As Projects Pick Up, Software Makers Listen and Respond to Customers' Needs

By Larry Kahaner

With signs of an improving economy and increasing projects, software companies are making sure that they remain competitive as structural engineers continue to seek the best value in products and services. Competition is keen, as end user firms are consolidating and many structural engineers have started firms after being let go by larger companies during the downturn. These users not only want more value for their dollar, but ease of use and the most up-to-date codes. In addition, many engineers want software that specifically targets their project's needs.

Software companies are doing their best to accommodate customers' wishes. Design Data (**www.sds2.com**) in Lincoln, Nebraska, considers itself a technology company that serves the construction industry, according to Vice President of Sales, Doug Evans. "Our software solutions, SDS/2, are a unique, discipline-driven family of software products that provide the construction industry with a more intelligent way to increase both productivity and profits." Design Data serves both the commercial and industrial components of the steel construction industry.

"We have re-branded our entire product line," Evans adds. "The SDS/2 software solutions now include nine products that take a project's potential and transform it into real profit: SDS/2 Detailing, SDS/2 Drafting, SDS/2 Erector, SDS/2 Engineering, SDS/2 Fabricating, SDS/2 Approval, SDS/2 Modeling, SDS/2 BIM and SDS/2 Viewer." He notes, "These products have been enhanced to provide specific functionality to meet the needs of a given task within a project. On a particular project, there may be one structure and there may be one BIM model; however, the needs and information of each organization and tasks within that project are different. Our family of products makes sure that you are using the right tool for the right task."

Evans says that, across the country, almost all of his clients are seeing increased activity in the past four months. "The amount of bidding and projects is rising at a fast pace, and it is increasing as opposed to what we have seen the last couple of years. That is a very positive sign."

Terry Kubat, Engineer and Developer at Bozeman, Montana-based IES, Inc. (**www.iesweb.com**), says that his company creates advantages over competitors by listening very closely to customers and offering them special attention. "About half of IES customers are structural engineers in small consulting offices or self employed in the USA. The rest are scattered across-the-board internationally: large firms, architects, mechanical engineers, government, educators, and others… All of our products are 'customer-driven.' We provide free technical support, and free weekly web-meeting training for customers who use these forums to request improvements. We also regularly survey our customers and partner with local engineers to get better-quality feedback regarding the direction of our tools."

Kubat adds: "The proof of our quality is that we only need one technical support person to service the needs of thousands of customers using nearly a dozen different products and versions."

During 2011, the company is releasing major upgrades to existing products including ShapeBuilder, VisualFoundation and VisualAnalysis. They also have introduced two new tools for specialized analysis: VisualShearWall which helps engineers determine forces in rigid or flexible shear wall systems, and VisualPlate which solves plate-bending problems for concrete slabs or metal plates. (See ad on page 40.)

Marinos Stylianou, CEO of S-Frame Software (**www.s-frame.com**) in Guilford, Connecticut, says that his company just released new versions of S-FRAME, an analysis package; S-STEEL, a steel design package; and S-CONCRETE, a concrete design package. "We also introduced S-PAD, a steel design program which is a simplified version of S-STEEL. We developed this specifically with the small consulting engineer in mind… There are more and more people that were laid off, left to their own devices, and are forming their own consulting

companies. They're just starting up. We thought we'd have a product with an entry level price of below $1,000 for them." (See ad on page 4.)

At Computers & Structures, Inc. (**www.csiberkeley.com**), in Berkeley, California, CEO Ashraf Habibullah notes: "The most exciting development over the past year here at CSI has been the release of CSiBridge, the first and only product that harnesses all of the capabilities of SAP2000 and packages them into a sleek interface designed specifically for bridge engineers." According to Habibullah, CSiBridge allows engineers to easily define complex bridge geometries, boundary conditions and load cases. The bridge models are defined parametrically, using terms that are familiar to bridge engineers such as layout lines, spans, bearings, abutments, bents, hinges and post-tensioning. The software creates spine, shell or solid object models that update automatically as the bridge definition parameters are changed. CSiBridge also includes a wizard that outlines the steps necessary to create a bridge model. "It is the first package of its kind to integrate bridge analysis, design and bridge rating," he says.

Adds Habibullah: "We knew, with so such heavy infrastructure rebuilding going on, that engineers needed a tool specifically for bridge design. We saw the need, and we knew we could fill it quickly with a sophisticated but straightforward tool that would address the unique requirements of bridge design." (See ad on page 60.)

At Bentley Systems, Incorporated (**www.bentley.com**), Huw Roberts, Global Marketing Director – Building and Structural, says that one way Bentley, based in Exton, Pennsylvania, helps to lower costs for customers is through its Structural Passport product which allows engineers to use all of the different Bentley structural products, of which there are dozens, for a fixed, single price. "They can use special foundation software, steel connection software, detailing fabrication software, whatever, depending on what task is at hand or what project they're on or what their workload is, and not have to worry about buying a full suite of every one of those pieces of software just so they can use it on the occasions when it's necessary. A lot of engineers really like that sort of subscription model."

Passport provides scales of economy in smaller firms, in particular, says Roberts. "If you think about it, a large engineering firm can absorb the costs of all the different pieces of software, passing them around as different people are working on them. A small, four or five person or single practitioner structural engineering firm can't really afford that. In a small firm, Passport is a very effective way to get access to software without a big upfront cost of buying everything."

The company also is proud of their new AECOsim Building Designer. Roberts describes it as "a multi-disciplinary building design application" that includes structural engineering and structural modeling. It

works with the company's other structural products like RAM, but also includes architectural, mechanical, electrical and other disciplines in the same environment. "It's great for structural engineers who are working in an AE firm or EA firm, because it provides a shared environment for all the building disciplines. Interference detection and all those things happen in your design environment. You don't have to go into other applications."

Rob Madsen, President of Devco Software, Inc. (**www.devcosoftware.com**), agrees with others that business is a lot better. "Last year was slow, but this year has been pretty good. I think the market's just kind of turning around a little bit. It doesn't hurt that we issued our upgrades, and we had some special promotional things going on with regards to the upgrades. We're selling a lot of software to new customers too, not just to our existing customers."

He says that his company, based in Corvalis, Oregon, like others, is keeping their product offerings compliant. "That 2009 IBC thing is huge because it does make a big impact on metal stud design… The main thing that people need to be getting themselves up to speed with is distortional buckling. That's just another thing we have to do now when we're checking the strength of metal studs, and our software handles that. But even talking with folks who are in the industry, we don't see lot of people who understand how distortional buckling works and what the impact of it is on stud design."

Structurepoint, LLC (**www.structurepoint.org**) in Chicago, Illinois, was formerly the Engineering Software Group of the Portland Cement Association. As a spinoff from the Association, one of its goals is to promote the use of cement. "We publish software dedicated specifically to reinforced concrete structures and buildings. We focus on the analysis, design and detailing of these structures," says Marketing Director, Heather Johnson. "Our market is civil and structural engineering, which basically covers buildings, bridges and infrastructures."

"We'd like SEs to know about recent changes to the structural building codes, because we focus a great deal of our time on incorporating the codes into our software, which saves a lot time for the engineer in not having to dig into all that detail," she says. "I'm talking specifically about ACI 318-11. The end users are appreciative that we are doing some of the legwork for them so that, when they have a project that specifies concrete, they'll find the latest and greatest as they utilize their software programs."

Interestingly, Johnson has noticed a change in customers. They're more thoughtful and sophisticated compared to past years. "The uncertainties of the last two or three years have forced many of our end users and decision makers to sharpen their thinking and they're laser-focused on results, which is very suitable for us in our operation because we are very specialized. I think with the recession, and pressures from the market and budget and schedules, our customers seem to appreciate our specificity and focus."

RISA Technologies, LLC (**www.risatech.com**), of Foothill Ranch, California, is also listening to their customers and responding with new software. "Our newest piece of software is RISA Connection and, after the NASCC steel show, we've received really positive feedback. We did some seminars at the show to demonstrate the integration with our other products, and engineers were really excited about it. We're looking forward to another release of that in the summer," says Amber Freund, Director of Marketing. "One of the things that they (SEs) were complaining about was a lack of integration between connection design software and structural analysis software, so they're excited that they can stay within the same suite of products and that all of their information is going to be transferred back and forth. The end forces go directly into the connection design, rather than having to export and import. It's just all one system."

Freund, too, says that customers are doing much better than last year. "We're seeing kind of a mix. There are a lot of projects that were put on hold that are now being fired up again. But, I would say the industrial sector is probably one of

the bigger ones. We're also seeing commercial come back," she says. (See ad on page 59.)

Customers of CSC Inc. (**www.cscworld.com**) in Chicago are also seeing upbeat signals, according to Stuart Broome, Vice President. "Our customers are telling us that the climate is still challenging, but they feel a corner has been turned. They are beginning to see signs of projects starting up again. They also tell us that, with this challenging climate, now more than ever is the time to be competitive and current with technological advancements that may help them stand out."

CSC has been developing software for 35 years. Their Tedds product line provides over 120 structural calculations, with the ability to create and customize calculations. "Using Tedds' extensive library of calculations, structural engineers can create a single project document with clear and consistent documentation for checking, sharing and submitting," says Broome. The company also offers Fastrak to help SEs streamline their steel building projects. "Using one model, structural engineers can analyze, design, document and collaborate. This one-model approach allows for integrated gravity and lateral design, as well as design of complex structures with features such as sloped roofs and trusses."

In June, CSC added masonry wall design to Tedds, including slender load bearing walls with both out-of-plane bending and in-plane shear. In August, they will add masonry lintel design. Also in August, Fastrak enhancements will include semi-rigid diaphragm analysis and design, concrete foundation design, shear wall design with end posts, and bearing wall modeling.

"Our customers are cautiously optimistic," says Dan Monaghan, Managing Director, North America Nemetschek Scia (**www.scia-online.com**), located in Columbia, Maryland. "They are seeing more new jobs in the pipeline, as well as starting to see funding for projects that were stuck. Other trends for engineering firms include doing more with less, looking for services to attract new clients, and seeking an edge over their competitors. Investing in new technology is one way they are doing all of these things. With the right technology, firms can increase productivity, take on new project types, offer new services and stand out from the competition."

Monaghan sees firms migrate from traditional engineering workflows, which he says are often inefficient and disconnected, to more collaborative model-based workflows that are more integrated and economical. "These firms are looking for new software, like Scia Engineer, that is tuned to support these new 3D processes."

He says that a unique feature of Scia Engineer is its modeling capabilities. "It's a very fast and efficient FEA (Finite Element Analysis) modeling tool. Freeform Solids Modeling capabilities make it easy

for engineers to work up models in 3D and keep pace with the complex designs coming from architects and contractors. Its Parametric Object Technology allows firms to automate routine and repetitive work," says Monaghan. "Engineers can use the parametric objects that ship with Scia Engineer, but the real power is in how easy it is for firms to create their own custom objects. With our program, you can quickly work up and test design concepts. Then, when the design has gelled, develop an accurate structural model in Scia Engineer or link designs to another modeling program for model coordination and documentation." (See ad on page 49.)

Going for a niche approach to software is the Canadian Wood Council (**www.cwc.ca**), a national non-profit association located in Ottawa, Ontario, representing manufacturers of Canadian wood products used in construction. "Ours is a fairly low-cost software with pretty good value. It's just around $800.00 – under $1,000 anyway – to purchase our software that has some of the capabilities of more expensive programs costing $5,000 to $7,000," says Robert Jonkman, Manager, Structural Engineering. Ninety percent of its customers are structural engineers. "We offer the software free to building officials, and we offer the software free to professors at universities and colleges so they can give each student a free copy for a limited time to use during their course," Jonkman notes. (See ad on page 45.)

AceCad Software, Inc. (**www.acecadsoftware.com**), based in Exton, PA, provides solutions for both AEC and Industrial Plant and Process markets. "Our products enable steelwork project delivery from concept through engineering, detailing, fabrication and construction," says Munny Panesar, US Regional Manager. Panesar adds, "Globally, various regions and sectors have been more adversely affected by economic downturns than others. However, we see that many in the steel industry are taking the opportunity to invest now in new technologies that are complementary and adaptive to existing work practices, ensuring that they benefit from maximum advantages going forward."

In order to meet customer needs, AceCad has made improvements to their evolution product range, which includes engineering, detailing, fabrication management and collaboration software titles. A few of the upgrades include: StruCad evolution (for detailing) now has document management, a new integration platform, bi-directional data transfer with StruWalker, AceCad's collaboration software. StruM.I.S evolution (for fabrication management) has substantial new estimating functionality, together with enhanced material optimisation and all new CAM/NC1 viewing and editing tools. "The improved integration of our products, not only with third party software, but also CNC machinery and across our evolution product suite, brings advanced

BIM benefits with greater transparency to the supply chain," says Panesar. (See ad on page 44.)

Also hitting a niche market is crucial for Leroy Emkin, Founder and Co-Director of the CASE Center in Atlanta (**www.gtstrudl.gatech.edu**). The strength of GT STRUDL – its Structural Design & Analysis software programs for Architectural, Engineering /Construction (AEC), CAE/CAD, utilities, offshore, industrial, nuclear and civil works – has always been the power and high quality of its computations. He says that the nuclear industry, in particular, is interested in the software. "They're interested based on a need for extreme quality, extreme computational performance, and very comprehensive user documentation," says Emkin. The complete set of user documentation for GT STRUDL – including the quality assurance and quality control documents – consists of 30 volumes of documentation, over 13,000 pages.

The software is being improved continually, Emkin says. "We're continuing to do developments in the area of non-linear analysis in order to make the performance of the rigorous direct analysis method, as described in the 13th edition AISE and the upcoming 14th edition AISE, feasible for all engineers, whether they be in commercial buildings or general civil structure or heavy industry. As more and more engineers become involved in non-linear analysis and, in particular, non-linear geometric analysis, we have implemented highly rigorous non-linear geometric analysis procedures in GT STRUDL. We have substantially improved the computation performance to such a degree that, in our opinion, it is now highly feasible and cost-effective for engineers to perform that kind of analysis. We believe that if one does not use GT STRUDL, it could be quite a costly process."

At Simpson Strong-Tie Anchor Systems (**www.simpsonanchors.com**), in Pleasanton, California, a manufacturer of wood-to-wood and wood-to-concrete connectors, the company has been doing a lot more engineering services, assisting engineers with their designs, and also focusing on new software tools. "For a long time, we've had software that helps customers pick the right joist hanger. That's kind of simple," says Paul McEntee, Manager of Engineering, Research and Development. "Now, we've been working a lot more to come up with things to help engineers do other jobs like their wall bracing design, for example. The new code has much more complicated design procedures for a lot of prescriptive residential designs. We've come up with tools just to help engineers get their designs done more efficiently."

Their move into more engineering services is well timed. "We're seeing things keep plugging along," says McEntee. "We're definitely seeing more questions on multi-family projects, and our engineering services design for the multi-family is picking up a lot more." (See ads on pages 11 and 27.)▪

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