

Building Information Modeling and its Effects

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July 2009

“An Aggie does not lie, cheat, or steal or tolerate those who do.”

Overview

- Introduction
- The Current Process
 - The Good
 - The Bad
- Building Information Modeling...what is it?
- Advantages to Using BIM
- BIM's Effect on Productivity
- BIM and the Future
- Problems with BIM
- Conclusion and Q & A

Introduction

- 1980s Architects moved to 2-D CAD
 - Jump helped to create Contract Documents quicker
- 3-D CAD available but not used by the masses
 - Industrial Construction (Nuclear Sites)
- BIM created a way to combat inefficiencies
 - Contract Documents were moving too slow

The Current Process

- 2-D Drawings
- Understanding of building has decreased
 - Plans have increased in numbers; used to be guides for Constructors
 - Closer bond between Constructors and Architects existed
- Technology began the demise in construction
 - Complexity increased: Building Systems, Methods, and Projects
- Inconsistencies still exist with technology
 - Problems overlooked
- Site drawings less likely to be up to date

The Good

- Already in place...Why should we change?
 - Old Hats of Construction
- Process is efficient and effective and becoming more so everyday
- Current Design Process necessary for several bid practices:
 - Design-Bid-Build
 - Construction Manager at Risk
 - Competitive Sealed Proposal

The Good Cont.

- “The current design process can be expedited and increase the volume of information between trades.”
- Information more readily available
 - File Transfer Protocol (FTP)
- **NO NEW COSTS INCURRED!**

The Bad

- Always room for improvements
- Designers still do not all use E-mail
 - Many of us have actually moved on from this before others have used it
- Contract Documents are created for every Bidder
 - Excessive cost to the Owners/Clients
- Problems not corrected immediately
 - U.S. Mail, Courier Services, E-mail?

Building Information Modeling...what is it?



- **Building Information Modeling (BIM)** is the process of generating and managing building data during its life cycle.
- “...is a digital representation of physical and functional characteristics of a facility...”
 - NBIMS Exec. Committee, 2006
- Far more complex than just a 3-D model

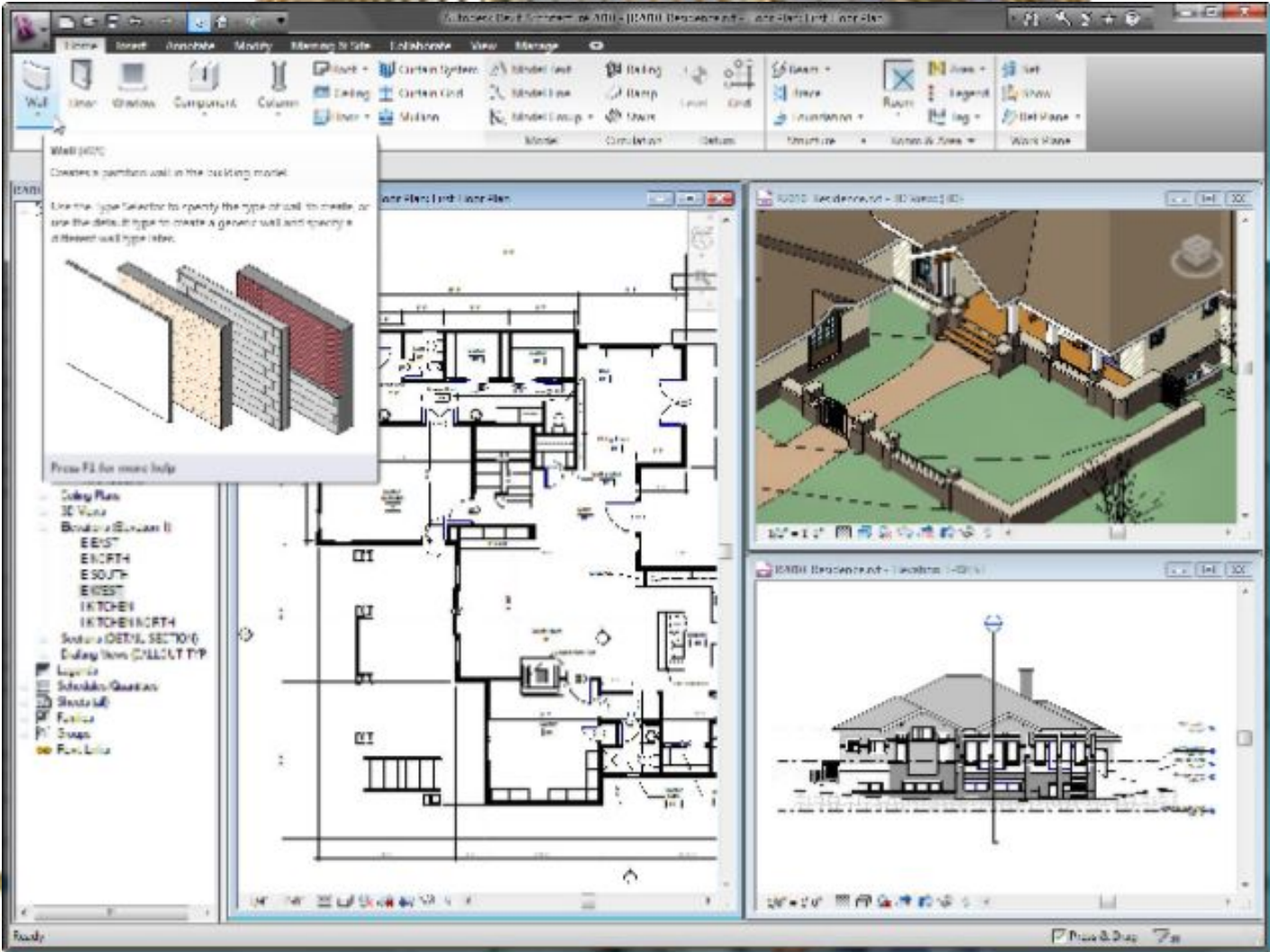
Building Information Modeling...what is it?

Cont.

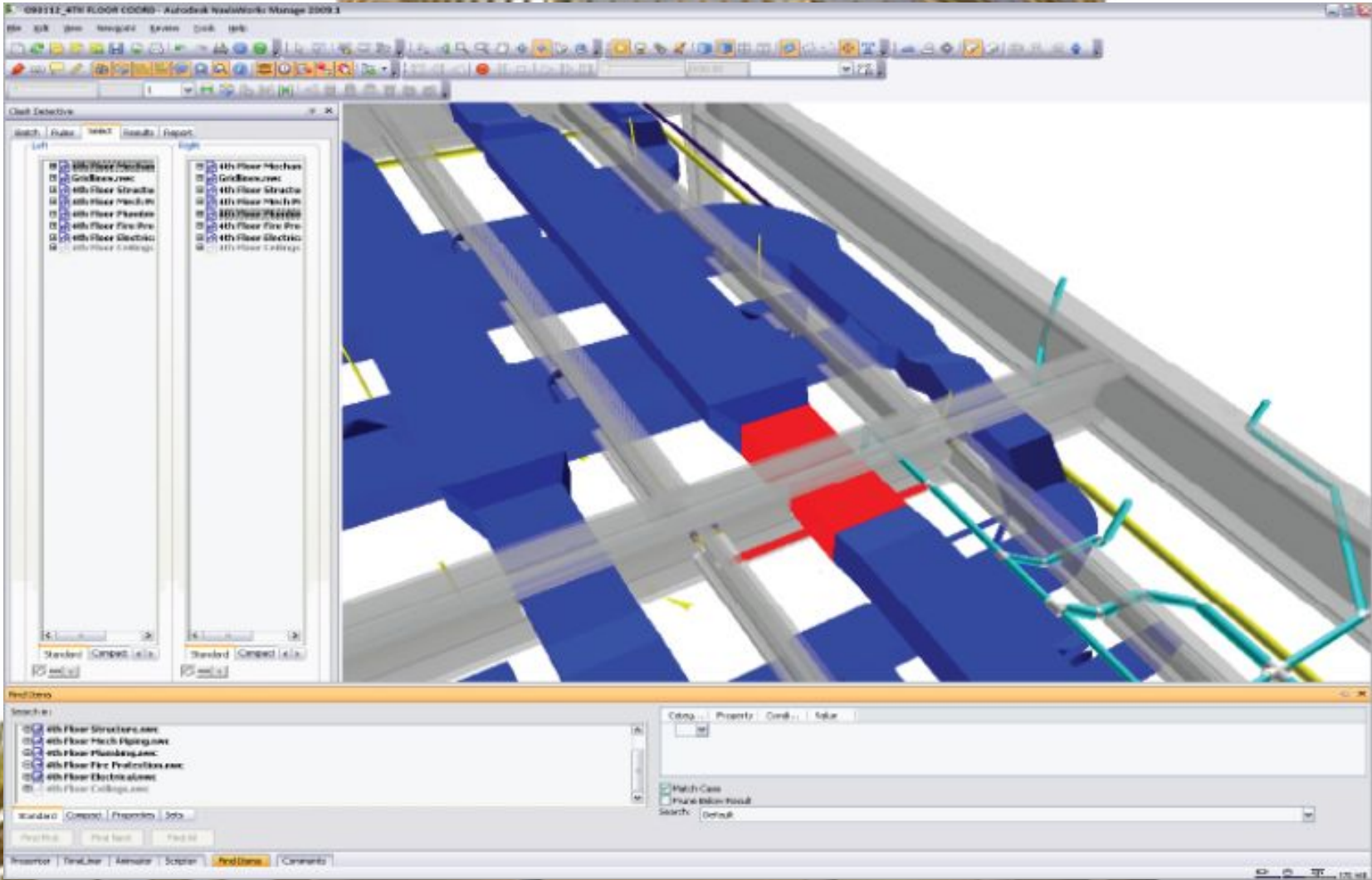


- Basis to eliminate any foreseeable problems
 - Design
 - Cost
 - Communication, all before construction begins
- FTP Sites extremely useful
 - Keep updated information on the sites
 - All can access immediate information/changes
- 4-D Real Time Clash Detection with all parties
 - Internet based (See Final Slide)

Building Information Modeling...what is it?



Building Information Modeling...what is it?



Advantages to Using BIM

- What has BIM revolutionized/changed
 - Scheduling (4th Dimension)
 - Estimating (5th Dimension)
 - Clash Detections (MEP Coordination)
 - Collaboration in Real Time
- Eliminates errors and omissions before construction starts
- Eventually savings can be realized and benefit the Project Team

BIM's Effect on Productivity

- Benefits all projects when implemented correctly
- LEED can now become productive
 - Advantages of LEED Projects can be shown
 - DProfiler (Beck)
 - Autodesk Navisworks
- MEP Contractors
 - Usually very inefficient with many changes throughout the projects
 - Clashes detected prior to on site work with all trades
 - Keeps everyone happy and moving in the same direction...COMPLETION!

BIM and the Future

- BIM Models highly prized/protected by Designers
- BIM & LEED go hand in hand in our Industry
 - Software being created to implement LEED aspects into BIM software
- **DProfiler** (Beck) – implements:
 - R.S. Means
 - Energy Consumption tests and reports
 - Possible changes to increase efficiency

Problems with BIM

- BIM is not necessarily always good, and sometimes the benefits can be outweighed by the downfalls.
- More elaborate yet non-functional buildings more prevalent
- Designers not as knowledgeable with real world construction
 - Greatest BIM Models do not mean greatest wealth of knowledge when the questions are being asked.
- MEP Coordination Priority
 - Which firm/trade will have priority in the model?

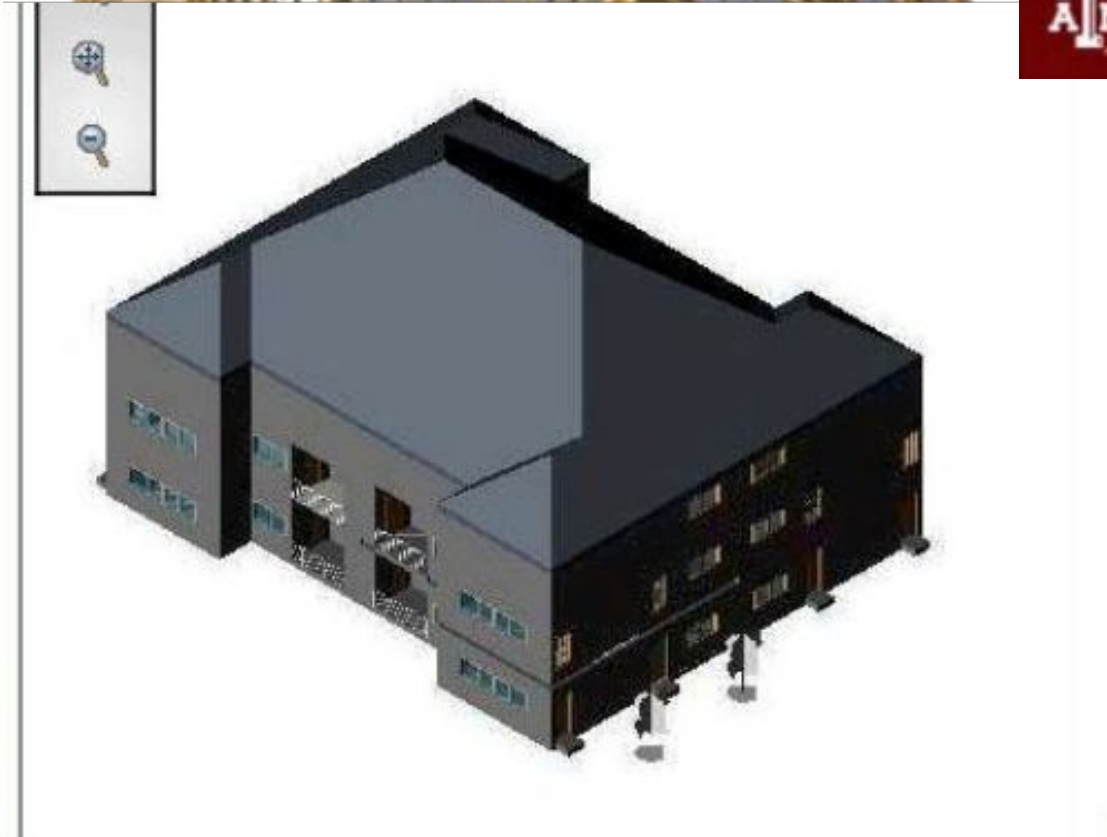
Problems with BIM

● Software Dilemmas

- Is there a uniform software suite that has to be used?
- Can your subcontractors afford this?
- Is there some way to implement all programs into one?
 - DProfiler (Beck)
 - Autodesk Navisworks

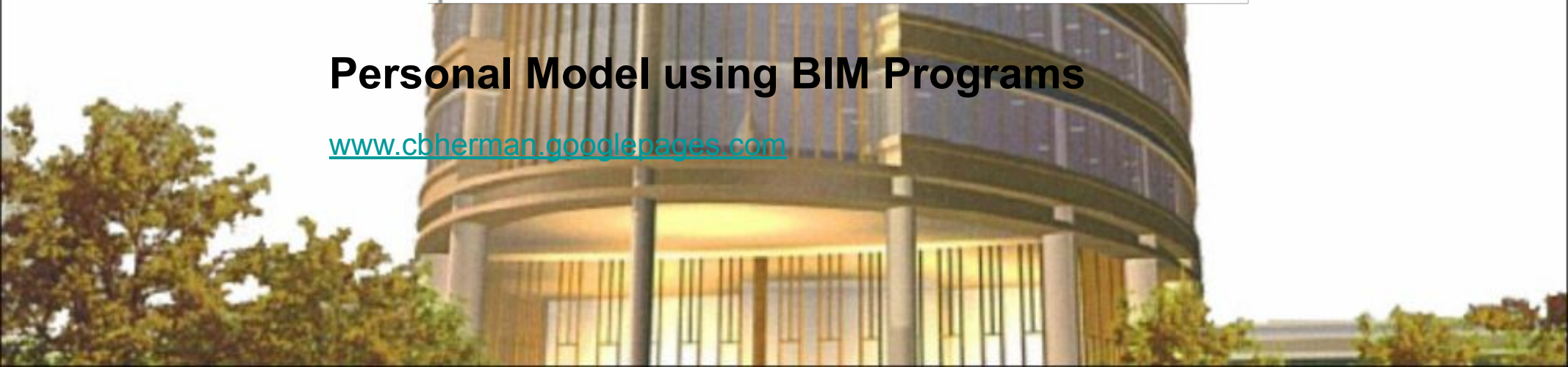
● The biggest question:

Will your Owner recognize the benefits of the program and be willing to pay for the upcharge?



Personal Model using BIM Programs

www.cbherman.googlepages.com



Questions and Answers