BIM and VDC Present and Future
Melinda S. Hoffman  
Virtual Construction Manager, LP Ciminelli  
mhoffman@lpciminelli.com

BIM and VDC Present and Future
About Me

• In the AEC industry for 10+ years
• 2 years as an Intern Architect for SSOE Group
• 6 years as a Revit Technical Specialist for SSOE Group
• 2.5 years as a Virtual Construction Manager for LPCiminelli
• Focus is on the practice of Building Information Modeling and AEC Design Technology and Construction integration
• Specializes in Autodesk Revit and Navisworks, Laser Scanning, presentation materials, and mobile technology
• Provides training, project work coordination, virtual proposals & logistics, 4D Scheduling, Newforma support & integration
• Certified professional in Autodesk Revit
• Founder of the Buffalo BIM User Group
• Has been a member of NCS and NBIMS task teams
• Autodesk University Speaker

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BIM
Building Information Modeling

- a digital representation of physical and functional characteristics of a facility. A BIM is a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle; defined as existing from earliest conception to demolition.
• the management of integrated multi-disciplinary performance models of design-construction projects, including the product (i.e., facilities), work processes and organization of the design - construction - operation team in order to support explicit and public business objectives.
The D's

- 2D CAD involves a design based upon the data that was program
- 3D CAD involves data intelligence and linking of a database to generate a BIM
- 4D CAD involves the scheduling and sequencing of construction process
- 5D CAD involves the cost and resources to complete the project.
Integration of BIM and Estimating

- Visualize areas for better understanding
- Extraction of quantities (based on model accuracy)
- Create in-house models for generic spaces, value-engineering and quantities
- Estimating cut & fill quantities for excavation
Stamford State Street Parking Garage
Stamford, Connecticut
1001 Main Medical Office Building
Buffalo, NY
4D Sequencing

- Construction delivery schedules
- Coordination with other buildings or trades
- Understanding logistics & phasing
Benefits of coordination process

- Resolve clashes virtually before shop drawings are ordered
- Save time and money by identifying constructability issues
- Understand sequence of installation between trades
- View models in the field to aid in installation and verification
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Design Intent

After Coordination
Benefits of coordinating a renovation

- Renovations (7 coordinated to date)
- Coordinate scans with removal of ceilings, walls, etc.
- Scanning existing conditions
- Model existing elements to remain
Utilizing as-built models

- Ability to use later for additions and/or renovations
- 360 photography (laser scans) for MEP verification
- Differences between design intent and actual installation can vary greatly
- Can utilize for Facility Management
Mobile Technology

In the field use:
• View Drawings
• Punchlists
• RFI's and Submittals
• Markups
• View Models
BIM and project closeout

- Updating model with as built information
- Including specifications and equipment maintenance with model elements
- Handing over models for owners when required
Augmented Reality

- Ability to see model in place as construction is going on
- Show the owner the building on the site live where they are standing
- Use mobile technology to understand impacts of specific projects on the site
Working looking at a stair through the ipad to see it in the building before it is built

Visualizing a city model

Visualizing a model on the site using Google Earth to verify the impacts on skyline and community
Building Lifecycle

Model is update from 100% completion

- Updating changing equipment
- Updating spaces/people
- Change order and work requests
- Who updates the model?
Facilities Management

- Utilizing models beyond As Builts:
- Data Entry for As Builts
- The "I" in BIM
- Understanding what the owner wants to utilize for Facilities Management
- Building extra into the contract for FM
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