Energy Modeling
From Conceptual Design to an Energy Model

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Electrical Designer       Digital Practice Manager

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Your Presenters

- Andrew Leavitt
  - Electrical Designer
  - 20 years using Autodesk products
  - First time presenting at AU

- Nik Weller
  - Digital Practice Manager
  - Enjoys a nice pair of slacks
  - Presented at AU in 2012
Three generations of design
One of the largest privately held A/E firms in North America
Over 800 professionals in 31 offices
Working internationally for over 50 years
Creating an Energy Model from Scratch

- Develop Building Concept
- Model Masses
- Assign Energy Settings
- Fine-Tune
- Analyze the Model
- Iterate, Iterate, Iterate!
Energy Analysis with Conceptual Masses

- Rapid assessment
- Inform decisions
- Iterate successful designs

- Not Building Element Energy Analysis
Integrative Design and Sustainability

- 47% of energy usage
- 2030 Challenge and Net Zero
- Collaboration is key
Building Concept

- Programming study
- Existing drawings
- Google Earth
- Just an idea
Creating a Conceptual Mass Model

- Set Project Location
- Create Masses
  - Programming Study
  - Model In-Place
  - Mass Families
- Assign Mass Floors
- Create Energy Model
Energy Settings

- Basic Energy Settings
- Advanced Energy Settings
- HVAC Systems
- Conceptual Types
Fine-Tuning the Mass Model

- Zones
- Masses
- Surfaces
- Building and Space Types
- FenestraPro
Generate Insight

- Upload the Mass Model
- Analyze the model
- Review potential design changes
- Compare benchmarks
  - EUI
  - Cost per area
- Share and compare models
Insight 360 Model Analysis

- View model benchmark and building form
  - Photovoltaic analysis
  - Heating Loads
  - Cooling Loads
- Review model history
Insight 360 Widgets

- Results for specific model categories
  - Building Orientation
  - HVAC System
  - Glazing
  - Etc.
- Apply constraints
- Reorder based on importance
Insight 360 Scenarios

- Save configurations and constraints
- Compare multiple Scenarios
- Compare multiple buildings
- Sample Scenarios: Net Zero, Architecture 2030
Designing with Insight 360 Energy Analysis

- A360 Cloud service
- Analyze major decisions early
- Track results of changes
- Share with colleagues
- Apply recommendations to Revit model
- Plan for sustainability from the beginning
Energy Analysis and Integrative Design

- Drive decisions for multiple disciplines
  - Building form and orientation
  - Materials and assemblies
  - Electrical and mechanical loads and systems
- Unite disciplines in pursuit of the same goals
Conclusion

- All you need is an idea
- Model masses and apply settings
- Use Insight 360 to inform, drive, and track design decisions
- Bring disciplines together
- Design more sustainable buildings
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