How one mason contractor incorporates BIM

Presenter Adrian Siverson, Project Manager, R & D Masonry, Inc. 4/10/2015
Adrian Siverson

- Bricklayer – Journeyed out in 1998
- Project Manager since 2008
- Have been working with 3-D Models since 2010
How is R & D providing BIM?

○ Our Main Programs are:

• Tradesmen’s
• Bluebeam REVU
• Sketchup Pro
• DWG Trueview
• Revit
• Navisworks
What projects require BIM?

- **Categories of Projects**
  - Standard Projects
  - Shop / Coordination Drawings
  - BIM Model / BIM Coordination
What projects require BIM?

- **Categories of Projects**
  - Standard Projects
    - No BIM requirement or funding.
      - Tradesmens JPEG, Silverdale Shopping Center Silverdale, WA
What projects require BIM?

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  - Standard Projects
    - No BIM required or funded
      - Tradesmen’s JPEG, UW Balmer Hall Seattle, WA
What projects require BIM?

- Categories of Projects
  - Standard Projects
    - No BIM required or funded
      - Sketchup or Revit models for details and light coordination.
What projects require BIM?

- **Categories of Projects**
  - Shop / Coordination Drawing Requirements
    - Minimal bid funding but typically modeled in 3-D
    - Sketchup or Revit models.
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- **Categories of Projects**
  - BIM Model and Coordination Required
    - Line item for BIM
    - Required to produce a BIM model and participate in BIM coordination meetings. Model usually requires 3 to 10 updates.
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UW Maple and Terry Halls, Seattle, WA

• Bid Requirement
  ○ Shop Coordination Drawings for Brick, Relieving Irons, and Precast.
UW Maple and Terry Halls, Seattle, WA

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• 186,000 4”x4”x12” brick.
UW Maple and Terry Halls, Seattle, WA

- Bid Requirement
  - Shop Coordination Drawings for Brick, Relieving Irons, and Precast.
- 186,000 4”x4”x12” brick.
- 9,000 lineal feet of relieving irons.
UW Maple and Terry Halls, Seattle, WA

• Bid Requirement
  o Shop Coordination Drawings for Brick, Relieving Irons, and Precast.
• 186,000 4”x4”x12” brick.
• 9,000 lineal feet of relieving irons.
• 200 pieces of precast.
UW Maple and Terry Halls, Seattle, WA

- Bid Requirement
  - Shop Coordination Drawings for Brick, Relieving Irons, and Precast.
- 186,000 4”x4”x12” brick.
- 9,000 lineal feet of relieving irons.
- 200 pieces of precast.
- Modeled in Sketchup.
  - Model was not provided to the design team.
UW Maple and Terry Halls Model Details

- CAD Floor Plans imported into Sketchup
UW Maple and Terry Halls Model Details

- Create Material Libraries

**Brick**
- Econ Rug Face Corner
- Econ Rug Face Halve
- Econ Rug Face
- Econ Smooth Face Corner
- Econ Smooth Face Halve
- Econ Smooth Face

**Precast**
- A1
- A1L
- A1R
- B1
- B1L
- B2
- B2R
- C1
- C1L
- C1R
- D1
- D1L
- D2
- D2R
- E1
- F1
- G1
- G2
- H1
- H1L
- H2
- H3
- I1
- I1R
- I2
- I3
- J1
- J1L
- J2
- J2R
- K1
- L1
- L2
- M1
- M1L
- M1R
- N1
- SA1
- SA1L
- SA1R
- S1
- S1L
- S1R
- S13
- SK1
- SN1

**Relieving Irons**
- A
- AL
- AR
- B
- C
- CL
- CR
- D
- DL
- DR
- Iron Stich Plate
- Shim
UW Maple and Terry Halls Model Details

- Brick Elevation built in Sketchup
UW Maple and Terry Halls Model Details

- Relieving Angle Iron Elevation in Sketchup
UW Maple and Terry Halls Model Details

- Precast Elevation in Sketchup
UW Maple and Terry Halls, Seattle, WA

Building *Information* Model
UW Maple and Terry Halls, Seattle, WA

Building *Information* Model

- Extract all the usable info you can.
  - I took the time to make an accurate model now I need to put it to use.
UW Maple and Terry Halls, Seattle, WA

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  - **Production**
    - The GC and Masonry Foreman need usable info from the model. Info that can increase production and lessen on the job RFI's/questions/work stoppages
UW Maple and Terry Halls, Seattle, WA

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      - Will the info provided help the GC and Mason make informed decisions that will lessen deficient work?
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- We use our models and Tradesmens for our pre job discussions with our Foreman and Hod Carriers.
UW Maple and Terry Halls Shop Drawings

- Brick Floor Plan for Shop Coordination Drawings
UW Maple and Terry Halls Shop Drawings

- Brick Elevations for Shop Coordination Drawings
UW Maple and Terry Halls Shop Drawings

- Brick Details for Shop Coordination Drawings
UW Maple and Terry Halls Shop Drawings

- Iron Elevations for Shop Coordination Drawings
UW Maple and Terry Halls Shop Drawings

- Iron Details for Shop Coordination Drawings
UW Maple and Terry Halls Shop Drawings

- Precast Floor Plan and Elevations for Shop Coordination Drawings
UW Maple and Terry Halls Shop Drawings

- Precast Details for Shop Coordination Drawings
UW Maple and Terry Halls Shop Drawings

- Precast Floor Plan and Elevations for Shop Coordination Drawings
UW Maple and Terry Halls Full Model
U240 Sound Transit Project, Seattle, WA

- Bid Requirement
  - BIM Model and attendance at weekly BIM coordination meetings required.
U240 Sound Transit Project, Seattle, WA

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- 30,000 8”x8”x16” CMU smooth, ground face, and glazed.
U240 Sound Transit Project, Seattle, WA

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  o BIM Model and attendance at weekly BIM coordination meetings required.
• 30,000 8”x8”x16” CMU smooth, ground face, and glazed.
• Modeled in Sketchup.
  o Model was provided to the BIM coordinator (General Contractor).
U240 Sound Transit Project, Seattle, WA

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  - BIM Model and attendance at weekly BIM coordination meetings required.
- 30,000 8”x8”x16” CMU smooth, ground face, and glazed.
- Modeled in Sketchup.
  - Model was provided to the BIM coordinator (General Contractor).
    - Attended approximately 10 weekly BIM coordination meetings.
U240 Sound Transit Project, Seattle, WA

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    • Model was updated 3 more times for RFI updates.
    • Model level of detail set to 8” or larger penetrations.
U240 Sound Transit Project, Seattle, WA

- CMU
  - Dark pattern is bond beams that were placed on a separate layer for clash detection.
U240 Sound Transit Project, Seattle, WA

- CMU
U240 Sound Transit Project, Seattle, WA
Hill 7 Apartments, Seattle, WA

• Bid Requirement
  ○ CMU Shop Coordination Drawings.
Hill 7 Apartments, Seattle, WA

• Bid Requirement
  ◦ CMU Shop Coordination Drawings.

• 18,000 8”x8”x16” CMU.
Hill 7 Apartments, Seattle, WA

- Bid Requirement
  - CMU Shop Coordination Drawings.
- 18,000 8”x8”x16” CMU.
- Modeled in Revit.
  - Model was not provided to the design team.
Hill 7 Apartments, Seattle, WA
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- Close up of walls
Hill 7 Apartments, Seattle, WA

- Floor plan view with individual CMU components.
Hill 7 Apartments, Seattle, WA

- Close up floor plan view with individual CMU components.
Hill 7 Apartments, Seattle, WA

- Plan page showing wall, rebar and bond beam layout.
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- Create and save material libraries for your personal use.
How one mason contractor incorporates BIM

• Create and save material libraries for your personal use.
• Create models with the intent of getting usable information.
How one mason contractor incorporates BIM

• Create and save material libraries for your personal use.
• Create models with the intent of getting usable information.
• Use the model information to generate RFI’s.
How one mason contractor incorporates BIM

• Create and save material libraries for your personal use.
• Create models with the intent of getting usable information.
• Use the model information to generate RFI’s.
• Get the information into the hands of the GC, foreman, and supplier.
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Washington State Conference of Mason Contractors - Certified Mason Contractor