

Getting into the Details

EDITED BY GEOFF WEISENBERGER

The detailing industry is facing several challenges, not the least of which is a shortage of qualified detailers at a time when 3D and BIM are becoming the norm. MSC chatted with two detailing software companies about the current state of the industry.

What are some challenges or trends you've noticed in terms of steel detailing software use?

Keyack: The number one challenge is finding or training qualified people for the steel detailing profession. Using Tekla Structures and bringing 3D modeling to the detailing process allows next-generation detailers to visualize and understand how steel goes together much more easily. That next generation is growing up on 3D interactive video game environments. It is how they learn and understand the world around them, so 3D modeling in steel detailing matches the tools they are used to.

In the past, detailing trainees often spent five years before they were proficient enough to do projects on their own. Most of that time was spent learning how to visualize 2D design drawings in 3D in their minds, then transferring that information back to 2D detailing drawings for the shop. With 3D technology, detailing trainees are now able to become productive by themselves in closer to 1-2 years.

Tekla Structures has also created 2D drafter modules of the 3D modeling software to allow the more experienced traditional 2D detailers to comfortably become introduced into the 3D environment. They can visually review things, in 3D, created by other detailing team members, but then they can always reference, mark up, and even be involved in producing 2D shop and erection drawings as well.

Evans: The way in which a project is created, designed, and detailed is continuing to evolve with the help of technology. There is no one right answer to this process, but we do see an irreversible trend

toward an environment of more collaboration and cooperation, and a blurring of duties in executing a project. Each organization is unique and the talents and resources they have allow them to be competitive. The most successful organizations encourage pooling their own talents with those of the project partners up front and throughout the project.

What are your thoughts on the switch from 2D to 3D and BIM?

Evans: Steel detailers continue to absorb the bulk of many technology advancements. Last year BIM was a key topic at all association meetings and a main focus for a lot of organizations. To detailers, this means having to create, track, maintain, and provide more information about the steel structure in many more formats than ever before. The 3D model emerged as a unique product in the early 2000s, and now the data associated with the model, along with historical information, is required. The model and project data also needs to be shared with many project partners in various forms. Those companies that adapt and welcome this responsibility will need the expertise on staff to successfully integrate themselves into the BIM movement. While this is more of a challenge, adopting BIM can enable the detailers to become a bigger part of the overall project.

Bottom line, involving steel detailers, fabricators, and erectors in the conceptual detailed design results in projects being completed faster and with higher profits. Organizations will continue to improve their ability to communicate and cooperate

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Too often, I see companies that buy our software hoping to make time gains over AutoCAD, and then these gains are not realized because they use 3D and try to emulate their 2D-based procedures.

This isn't a perfect analogy but I liken it to buying a Ferrari and using it to pick up groceries. You can certainly drive it to the grocery store and you will be able to do your shopping slightly quicker, but you will never be getting the full return on your investment because you are not pushing the car to its design limits.

This year, I am setting a personal goal to better educate our prospective customers into the ways of working in 3D/BIM. I'm hoping that as a result, they will be more positive towards our software during what I call the three-month depression (where the ROI isn't being realized because the expertise or experience hasn't been attained yet). Our tech team should see benefits in terms of reduced service calls, and our sales guys won't have to constantly apologize to dissatisfied customers.

—Ian Coats, Product Specialist, Tekla, Inc.

by jointly marketing the benefits of their teamwork to owners. These partnerships will win a majority of the projects.

The days of an organization going solo, without project partners dedicated to cooperating on all phases of a project, are numbered. Those companies not embracing BIM will find it increasingly difficult to compete.

Keyack: The 3D steel detailing model is becoming a deliverable to fabricators and erectors. Not only is it easier for the detailer to visualize the complex geometry and connections of today's projects via a 3D model, it is also beneficial for shop production, project managers, and field superintendents. We are finding that 2D drawings are just one portion of the deliverable. CNC-driven machinery is becoming more powerful and affordable, and feeding these machines with accurate fabrication information as early as possible in the design process is vital to shop production. More and more detailers are being instructed by fabricators to provide CNC files as well as an electronic bill of materials files for shop equipment and material management systems. What may have taken two weeks with shop personnel manually entering data is now being done in a day or two with information being directly downloaded to the CNC machinery from the 3D detailing model.

How is your software improving the workflow of structural steel jobs?

Keyack: We have a variety of fabrication and erection clients that utilize our viewer-only licenses to review the 3D steel detailing model for erectability and even site planning. The project managers and field superintendents can run reports on the number of erection picks in a sequence, generate field point-to-point bolt lists, open drawings to find extra dimensions they may need in the shop, determine center-of-gravity locations and check weights on assemblies, and visually colorize the different sequences in the project. Some erectors and fabricators are even buying steel detailing licenses to model in job-site equipment like cranes, trucks, generators, temporary shoring, and lay-down areas to be used to communicate with general contractors as well as their own crews.

Additionally, in a changing market where there is more need for bilingual communication, having a 3D representation of what will be built out on the jobsite goes a long way. Traditionally, project managers have three or four different ways to find out out the submittal, production, shipping, or erection status on a project. They look at electronic spreadsheets and accounting reports or call up detailers to get an idea of what percentage of the project is complete. Today, our customers are starting to import

or set those statuses directly on the beams and columns in the model so the project manager can visualize that information all in one place.

Evans: With the continued shortage of available quality steel detailers, it is critical that the software used by these individuals provides high productivity. None of the detailing software on the market is close to a finished product that needs no enhancements. This means each new enhancement provides solid productivity gains. Recent features from SDS/2 include the ability to edit multiple members and drawings at one time, grouped member details, automatic connection design to sloping columns, and curved beams. These enhancements, along with many others, allow customers to produce much more in a day, which in turn helps to accomplish projects on time. Many organizations are backlogged, and the more drawings they can produce, the more their profits can increase. **MSC**

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