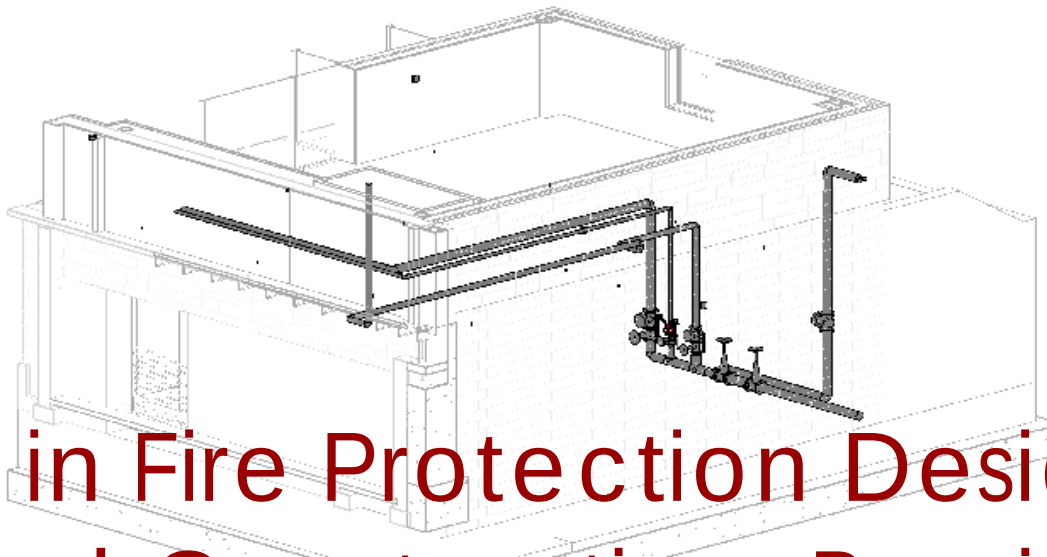

BIM in Fire Protection Design and Construction: Burning Down the Misconceptions

Presented by Christopher Born and Don Bokmiller

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Paper-Lite

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Objectives

At the completion of this seminar, the attendee should be familiar with:

1. Development/uses of BIM.
2. Advantages of BIM
3. BIM and the FPE's design role
4. BIM on the construction site

DEVELOPMENT/USES OF BIM

- History
- Legal Considerations
- “Levels” of BIM
- Clash Detection
- Facilities Management

HISTORY

- 1950s – Computer Added Machining
- 1980s – ArchiCad, Sonata, Microstation
- 2000 – REVIT first introduced
- 2002 – REVIT acquired by Autodesk
- 2005 – National BIM standard
- 2005 – COBIE

LEGAL CONSIDERATIONS

- "Ownership" of the model
- Contract forms, e.g., AIA, etc.
- Sharing of model b/w A/E, GC and subs

AIA Contract Documents®
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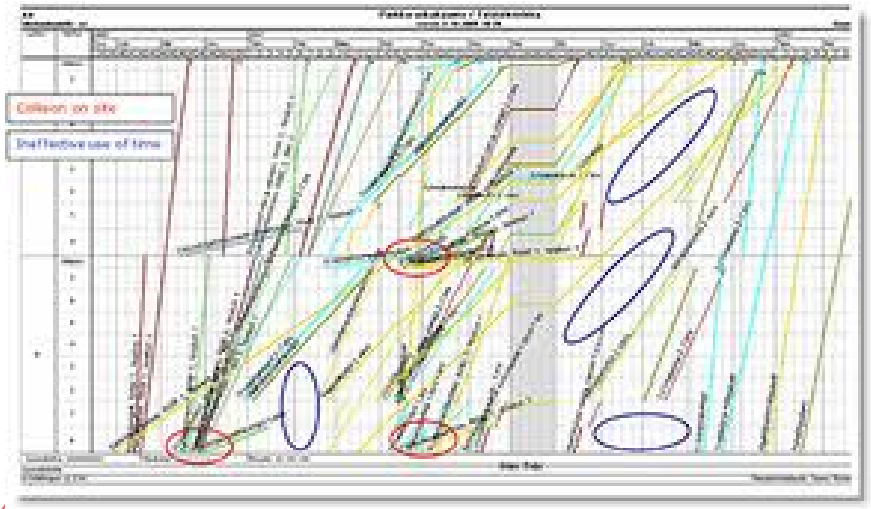
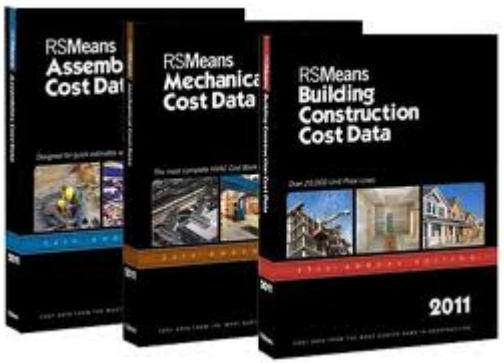
“DIMENSIONS” OF BIM

- 3D – Modeling
- 4D – Time
- 5D – Cost
- 6D – Facilities Management





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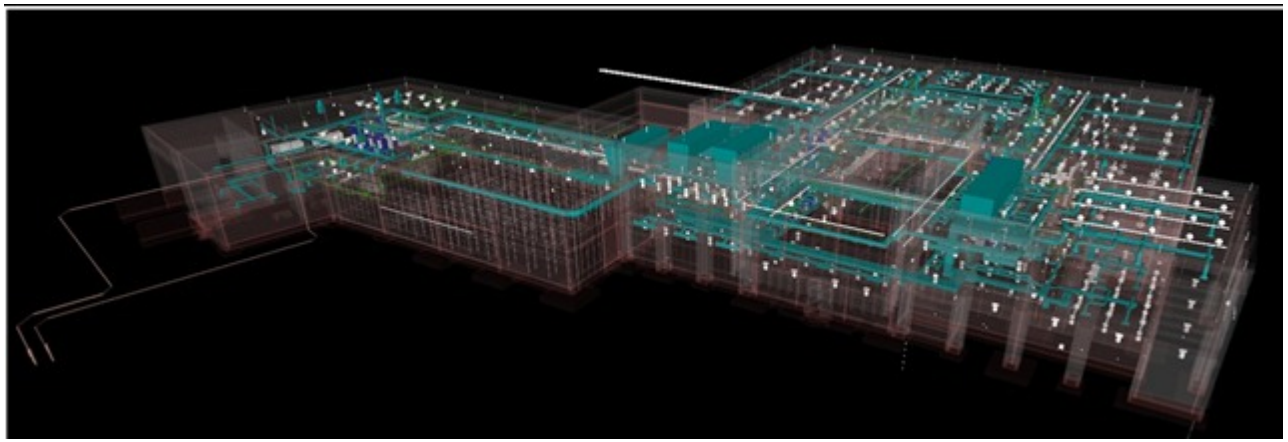
CLASH DETECTION

- Tools such as NavisWorks, etc., can be used to integrate multiple drawing types
- Important to look for “relevant” clashes and not just all clashes
- Iterative process
- Effectiveness dependent on level of detail



FACILITIES MANAGEMENT

- As-built representation of facility at turnover
- Model can be updated to reflect renovations
- Model can store information relative to equipment, such as model and serial numbers, O&M data, etc.

ADVANTAGES

Visualization

- Primary realization of the design
- Easier understanding of building and surrounding elements
- Early design change management
- Leads to discipline coordination and execution planning – reveals potential barriers

ADVANTAGES

Coordination

- Interaction with disciplines to identify potential construction issues
- Cost benefit
- Time/Scheduling coordination
- Leads to execution and FM capabilities

ADVANTAGES

Execution

- Combining visualization and coordination results allows for better construction planning
- Confirmation of fit prior to installation
- Cloud/Mobile technology enables on-site change management

ADVANTAGES

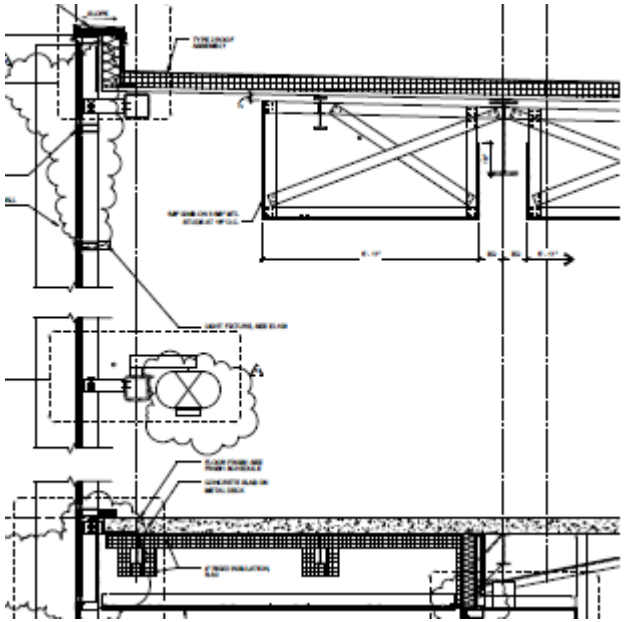
Interoperability

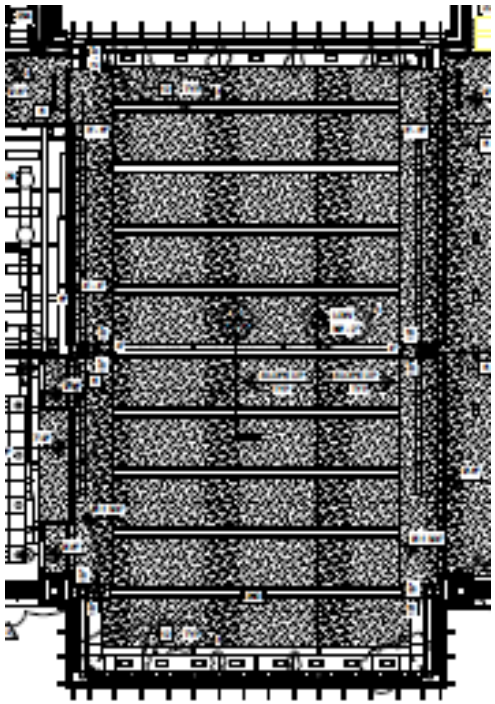
- Model database sharable with applications
  - XML format
- Design applications can push data back to model
  - SprinkCAD
- Add-ins used directly in modeling platform
  - tools4revit – Smart Sprinklers

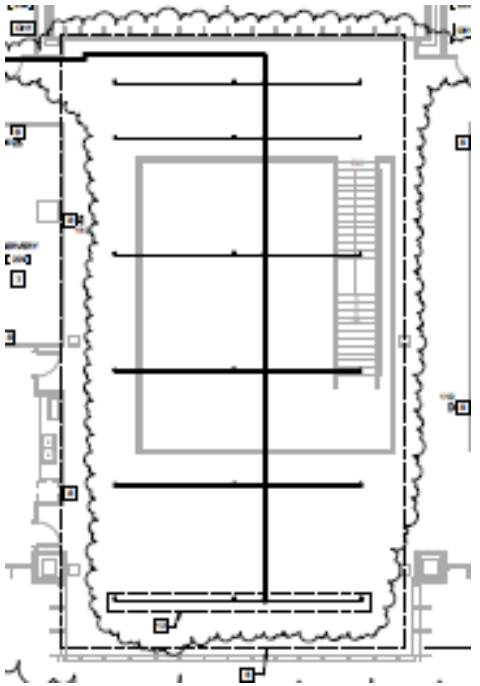
BIM AND THE FPE/DESIGNER

- **System Design**
  - Visualization of architect's design intent
  - Coordination with other disciplines
  - Can set properties in the model to address things such as fire and sound rated walls
- **Fire Modeling**
  - Address "real world" situations (e.g., NFPA 13 development of ceiling pocket rules)
  - 3rd party applications can import BIM information into Fire Dynamics Simulator

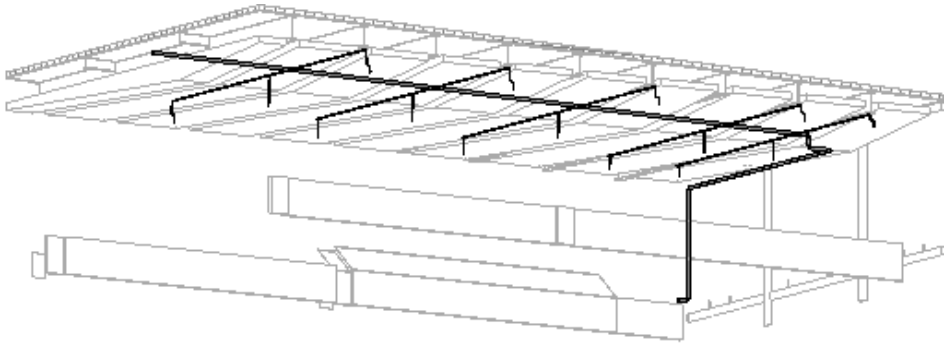
SYSTEM DESIGN



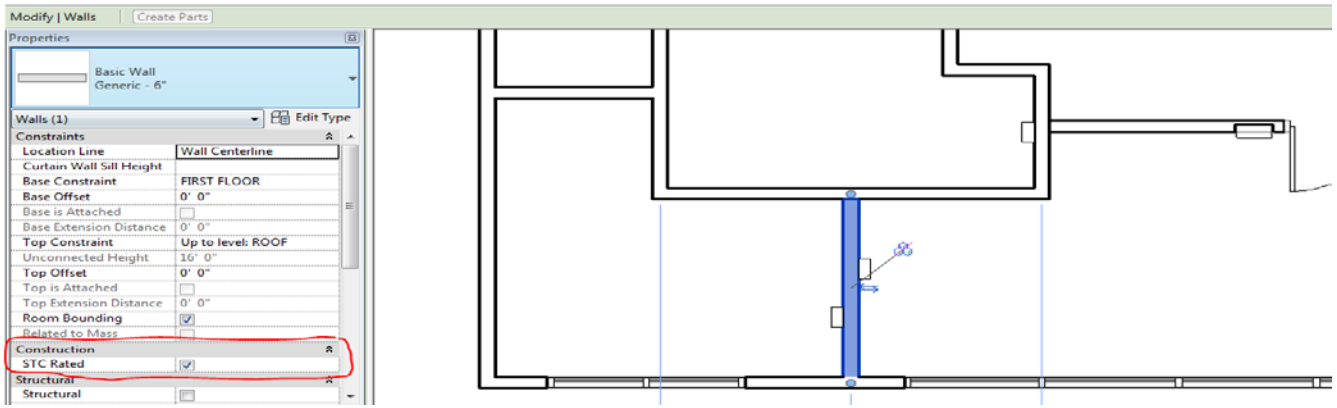


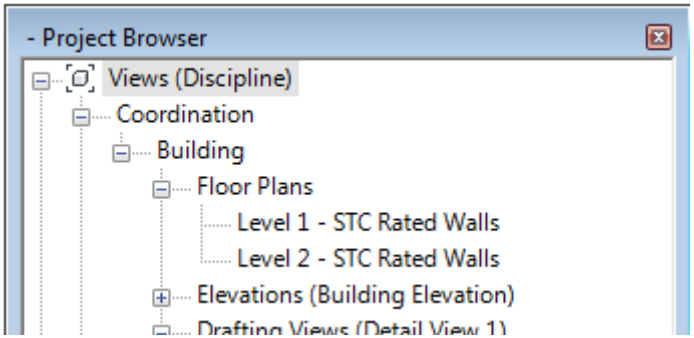


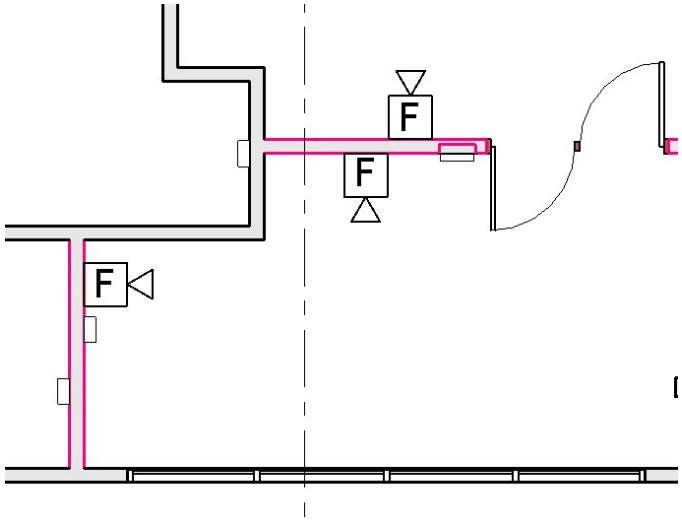
SYSTEM DESIGN



SYSTEM DESIGN







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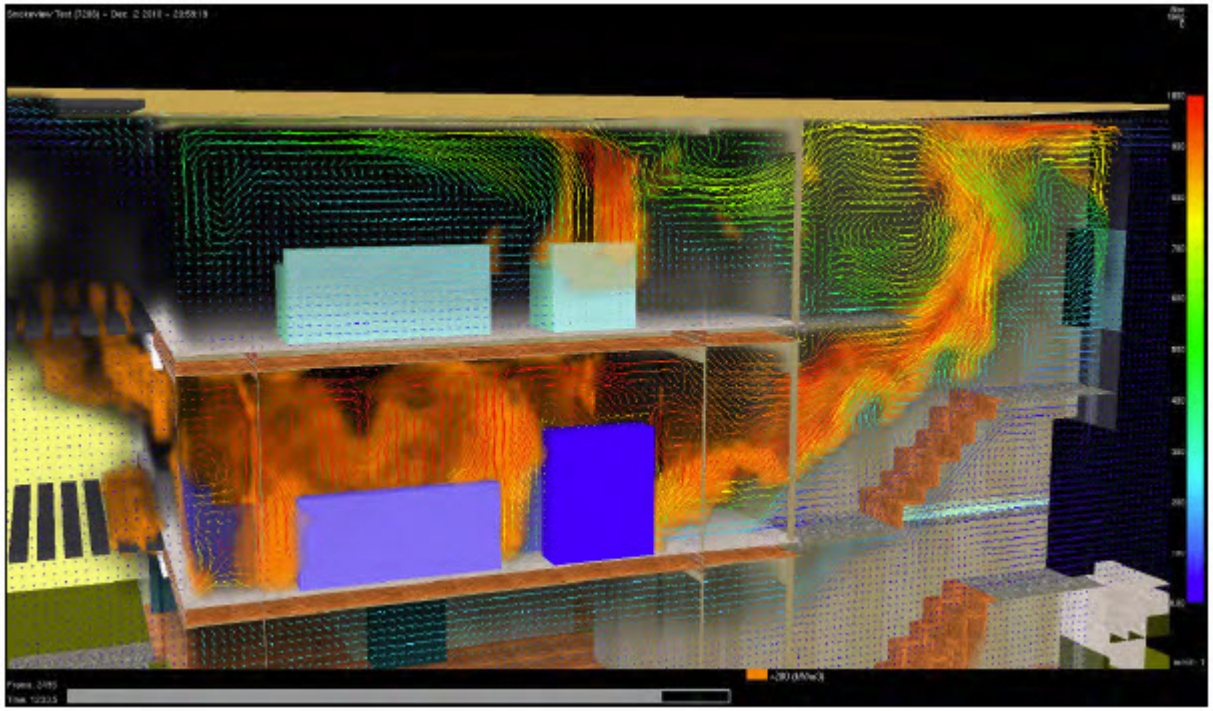
FIRE MODELING

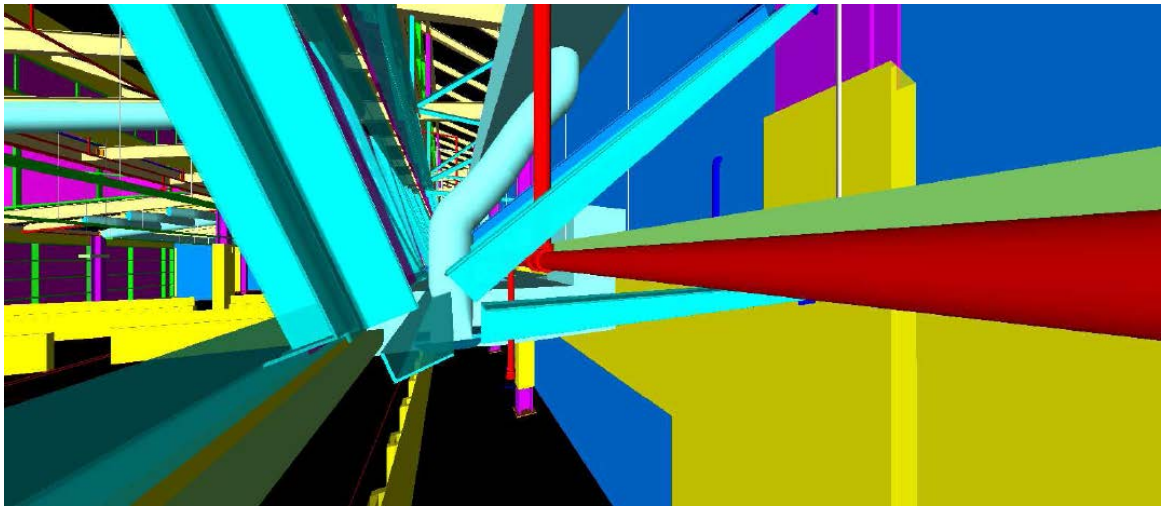
xtralis

PyroSim



BIM ON THE JOB SITE

- Coordination of trades
- Visualization of design professional's intent
- Resolution of field coordination issues



VELA SYSTEMS

TEKLA

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BEST PRACTICES/LESSONS LEARNED

- Think about initial model set-up
- Relationship b/w model geometry and document symbology
- Model size
- Training must be put to use immediately
- Verify expectations of all parties

CONCLUSION

- Questions & Answers
- Evaluations: Paper or QR Code
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