IMPLEMENTING BIM
An A/E Perspective
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Agenda

- Quick Definition of BIM
- Reasons to pursue integrated practice
- Perceived Risks
- Our Implementation Strategy
- Benefits
- A Few Examples
A Definition

Building information modeling (BIM) is the creation and use of coordinated, consistent, computable information about a building project in design that yields reliable digital representations of the building—representations used for design decision-making, production of high-quality construction documents, performance predictions, cost-estimating and construction planning, and, eventually, for managing and operating the facility.
BIM Maturity Model

BIM Tools to create 3D Model – Designer or Builder Only

Full Knowledge Management, Full Life Cycle Supported, Internal and External Roles Supported, Business Processes Supported in Real Time, Full Netcentric Delivery, Real Time Access, Fully Optimized ITIL, nD Time and Cost Included Integrated to GIS, Information Accuracy Verifiable, All Info Uses IFC’s

Limited Integration ITIL, More complete GIS, Full Computed Areas and Ground Truth, Most Info uses IFC’s, Limited Real Time Access from BIM, Secure Web enabled Services Full Facility Life-Cycle Collection


Downstream Business Processes Supported, Full Web Enabled Services, Add Cost and/or Time Data

Added Information and/or Integrated Collaboration, Limited Web Enabled Info

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Suggested BIM Cost Curve

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• **Consistent with our corporate culture**
  – Innovative firm by nature
  – Pioneer of integrated multidisciplinary teams

• **Recognize BIM as a new way of doing business**
  – Will help overcome problems with interoperability
  – Will take 2-D drawings and specifications to new levels of interrelated information
    • 3-D (multi-faceted visualization)
    • 4-D (time)
    • 5-D (cost)
  – Will facilitate Sustainable Design / LEED®

• **Establish Competitive Advantage**
  – Position our firm to be a leader in BIM

*Information technology tools are revolutionizing the A/E/C industry and streamlining historically fragmented operations.*

**Why are we implementing BIM?**
• **New Business Model**
  – Relationships redefined due to sharing information and decision making

• **Costs to implement**
  – Real and opportunity

• **Extent of liability**
  – Model Ownership

• **Compensation**
  – Additional Services

Risks?
• Elements
  – Leadership
  – Standard Procedures
  – Infrastructure
  – Training
  – Timeline

Our strategy for implementation
• **BIM Champions**
  – Conceptual, process oriented
  – Focused on team collaboration, project selection, negotiation
  – Monthly meeting guides activity
  – Evaluate and implement adjunct technologies

• **Revit Champions**
  – Registered professionals A/E/I
  – Focused on project execution
  – Assist with transition from a drafting tool to a modeling tool
  – Promote office buy-in
  – Assist in standardization

• **Revit Standards and Procedures Manual**
  – Common starting point
  – Living document

Establish Leadership and Set the Standard
• Invest in hardware, as required
  – Processors updated
  – RAM increased to 3 or 4 GB
  – Desktops affordable / Laptops more expensive
• Incorporate web based collaboration
  – Save time / $
  – Facilitate design data exchange

Set up the Infrastructure
• Establish Firm-wide Training Program
  – Focus on how we want to use the software
  – Customize to our standards
    • Folder structures
    • Naming conventions
    • Labels

• Use expert support
  – Ensure consistent delivery
  – Provide Basic and Advanced
    • Personalized, Project Specific

• Self-paced by office
  – Focus on cohesiveness
  – Gain confidence

• Gain experience on familiar projects
  – Appropriate size and complexity

• Measure effectiveness
  – Post Training Assessment

Provide Training (and Timeline)
• Reduces redundancy of information
  – Improves coordination between sheets,
  – Elevation, plan updated with any change
• Enhances communication with owner / contractor
  – Information shared early
  – Test ideas using accurate visualization
  – Better design decisions and better cost containment
• Contributes to Cost Savings
  – Earlier, more accurate cost estimating
  – Allows timely comparison between programmed and actual SF
  – Reduces / eliminates conflicts between disciplines / trades
• Project staffing
  – Less staff / more time required in SD / DD
  – Less time required in CD

Reap the Benefits of BIM
Revit Architecture
Publix Dispatch Building
Total Cooling vs. Room Number & Name

Room Number & Name
104 Office
103 Comm
102 Elec
104 Dispatch Mgr
105 Conf Room
106 Sales Mgr
107 Break Room
108 Women
109 Jan

Total Cooling (MBtu/h)

0
10
20
30
40
50
60
70
80
90
100

Testing Revit MEP 2008

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Determining the “Best” Structural Solution

GSU Library
Coverage of various BIM Implementations Update

National Building Information Model Standard Scope

Conception Stage
- Project Delivery Selection Stage
  - Lawyers
- Design Stage
  - International Bldg Code
  - Lawyers
- Construction Documents Stage
- Procurement Stage
- Execution Stage
  - Lawyers
  - NIST
  - FIATECH
  - NASA
- Utilization Stage
- Army Corps BIM Roadmap
- Army Corps
- Coast Guard Shore Asset Project
- Design/Build DBIA BIM
- AGC BIM

OGC OW-4

CSI, IAI, OSCRE, McGraw-Hill starts Interoperability Council