Session 24: Next Steps with BIM and Infrastructure

Sean Doolan | Senior Manager of Technical Development
Skanska USA Building
Who is Skanska?

- **One of the world’s leading companies in construction and project development**
- **8th largest international contractor** *
- **One of the top green contractors**
- **More than 57,000 employees worldwide**
- **Four business streams**
  - Construction (building and heavy civil projects)
  - Residential Development
  - Commercial Development
  - Infrastructure Development (PPP)

*ENR’s Top 225 International Contractors 2015*
Skanska | Iconic Projects
More than software and tools…

BIM viewed as a sociotechnical system with a technological base and layers of social components

Source: WSP-PB
3D Detailing and Coordination
3D Coordination Process

Virtual Meeting Minutes

Workflow

Clash Tracking
New Meadowlands Stadium
4D Scheduling / Construction Sequencing
First schedule pass (above) vs. Last pass (below) after iterative review using 4D
13% overall schedule reduction
Visual schedule validation
Supply Chain Management
Supply Chain Management
RFID Material Tracking

BIM rules define how data is visualized

Configurability to add additional attributes in the BIM model
Emerging Issues with BIM

How do we validate what we have modeled?

What do we do with all this data at the end of the project?
How do we validate what we have modeled?

Various types of sensors have been used to capture real-world conditions. Most are focused on **environmental** sensing.
Environmental Sensors

Laserscanning

Photogrammetry (Image based pt. cloud)

Air quality, vibration, noise
REAL-TIME LOCATION SERVICES (RTLS)

HARDWARE:
ANCHORS, BRIDGES AND BASE STATIONS MAKE UP THE INFRASTRUCTURE “MESH”
TAGS ATTACHED TO PEOPLE AND ASSETS COMPLETES THE SYSTEM
Exclusion Zone

Live tags (people)
Exclusion Zone Violation
Smart Jobsite | Real Time Location Services (RTLS)

Redpoint Positioning

Attendance by Trade
Report Period: Week 28, July 6-12

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Hours on Site

generated Jul 28, 2015
Smart Jobsite | Real Time Location Services (RTLS)
Comparison of Traditional Methods vs. MMC/Prefab

Prefabrication Build

Cumulative Time to Construct: 000 hrs 04 mins 06 secs

Traditional Build

Cumulative Time to Construct: 000 hrs 00 mins 51 secs
Information Management – Future Areas

- Real-time Data
- Construction Documentation
- GIS
- BIM
- Media
- O&M Manuals

Source Images: Auroras.eu, Bassett Larsen Design, Autodesk