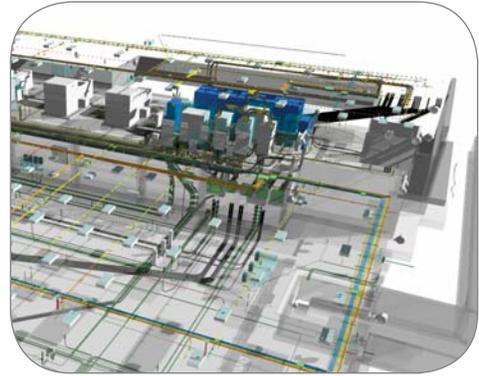


The Smart Jobsite: BIM in the Field at Turner Construction Company

Before the Field

Turner Construction Company uses Building Information Modeling (BIM) throughout the life of a project. Starting early in the design phase, Turner works with designers, trade subcontractors, and owners to identify the risk areas on the job and leverage the use of BIM to control that risk. This includes applications such as 3D virtual trade coordination, estimating, scheduling, constructability reviews, and logistics planning. Early planning is integral to the implementation of BIM throughout the rest of the project process.



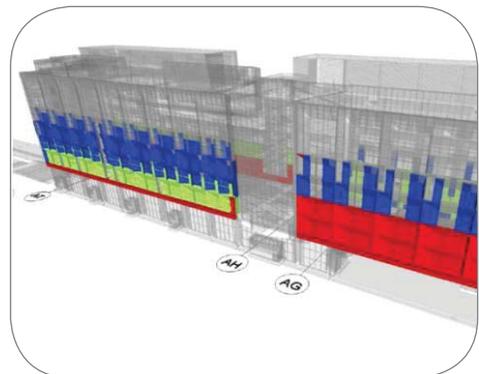
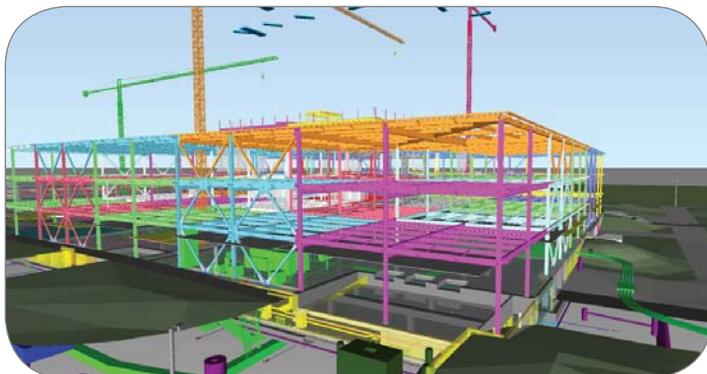
Eliminating Surprises: Laser Scanning to Capture Existing Conditions

Turner uses laser scanning to capture detailed geometric information about existing conditions and has used the scanning process on 8.5% of all BIM projects to rapidly and accurately produce a model-based representation of existing conditions for the project team. The process often uncovers information about existing conditions, identifying variances from as-built documentation and deficiencies in surfaces not being level or plumb due to settlement or improper placement. This information can be critical for alterations or additions.



Scientific Management of Work: Visual Production Control™

Turner captures jobsite material information in several ways, using tools such as Radio Frequency Identification (RFID) tags and barcodes, and can represent that information visually in digital models for user-friendly, rapid project status updates. Reviewing the steel and curtainwall tracking images below, it is easy for the project team and the owner to quickly understand which materials are on site, in place, or not yet installed. This accurate and up to date record keeping can be used to identify issues with supply lines or rapidly adjust the project schedule.



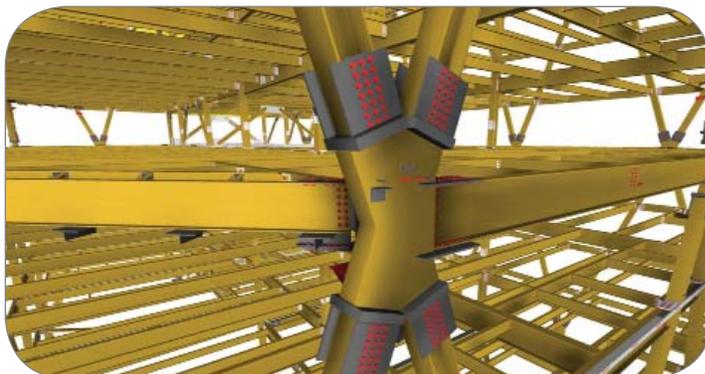
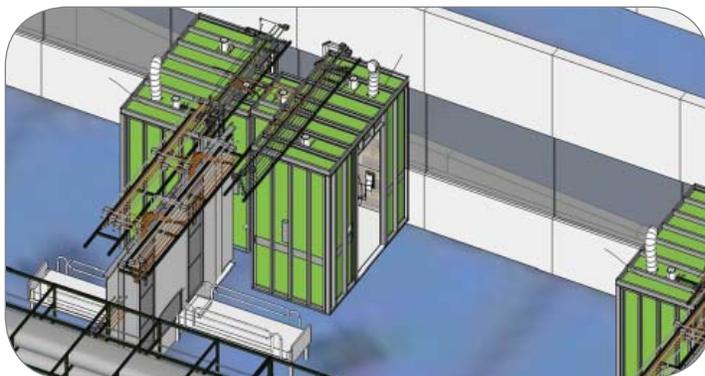
Building in Quality: Model-Based Layout with Robotic Total Stations

With model-based layout, Turner takes traditional survey methods further and adds precise location coordinates from the model. This helps Turner leverage detailed models built for trade coordination or other purposes and accurately lay out building systems in the field exactly as planned during the 3D model-based coordination process. Model-based layout not only increases the level of layout precision, but also takes less manpower than traditional layout methods. This confidence and trust level is based on a reliance of the accuracy of the BIM model.



Offsite Construction Prefabrication of Systems and Assemblies

The use of BIM enables Turner's subcontractors to prefabricate a wider variety of building systems than was possible in the past. Prefabrication from a coordinated model assures project team members that building elements will be fabricated and installed just as modeled. Prefabrication has other advantages as well; prefabrication work that is completed offsite under controlled conditions improves safety and quality. Building systems that have been pre-assembled can be rapidly installed, requiring less rework than traditional methods.



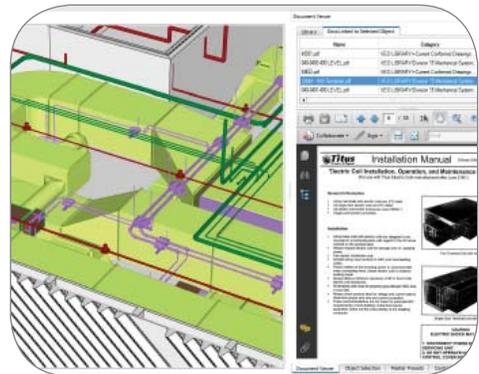
Supply Chain Management: Barcoding & RFID Tracking

Turner uses barcodes and RFID tags to track installation status and product information for equipment and building systems, leveraging new technologies to better track materials, equipment, and labor. For example, scanning the barcode or RFID tag on a prefabricated door (complete with mounting hardware) lets the Turner team know what type of door it is, and verify where it is to be installed. Turner also uses RFID tags on workers' hardhats to track manpower on site to improve safety and the productivity of manpower tracking.



After the Field

To extend the usefulness and lifetime of a digital model beyond project completion and occupancy, in lieu of traditional binders and rolls of drawings, Turner can provide a digital library of project information linked directly to the model. Facilities managers and owners can use the model, and the associated library of product and equipment information, maintenance manuals, warranties and inspection information, to manage their building and perform routine maintenance operations.



Want to see more about the use of BIM in the Field at Turner? Scan the QR code to read more about BIM or download the whitepaper.