

product expert series

TECHNOLOGY AND STEEL FABRICATION

TEXT AND IMAGES BY CHRIS FISCHER

THE WAY THAT WE exchange and use data has changed dramatically in recent years, and the changes are not about to stop. Where once a set of paper drawings and a book of specifications provided the baseline for project activities, today project documentation is increasingly electronic. As more information makes its way into the Building Information Model (BIM), project team members are relying more on this tool to increase productivity in many ways. However, adapting to this shift has presented numerous challenges, on both corporate and personal levels, and those challenges already have spawned a variety of interesting solutions. Today's design and construction professionals are continually challenged to not only adapt, but also to discriminate, regarding the technology they choose to adopt.

Where We Are

Today, Tekla (our preferred software) and SDS/2 are used by many fabricators to create 3D viewable models. By integrating BIM into our standard workflow, we can increase our efficiency and the value of the product we deliver to our customer without increasing the product cost.

One example is color-coding members in the model by erection sequence. By realizing that it is simply a file of data that you're working with, and that the information about sequencing is already in the model, it becomes relatively simple to create a communication tool to share those erection sequences. Once someone has done the programming, communicating that information becomes no more difficult than doing a screen capture.



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Keeping up with the pace of change isn't easy, but it has definite benefits in this industry.

The two color-coded building models shown here illustrate the kind of visualization that is readily available using the BIM data. The fact that the coloring of the models is something we do as part of our existing processes and practices, not something that is out of the ordinary or only on certain jobs, means this kind of visualization tool is available on any project. Additionally, because using BIM is integrated into our business operations, there is no project that is too small for BIM, whether it's a gas station or a high-rise building. If you're doing it right, you don't increase your costs by using BIM. Rather, you decrease your risks and you increase your quality.

Our in-house software developers continue to write custom programs that allow us to focus on the "I"—the information—in our BIMs to a higher degree than ever before. This allows us to combine the features of the software that we love with some of the information that is not otherwise accessible using the standard package.

Today we have automation everywhere we can in our fabrication and erection operations, including some places where you'd least expect it. But we're always looking for additional tools to improve quality and productivity. That brings us to one of the wonders of modern technology, which is that its price is actually falling.

The falling cost of technology means that if you visit the show floor at the upcoming NASCC: The Steel Conference in Dallas (April 18-20), you're going to see machinery vendors there offering machines that cost less than last year's models did, as opposed to more. By bringing down the cost, smaller fabricators can leverage some of the advantages of computerized fabrication tools that previously were unaffordable.

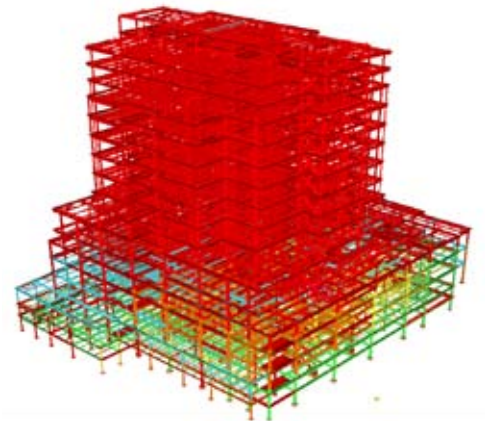
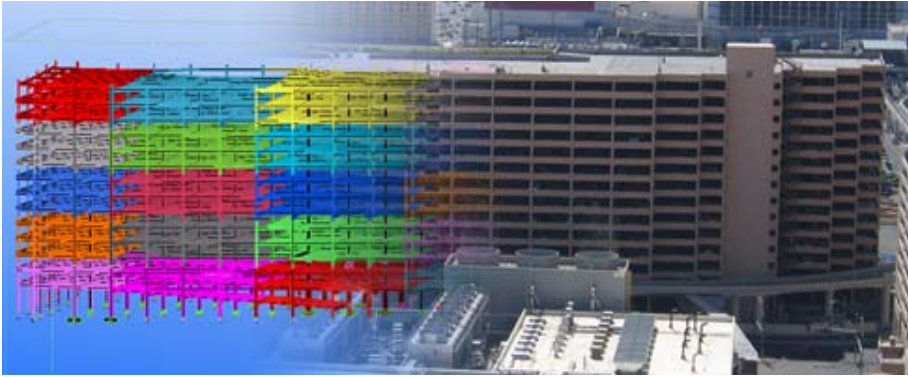
Take drill lines, for example. Ten years ago the only drill lines available were very large, and out of reach for most small fabricators. Now, if you were to poll the exhibitors on the Steel Conference exhibition floor, you'd likely find their hottest selling models are not the super-expensive, luxury, highest-capacity, deepest-section drilling machines. Rather they are the machines that a small fabricator can afford, machines that are both more flexible and provide more value. That's a good thing for the industry, generally speaking. For the more we can make steel more competitive in the marketplace, the better it is for all who are employed in this industry.

Think about what an influence it would have on the quality of the deliverables and the cost of those deliverables, from a global

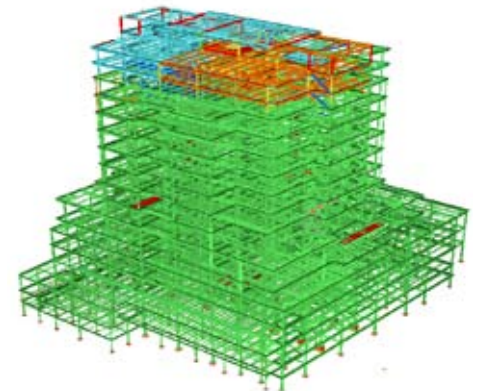
perspective, if every steel fabricator in the world had a CNC beam line. Think of all the ramifications that could have on energy use, and even steel recycling. As the cost of technology comes down, people can im-

prove their quality without increasing their cost. That makes everybody more efficient, and being more efficient is better, no matter what supply chain you're talking about. **MSC**

- Model showing a building before much of the steel erection. Red members have yet to be erected.



- Overlaying the model with a photo of the completed project is not something we commonly do, but it's one of the best visualization tools for demonstrating to a client or supplier that all of this is ultimately about putting up a real building, not just generating digital data.
- Model of the same building, nearing completion, with green indicating that members are erected.
- With access to the model, field personnel can get very particular and detailed information for each steel member as well as other modeled components.



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Fabrication	
Inspection	
Loading	
Shipping	
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Painted	
Loaded_At_Painter	
Shipped_From_Painter	
Storage_Yard	
Onsite	
Erected	
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