



SOFTWARE MAKERS SEE STRONG DEMAND

Resolved to Offer New and Updated Products

By Larry Kahaner

The construction software business is doing very well thanks to new products, services and structural engineers who are finding great use and economy in the latest software offerings. “Business across all our regions is booming,” says Dan Monaghan, Managing Director, North America for SCIA, Inc. (www.scia.net), part of the Nemetschek Group. “We see a particular uptick in the United States and Europe as engineers are looking for easier ways to plug analysis and design into BIM.”

The company introduced SCIA Engineer 16 in late spring and response has been strong, says Monaghan. “The reception around the world has been tremendous. With this release, we focused on usability. In fact, over 70 percent of the version 16 updates and features were born from customer feedback. The result is an improved structural design program that provides engineers an easier and faster way to deliver quality results.”

He adds: “For steel buildings, we partnered with the Steel Joist Institute to incorporate their new Virtual Joists and Joist Girder tables and enhanced Composite Floor capability [AISC 360, EN 1994]. We also teamed up with the Steel Tube Institute and developed a free suite of HSS design software to make it easier for engineers to design with Hollow Structural Sections. For concrete, engineers will find new workflows and improved design of concrete beams and columns [Eurocode 2]. There is also a new concrete shear wall & frame module that includes Pushover [ACI 318-14, ASCE/SEI 7-10, and FEMA 356] and improved concrete slab and shell design [NBR 6118:2014].”

At the high end of the market, Monaghan sees more M&A as large AE and EC look to expand beyond their current maturing markets. “These firms are looking to save costs. With SCIA Engineer’s broad set of analysis and design functionality, these businesses can standardize and consolidate the number of software programs they use and maintain. At the middle of the market, we are seeing an awareness for how the right structural software can streamline workflows making companies more efficient and more competitive. These firms are looking for structural design software that can do more and let them take on larger more complex projects.”

To help SEs with their work, Bluebeam, Inc. (www.bluebeam.com) offers Revu which delivers PDF creation, editing, markup, and collaboration technology to Windows desktop and tablet users. “Structural engineers can use Revu to harness the rich data created during the design process to expedite reviews and preserve value,” says Nick Decker, Senior Industry Specialist.

“For example,” Decker notes, “the new Batch Markup Summary feature in Revu 2016 allows a project team to review an entire document set and run one consistent report from all files. Expanded data sorting and filtering capabilities make running multiple reports in both PDF and Excel formats easier than ever. Additionally, improved document tagging and drawing log features allow users to automate document naming and metadata formulation. This process was previously compiled manually in an external spreadsheet or database. Now, the data can be associated with the sheets themselves and automatically updates as drawing revisions are released.”

“Finally,” says Decker, “the new Legends feature enables engineers to visualize the markup data directly on the PDF, which was a highly requested workflow enhancement. By summarizing the markup data in a customizable table, the legend on the PDF automatically updates, providing the user with the data at a glance... We have some fantastic customer success stories we can share, detailing the impact Bluebeam’s intuitive and collaborative workflow solutions have made on projects and on their ability to deliver on time and on budget. Eighty-six percent of the top contracting firms in the United States use Revu because it lets them do what they do, better. Our customer’s success is our success.” (See ad on page 45.)

Doug Evans, Vice President of Sales at Design Data (www.sds2.com), says that the construction industry has been stable for the last couple of years, and they are continuing to see the benefits. “Our growth of new customers has been as high now as it has been at any time in our 30-year history.”

Adds Evans: “Design Data has two new technologies that are continuing to emerge within the BIM segment of the industry. The first is the SDS/2 Erector product and the second is the Model Approval workflow using the SDS/2 Approval product. The SDS/2 Erector gives general contractors and erectors an opportunity to plan the site and the steel erection visually, with tools and information not available in the past. All needed documentation for critical lifts and lift plans are capable with SDS/2 Erector, making it much easier to satisfy the AISC erector certification process. This product can help companies optimize the construction of steel structures.”

“The Model Approval workflow continues to gain momentum as an alternative to sifting through stacks of paper and rolls of drawings,” Evans continues. “Using the SDS/2 Approval, this process can save weeks by reducing the time to communicate information along with much more clarity by using the model as a tool. Instead of using 2D drawings and hand sketches, the SDS/2 Approval allows



users to view the model and review all metadata associated with the members in 3D space.”

Concludes Evans: “We continue to see the model as a means to more completely communicate information to project partners. We are also seeing the benefits of early involvement of steel suppliers in the overall project timeframe and quality.” (See ad on page 46.)

At RISA Technologies, Inc. (www.risa.com), Vice President, Operations Amber Freund says that RISACONNECTION has a number of HSS connections available, and the company is currently working on developing more HSS connection types to add to the RISACONNECTION library. “More variations to our current connections and new HSS-specific connection types will be released in 2017,” she says.

“We see much interest in HSS and Truss Connections. The ability to design connections is a growing and exciting option for many of our users. Capacity to see the complete details of each limit state check is also an easy way for users to better understand the overall behavior of the connection and verify the completion of the design,” says Freund.

“We recently introduced Seismic Braced Connection design per the AISC Seismic Design Manual in RISACONNECTION version 6,” she says. “This new feature designs OCBF and SCBF diagonal brace and chevron braced connections to the code provisions of AISC 341-10. Now, you can complete a very complicated design – including loading cases of reversible lateral loads and post-buckling compression – in just a matter of minutes.” (See ad on page 68.)

WoodWorks software sales over the past year have steadily been increasing for both the U.S. and Canadian editions, notes Robert J. Jonkman, Director Codes and Standards – Structural Engineering for the Canadian Wood Council (<http://cwc.ca>). “Our customers say that the Canadian Wood Council produces very affordable software that provides high value to users, and our customers purchase upgrades loyally.”

In the U.S., their latest version of the software is Design Office 10 (SR4b), released in November 2015. “The current U.S. version conforms to the IBC 2012, NDS 2012, SDPWS 2008, and the ASCE-7-10. We are working on the development of the next major U.S. version of the software, and we expect to have it available by the fall of 2016. Relevant updated provisions in the IBC 2015, NDS 2015, SDPWS 2015 will be incorporated into Sizer, Shearwalls, and Connections,” Jonkman says.

“The most significant changes will be to our Shearwalls program, as there have been many updates to how aspect ratios are handled in SDPWS 2015. Shearwalls will also be updated to include the 3-term deflection equation from SDPWS 2015. The software already includes the 4-term equation.”

Jonkman adds: “In Canada, our latest version of the software is the Design Office 9 (SR3a), released in January 2016. This version of the software currently conforms to the CSA O86-14 and NBC 2010. As many jurisdictions across Canada have not yet adopted the

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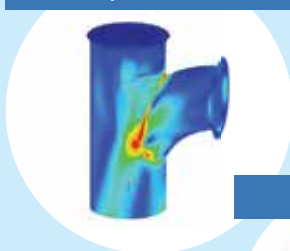
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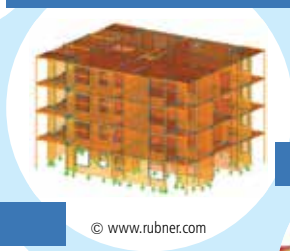


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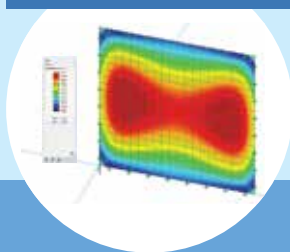
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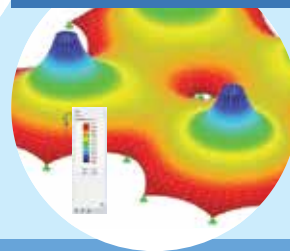


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CSA O86-14, the current version of the software allows the user to toggle the design between the CSA O86-09 and CSA O86-14.” He adds: “Over the next year, we will be updating the Canadian version of the software to conform to the NBC 2015, in which significant seismic design provisions have been modified. We have also started to incorporate the new 6-story wood frame construction provisions introduced in the 2015 NBC.” (See ad on page 49.)

Amy Heilig, Chief Executive Officer of Dlubal Software, Inc. (www.dlubal.com), would like SEs to know that the company has been in the structural analysis software industry for 30 years. “With several European offices, existing clientele in the United States and Canada, and offering U.S. and Canadian material design standards, we knew we were ready to make an impact in the local market with the opening of our Philadelphia, Pennsylvania office in July 2015. With existing competition in this same industry, we understand we must have a product that goes above and beyond engineers’ expectations.”

Says Heilig: “Our FEA software RFEM is one of the most sophisticated yet user-friendly analysis programs available for member, plate, shell, and solid element modeling. RSTAB, with a similar interface as RFEM, is an alternative program for framework type structures only. These are software programs created by engineers for engineers. The photorealistic rendering, non-linear capabilities, and seamless BIM integration surpass what structural engineers settle for currently. Multi-material structures

are easily designed with not only steel, reinforced concrete, and timber, but also glass, cross-laminated timber (CLT), and reinforced plastics according to current U.S. and Canadian standards and codes. Only a few trial runs in RFEM or RSTAB will showcase the power, efficiency, and usability behind our German-engineered software.”

How’s business? “Business is growing,” Heilig says. “With the physical presence of Dlubal Software in the United States, existing and new clientele are pleased to have a local contact for sales and technical support. Outreach at tradeshow around the country, free online webinars for PDH credit, and monthly email newsletters continue to broadcast who we are and how our products can significantly increase structural engineers’ productivity.”

She concludes: “Engineers are busy people. As former practicing engineers ourselves, we understand this. However, if you simply need to make a change because you expect something more out of your current software, we encourage you to try Dlubal. With an incredibly intuitive interface, we guarantee the downtime to learn our software is minimal yet the outcome is beyond beneficial. There is a reason Dlubal is utilized by more than 25,000 satisfied customers in 71 countries.” (See ad on page 44)

At ASDIP Structural Software (www.asdip.com), Founder and Owner Javier Encinas describes their product as a “structural engineering software conceived by and designed for structural engineers

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to work cost-effectively and complete common tasks in less time.” He says that they currently offer four products, each consisting of several modules. These are:

- ASDIP Concrete – Design of continuous beams, biaxial columns, and out-of-plane bearing walls,
- ASDIP Foundation – Design of spread footings, combined footings, and strap footings,
- ASDIP Retain – Design of cantilever retaining walls and top-restrained retaining walls,
- ASDIP Steel – Design of base plates, anchor rods, shear lugs, steel columns, and steel / composite beams.

Says Encinas: “Our customers are mainly small companies and individual consultants, as well as some large design firms. ASDIP is utilized by structural engineers to design, analyze, check and optimize calculations for structural members such as beams, columns, walls, footings, and retaining walls. Also, ASDIP can be used as an educational tool because the reports include exposed formulas and code references.” He adds: “I provide the technical support directly through email or by phone. Being a practicing structural engineer with more than 30 years of experience, this is a big plus. I often provide structural engineering recommendations in addition to the software support. We focus on excellence in technical support and service, solving over 95 percent of the issues in the same day.”

Stuart Broome, Business Manager, Engineering at Trimble (www.tekla.com) says there are three new developments within the Tekla Software portfolio that SEs should know about: Tekla Structures 2016, Tekla Structural Designer 2016, and Tekla Model Sharing.

- Tekla Structures 2016 delivered a brand new user interface with its latest release. With a new, contemporary look, customizable menu ribbons, and brand new “quick launch feature,” version 2016 enables faster and more efficient modeling. In the new 2-D library, means for creating and


editing high-quality drawing is faster and easier for the Structural Engineer. Smoother collaboration among a wider design team was also enhanced in the new version with improved workflows with plant design systems such as Intergraph Smart3D, Aveva PDMS, and E3D.

- Tekla Structural Designer 2016 was another new offering recently released. With new RSA and seismic design provisions for concrete, a whole new market for Trimble’s A&D solution has opened up on the West Coast. Major performance enhancements in modeling, processing times and IFC compatibility have also proved to be well received by customers.
- Tekla Model Sharing now makes it possible for people all over the world to work on the same Tekla model at the same time. With the flexibility of working online or offline, along with the ability to sync only the changes they have made to a model, instead of the entire file, users are redefining how they work. This exclusive capability to Tekla Software is available with users’ current Tekla Structures software; no add-ons are needed.

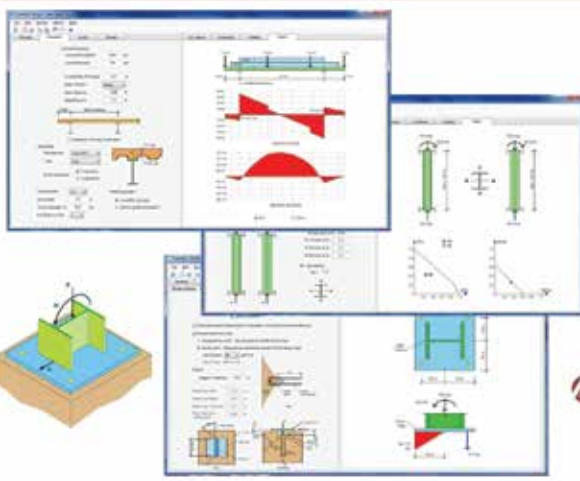
“Business is strong as the structural engineering community continues the search for improved productivity,” Broome says. “Structural engineers were historically very conservative when it came to adopting new technology, but the younger generation coming through the ranks understand that just because a software solution has been used for 10 years or more does not mean that it is the best on the market. This has led to an increased level of competition among software vendors and technology is moving quickly. The more forward-thinking engineers are capitalizing on the competitive advantage that newer tools can provide. This applies in particular to Tekla Structural Designer, Trimble’s new building analysis and design solution. With Response Spectrum Analysis (RSA) and seismic design for concrete structures, TSD offers many unique features that enhance productivity. TSD has been developed with BIM integration in mind, and while its primary

function is analysis and design, it communicates at a very high level with BIM solutions like Tekla Structures and Revit.”

Concludes Broome: “We are also seeing structural engineers looking to expand their scope of business by moving into Construction Services. This does not mean that engineers are trying to become detailers, but they are now creating truly constructible models which are useful downstream. This additional revenue stream has been very lucrative for our users. Tekla Structures produces construction documents as you would expect, but works to a higher level of detail (LOD) than some other BIM solutions. It does not take much additional work to design out clashes by using the automated steel connection and 3D rebar modeling functionality. The model can then be used by the detailer who is likely to be using Tekla Structures, too.” (See ad on page 3.)



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Marinos Stylianou, Chief Executive Officer of S-FRAME Software (www.s-frame.com), is excited about S-FOUNDATION 2017. "It improves the ability for structural engineers to generate foundations of any shape easily, with any number of holes, pedestals, and walls. When engineers realize the simplicity and power of S-FOUNDATION, they immediately understand the direct benefits to their organization," he says. Recently released updates for S-FRAME Analysis, S-CONCRETE, S-STEEL, and S-CALC have added improved functionality and integration, too.

Says Stylianou: "Challenges in the software industry are a continued demand for ease of use combined with product integration. Recent releases of S-FRAME Analysis have significantly improved meshing automation and enhanced tighter integration with concrete and steel design, to help engineers streamline their workflow. We have seen strong growth in the U.S. and Asia, especially when the need is to analysis and design newer trend-setting tall buildings. Having software tools that are versatile enough to work for any industry type or region is key."

He adds: "We expect structural analysis and design software to continue to evolve in terms of supporting newer, advanced material models, to incorporating more design codes, providing more automation and allowing for the user's ability to customize the software to fit individual, organizational needs. Newest releases of our products address these needs." (See ad on page 4.)

Paul Drace, Marketing Director at Redbuilt (www.redbuilt.com), says that business has been steadily improving, and they are experiencing growth across-the-board in their commercial segments in 2016. "We are planning for and expect the same upward trajectory for the next one to two years."

"In the near term, we see an overall increase in the use of wood in commercial construction and particularly in large structures. The primary drivers are increases in steel prices associated new anti-dumping duties imposed on China, availability of skilled labor, and increasing emphasis and awareness of the environmental benefits of wood. The biggest impact in the long term is likely to be finding, training, and keeping skilled labor. As a result, RedBuilt is focused on the search for ways to ease the shortage of skilled labor on job sites by offering services and pre-assembled accessories."

Says Drace: "RedBuilt's associates, products including Open-Web trusses, Red-I I-joists, [sic] and RedLam LVL, and services and accessories are directed toward one primary goal: being the premier supplier of structural solutions to the commercial construction industry. Our products are well suited for roof, floor, and wall framing in myriad applications including all wood, structural steel frame, and concrete/CMU wall structures." (See ad on page 47.)

Wayne Golden, Marketing Manager at Lindapter International (www.lindapterusa.com), touts their work on the Wilshire Grand Center designed by AC Martin. "When it is finished in 2017, it will be the tallest skyscraper west of Mississippi and will be configured to maximize views of Santa Monica, the Pacific Ocean, the Hollywood Hills and the San Gabriel Mountains," he says.

"The main feature of AC Martin's design is the swooping glass canopy which forms the lobby structure and main entrance to the building. The steel contractor was tasked with connecting the wavy structure made up of circular hollow structural sections."

"It was a taxing contract which required good organization skills because there were hundreds of unique sections, and their varying curves meant that each one had its own specific location. Safety and

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durability were of paramount importance but due to the architecturally exposed steel design, the engineer also wanted a discrete finish. Thorough planning and research were carried out by the structural engineer who evaluated various connection methods. The engineer decided to avoid through-bolting to ensure that there was no deformation of the steel tubes, while welding was deemed undesirable due to the additional work required to prepare and finish the joints. The structural engineer began to research various alternative connection methods and, after evaluating factors such as resistance to wind and seismic loads, decided that Lindapter's Hollo-Bolt was the best solution."

The Hollo-Bolt is an expansion bolt for structural steel and HSS that was invented by Lindapter in 1995. Unlike conventional bolts, the fastener can be installed from one side of the steel (i.e. the bolt/nut does not protrude out of the opposite side of the HSS), Golden notes.

"It was recently approved by ICC-ES for use in all seismic zones and report ESR-3330 concludes that 'Hollo-Bolt Fasteners may be used to resist wind loads and seismic loads in Seismic Design Categories A through F in accordance with Section 1613.3.5 of the 2012 IBC, and Section 1613.5.6 of the 2009 IBC.' Also, the ICC-ES evaluation validates load data for LRFD and ASD design methods, confirming that Hollo-Bolt has achieved the highest resistance to tensile loading in accordance with AC437."

Further to the ICC-ES approval, the Hollo-Bolt has been awarded the Los Angeles Research Report (LARR approval) from the City of Los Angeles Department of Building and Safety, Golden says. "Although this is a state-based review, it provides architects, builders and specifying engineers with extra confidence when specifying the Hollo-Bolt. Following the specification of Hollo-Bolt to connect

the atrium's architecturally exposed structural steel, the steel erector began the process of lifting the steel sections into place, and inserting size 5/8-inch Hollo-Bolts into the pre-drilled holes and tightening with standard tools. The simple process allowed over 3,000 Hollo-Bolts to be quickly installed and avoided the need for drilling or welding in the field. Moreover, the quick and easy installation allowed the contractor to complete the atrium structure on time and on budget."■



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