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Skanska Uses Field BIM Solution to Save \$1 Million on the New Meadowlands Stadium

Joint Software and Hardware Solution from Vela Systems and Tekla Corporation Tracks More than 3,200 Precast Concrete Panels to Improve Supply Chain Visibility; Solution Featured in April ENR Cover Story

The New Meadowlands Stadium in New Jersey is a massive project, a \$998 million, 2.2 million square-foot open air arena, designed and constructed by Skanska USA Building. As a design-build (D/B) project, it is critical for Skanska to understand, in real-time, how the supply chain is performing and the current status of the production, quality control, delivery, site preparation and installation of the critical-path materials. Since the project delivery is fast tracked, unless issues are identified and resolved early on in the process, the just-in-time (JIT) supply chain will not perform as planned, potentially jeopardizing the aggressive schedule.

In a project of this magnitude, seemingly small issues can have a cascading effect project-

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wide, creating a host of time delays and cost increases for the project team. In order to effectively manage materials across the supply chain for just-in-time delivery, Skanska turned to Vela Systems and Tekla Corporation, who provided a Field BIM™ solution.

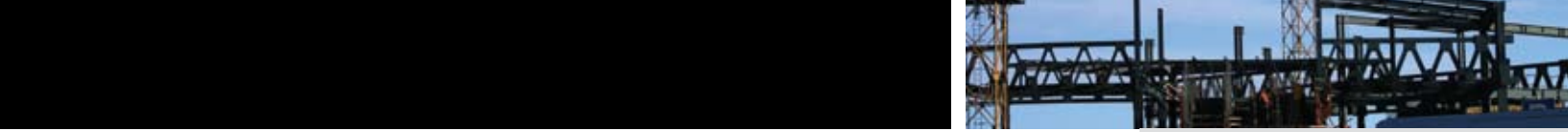
Engineering News-Record (ENR) featured Skanska’s use of this solution in an April 23, 2008 cover story, “\$1-Billion Jigsaw Puzzle Has Builder Modeling Supply Chains.”

Specifically, Skanska wanted to track the more than 3,200 pre-cast concrete pieces that will form the seating bowl of the 84,000-seat stadium. Each of these pieces weighs about 45,000 pounds and measures 44 feet by 10 feet. What’s more, each piece is custom-made for a specific location within the bowl, and, generally, they are not interchangeable. A JIT delivery system means that Skanska does not need to establish a lay-down yard, but can instead rely on a small holding area for trailers. The goal is to install the pieces shortly after they arrive, which speeds production. However, this type of system means that if the wrong piece is delivered, or if it fails to pass the stringent quality controls, there could be no place to store it until the correct piece arrives, causing backups and cost over-runs.



Personnel use a tablet PC outfitted with Vela Systems’ software to update field information.





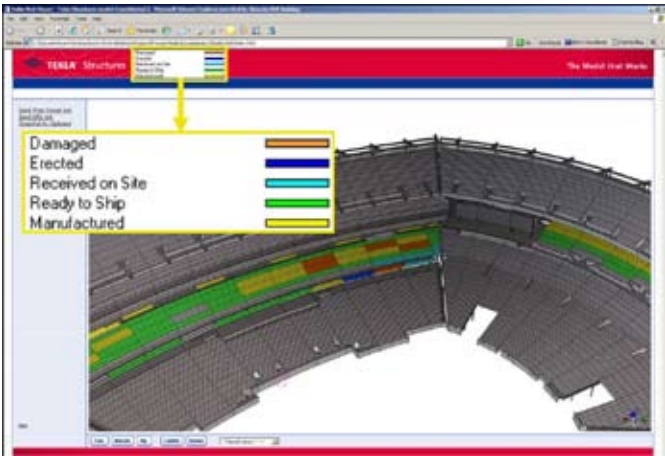
To avoid these kinds of problems, Skanska adopted a solution co-developed by Vela Systems, a company that makes mobile field software for construction, and Tekla Corporation, which provides Building Information Management (BIM) infrastructure management software. When integrated with Vela Systems' software, BIM becomes not just a design tool, but a full fledged construction operations solution. This new use of BIM is called Field BIM™.

“Skanska has previously delivered a number of successful design-build stadium projects, including Gillette Stadium in Foxboro, Massachusetts and Reliant Stadium in Houston, Texas,” said David Campbell, Vice President at Skanska. “In our experience, close cooperation among all members of supply chain is an absolute necessity for success. By bringing Tekla's BIM solution together with Vela Systems field software and RFID, Skanska has brought new efficiencies to production management on this project. Vela Systems' mobile field software is the vital glue that binds this solution together.”

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First, the precast concrete pieces are outfitted with RFID (radio frequency identification) tags or “smart” tags at the fabrication facility. These pieces are then identified through the use of an RFID reader communicating with a Tablet PC that has Vela Systems Materials Tracking software installed. As the pieces move through the four phases of the production process, Materials Tracking information is fed into Tekla Structures, a BIM solution that covers the entire structural design process from conceptual design to detailing, to fabrication and construction.



A screenshot of the Meadowlands building information model from the Field BIM solution.

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With this combination, Skanska is able to gain a view into the supply chain and can visualize the status of each piece of the project in the BIM system with up-to-date information from the field, including which pieces have been fabricated, their quality assurance status, which job site areas need to be prepared for arriving panels, and which materials have been incorporated into the structure. The status of each of these queries is vividly apparent through the use of different colors in the Tekla 3D model of the structure.

Skanska estimates this combined solution will accelerate the construction schedule by 10 days, which translates into \$1 million in savings.

“I never have to ask whether pre-cast concrete components are ready for the following week's work,” Campbell said. “The answer is always readily apparent on the computer screen. We're never going back to paper and pencil.”



About Vela Systems

Vela Systems is The Leader in Field Software for the AECO Industry™. Vela Systems software streamlines and accelerates all field processes in construction and capital projects. By replacing their field notebooks with Vela software and Tablet PCs, Vela's customers save 5-10 hours per week per user, accelerate project delivery by two days per month, capture the true cost of quality and reduce litigation risk through standardized documentation. Vela's suite of modules includes field reports, safety inspections, work lists, punch lists, schedule updates and many other critical field activities. Industry leading architects, engineers, contractors and owners agree that Vela Systems helps them Work Faster, Collaborate Easier, and Finish Sooner™. To see how Vela's customers are improving construction delivery from Las Vegas to Dubai, please visit www.velasystems.com, call 888.VELA.SYS [888.835.2797] or email info@velasystems.com.

About Skanska USA Building

Skanska USA Building Inc. is a leading national and local provider of construction, pre-construction consulting, general contracting and design-build services to a broad range of U.S. industries including life sciences, healthcare, education, high-tech, aviation, transportation and sports and entertainment. Skanska USA Building also provides pharmaceutical validation services to clients. The company, part of the Skanska AB global group of companies, is headquartered in Parsippany, New Jersey, and has approximately 4700 employees.