

SPECIAL SECTION: *Steel Construction Materials, Products and Software*

Companies Still Grappling with Sluggish Economy

By Larry Kahaner

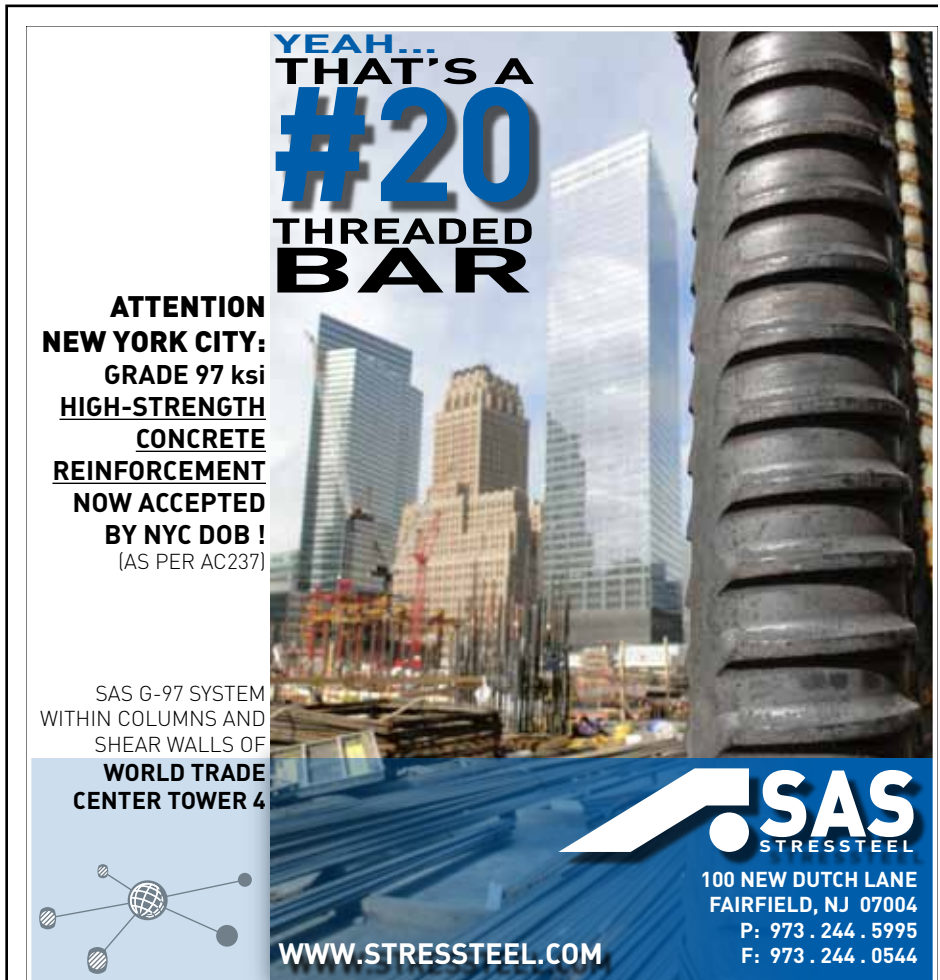
It's STILL the ECONOMY.

No matter who you talk with, whether it is steel fabricators and suppliers or those involved with steel-related software, the keys to success in this down economy are the same: adapt to new conditions and markets, listen and respond even more closely to users' needs by offering new products and service, and take advantage of new technologies and regulations.

For example, for many steel companies, the onset of AC 237 (*Acceptance Criteria For Threaded High Strength Steel Bars For Concrete Reinforcement*) is becoming a windfall. So far, Sunny Isles and Miami, Florida, and most recently New York City, have adopted the new standard that will allow Grade 97 steel to be used for concrete reinforcement. "Concrete capacities have consistently risen in the last half century, yet steel reinforcement technology has remained stagnant until only recently. It's a huge step for the construction industry," says Greg Moormann, Project Engineer & Manager at SAS Stressteel, Inc. (www.stressteel.com), with U.S. headquarters located in Fairfield, New Jersey. The primary owner of the company is Stahlwerk Annahütte Max Aicher GmbH & Co KG (SAH), based in Hammerau, Germany.

"A few high rises in Florida, designed by very well known structural engineers, were able to take advantage of the full capacity of Grade 97 steel," says Moormann. "It cut down on steel tonnage and also cut down on congestion issues in the columns." He says that his company is currently supplying Grade 97 steel for the construction of World Trade Center Tower 4 in New York City. "Construction on Tower 4 started out with smaller diameter, lower grade standard reinforcement with the requirement of mechanical splices, resulting in major congestion issues." Implementing larger diameter, Grade 97 continuously-threaded steel reinforcement (currently available up to #24) has proven to be a cost savings and has helped the concrete contractor increase productivity by using a system that alleviated the original issues.

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One company that has adapted to the current economic conditions is Wheeling Corrugating, a division of Severstal North America, headquartered in Wheeling, West Virginia (www.wheelingcorrugating.com). Founded in 1890, the company has 12 plants located throughout the United States. They manufacture roll-formed products for residential, agricultural, construction, highway and bridge-building markets. They also offer roofing and siding for agricultural and residential applications, according to Rob Rutherford, General Manager of Sales for the Construction Products Division, Steel Deck Products.

"Business is tougher than ever, but we're doing well," he says. The company has focused on heavy complex work like stadia and high rises. "We have unique and unparalleled experience with these types of projects." He adds, however, that some steel fabricators are struggling, and they're running out of their backlog of work. Rutherford also notes that his company is involved in bridge construction and is taking advantage of the increasing infrastructure building coming from government stimulus funds.

One issue that he and others are grappling with is steel price stability. Rutherford has experienced at least three increases this year from his mills. "It's a challenge when bidding on long-term projects," says Rutherford. He's seeing a "reactionary effect" on the part of well-educated owners who are buying directly to secure pricing. "Owners-buying-directly has not [traditionally] been the norm, but it has become more common on large projects within the past several years." As evidence of pricing pressures, Rutherford is seeing joist suppliers offering 15 days on quotes. He states, "We're currently standing behind our quotations for 30 days."

Last year, in order to attract new customers and keep their current ones, TruSteel, an ITW company in Arlington, Texas (www.itwbcg.com), began offering their ARC (Any Radius Chord) Truss. "In the past, the top portion of trusses would be straight; however, we can bend the top or bottom chords and make a smooth curve," says Dave Goodwin, National Marketing Director. ARC trusses can clear-span over 80 feet depending upon the configuration, and overhangs or cantilevers are no problem, according to Goodwin. For tall roofs, ARC trusses can work in piggyback truss situations. For long spans, ARC trusses can be fabricated, shipped in sections, and spliced at the job site.

Goodwin also notes that his company is embracing the green revolution. He says that, setting aside the economy, green issues are high on the list of issues facing the industry. "Steel is the most recycled construction material in the world. It's easy to find local recyclers; and, as an engineered product, there's almost no scrap. What scrap we do produce in our shops goes directly to recycling. We try to be good, green citizens."

SidePlate Systems, Inc. (www.sideplate.com), located in Laguna Hills, California, also offers its own specialized steel product, i.e., a suite of high-performance steel frame connection technologies that have successfully been tested to provide protection against blasts, progressive collapse, and earthquakes. The technology was originally developed in response to the devastation caused by the 1994 Northridge earthquake in California; but, it has been proven to provide protection for other hazards as well.

"We're seeing a lot of healthcare building and military projects," says President Henry Gallart, P.E., S.E. "Folks that weren't in that

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marketplace are trying to get into it. Fortunately, we were already immersed in it.” Although the technology has been particularly suited to structures where protection against earthquake or terrorist bombings is desired, changes incorporated into the new SidePlate FRAME moment connection have made it economically desirable even for buildings with wind as the controlling design loading. Active projects using Sideplate technologies include: Courthouses in Mississippi and Utah; Hospitals and Medical Office Buildings in Connecticut, New Hampshire, North Carolina, Kentucky, Kansas, Washington & California; and Federal and/or Military buildings in Virginia, Montana, Texas and Florida. Gallart further noted that Tekla and SDS2 have incorporated the SidePlate connection technologies into their steel detailing software programs. (See ad on page 30.)

Also paying attention to the effects of earthquakes is ESAB North America (www.esabna.com), a subsidiary of Anderson Group Inc. Founded more than 100 years ago, ESAB Cutting & Welding is involved in welding and cutting equipment, welding consumables, welding automation and cutting systems. “We’re looking at demand-critical welding tied to the earthquakes in Haiti and Chile,” says Dan Spackman, Product Develop Manager. “We are working hard to qualify welding wires to meet AWS D1.8 specifications. That’s the structural welding seismic supplement to D1.1 for use in seismic applications.” He notes that he’s starting to see seismic requirements in Mexico, which could bode well for business.

Spackman says that the company is taking initiatives to help clients who are not only struggling with the economy, but also dealing with a lack of qualified welders. To this end, ESAB offers the *Dual Shield X-Series* of flux-cored wires. The new wires are much more forgiving than

“...setting aside the economy, green issues are high on the list of issues facing the industry.”

traditional flux-cored wires, especially for less-experienced welders, says Spackman. “There’s a lack of qualified welders, and the full line *Dual Shield X-Series* helps less-experienced welders be productive and helps experienced welders be even more productive.”

Like others, Spackman is seeing infrastructure stimulus money being spent on bridges, as well as water and gas systems. That is positive for his company, but it also presents new challenges because of the move toward lighter, thinner and higher-strength steel. “We’re looking at developing wires for higher strength steel that still maintain their strength,” he says.

While those in the steel industry are finding ways to add value and efficiencies to their customers’ projects, software developers are doing the same for their clients in this current economic downturn.

Reducing Requests for Information (RFIs) has been a continual challenge for construction companies, but advances in software are helping to mitigate it. “Reducing RFIs is a huge issue,” says Dan Monaghan, North American Managing Director for Nemetschek Scia (www.scia-online.com). “New software will reduce RFIs by building projects inside the computer before building it on site... If you have to delay a crew for even a day because of a design conflict, then the cost is many times that of the software’s price.” With world headquarters in Belgium, Nemetschek Scia opened its U.S. office in Columbia, Maryland last October because, as Monaghan puts it: “The market [for structural design and analysis software] was not ready until now.” Although many U.S. companies employ BIM, they are behind European companies, according to Monaghan.

The company has just released *Engineer 2010*, a BIM program. “With Structural BIM programs like *Scia Engineer 2010*, modeling, design, analysis, and documentation are all linked together, so a change anywhere is reflected everywhere, saving time and eliminating coordination errors. For example, if you change the size or shape of a beam, that change is automatically reflected in your structural model, drawings and calculation reports,” says Monaghan. He adds: “Owners are always looking for increased value. BIM gives it to them.”

Another way that software companies are addressing engineers’ demands, to keep their costs low, is by offering different pricing plans. “Times are tough, and we’re responding to economic conditions through innovative licensing,” says Raoul Karp, Director, Product Management for Bentley Systems, Incorporated (www.bentley.com), in Exton, Pennsylvania. Karp notes

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that organizations deal with multiple projects, often at the same time, and they are forced to buy development tools specific to that project. They buy individual software licenses on an *ad hoc* basis, which can be inefficient and expensive. “The *Bentley Structural Passport*, mainly intended for smaller companies, is a subscription licensing system that bundles products together. “It’s a lot cheaper than purchasing all the products,” says Karp. “Software is offered by the product suite. It includes training and support. The idea is to help our customers get into new markets,” he says.

RISA Technologies, LLC. (www.risatech.com) of Foothill Ranch, California is taking a similar tack. The company develops and markets software for structural engineers and does what it can to make their products easier to use, while allowing customers the opportunity to explore new markets. “We see our software as a tool for engineers,” says Bruce Bates, Founder and President. “We maintain all codes for our software with an emphasis on being user friendly and with a high quality of support.” RISA’s offerings have also expanded. “We used to be seen as a low-to-middle provider; but in the last five years, we’ve moved toward the higher end in complexity. With *RISA 2D*, *RISA-3D* and *RISA Floor*, we can handle just about anything.”

Currently, RISA is developing a steel connection design program called *RISA Connection* which will be out in June. It will be integrated into *RISA-3D* and *RISA Floor*. “Like all companies, we’re working towards a soup-to-nuts solution, where users can do as much as possible within our package,” Bates says. (See ad on page 51.)

Keeping codes current is a crucial component for engineers, according to Rob Madsen, President of Devco Software, Inc. (www.devcosoftware.com), so the company makes sure their products – *AISWIN*, *LGBEAMER* and *D-CODER* – are up to date. “Our focus now is to keep up with code changes. There have been many changes in the past few years, and some significant changes to cold-rolled steel in the torsion and distortional buckling areas.” The company, which specializes in software for cold-rolled steel, currently is updating *LGBEAMER*, designed with the steel-framing design professional in mind. “Mostly, people want software that meets codes and has standards sections,” says Madsen. “We’re structural engineers first, and we design software to use it ourselves – from our perspective.” Madsen hears from many engineers about their products. “We get a lot of feedback. They especially like our software’s ease of use and interfaces.”

Rob Tovani, Director of Verification, Validation and Training at Computers & Structures, Inc. (www.csiberkeley.com) agrees. “The common thread is that users are looking for something that’s easy to use.” Each of the firm’s programs is tailored to specific classes of structures, allowing the engineering community to work at more productive and efficient levels than are possible with “general purpose” type programs. *SAP2000* is intended for use on civil structures, such as bridges, dams, stadia, industrial structures and buildings. *ETABS* has been developed specifically for multi-story building structures, such as office buildings, apartments and hospitals. The *SAFE* System provides an efficient and powerful program for the analysis and design of concrete slabs and foundations.

CSI recently released an updated version of the *SAP2000* program, with new enhancements to the bridge module. “It has received a lot of attention,” says Tovani.

He notes that while the economy has been tough, his firm has been able to ride it out because of their global reach. “Engineers tell us that their level of work will dictate how many copies of software they will purchase and how often they will update. Our products look at the global economy, so we are able to work in different economies.” Like others, he’s beginning to see more bridge designs as a result of stimulus money being spent on infrastructure. (See ad on page 52.)

Helping smaller firms compete is CSC, Inc. (www.cscworld.com). The company recently launched *Fastrak Building Designer Limited Edition (LE)*, a code-based building design software for small structural engineering businesses, mainly for low to mid-rise construction. “We support *Revit* [Autodesk®] directly,” says Matthew Newton, President. “You can start your model in either *Revit* or *Fastrak*.” CSC opened an office in Chicago in 2007, and the U.S. has become the company’s fastest growing market. “Owners are expecting everyone to discount their fees. Our customers are discounting fees, so they’re really wanting to reevaluate their processes. It’s an opportunity for us. With our solutions, they can run their businesses much more efficiently.” (See ad on page 39.)

Another trend that hasn’t escaped software makers’ notice is that of pushing BIM information downstream, so that all levels in the construction process can benefit. “Early in the BIM trend, we [the industry] made our tradesmen use products that weren’t suitable for them, whether they were plumbers, electricians or anyone else,” says

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Doug Evans, Vice President of Sales for Lincoln, Nebraska-based Design Data (www.sds2.com), which focuses on the steel industry's fabrication, detailing and engineering sectors. "Tradesmen need to use the best tools for them, and that has to integrate with other people's tools... Interoperability is catching up to what people want as a work process."

Evans notes that a related trend he's seeing is that the lines are blurring on model-building responsibility. At the same time, however, there's increasing pressure to have accurate models. "Some engineers are detailing more, making models, and some manufacturers are dealing with design... There's a teaming approach and they're winning the work." All of this, of course, requires software that is easier to employ and interoperable for all team members, adds Evans.

Carl Taylor, Tekla, Inc.'s Business Manager for Engineering, based in Atlanta (www.tekla.com), has also noticed an increased interest among engineers to work closely with others on projects, through interoperable software. "Engineers we talk to are interested in working more closely with contractors and being able to supply models that can be used downstream," he says. "We hope to bring to engineers an understanding of what people downstream from them want." The company has just released version 16 of *Tekla Structures*, a BIM software that enables the creation and management of accurately detailed, highly constructible 3D structural models, regardless of material or structural complexity. To that point, Taylor says: "3D modeling for structural steel is very well established; and what we've been seeing over the past year or so is that the concrete industry is waking up to the possibility of modeling at design, detailing and construction stages. It's driven by the recognition that virtual construction can avoid congested areas, in rebar modeling, for example. They can avoid problems by building models and have a smoother construction process." (See ad on page 40.)

At StrucSoft Solutions (www.strucsoftsolutions.com) in Montreal, the emphasis is on serving niche markets, according to Emir Masood, Vice President of Marketing and Business Development. Currently the firm has two product lines – *MWF*, a light gauge steel and wood framing solution for Autodesk's *Revit*, and *CMS*, a CAD/CAM application dedicated to creating, editing and managing DSTV-NC files. *CMS* is available as a stand-alone or as an add-on for *Autodesk Inventor*, *Solidworks* as well as *MBS*. "Walls meeting doors and windows makes framing very complex. *MWF* has done very well, considering the market environment," says Masood. He says his company goes after software improvements and add-ons that are too small to be addressed by large software companies. "We do custom versions of things that customers often suggest to us, things we hadn't thought of... Our whole business is built on going after niche markets that larger companies ignore." (See ad on page 3.)

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