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STEEL

Steel Companies Gearing Up for More Business

By Larry Kahaner

Companies involved in the steel construction industry – fabricators, software developers and welders – are generally optimistic about business growth and are meeting demand with new products and updates of current products. “Over the last six months, we have heard and seen more opportunities and have the sense that construction is slowly improving,” says Dave Golden, Vice President of ASC Steel Deck (www.ascsteeldeck.com). He says that his company has the highest diaphragm shear values available in the industry and the lowest installed cost for structural roof deck assemblies. In addition, ASC Steel Deck offers a full product offering for Roof, Floor, Cellular Decks, Form Decks and Acoustical Deck and Deep Deck.

“ASC Steel Deck has recently launched a new product: DGN-32. It is a 32-inch wide by 3-inch deep roof deck that has equivalent values to the antiquated N-24 roof deck profile. This new profile reduces the installed cost by ten percent, due to its wider profile. In addition, the safety of this product is greatly increased for the erection process because of the better nesting properties of the panel’s shape. DGN-32 is listed in an IAPMO Evaluation Report and has all other approvals such as UL and FM. Additionally, ASC Steel Deck has launched a revolutionary new attachment pattern for 1½-inch roof deck (B-deck). This attachment pattern is called ‘36/7/4’ and fully replaces the traditional 36/7 attachment pattern to supports. The new attachment pattern reduces attachment cost to supports by up to 30 percent for B-Deck, and is listed in an IAPMO Evaluation Report,” Golden says. (See ad on page 44.)

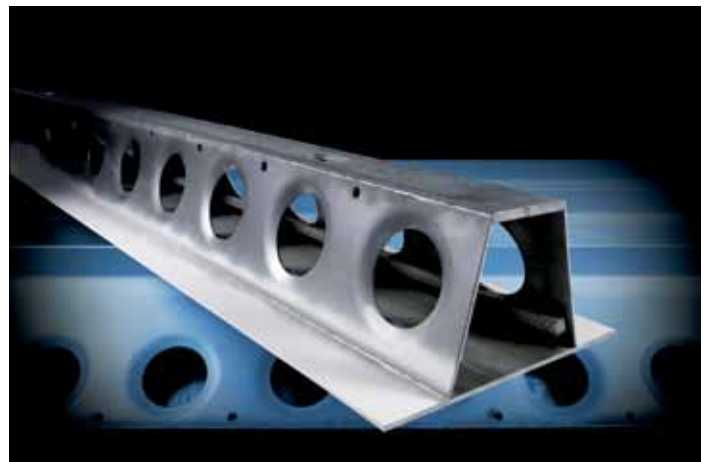
Henry Gallart, President of Sideplate (www.sideplate.com), Laguna Hills, California, also sees an improving business environment. “There’s a big difference between March 1, 2010 and March 1, 2011. Customers are getting busier than last March.” He says that private and federal healthcare sectors are doing better than other sectors.

The SidePlate connection utilizes steel plates and fillet welds to transfer all vertical and lateral loads from a steel beam to a steel column, in a manner that maximizes the strength and ductility of steel. This configuration results in a connection used for steel moment frame construction that provides the highest level of rotational capacity to resist loads from seismic, wind, blast and progressive collapse design requirements, says Gallart. Due to the stiffening effects of the connection plates at each end of the steel frame beam, the effective span

of the beam is significantly reduced, always resulting in the use of lighter beams as well as lighter columns.

Peikko Group (www.peikko.com) specializes in composite beams and fastening products for concrete connections. Their Deltabeam product is designed to reduce the height of buildings, avoid head room issues, and increase the speed of construction, according to Dominic Lemieux, Managing Director at Peikko Canada, Inc., headquartered in Quebec City. Lemieux notes that the beam is completely concreted after installation on site, to create a composite action that optimizes hollow core slab floor design. “The composite action enhances the capacity of the beam significantly and allows long clear spans with slim floor depth, giving huge benefits for multi-story building design,” he says. “Having a slim floor structure will maximize the vertical space of the building, leading to energy-saving economies in the construction materials and reduction of maintenance costs. Deltabeam is the only steel beam that can be designed with an integrated fire rating as high as three hours without additional fire resistant material applied on the underside of the beam.”

Lemieux notes that Peikko commissioned an expert company in carbon assessment and building construction to carry out an independent study on the Deltabeam. The goal was to assess the lifecycle carbon impact of using Deltabeam versus using the widely-used steel I-beam in a school building design. The results of the study showed that, compared to a business-as-usual-approach using a steel I-beam,



the Deltabeam option offered a five percent savings in total carbon impacts over the lifetime of the building. "These savings came from the raw material savings on beams and savings on other building materials. The Deltabeam reduced the carbon impact of onsite activities and savings due to a more efficient structure during the lifetime of the building with regards to things like heating or cooling of the building," says Lemieus.

Litesteel Technologies (www.litesteelbeam.com), part of the One Steel Companies, produces the cold formed lightweight structural beam product LiteSteel beam (LSB) that has the strength of steel with the installation ease of wood products, says Jeff Hoffman, Vice President, Business Development.

LSB is manufactured by a patented cold-forming process which utilizes a high frequency Dual Electric Resistance Welding (DERW) of a high strength steel strip. The result is a lightweight steel beam that can be used in a wide variety of load bearing applications. The reduced weight and workability characteristics of LSB make it the superior choice for designing and building in today's residential and light commercial markets, says Hoffman.

"There are two application areas we're pursuing right now. The first is residential construction. Builders, for example, appreciate not having to bring in a crane to install a basement beam. The second is light commercial, where it replaces C's and Z's used as a structural and decorative member."

Hoffman adds: "Because it's cold formed, you can use regular carpenter tools after you get it from regular lumber yards. It's delivered along with everything else. A full set of property and capacity tables for the entire range of LSB products is available on our website." (See ad on page 47.)

Structural engineers should not only spec for structural properties, but safety as well, says SlipNOT founder (www.slipnot.com) Bill Molnar. "The number one workplace injury is slips and falls on walking surfaces. SlipNOT tries to prevent that."

SlipNOT slip-resistant metal flooring products are used in many industries, including automotive, transportation, commercial building, food processing, metal fabrication, mining, oil and gas, steel mills, utilities, and waste water treatment. According to Molnar, SlipNOT flooring replaces diamond plate, fiberglass grating, fiberglass tread plate, and grit floorings. He adds: "It's 55 Rockwell hardness and lasts a long time."

Business has been good lately. "We're seeing major volume growing with onshoring. We're seeing domestic growth," Molnar says. (See ad on page 49.)

Dale Williams, National Sales Manager for AZZ Galvanizing Services (www.azzgalvanizing.com), says his company is also enjoying solid demand for the company's services. "Business has been holding in. Galvanized steels are so common and so necessary that business has held pretty well. We're seeing an increase in quoting right now, and there are projects waiting on funding."

Williams says that AZZ is the country's largest galvanizer, with 33 facilities offering kettles from 25 to 63 feet. The company's main customers are electrical utilities, petrochemical companies, and the solar and wind power industries, which are coming on strong. "Of course, our customers also include bridges, highway signage, retaining walls, and guard rails." About five years

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2000 AD

1930's Stick welding with heavy-coated electrodes found widespread use.

1920's Stud welding was developed at the New York Navy Yard.

1900 AD

1890 C.L. Coffin of Detroit was awarded the first U.S. patent for an arc welding process using a metal electrode.

1836 Edmund Davy of England is credited with the discovery of acetylene.

1800 AD

During the Middle Ages many items of iron were produced which were welded by hammering.

500-1500 AD

In the Bronze Age small boxes were made by pressure welding lap joints together.

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“We’re optimistic for 2011 and beyond. Business has been very good for 2011 so far.”

ago, the company started offering nickel alloy galvanizing which gives a bit more uniformity, according to Williams.

Another company seeing good times ahead is ESAB Welding & Cutting (www.esabna.com), headquartered in Hanover, Pennsylvania. “We’re optimistic for 2011 and beyond. Business has been very good for 2011 so far,” says Dan Gerbec, Product Manager – Submerged Arc Consumables. “Some industries are cyclical, like rail cars, which was low last year. Now we’re seeing it come back, first in Mexico and now in the United States. Wind towers are picking up nicely. We’re seeing some customers that were giving us smaller orders who are now ramping up and giving us larger orders.”

ESAB recently launched the Atom Arc 7018 Acclaim, a stick electrode with greater puddle control, resulting in greater ease of use in out-of-position welding applications and superior arc initiation, desired by many newer welders, says Gerbec. Another highlighted product offering is the Alloy Shield 70S composite wire. It is metal-cored wire used in submerged arc welding applications that delivers a 20 to 25 percent higher deposition rate than comparable wires, says Gerbec. “We’re always working hard to improve the quality and consistency of our products,” he adds. “We’re also renewing our focus on our automation product line. In some industries, they’re doing a lot more automation.” (See ad on page 50.)

Companies on the software side of steel have been busy, too, with new products and services and improvements in existing lines. “The steel infrastructure market remains strong, and we have enhanced our composite bridge design features within our new CSI bridge program,” says Rob Tovani, Director of Verification, Validation and Training at Computers & Structures Inc. (www.csiberkeley.com), in Berkeley, California. “We separated out a bridge module that used to exist in our SAP 2000 program, so now we have a dedicated program called CSI Bridge for bridge analysis and design. It came out in October, and we did it to specially tailor the input for bridges, making it easier to define the model. We’re finding that engineers for bridge design oftentimes can’t rely on a simplistic approach.” Tovani adds: “Engineers these days are not relying on formula-based programs; they want 3D analysis programs to handle skewed and curved conditions, and irregularities in girder spacing. That’s been a good market for us.”

The company has been keeping up with changing codes. “We have expanded our programs to include European and Indian steel codes, plus about nine other country codes,” Tovani notes. “We have quite a robust list of steel codes around the world that we support.” The company is planning to increase the number of codes it supports, including those in Brazil.

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...a large number of people have left detailing and drafting jobs during the downturn, ...it may be difficult to replace them.

Like others, Tovani sees an improving economic environment. "The market is still soft in some countries, but it's picking up in China and India. We're seeing growth in the United States. People who were reticent to spend on software a year ago are spending now. It's not as good as it was awhile back, but there's a marked difference between now and last year." (See ad on page 68.)

RISA Technologies, LLC (www.risatech.com), of Foothill Ranch, California, recently introduced its RISA Connection program for shear and moment connections for steel structures. It handles connections such as beam-to-beam, beam-to-column, column-to-column, and other configurations. It is integrated with *RISA-Floor* and *RISA-3D*, or it can be independent, according to Amber Freund, Director of Marketing. In addition, with the upcoming releases of *RISA-3D 9.1*, *RISAFloor 5.1* and *RISAFoundation 3.1*, the RISA software suite is now IBC 2009 compliant.

As for business in general, Freund says: "We're definitely seeing an upward trend. 2009 was rock bottom." (See ad on page 67.)

Headquartered in Lincoln, Nebraska, Design Data (www.sds2.com), which produces software for the steel industry's fabrication, detailing and engineering sectors, has begun offering BIM joist, according to Doug Evans, Vice President of Sales. With it, users can import a variety of joists, from K series and joist girders to double pitch and

bowstring. In addition to the existing SDS/2 joist used to generate connections, users can also import a file that contains the final materials of each 'as fabricated' joist, including top and bottom chords, seats, web panel point locations, etc. The two work together to satisfy joist connections and BIM project requirements. "We used to get a representation, but could not see the actual joist in the model," says Evans. "Now we can get a true BIM model of joists. It's not guesstimated. It's an actual model."

He adds: "The economy is definitely headed in the right direction. The angle of recovery is not as steep as we would like. The speed isn't what we want." He warns that a large number of people have left detailing and drafting jobs during the downturn and, as the economy steadily improves, it may be difficult to replace them. "As work picks up, there will be a tight labor market. During previous bad times, fabricators would keep them and give them other jobs in their firms, like in the estimating department. Could we entice them back? Maybe. I don't know, but we could see a labor shortage in drafting." (See ad on page 52.)

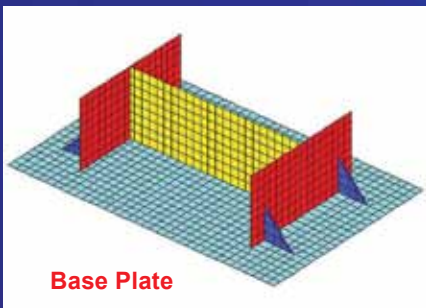
According to Marinos Stylianou Phd., CEO of S-Frame Software (www.s-frame.com), in Madison, Connecticut, business has been improving for the software developer whose products interface with Revit and Tekla. "Generally, business has been getting better. Fifty

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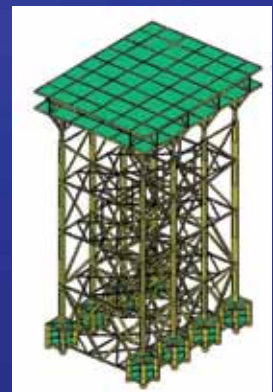
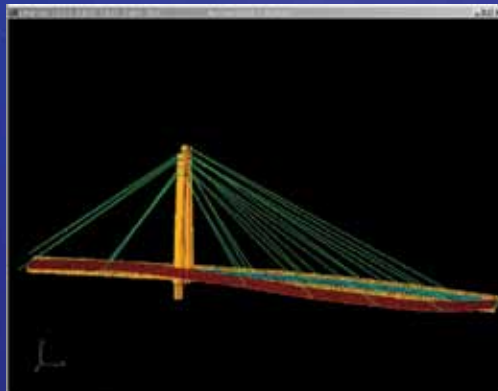
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percent of our business is in industrial applications, which benefited from the strength of the oil and gas industry; and our international business is improving as well.”

The company plans to build on what they do best. “We come from the analysis and design side, which is our core competency, and we will stick with that for the foreseeable future,” says Stylianou. The company is introducing its R10 release, which he says will bring them one step closer to their goal of enabling structural engineers to produce robust designs, i.e. designs that are not sensitive to loading variations and deviations from the intended design specs, through the following five steps:

- 1) Create high-fidelity models
– accurately capture actual geometry, materials, support conditions, non-linear effects, etc.
- 2) Represent all probable environmental/operating conditions
– loading from a variety of sources (wind, earthquakes, machinery, etc.) and the ability to easily combine them.
- 3) Build multi-scenarios– define multiple deviations of the core model (boundary conditions, connections, member types, etc.) all within one computer model to enable easy-to-perform sensitivity studies.
- 4) Get fast and accurate solutions
– latest technology in sparse solvers for linear, nonlinear, static, dynamic, earthquake analyses that solves all the load combinations and multi-scenarios in one run.
- 5) Perform design code checks – powerful integrated design code applications that organize the large volume of results into detailed and easy-to-interpret design study reports that allow users to review as much detail as necessary to all design calculations for all load combinations and for all members. (See ad on page 4.)

Leroy Emkin, Founder and Co-Director of the CASE Center in Atlanta (www.gtstrudl.gatech.edu), says that GT STRUDL – with its Structural Design & Analysis software programs for Architectural, Engineering/Construction (AEC), CAE/CAD, utilities, offshore, industrial, nuclear and civil works – also will continue to go with its strengths. “We focus on large-scale structural analysis problems. There is growing demand for larger-sized problem analysis, and our computations are extremely fast with high accuracy.” He adds: “When you’re solving

problems on the order of 50,000 joints, the accuracy, performance and precision issues become critical. We have accomplished amazing feats that make that possible now. We do the highly rigorous computations, not the flaky, approximations analysis that you see in some software. We can solve extremely large problems.”

Terry Kubat, Engineer and Developer at IES, Inc. (www.iesweb.com), in Bozeman, Montana, says that his small company prides itself on being engineers who write software for engineers. “We write software to make engineers’ jobs easier... We’re small, don’t do market research,

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and don't employ a sales staff. One person supplies tech support, maybe two hours a day. That's all we need, because our software is very reliable."

The company has recently introduced VisualPlate which is for wall, slab or plate-bending problems. According to Kubat, VisualPlate is an excellent choice because it is dedicated to plate bending and easier to use than VisualAnalysis for this task, allows automated modeling, and employs von Mises stress criteria for metal plates.

Rob Madsen, President of Devco Software, Inc. (www.devcosoftware.com), based in Corvallis, Oregon, says his company staff also prides itself on being software engineers and not computer engineers. "We write software for the steel framing industry. We're design engineers, so we design it from an engineer's point of view."

He says that they just released LGBEAMER v8 PRO, which offers the following:

- 2007 NASPEC Provisions (as adopted in 2009 IBC)
- Sheathing braced design per AISI "Wall Stud Design" Standard
- Rafters
- Torsion Calculator
- HSS Sections per AISC 13th edition

Madsen adds that business is improving. "Business is on an upswing, but still slow. There's definitely more work out there. We're not back to where we were pre-recession, but we're better than 2009." ■

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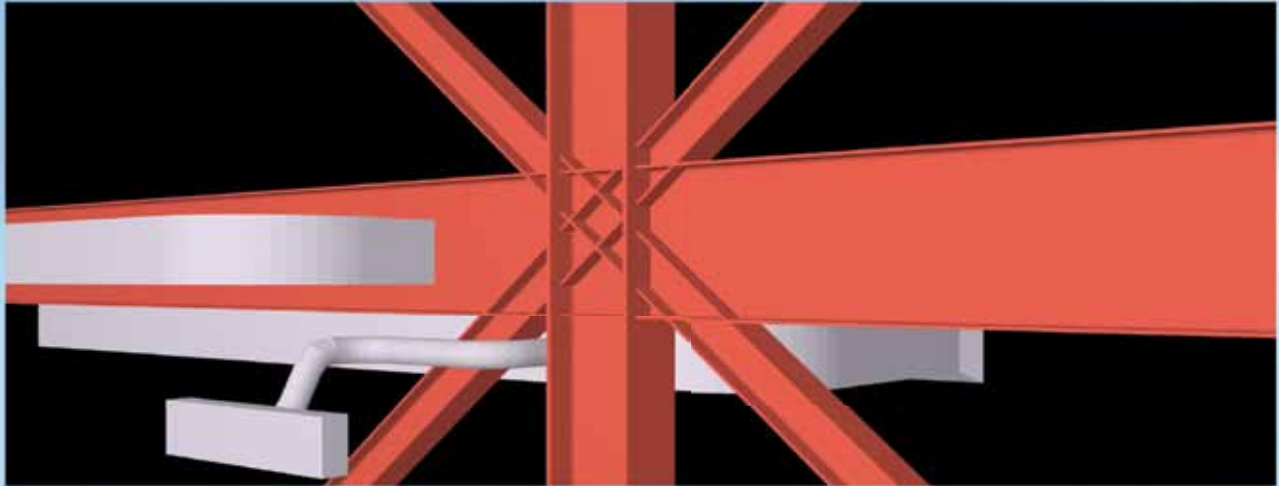
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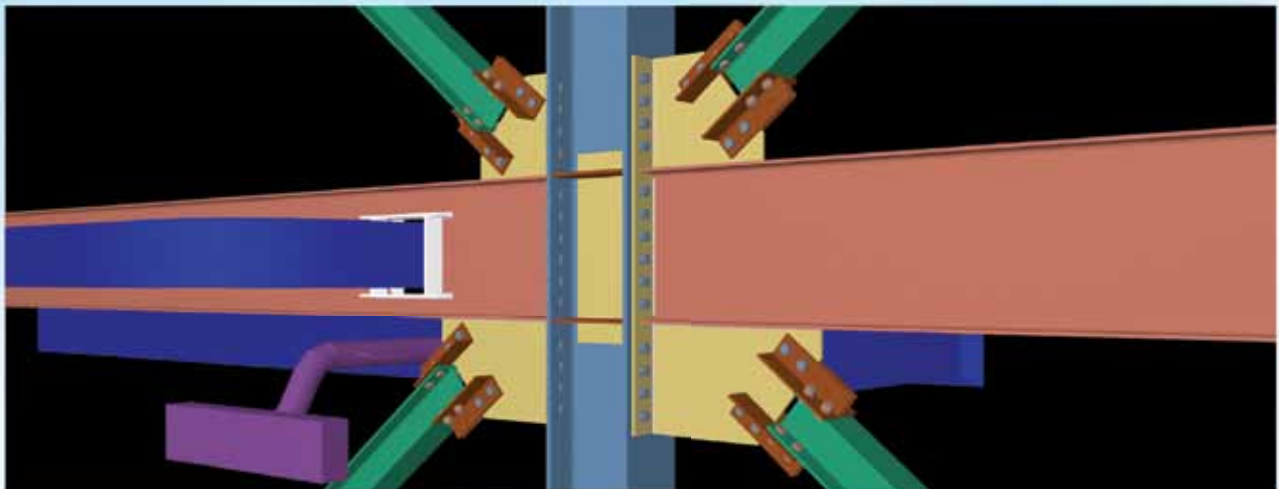
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