

**BIM:
Where is the leading edge;
and what are the issues with adopting it?**

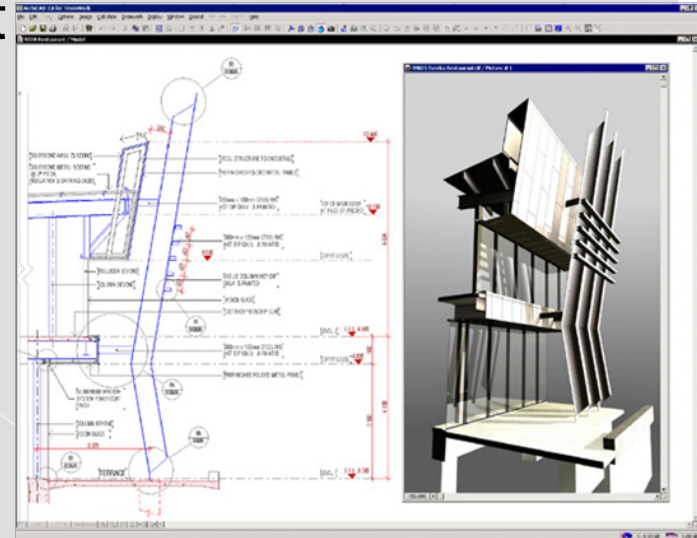
Kathryn Davies, Unitec

- W78 conference in Chile in July
 - International working group on IT in Construction “Improving the management of construction projects through IT adoption”



Defining BIM

- Starts with a 3D object-based building model
- Based on construction elements, not just lines and points
- Contains 3 aspects of information about a building
 - Geometry – usually a graphical CAD model
 - Attributes of aspects and elements (e.g. costs, scheduling, thermal properties, etc.)
 - Links to additional tools or libraries



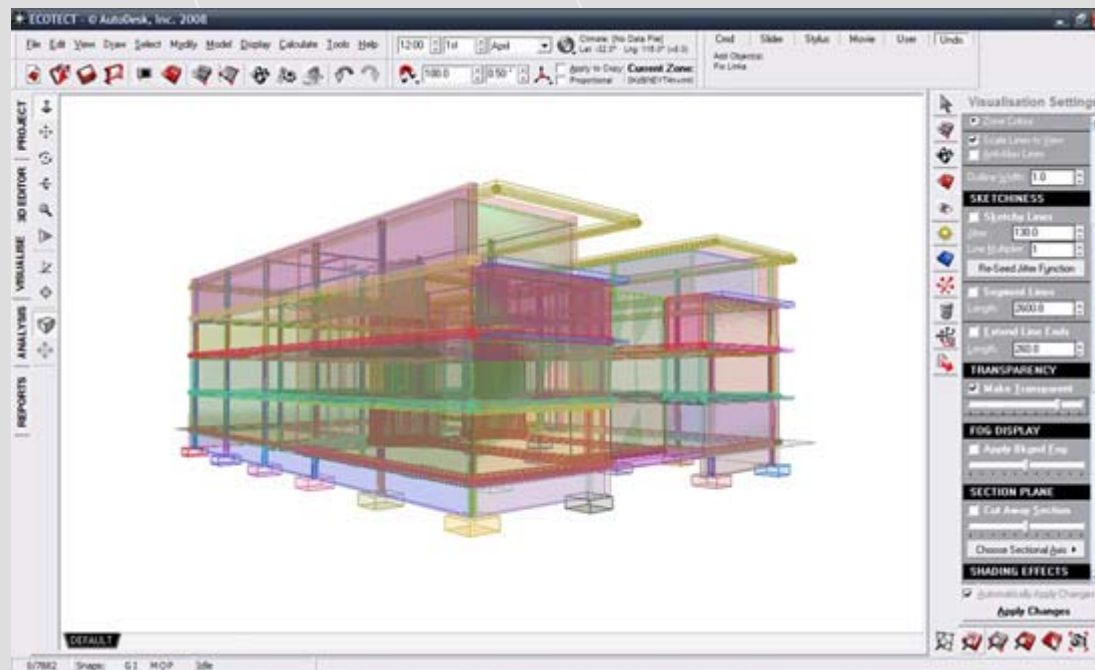
VDC

- Virtual Design and Construction
- Based on a BIM, sophisticated simulation tools
- Costing, scheduling
- Encoding of design decisions
- As-designed, as-built, whole-life models of the building

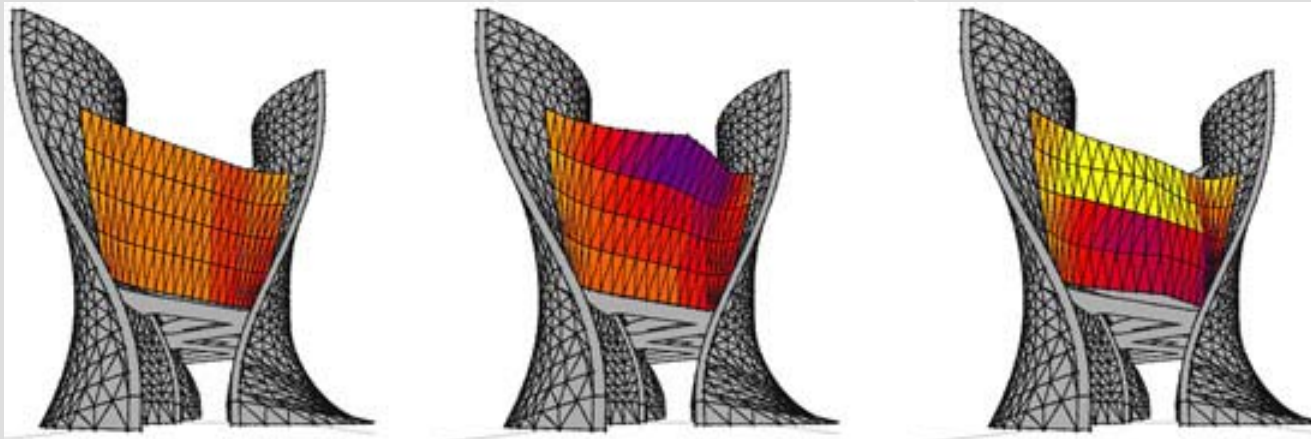


Leading edge: links to other tools

- Dynamic costings
- Specifications management
- Preliminary & on-site scheduling



- Thermal performance
- Lighting
- Air quality
- Green building analysis; CO₂ calculations; embedded energy



- Fire & smoke modelling
- Pedestrian & traffic flows
- Location of equipment and materials
- Code compliance – preliminary checks automated
- BMS integration
- Asset management and tracking
- Maintenance schedules; building service history



Advantages of adoption

- Design iterations are increased => better design
- Conflicts are identified early and eliminated
- Information is consistent across consultants & specialists
- Return on investment is high

Issues of ownership

- Who owns the BIM?
- Whose responsibility is it to maintain the information, manage conflicts?
- Who reaps the benefits?

Issues of education and skill

- Need modellers who both understand both the requirements of the computer model, and the construction process they are representing.
- Other members of the project team need to understand the applications and limitations of the model.

Issues of industry culture and resistance

- Requires a redefinition of relationships within the project team
- Processes need to be examined and (probably) changed.
- Industry roles will change