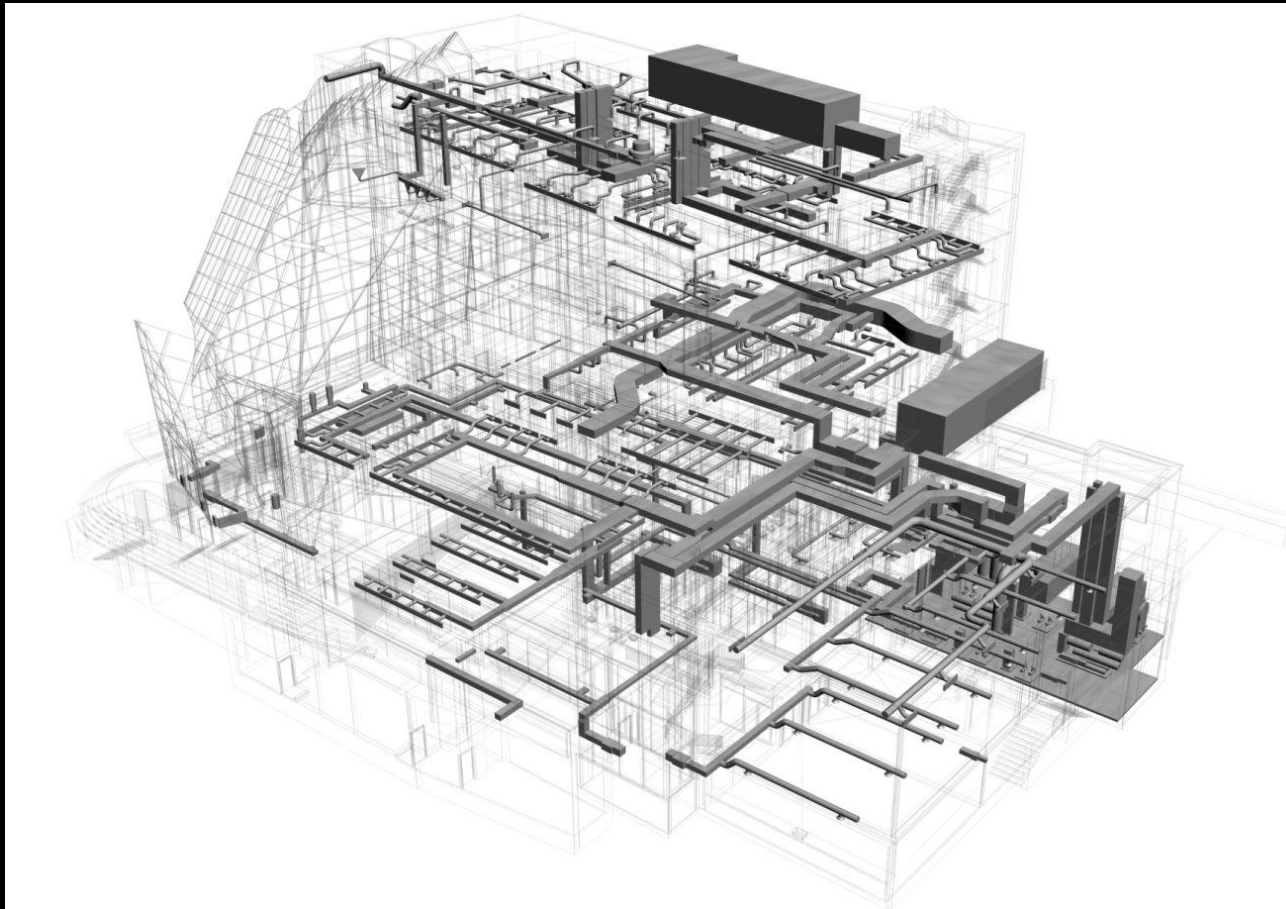


BIM and Engineering Practice



Art Gallery of Alberta \ Stantec Consulting



Why do engineers *need* BIM?

- Innovation is in our blood
- Buildings are not getting any simpler
- Technology was supposed to be the answer



Traditional Handoff Workflow

- Perpetual Changes
- Opportunity for errors at every change
- Inefficient
- Existing technology reinforces this cycle



Average estimate of 3.1% of total project cost related to software Non-interoperability

70% of engineering firms report manually re-entering data between applications as their primary cost in overcoming non-interoperability

//McGraw-Hill SmartMarket Report 2007



Non-interopability Issues

“If you want to do anything sophisticated, you can’t... If you want seismic analysis or wind analysis or heat-gain analysis or green building compliance, you have to have someone re-enter data out of the architects’ and engineers’ drawing and into another special program. Then after that work they build another model just for that analysis.

In the meantime if you changed your building, the analysis is no good.

There’s a word for that - stupid.”

//Patrick MacLeamy, HOK



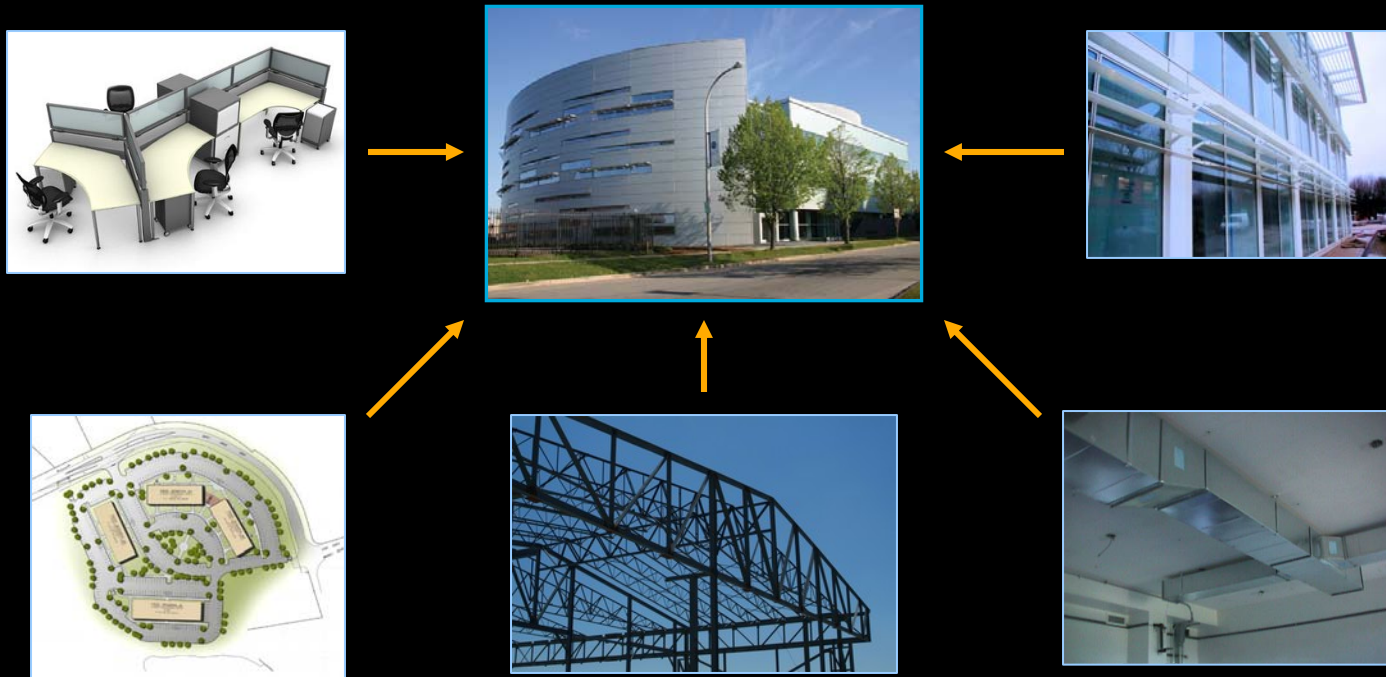
Why do engineers *want* BIM?

- Genuinely new take on technology as an aid
- Appeals to a new generation of designers
- 'Google Generation'



Integrated Workflow

- Single change drives automated adjustments
- Technology doing what it does best
- Where will all of this free time go?



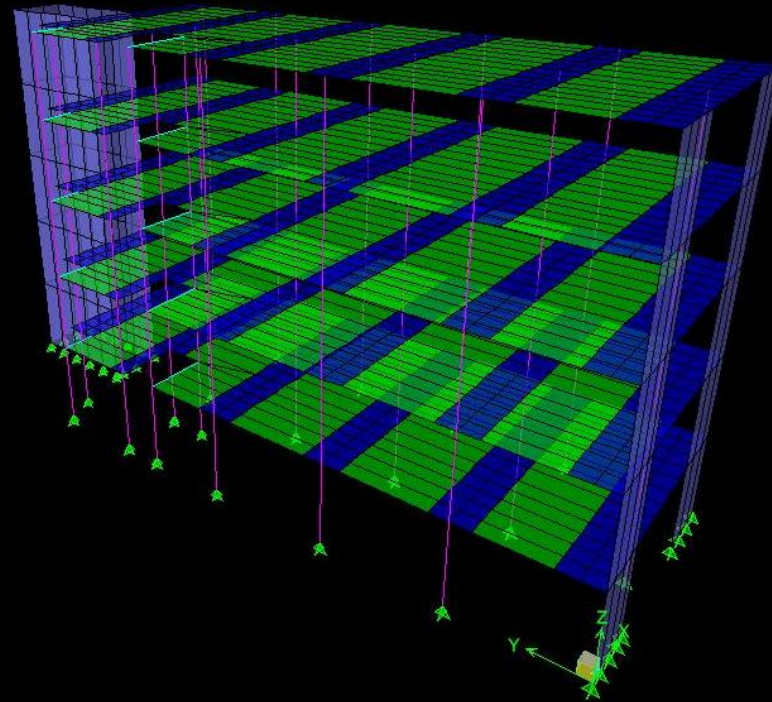
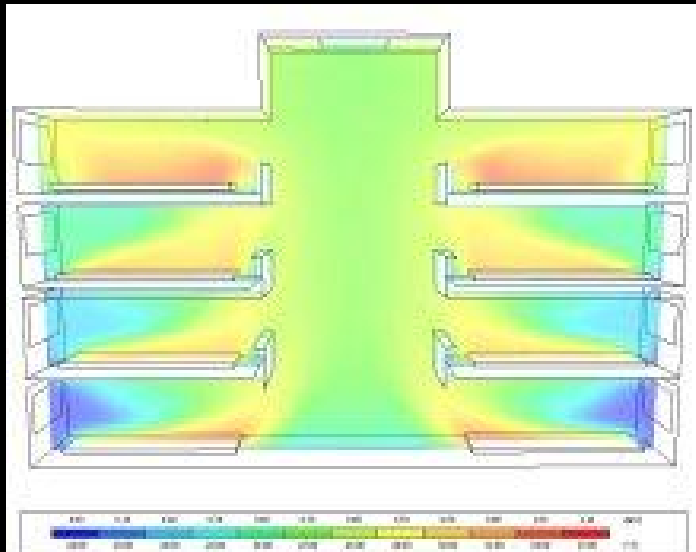
Integrated Design

- Building a better mousetrap/mouse hospital/mouse airport
- What would the perfectly engineered building be?
- Using new tools to refine design



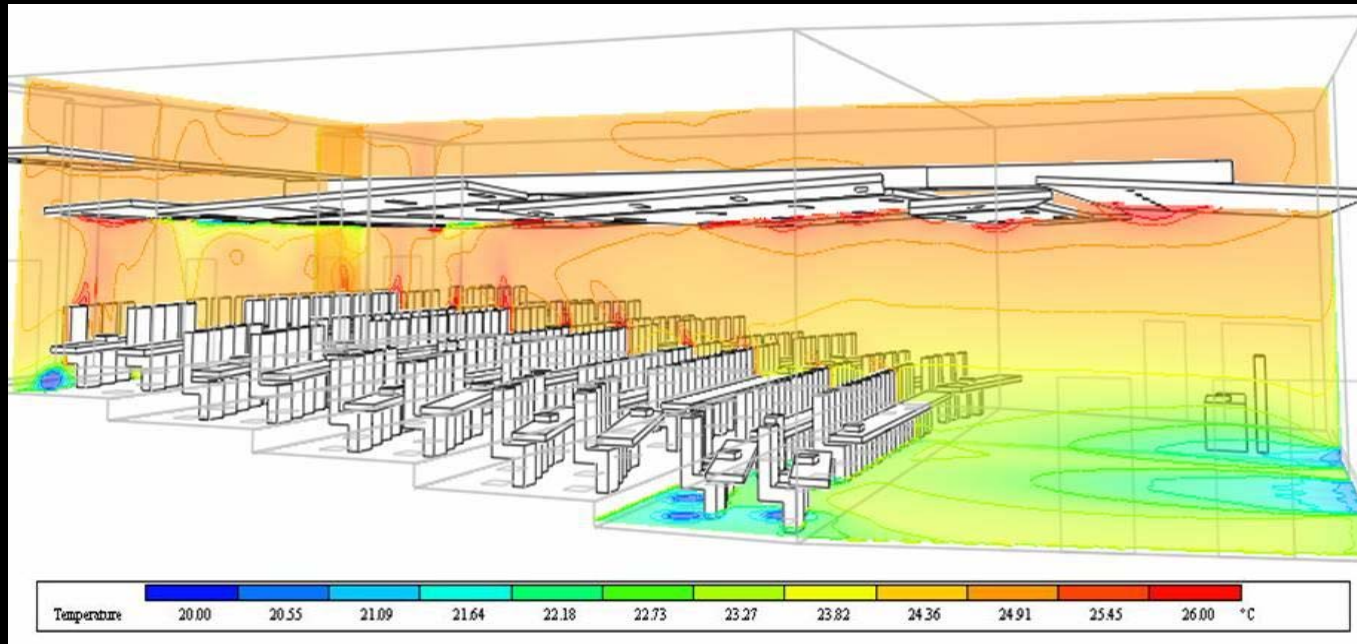
Design Analysis Tools

- Mechanical, Electrical Tools - IES <VE>
- Structural tools - ETABS



Shifting efforts

- Repeatable tasks replaced by value-adding effort
- Modeling, Simulating, Coordinating
- Engineering community will want BIM on its own merits



Present-day Challenges

- Software head start
- Speed and stability
- Intelligent Content



Architectural Software



Structural Software



MEP Software



1/17/2008

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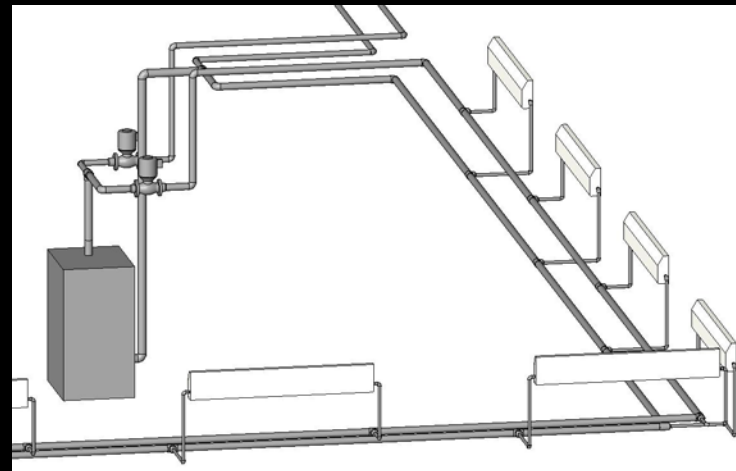
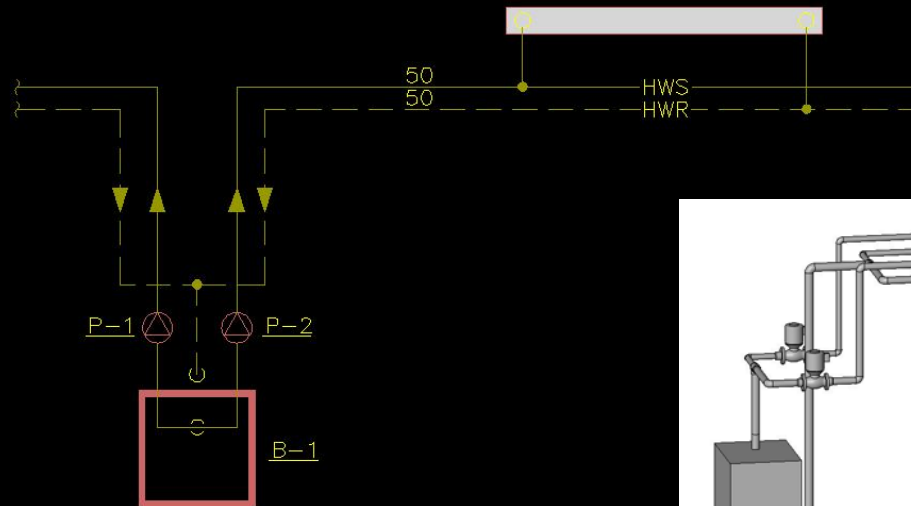
Topic: BIM - Engineering Impacts

Presenter: Mitchell Clark



Present-day Challenges

- Schematic vs. Modeled
- Detail level required



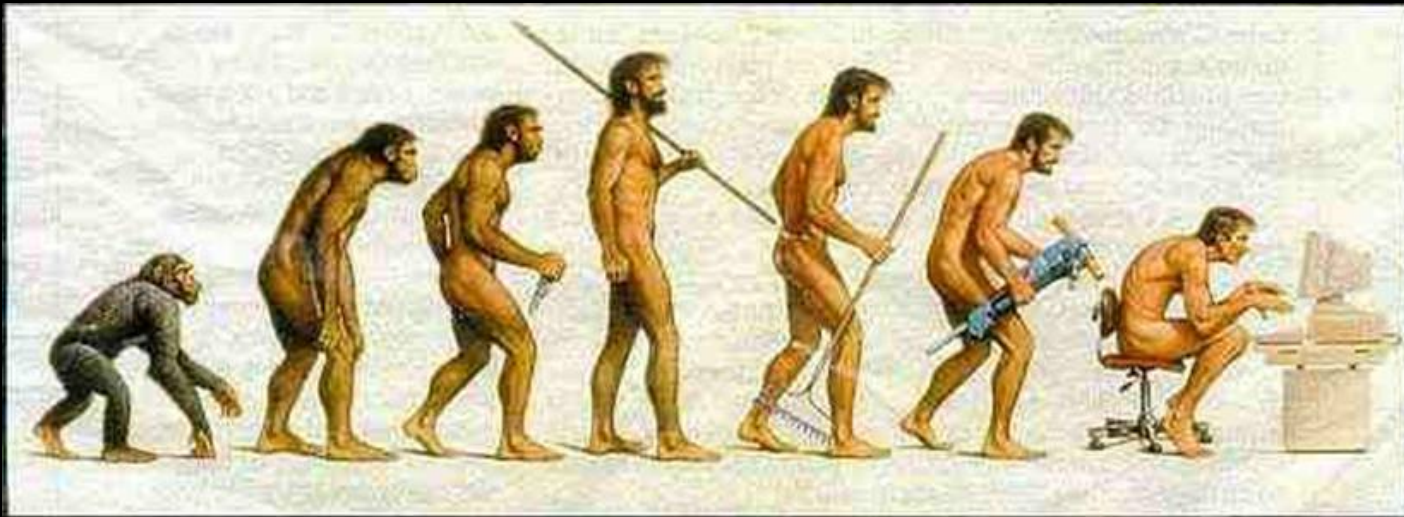
Present-day Challenges

- Management acceptance and understanding
- Modeler vs. Drafter/Engineer
- Support community
- Unrealistic expectations



Engineering Evolution

- Engineers will want BIM
- Considerable challenges to implementation
- Evolving relationship with architecture



Questions

