

Leading the way to 3D design + scheduling + estimating + ownership

**Dynamic Joist®**

**BIM6D**

**PROCESS MANAGEMENT**

- Nationwide BIM project experience
- Industry-leading Dynamic Joist® design software
- Expert steel joist modeling and process management

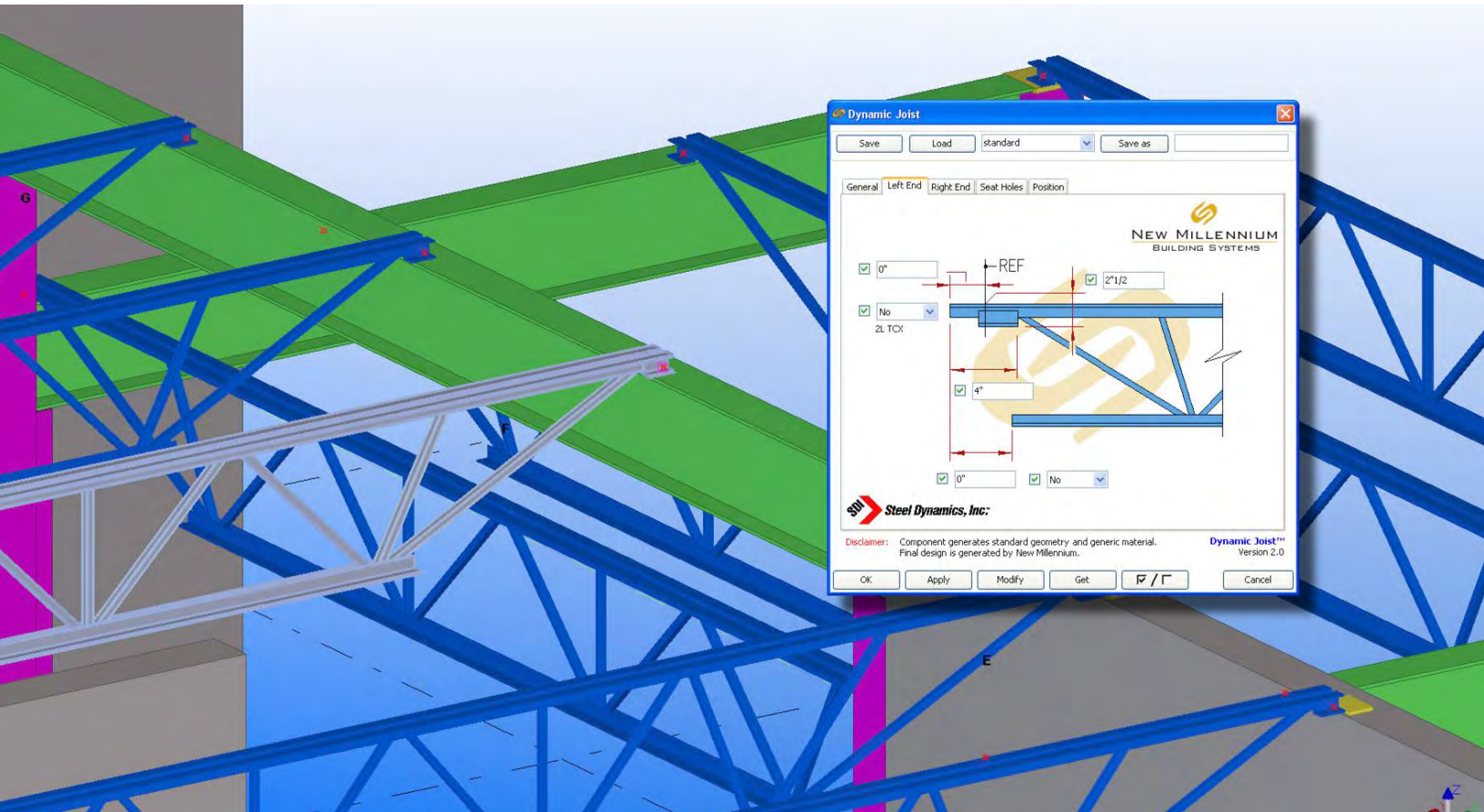


**NEW MILLENNIUM**  
BUILDING SYSTEMS

**Building a better steel experience.**



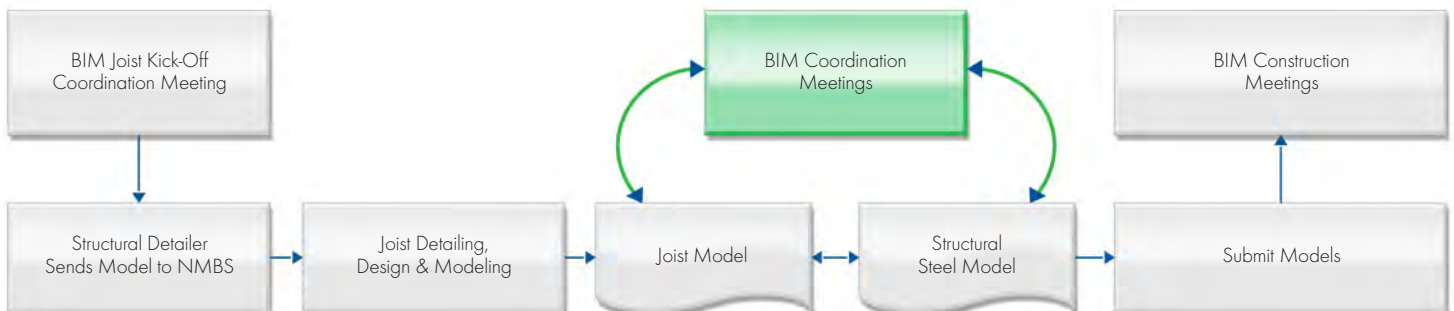
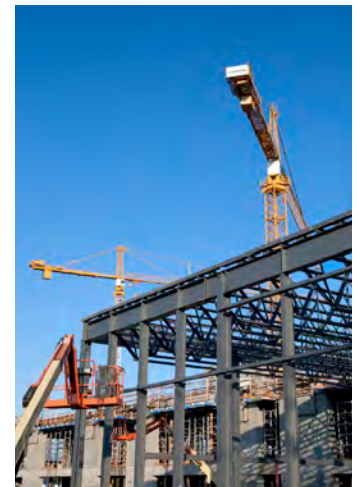
# Dynamic Joist® 6D BIM Process Management



## We've engineered a better process

If you have ever wished that the request-for-information (RFI) "process" could be made less troublesome and less costly to your business, then you can appreciate what happens when a three-dimensional, color-aided model of the structural steel package becomes the guiding focal point for design discussion.

To begin with, progress is no longer hampered by a flat plan view with missing dimensions to be ferreted out and questioned back-and-forth by way of hand-drawn clouds. Our process for developing a joist building information model quickly clears away the RFI clouds. In fact, we have seen a dramatic reduction in RFI's, and the reason for this is that our steel joist BIM development process brings clear procedure, communication and accountability to the steel phase of a project. It is a process we have forged with the help of many participating structural steel engineering and detailing professionals, and which we will continue to refine with every project, moving forward.



New Millennium's process for steel joist BIM development is a significant improvement over the traditional RFI approach to structural steel project design and delivery, because it brings more clear, model-guided procedures, communication and accountability.

## Managed costs and scheduling

Our Dynamic Joist® model integrates smoothly into the structural model, which in turn integrates into the building's "master" model, where they are joined by models from other participating trades.

In addition, our joist BIM development process pays off in ways beyond just the delivery of the steel joist model. The process fully leverages our value-added engineering capabilities, as we address a wide range of cost/value decision points, such as bridging placement and erection, evaluating and improving unusual connections, seeing where and how special load conditions can be better supported, or where an aesthetic architectural objective can be achieved using less metal and labor. The process also encompasses such cost-performance decisions as erection-synchronized joist delivery.

Our commitment to the BIM process has fostered an operational evolution within New Millennium across all disciplines, from design and engineering, through manufacturing and delivery. Within the steel joist model, we can call up such information as the type of joist to be designed and the color of the paint. And once the model is approved, all of this information can seamlessly flow into our dynamic, timeline-sensitive, manufacturing systems.

Our digital steel joist design component, together with our proven process for joist BIM development, serves the building owner's point of view... from start to finish, and beyond:

- **Increases information sharing and problem ownership**
- **Improves structural design and smoother project flow**
- **Shortens project timelines for earlier building occupancy**
- **Eliminates errors resulting in a wide range of cost reductions**
- **Delivers to the owner a tool for lifelong facility management**

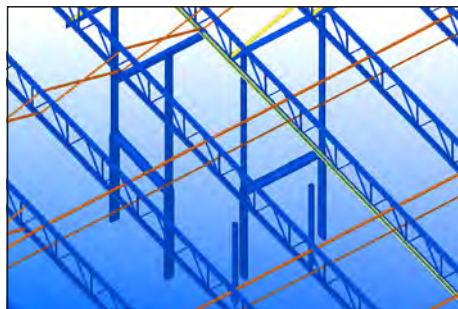
Real-world BIM-based collaboration:

### Dynamic Joist® digital steel joist design is right on target

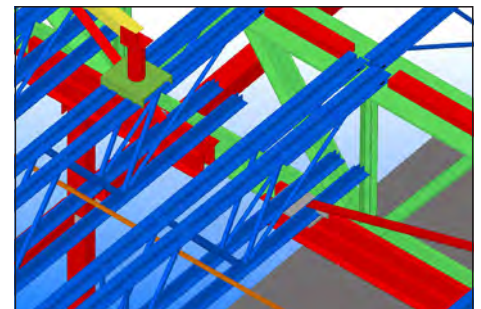
Digital steel joist design has enabled a nationwide retail chain to evaluate BIM-based steel package collaboration for the first time, proving a range of cost reductions to a new store project in San Clemente, California. In addition, the project's shop drawing timeline was **reduced from a six-to-ten week schedule to a three-and-a-half week schedule.**



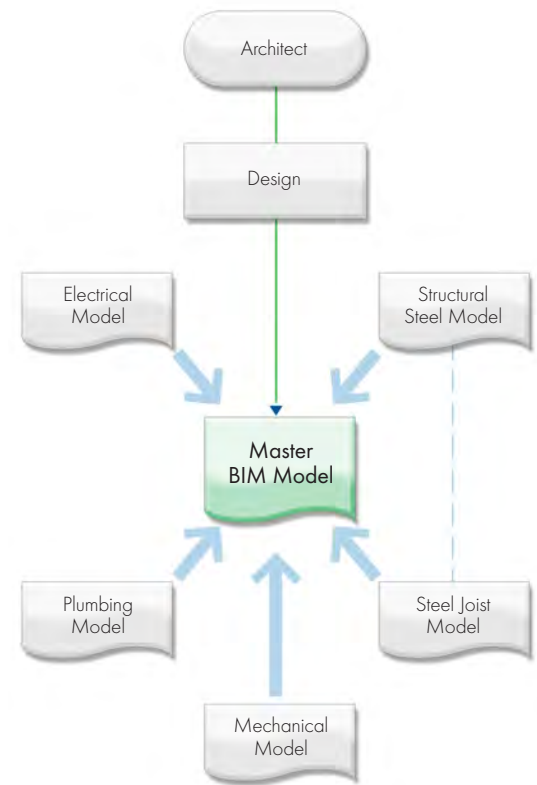
3D model revealed a stabilizer was not planned for this joist girder. The engineer designed a stabilizer hanger for the bottom chord extension, preventing a field erection problem.



The as-built steel joists design enabled the structural engineer/detailer to design the reinforcement for this door framing, including bolting details.

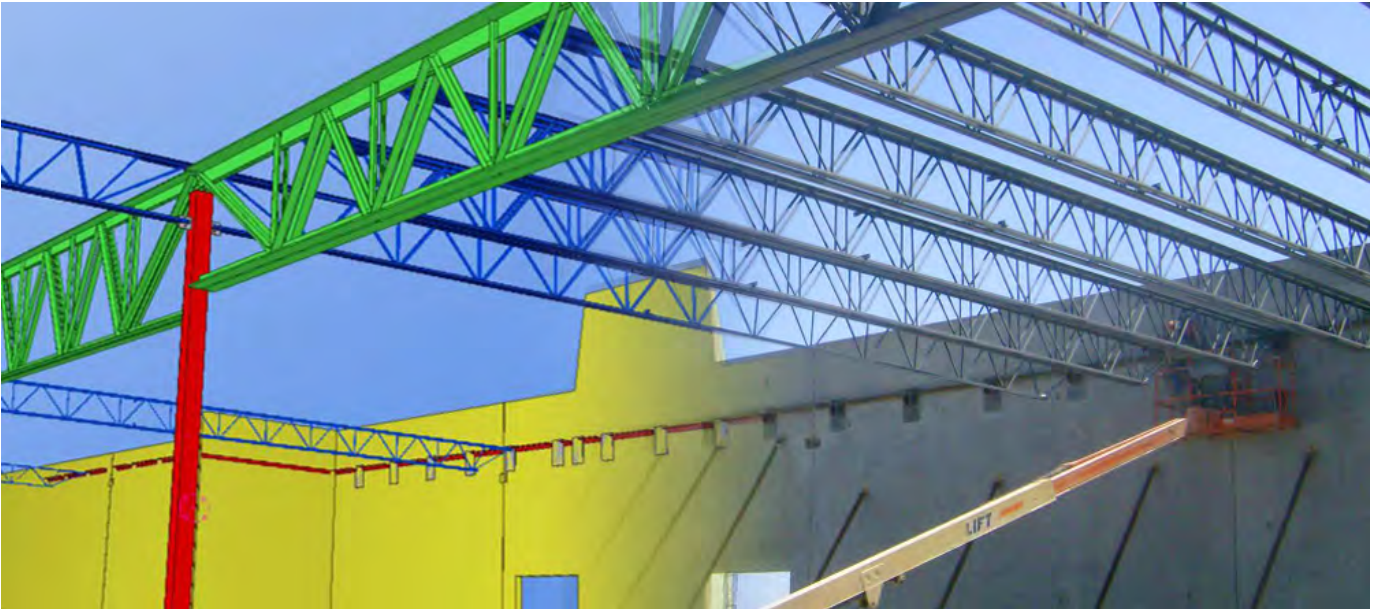


The 3D model enabled the structural detailer to coordinate with the steel joist detailer to extend the bottom chords of these double joists, for added reinforcement.



The master building information model is composed of models developed by key participating trades. The quality and efficiency of the steel modeling phase (structural and joist) is critical to the success of all other models, and so to the project at large.





## Experience you can build on

New Millennium has managed steel joist model development for a wide range of BIM and IPD based projects. In all cases where the project was fully BIM based, we contributed from the early outset to the planning, design and process management of the building's mission-critical, combined steel joist and structural steel model.

Our early participation in the design process enables us to bring to the table our growing breadth and depth of steel joist design, engineering and manufacturing capabilities. This includes special profile joist design, enhanced by our continuing leadership in the expansion of special profile joist specifications. In addition, the advanced Dynamic Joist<sup>®</sup> component facilitates the efficient design of bridging and other structural elements within the combined steel joist and structural steel model.

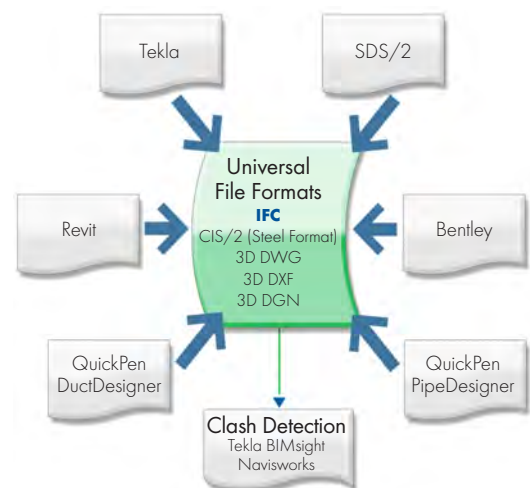
## Simplified file exchange

An early impediment to BIM and IPD adoption was to decide which software to invest in, with the risk that your choice would not prevail in the marketplace. When we developed our own digital steel joist design component, it was based on one of the leading structural steel software platforms; yet we needed our component to be universally sharable, regardless of what structural software another company was using on the same BIM project.

We have found that the most frequent solution came by way of buildingSMART International and their Industry Foundation Classes (IFC). We soon began to exchange files using IFC, and it no longer mattered whether your brand of software did not match ours. We could still readily exchange files.

The steel industry is now recognizing and endorsing the IFC format. In addition, many of our customers now prefer to receive an IFC file, even if they are using the same modeling software that we use. They are more comfortable with our generating the IFC file for the joists; and we prefer doing so, because we too, want to insure the accuracy and integrity of the joist information.

New Millennium's Dynamic Joist<sup>®</sup> digital joist design component has been downloaded by hundreds of structural engineers and detailers since it was released in early 2010. The component is an add-on to Tekla Structures and our latest versions are available as a free download. Visit: [www.newmill.com/6D](http://www.newmill.com/6D)



New Millennium can share structural steel design files with other BIM project participants using several industry standard file formats. Along with many of our collaborating participants, we now prefer IFC, the buildingSMART International Industry Foundation Classes file exchange format.

## The most experienced provider of BIM-based steel joist design

Those of us who have grown accustomed to designing structural steel projects using 3D CAD were the first to ask, what's so new and different about BIM? More to the point, how is building information modeling relevant to the future of your business?

To answer this question, New Millennium produced the industry's first digital steel joist design component in early 2010. We have since developed and refined a process for the application of our plug-in across a wide range of BIM projects.

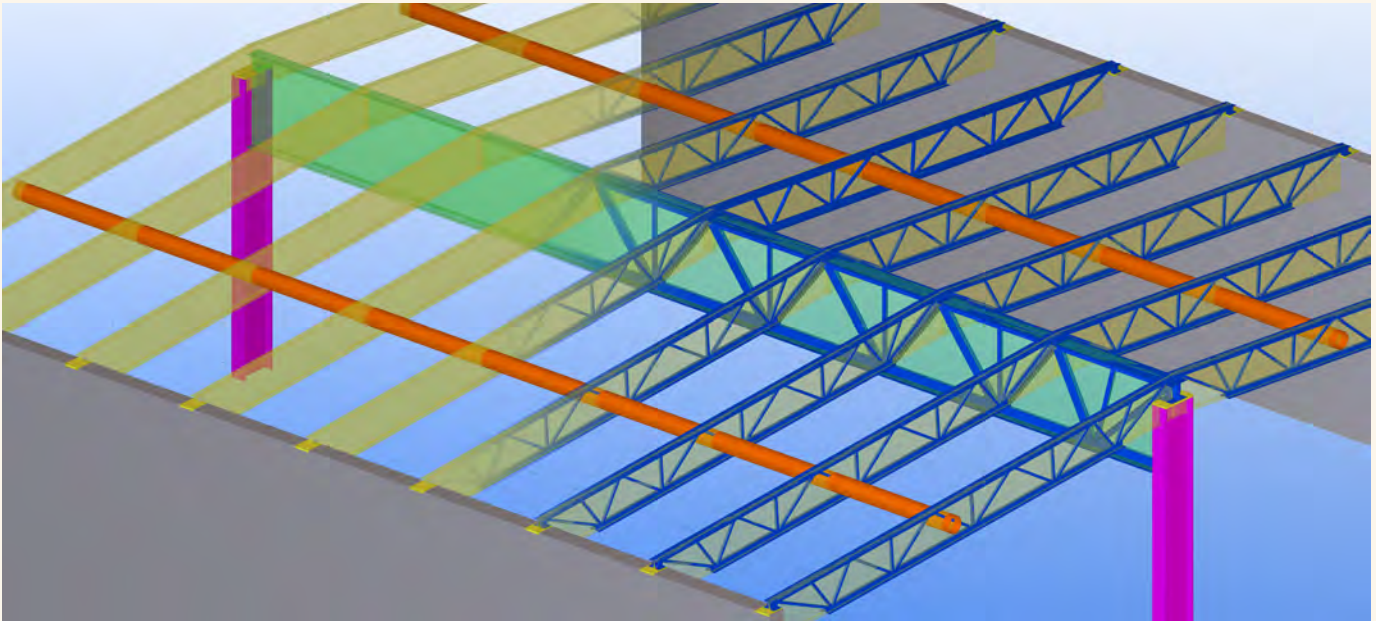
### BIM collaboration works

Our initial discovery was that our steel joist building information model was a much more effective reference tool for collaboration, compared to traditional 2D structural steel project plans.

Having a 3D model focuses and informs all discussions around design, engineering, detailing, manufacturing, delivery, and erection. We've found these BIM discussions to be much more productive, because you can "zoom in" on any structural element within the model, and that element is spatially represented by

accurate, three-dimensional data. That said, we have also learned that throughout every BIM project, participants still must communicate proactively. As steel construction professionals, we must collaborate on behalf of the project owners we serve and the industry we are advancing.

Whether by way of Integrated Project Delivery (IPD) or other team concept, BIM is a proven, improved approach that building owners and their advocates will increasingly demand.



A basic advantage of our digital steel joist design software has been the ability to move from generic representations of a structure, to seeing and verifying all structural elements by way of spatially accurate, three-dimensional objects.

### BIM is 3D and beyond

New Millennium can attest to the advantages of BIM and IPD. We have moved beyond the development of basic 3D steel joist building information models, to deliver the full rewards of this improved process.

Our Dynamic Joist® digital design component and supporting model development process provide a detailed three-dimensional steel joist model and much more: We are answering the need for 4D improved project scheduling and logistics management, 5D improved estimating and cost/value decision management, and 6D lifetime owner-operational management.

Our proven, industry-leading BIM and IPD services directly address the growing demand among building owners and their advocates for highly progressive steel joist design, engineering and manufacturing support.

3D = Steel Joist Building Collaboration

4D = Scheduling and Process Management

5D = Estimating and Cost/Value Management

6D = Lifetime Owner-Operational Management





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