Between Dimensions

3D detailing software is making strides, but 2D is still going strong.

BY GEOFF WEISENBERGER

WHEN IT COMES TO STEEL DETAIL-ING SOFTWARE, ONE THING IS FOR CERTAIN: 3D IS HERE TO STAY. While this isn't exactly breaking news, it is a significant, ongoing trend in the detailing industry. But as with any trend, there are those who are happy to ride the wave and those who remain skeptical.

For some, especially smaller firms working on smaller jobs, the issue with upgrading to 3D software revolves around not having enough incentive to do so. "People forget that many companies doing up to 1,000 tons and that have three or four employees do not have the time for training and loss of production, and it may not work well in this particular office setting," says David Nelms, a detailer and CAD manager with NC Structural Detailers, Inc., noting that 3D drawing systems can have very long learning curves, making it difficult for a small drafting operation to justify the expense.

Nelms adds that there will always be detailing jobs where 2D technology is appropriate. And in some cases, it's still faster than 3D. "In the time it takes someone to model in a bearing plate with studs, a drawing could be done in 2D," he says.

John Taylor, president of Diversified Detaylor Ltd., agrees. While he confesses that he sees 3D as the wave of the future, it's certainly not an end-all, be-all solution, especially when it comes to miscellaneous metals. "I would find it easier to detail a ladder, two bollards, and six lintels in my favorite 2D program before I fire up my 3D software," he says. "Each program has its niche and is just another tool for the detailer to use at their discretion."

On that same note, Randy Sedlacek, publisher of Steel-Link.com, says he has yet to find software that automates miscellaneous detailing adequately, but that this is understandable because of the unique intricacies involved with detailing stairs and railings.

On the other side of the coin is the feeling that 3D detailing technology has opened the door to new possibilities. Peter Officer, a detailer with Tamburri Associates, feels that there is a misconception that a whole building must be modeled 100 percent complete before a single drawing can be produced from a 3D system. This is untrue, he explains, as the only information required to release one beam is the same information one would need if detailing manually. There may be little if any time savings using 3D modeling on smaller projects, although there may be fewer errors. "Of course, the larger the job, the bigger the savings and the sooner you see a return on your investment," he says.

When it comes to these larger jobs, the speed of 3D modeling becomes a major asset. Rob Schoen, director of operations for Action Steel Detailing, Inc., notes that the increase in design-build projects, especially those involving more than 10,000 tons of steel, is creating "insane" detailing schedules, a situation where 3D is the only logical answer.

Not only has 3D modeling become a life-saver for large detailing shops working on big steel jobs, it has also been beneficial to smaller shops who might not have previously been able to take on these jobs. "Five to ten years ago, a company with less than 20 detailers would not even be considered for jobs over 2,000 tons," says Schoen. "Now, companies with five guys are being asked to do jobs of amazing sizes."

Automation

The movement toward 3D is seen by many as being hand-in-hand with increased automation of detailing software. While this appears to be a welcome phenomenon throughout the detailing world, there can be drawbacks. Norm Alterman, P.E., president of Computer Detailing Corporation, warns that the perception of a fully automated detailing system, one where inexperienced users can all of a sudden produce structural shop drawings, has lead to a deterioration of the finished drawings, and significant time is often spent correcting these drawings to make them acceptable.

This is a concern for Eric Kitzman, detailing manager for Schuff Steel, as well. "There are not enough 'detailers' to learn the software, and a lot of the operators do not have actual detailing experience, just modeling."

This can lead to a lack of detailing experience being inappropriately replaced with relying too heavily on the software, says detailer Bernie Bokanoski. A general decline in overall detailing knowledge is creating a situation where newer detailers tend to know more about the computer side of the process than the actual detailing side, and are therefore more likely to put their complete trust in the output. "They think, 'If the program does it, then it must be right," he says.
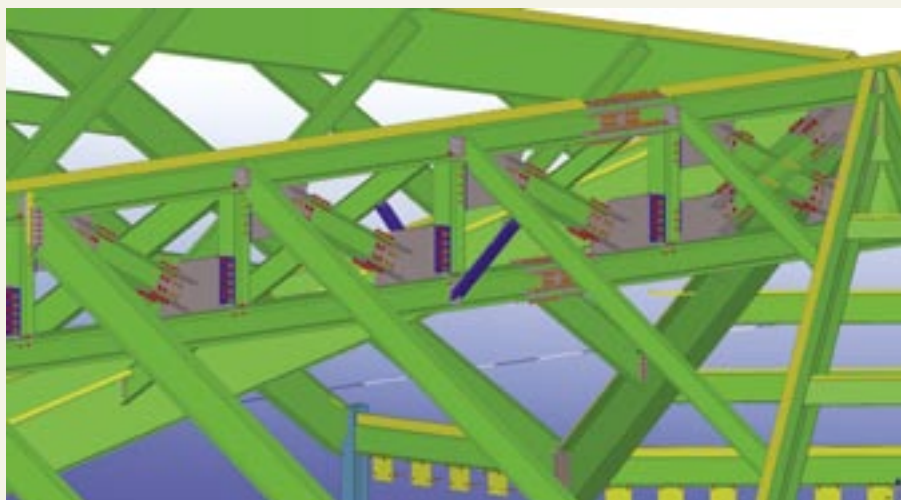
A portion of a 3D model. Image courtesy of Tekla.

To avoid this situation, Taylor emphasizes the importance of training. "Like any software, parametric programs can make either a lot of garbage or a good job pretty quick," he says. "The difference is always in the user and their willingness to learn and progress with the software. You always have to properly train for the trade and try not to discount the knowledge and expertise that's required of the detailer."

Alterman adds that plenty of conventional 2D fabrication drawings are still being used by most small fabricating companies that don't have the capability or don't want the expense of a modeling system to create shop drawings. "In addition, a modeling system is overkill for most small projects," he says.

A Lost Art

Regardless of their enthusiasm, or lack thereof, for 3D modeling, the majority of those interviewed feel that detailing by hand is becoming—or already is—a lost art. But according to Officer, this isn't necessarily a bad thing. "Detailers are not artists," he says. "The guys on the shop floor don't care how the drawing was produced if all the necessary information is shown. I've actually had many fabricators say that they prefer my computer drawings to the manually produced 'masterpieces' they're used to." He explains that since the checking process is very different with 3D systems, very few reference dimensions are known, and the fabricators don't need them anyway. As such, the "minimalist" CAD drawings are much cleaner to work from.

On that same note, the migration from 2D to 3D means a migration from paper to electronic data exchange. And according to Mike Gustafson, a Tekla product manager, there is a growing interest in the design and construction industry to reduce the amount of paper used to review structural steel shop drawings, and multiple owner and contractor organizations are encouraging digital approval processes instead of paper. Interestingly, he notes, some construction projects in the U.S. and Canada have already been successful in using a model review process to approve shop drawings, and he believes this trend will continue.

User-friendly?

From the software producer side, usability is an eternal concern. Says Jarrard Michna, steel product development manager, North America, with Tekla, "For us the battle is twofold. Users want to see the program moving forward, while being easy to transition from one version to the next. Our focus in not just on developing new functionality, but also improving the user interface to help the user get his/her job done better and faster. Our effort to improve ease of use continues to be a main component in our development planning."

However, he notes that users tend to operate the program the way they were trained. Meanwhile, when a new version of the software is released, with better and new ways of doing things, users tend to pick up a few new features, but often not all. Over time this accumulates. But part of being a software developer is promoting new features that users might not be aware of or comfortable with, so Tekla is regularly advertising these features wherever they can, using their newsletter, road shows, and web site to get the message out.

Another focus within the detailing software industry is integration with other types of structural software. Cameron Haywood, Marketing Manager, AceCad Software Ltd., explains that the software industry always tends to integrate. "We see increased integration and standardization between best-of-breed applications as a means to maximize our users' productivity," he says. "For this reason AceCad has established close links with all key design and analysis software developers to ensure that all its systems comply and benefit from the latest technology." **MSC**