

VDC Technology a Boon to Meadowlands Stadium Project



Virtual Design and Construction (VDC) was used extensively during construction of the New Meadowlands Stadium.

area of the project to final destination and installation as part of the stadium.

RFID provides the project team with total control over the logistics of handling the approximately 3,200 elements of precast stadia. This significantly reduces the risk for installing the elements incorrectly. It also aids in understanding the available supply of pieces for staging and planning purposes, and tracking the correction of any errors or manufacturer and installation defects.

VDC is extensively used at the New Meadowlands Stadium. With inspiration from Barts and the London hospital project in the UK and assistance from Skanska Sweden's design team in India, 2D design has been turned into detailed 3D drawings and models. These models are integrated with 3D subcontractor MEP shop drawings and structural steel shop drawings to facilitate coordination, simulate the building construction and uncover discrepancies before they present problems in the field. The drawing set is easily accessible through PC-tablets - the project team can now rely on fully updated drawings onsite.

3D Visualization is a component of VDC, enhancing communication between the owner and project team members. For example, animations of the site work phasing were created from models, drawings and aerial photographs to communicate to the owner and authorities how the complex site work is being phased. This solution helps to avoid potentially challenging situations - project staff can see where cranes should be positioned at different times to be most efficient, and they can determine in advance if pipes and ducts would clash each other.

"VDC, including RFID have definitely contributed a lot to our success. Today it's used in the most advanced projects, tomorrow it will be standard," says Zulpis.

By Skanska USA Building

The construction of the New Meadowlands Stadium is one of the most complicated assignments. Although it is a huge stadium project, the area for materials storage is very limited and the quality requirements and completion date are critical.

"Using new technology such as Virtual Design and Construction (VDC) has definitely been crucial for us in managing this project. Without this solution, including RFID (Radio Frequency Identification) supply chain management, we wouldn't have been where we are today," says Albert Zulpis, Regional VDC Director, AIA and LEED® AP at Skanska USA Building.

Currently, the \$998 million project is clearly ahead of schedule in part due to innovations like real time RFID supply chain management of precast concrete elements. The higher quality control and carefully planned execution, enabled by VDC, has resulted in significantly lower material waste and tight schedule adherence. The extensive use of RFID tags, installed on every precast concrete element that makes up the 82,000-spectator stadium, is a success. The solution was found during a visit to Skanska in Finland, which has been a pioneer in using this technique.

The small tags are installed on the precast concrete stadia seating elements at the point of manufacture. They are then linked to an online database and a Building Information model (BIM) using an RFID pen scanner with Bluetooth technology and a tablet PC, which is synchronized to the online database. These tags allow the progress of the installation of these materials to be tracked and monitored from fabrication, inspection arrival to the storage