BIM, BAM, BOOM - GETTING THE MOST FROM BIM

Gerald I. Katz, Katz & Stone, L.L.P.
OVERVIEW

• BIM: What is it? What is it not?
• Advantages / Disadvantages of BIM
• How does BIM work in practice?
• BIM contract documents: AIA E202; ConsensusDOCS 301
• The future of BIM?
BIM is not a new software program
BIM is a hybrid of technology improvements and process collaboration
• Technology:
  – Data-rich computer models
  – Models contain multitude of data on project components: dimensions, materials, prices, supply times, maintenance requirements
• Process:
  – Models facilitate collaboration between owners, designers, engineers, suppliers, facility managers
BIM Definitions:

- “establish a computable representation of all the physical and functional characteristics of a facility”
- “document a building design [and] simulate the construction and operation of a new capital facility”
- BIM permits “virtual construction…through the development and use of intelligent computer software…”
• BIM is a variation of the traditional construction model
• Traditional Model:
  – Architect prepares design documents; flow down to contractor
  – Contractors/suppliers take material estimates
  – Constructability issues discovered during construction
• BIM:
  – Data-rich 3-D models allow for analysis by contractors/suppliers during design phase
  – Result: take-offs and material estimates from BIM model; early detection and avoidance of conflicts
ADVANTAGES OF BIM

- 3-D design renderings for all stages of construction and beyond
- Conflict detection
  - building codes; effects of changes on other components; constructability
- Collaboration and coordination
  - reduce RFIs, shorten construction schedules
- Fabrication efficiency and estimating
  - more precise fabrication; shorter delivery schedules
- Avoidance of data entry errors
- Life-cycle management
DISADVANTAGES OF BIM

• Blurring the line between design and build
  – Potential for increased liability for contractors and designers
  – Contractor’s duty of care for contributions to BIM model?
  – Loss of Spearin protection?
  – Untested legal implications
• Intellectual property
  – Who owns the design when many parties contribute?
• Lack of technology standardization
  – Different BIM programs may not be cross-compatible
• Implications on the standard of care
• Insurance considerations
BIM IN PRACTICE

- Not a single BIM model
  - Rather, separate models for architect, engineer, contractor, supplier
  - Parties can view and combine models for testing and analysis
  - Models overseen by “model manager”
- Levels of collaboration
  - Low: contractor analyzing model pre-construction → permits some conflict avoidance
  - High: contractors, engineers, architects analyzing models before design complete → permits collaborative input into design
ConsensusDOCS 301: BIM Addendum
- Not stand alone contract; complements construction contract
- Explicitly leaves traditional roles (Spearin protection) intact
- Calls for parties to prepare BIM Execution Plan addressing:
  - the models that will be produced
  - how models are approved
  - the level of reliance permitted for the models (full, none, some)
  - the file format and software used for models
  - if models will be used for change orders / RFIs
AIA E202 – 2008

- Not stand alone contract; complements construction contract
- Outlines the level of reliance for each element of each model
  - Parties select from 5 Levels of Development (LOD) establishing reliance level and authorized uses for each component
  - Result: table that outlines author and level of reliance for each element of each model
SUMMARY

• BIM: technology and process improvements
• Advantages: early conflict detection; constructability analyzed during design phase
• Disadvantages: blurring of responsibilities; uncertain legal ramifications; technology still evolving
• Future of BIM: Government and large corporate owners leading the BIM bandwagon