fulfills a need that is one of the most sought after among our core customers.” (See ad on page 46.)

Klug says that his company is always looking for ways to take care of its customers which range from steel fabricators, to GC’s, to erectors, to large corporations and private owners. “Being a part of Nucor Corporation gives us an unmatched supply chain, as well as a wide variety of other steel products that we can offer.” He adds: “We work closely with Tekla, SDS/2 and Revit to ensure that we are leading the industry in the use of BIM.”

MMFX’s Bates says that his company has just introduced its ChromX4100 Grade 100 reinforcing steel. “This high-strength steel, meeting all of the mechanical properties of ASTM A1035, is targeted at applications that can benefit from using less reinforcing steel.” He adds: “The ChromX4100 complements our other product, MMFX₂, which provides uncoated corrosion resistance along with the Grade 100 high strength properties. The chemistry of the ChromX4100 has been modified slightly from the MMFX₂ to lower the corrosion resistance and as a result lowering its production costs. This makes the ChromX4100 rebar ideal for applications needing the higher strength but not requiring the same level of corrosion resistance.”

As far as trends are concerned, Bates sees reinforced concrete structures starting to increase the use of high strength reinforcing steels. “As designs are requiring more steel, buildings are getting taller. The natural evolution is towards taking advantage of higher strengths. Grade 75 steel is seeing increased use. MMFX Steel has been offering Grade 100 steel for 12 years and are now seeing its

use pick up since the recent changes to construction codes. We see a future that will move toward even higher strengths when combined with higher strength concrete mixes.”

Jason Hoover, Industry Outreach Executive for SidePlate Systems, Inc., (www.sideplate.com) who works out of Strongsville, Ohio, says that the company in 2013 debuted a new SidePlate Bolted moment connection option for R=3 projects. “For projects with higher seismic criteria, SidePlate connections are now listed as prequalified moment connections in Supplement #2 of the AISC 358-10 standard.” Hoover says that SE’s will appreciate its features. “The SidePlate Bolted connection delivers the same stiffness benefits as our fillet-welded connection, but the bolted option has no field welding at all so it’s even easier to erect. As of today, we only have a few data points for actual completed bolted projects, but responses from fabricators and erectors have been extremely positive support of the time and money saved at each stage.” He adds: “On the seismic side, the SidePlate connection’s prequalifications from other agencies predate the original AISC 358 standard, but we recently decided to go through the effort of getting AISC’s third-party approval as well. We’re happy to say that their committee reviewed and approved of all of our testing data and results. The new Supplement #2 to AISC 358-10 also includes an extensive commentary on the history and evolution of SidePlate connections that will be helpful for engineers looking for more background.”

Hoover says that SidePlate’s business is doing very well, and it’s growing. “Our biggest market is healthcare, which has been steady. The commercial market seems to be picking up some steam, and

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while we’ve historically worked on a large number of government projects, those have dried up considerably. Our customers seem to be cautiously optimistic about the near-term general construction forecast, and we’ve heard rumblings that the steel mills are warning of longer lead times as a burst of construction activity is expected in mid-2014.”

At ITW’s TrusSteel Division, (www.trussteel.com) officials report that business has been steadily increasing as the residential construction market improves. Dave Dunbar, National Sales Manager, says: “Cold-formed steel trusses are the ideal solution for pitched roofs requiring non-combustible materials. With improvement in the retail, office and hospitality sectors, we are projecting continued growth. Two core sectors for our type of construction, assisted living and education, will see mixed results based on regional demographics, and government construction is slowing due to reduced government spending.”

TrusSteel recently introduced a new chord shape, the TSC300. “The TSC300 chord provides all the benefits of the TrusSteel

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TSC400 chords, but is more cost effective because it maximizes the effective area. This 3-inch tall chord is utilized for mid-span ranges of 35 to 50 feet at both 24-inch on-center and 48-inch on-center, depending on load conditions,” says Dunbar. The TSC300 was the result of collaboration with the company’s customer base. “This new chord was identified as an opportunity to help them offer more competitive systems.” (See ad on page 48.)

Rich Madden, Marketing Manager at New Millennium Building Systems, (www.newmill.com) in Fort Wayne, Indiana, says that the company focuses on product development that can improve steel project performance and contribute to a range of total-project cost reductions. “Our research in this area has led to the release of our FreeSpan Beams, our expanded specifications for special profile steel joists, and our new Flex-Joist Gravity Overload Safety System.” He adds: “Our FreeSpan line of castellated and cellular beams features either hexagon or circular openings as a result of the castellation process. The beam is 50% deeper and up to 40% stronger than the original ‘parent’ beam, without adding any additional weight. So now you have a very efficient beam that can be exceptionally cost-saving as well as design-enhancing, because you can create wide-open, wide-span designs with fewer and narrower support beams. All the HVAC and electrical can run through the beams, light flows through the beams for added night safety, and the beams have a strong aesthetic appeal.”

This spring, New Millenium will release its updated special profile joists catalog, which enables both the architect and engineer to design unique rooflines on their buildings for a reasonable price.



Courtesy of Bradken Inc.

Products include bowstring joists, gable joists, scissor joists, as well as other special shapes. The new catalog provides specification tables for over 40,000 possible design combinations.

Madden says that The Flex-Joist Gravity Overload Safety System addresses a growing concern over unanticipated extreme roof snow and rain loads, which may in some cases be attributable to climate change. “The approach is to engineer a steel joist to flex much more gradually and deeply than a traditionally engineered steel joist in the event of an extreme overload, so as to establish the element of time delay. With sensors in place to detect this deflection, an early warning system can signal the need for evacuation, roof shoring or possible removal of the overload.”

On the software side of the steel business, companies like Lincoln, Nebraska-based Design Data (www.sds2.com) are continuing to offer new products and services. “SDS/2 2014 is the latest release

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of our flagship product, SDS/2 Detailing,” says Michele Arnett, Marketing Manager. “The connection design capability has grown by leaps and bounds in this past version. The SDS/2 Erector is a new product that helps general contractors and erectors plan the job site, and the SDS/2 Approval helps project managers and reviewers to be much more productive.” She says that Design Data’s core customer base is steel fabricators and steel detailers involved in commercial and industrial fabrication, and that list has expanded. “With the recent growth of BIM, the SDS/2 customer base has grown to include designers, general contractors and other segments who benefit from the 3D model.”

At RISA Technologies, LLC, (www.risatech.com) in Foothill Ranch, California, Director of Marketing Amber Freund says that RISACONNECTION v4.0 was recently released. “This new version includes the design of HSS connections, which are a hot topic in the engineering community today.” Freund says of the company’s products, “Unlike more basic connection software that is on the market, RISACONNECTION designs the connection for all of the applied forces, including axial forces due to beam tension/compression, and flexure on the face of tubes due to shear connection eccentricity.” She adds: “Ever since RISACONNECTION v1.0 was released, we have received an overwhelming demand to add HSS connection design to the software. The design criteria for HSS is relatively new (by the standards of the engineering community) and many engineers prefer to have reputable software help guide them in application of the latest design practices. By introducing

connection design through a RISA product, we hope to educate engineers on the limit states associated with HSS connection design and make them more comfortable with HSS on their everyday projects.”

As for business conditions, RISA clients are getting more projects, says Freund. “We are hoping this is a steady trend that continues throughout this year. The industrial sector has remained pretty strong and we are seeing more commercial building projects as well... We are continuing to see BIM being used on projects. Where it used to only be used on larger projects, we are now seeing it used even on smaller projects like curtain walls. The integration between BIM and structural analysis software is important to ensure the accurate exchange of information during the design and construction processes.” (See ad on page 76.)

Raoul Karp, Director, Product Management for Bentley Systems, Inc. (www.bentley.com) in Exton, Pennsylvania, sees three major drivers in the industry today: BIM adoption driving increasing structural complexity, tighter schedules requiring closer collaboration and competitive design environment pushing greater productivity. “In 2013 we had a release in each of our major product lines RAM, STAAD and ProStructures. The capabilities of which were squarely focused on addressing these key driving forces,” he says. For the RAM Structural System and RAM Concept, Bentley added several modeling, analysis and reporting productivity improvements including shearwall coupling beam design, code updates and 64bit capability to enable larger more

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complex structures and faster analysis. For STAAD.Pro and STAAD Foundation Advanced, they added half a dozen code updates including torsion design for AISC360, productivity enhancements with added advanced capabilities for machine and mat foundations, tension cables and for the first time the ability to run multiple design options of your structure on the cloud and compare and contrast results through your browser. For ProStructures, they expanded the steel modeling and detailing capabilities with advanced rapid stair, handrail and anchor bolt modeling.

“We also have expanded our collaboration capabilities with IFC import and export, iModels for collaboration (scheduling, clash detection) with Bentley and non-Bentley products, and added new SolidWorks and updated Revit and Bentley product interoperability with Integrated Structural Modeling,” says Karp. (See ad on page 75.)

We are seeing continued innovation in welding and cutting products as well, according to Mark Elender, Senior Vice President North American Sales, ESAB Welding & Cutting Products (www.esabna.com) in Hanover, Pennsylvania. He says: “ESAB has a long history of continuous product improvement and development in delivering high quality, leading-edge equipment and solutions to address the needs of steel fabricators. Our ICE process for Submerged Arc Welding (SAW) is a product of particular interest to structural steel engineers. The ICE process can increase a fabricator’s productivity while exceeding the requirements for critical welds. ICE is an elegantly simple technology; instead of adding energy, ICE exploits the excess heat from the Twin SAW

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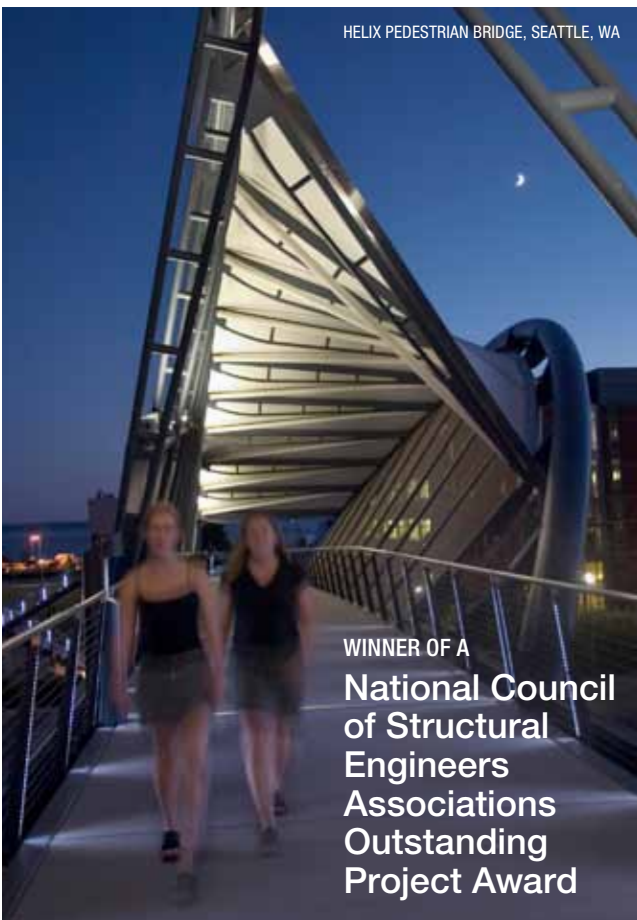
process to melt an additional non-powered welding electrode. This results in double the productivity in deposition rates and in root welds when compared to single wire welding. ICE boosts output significantly without the investment in new welding systems, extra capacity, or additional skilled welding labor.”

Adds Elender: “Also of interest to steel fabricators is our new Warrior – a multi-process welding machine capable of delivering up to 500 amps at 60% duty cycle. Warrior offers users a very good stable arc in multiple processes, including GMAW (MIG),

FCAW (Flux-Cored), SMAW (Stick), and GTAW (TIG) welding, as well as ACAG (Arc Gouging), and is easy to use and energy efficient thanks to state-of-the-art inverter technology.” Also new to the company’s Cutting Systems line is the Hydrocut LX waterjet shape cutting machine, a combined waterjet and plasma cutting system. “The machine uses a patented combination of thermal and non-thermal processes operating on the same gantry, allowing the machine to cut with the high accuracy of waterjet where needed, but employ the high speed and low cost of plasma whenever possible. Steel fabricators benefit from the use of both technologies on the same part. High precision contours can be cut with waterjet, while non-critical contours can be cut with plasma,” says Elender.

ESAB’s new offerings are developed from customer input. “We constantly solicit customers’ input to understand their requirements and expectations so that we can design and deliver products that help solve their challenges. We are a full line integrated supplier, so we engineer and produce the products we sell.” ■

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