BIM Execution Plans

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Hartford | Boston
BIM Execution Plans

Overview

• Why
• What’s in a Plan?
• Resources
BIM Execution Plans

What is a BIM Execution Plan?

• Project goals
• What will be modeled
• Who will author, maintain and use the model
• How the model will be used
BIM Execution Plans

Goals

• Owner Requirements
  • “The Architect/Engineer will use BIM for this project”
  • Penn State
  • Veterans Administration
  • State of Wisconsin

• Convenience of the Design Team

• Construction Efficiency
BIM Execution Plans – What do you need?
BIM Execution Plans – What do you need?
BIM Execution Plans – What do you need?
BIM Execution Plans – What do you need?
BIM Execution Plans – What do you need?
# BIM Execution Plans – What do you need?

## FIRST FLOOR AIR VOLUME SCHEDULE

<table>
<thead>
<tr>
<th>ROOM NAME</th>
<th>ROOM NUMBER</th>
<th>AREA (SF)</th>
<th>CEILING HEIGHT (FT)</th>
<th>VOLUME (CF)</th>
<th>DESIGN ACH (O.A./TOTAL)</th>
<th>OCCUPIED MODE</th>
<th>SPACE PRESSURE</th>
<th>SUPPLY CFM</th>
<th>RETURN CFM</th>
<th>EXHAUST CFM</th>
<th>INfiltration CFM</th>
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</table>
BIM Execution Plans – What do you need?

**AIR HANDLING UNIT SCHEDULE**

**NOTES:**
1. AHU SHALL BE WIRED FOR SINGLE POINT POWER CONNECTION.
2. AHU TO BE MOUNTED ON 4” H HOUSEKEEPING PAD.
3. UNIT WEIGHT APPROXIMATELY 2,900 LBS.
4. PROVIDE HOT GAS REHEAT OPTION.

**AHU MODULES**

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<th>TAG</th>
<th>MFR</th>
<th>SIZE</th>
<th>TOTAL CFM</th>
<th>MIN O.A.</th>
<th>AREA SERVED</th>
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<td>5500 CFM</td>
<td>3700</td>
<td>EMERGENCY DEPT.</td>
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**SUPPLY FAN**

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<th>TSP</th>
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**AHU-DX COOLING COIL (DUAL COMPRESSOR)**

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<th>LAT DB/ WB (°F)</th>
<th>NET TOTAL MBH</th>
<th>NET SENSIBLE MBH</th>
<th>COIL REHEAT (°F)</th>
<th>MRC (LB/H)</th>
<th>SUCTION TEMP (°F)</th>
<th>REFRIE.</th>
<th>EER</th>
<th>MAXIMUM FACE VELOCITY (FPM)</th>
<th>MAXIMUM APD (IN WG)</th>
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**ELECTRIC RESISTANCE HEATER**

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<th>CONTROL TYPE</th>
<th>KW</th>
<th>OUTPUT (MBH)</th>
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<th>LAT (°F)</th>
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BIM Execution Plans – What to Plan

All BIM Execution Plans Need to Include:

• Goals
• Who is Involved
• Model Description
• Model Uses
• Practices & Behaviors
• Schedules
BIM Execution Plans – Where to Start

Documents

• AIA Docs
  • E203 – 2013 Building Information Modeling and Digital Data Exhibit
    • Intent to Manage
  • G201-2013-Project Digital Data Protocol Form
    • All Project Data
  • G202-2013-Project Building Modeling Protocol Form
    • BIM Data
  • C-106 - Digital Data Licensing Agreement
    • Specific Uses outside of Contract

• BIM Forum – 2013 LOD Specification
### § 4.3 Model Element Table

Identify (1) the LOD required for each Model Element at the end of each phase, and (2) the Model Element Author (MEA) responsible for developing the Model Element to the LOD identified.

Insert abbreviations for each MEA identified in the table below, such as "A – Architect," or "C – Contractor."

**NOTE**: LODs must be adapted for the unique characteristics of each Project.

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<tr>
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<th>Schematic Design</th>
<th>Design Development</th>
<th>Construction Documents</th>
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BIM Execution Plans – LOD

- **LOD 100**: The Model Element may be graphically represented in the Model with a symbol or other generic representation, but does not satisfy the requirements for LOD 200. Information related to the Model Element (i.e., cost per square foot, tonnage of HVAC, etc.) can be derived from other Model Elements.

- **LOD 200**: The Model Element is graphically represented within the Model as a generic system, object, or assembly with approximate quantities, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.

- **LOD 300**: The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of quantity, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.

- **LOD 350**: The Model Element is graphically represented within the Model as a specific system, object, or assembly in terms of quantity, size, shape, orientation, and interfaces with other building systems. Non-graphic information may also be attached to the Model Element.

- **LOD 400**: The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of size, shape, location, quantity, and orientation with detailing, fabrication, assembly, and installation information. Non-graphic information may also be attached to the Model Element.

- **LOD 500**: The Model Element is a field verified representation in terms of size, shape, location, quantity, and orientation. Non-graphic information may also be attached to the Model Elements.
Level of Development vs Level of Detail

Antony McPhee

http://practicalbim.blogspot.com/2013/03/what-is-this-thing-called-lod.html
### BIM Execution Plans – Model Development Spec

- **How will it be used?**
- **Who will use it?**
- **Model & Workset**
- **Feature & Family**
- **Quantity Units**
- **Model Author’s comments**
BIM Execution Plans – What to Document

Inclusions

• Goals
• Model Managers
• Models
• Modeling Software / Versions
• Model Content/Deliverables
• Coordinates and Units
• BIM Behavior
• Model Exchange Schedule
• Coordination/Clash Schedule
• Model Sharing Agreements
• Model Handoffs
BIM Execution Plans – Milestones

Process Events

• Project Pursuit
• Consultant Engagement
• Project Kickoff
• Design Phases
• Construction Manager Onboarding

• Construction Startup
• Sub-Contractor Engagement
• Owner Handoff
BIM Execution Plans – Too Much Information

Timing & Content

• Sharing the right information at the right time
• 3 Levels of Discussion
  • Goals and Principals
  • Order of Magnitude
  • Detailed Production
BIM Execution Plans – Meetings

- **Project Kickoff**
  - Review Overall BIM Planning process and initial goals

- **Design Team BIM Meetings**
  - Address any BIM related challenges

- **Pre DD Team Wide BIM Update Meeting**
  - Reaffirm deliverables
  - Model Development Specification
  - Clash Detection Protocol and Schedule Update
  - QA Review Schedule

- **Pre Construction CA Protocol**
  - Model Sharing and Use
  - Construction BIM Requirements
  - Subcontractor Expectations
  - Fabrication/Coordination Model Clash Detection

- **Project Closeout**
  - Updated Owner Requirements
  - Model Handoff
BIM Execution Plans

Keys to Success

• BIM is a team sport
• Consider needs, goals & ability to maintain the model
• Proactively manage BIM
• Update & evolve
• Document & distribute the plan
References – Links

Penn State BIM Execution Planning  http://bim.psu.edu/
ConcensusDocs  https://www.consensusdocs.org/Catalog/collaborative
BIM Forum LOD Specification  http://bimforum.org/lod/
National BIM Standard  http://www.nationalbimstandard.org/
BIM Execution Plans

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