Charging Ahead with Revit 2020 MEP Engineering

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About the speaker

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34+ Years Experience in AEC Market

Revit/Plant 3D/AutoCAD Toolsets Subject Matter Expert

Former Training Center Manager/Application Engineer for Autodesk Reseller

Autodesk University top-rated speaker for labs and lectures in 2011 and 2016.

AUTODESK® EXPERT ELITE

Your Concierge Lab Assistant Staff…

Desiree Mackey, Design Technology Practice Leader – GEI Consultants

Alex Hernandez, BIM Specialist – Gannett Fleming

Ronald Balmer, BIM Manager – Bridgers and Paxton

Class Summary and Key Objectives…

Taking advantage of key workflows can help you get more from your Revit tools than ever before. This hands-on lab will begin with an overview of the electrical improvements to help represent a more accurate design, and then we'll move into new elevation features that affect all disciplines. Next, we'll look at ways to improve your engineering analysis results, and we'll close with new ways to move your schematic designs from AutoCAD software to Revit.

- Gain an overview of key electrical features that improve the design process
- Examine new elevation and control features for scheduling and tags
- Learn how to improve engineering analysis tool results with key settings and tips
- Learn how to push more design into your model by incorporating HVAC and electrical schematics

Key Revit Electrical Features and Improvements for 2020

Revit Electrical Features and Improvements

FEEDING THE LUG

- Creating feed through lug connections
- Understanding connection types

SETTING NUMBERING OPTIONS

- Specify how electrical circuits are defined for FTL conditions

WIRING IMPROVEMENTS

- Changes to default length of home run wire representation
- Editing Home Run Behavior for appearance and multi-circuit layouts

Elevating Your Objects, Tags and Schedules

“Everything in Revit is Hosted.”

David Butts

Revit Therapist

Revit Elevation Data Improvements

NEW LABELS

- Reviewing Elevation Labels
- Understanding hosted relationships and impact on elevation

EXPOSING ELEVATION DATA FOR SYSTEM COMPONENTS

- Review new top/bottom elevation parameters
- Adding elevation parameters to tags

Improve Engineering Analysis Tool Results with Key Settings and Tips

Revit Engineering Analysis Improvements

ENERGY MODEL SETTINGS

- Reviewing key settings for analysis types
- Learning new analytical model settings

RESOLVING SPACE AND BOUNDARY ERRORS

- Learning how bounding elements affect energy modeling

SPACE AND BUILDING TYPES

- Defining building and space types
- Editing Home Run Behavior for appearance and multi-circuit layouts

MATERIAL THERMAL PROPERTIES

- Edit materials to include thermal properties
- Discovering thermal properties associated with Revit components

Revit Engineering Analysis Improvements

RADIANT TIME SERIES METHOD – THE “ORIGINAL” WAY

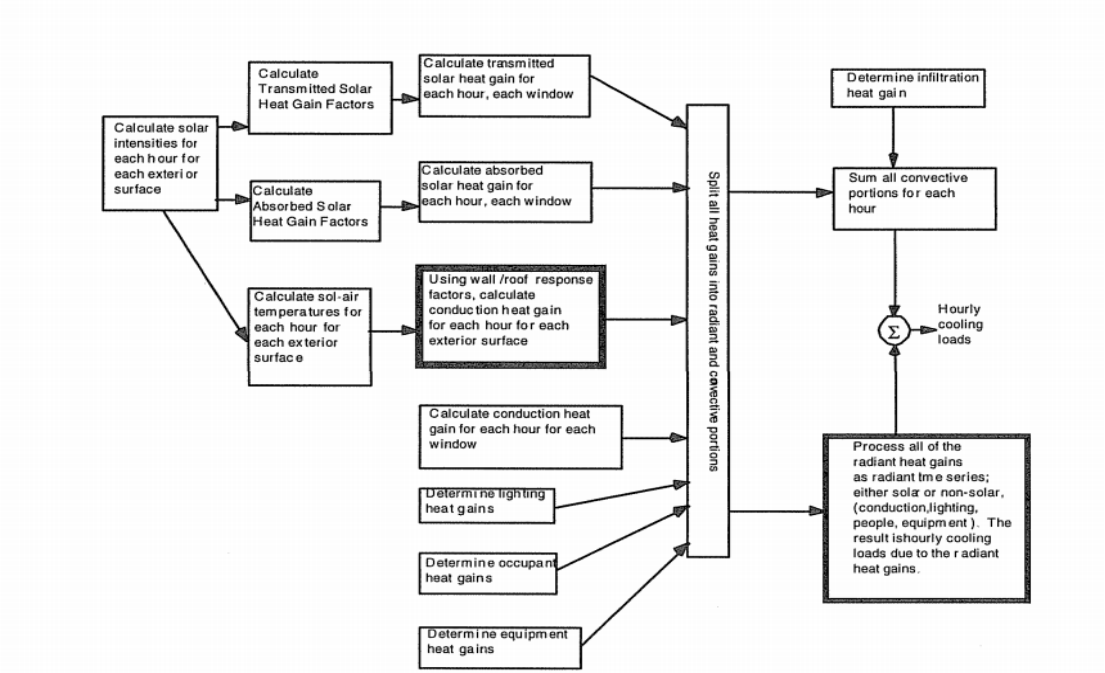


Figure 1 *Overview of the radiant time series method.*

Reference: *The Radiant Time Series Cooling Load Calculation Procedure*, Jeffrey D. Spitler, Ph.D., P.E. Member ASHRAE; Daniel E. Fisher, Ph.D. Member ASHRAE; Curtis O. Pedersen, Ph.D. Fellow ASHRAE; Copyright ©1997 ASHRAE, https://hvac.okstate.edu/sites/default/files/pubs/papers/pre_2000/19-Spitler_Fisher_Pedersen_97.pdf

Revit Engineering Analysis Improvements

THE NEW WAY – ENERGYPLUS / OPEN STUDIO AND REVIT 2020.1

Open Source (Google): "denoting software for which the original source code is made freely available and may be redistributed and modified"

Revit Engineering Analysis Improvements

LAST NOTES ABOUT ENERGY MODELING PREPARATION

- These tools are always best used at the START of a project, when detail levels are low.
- Energy modeling is a TEAM effort for all disciplines
- The model must be properly bound (this includes walls, openings, floors, roofs and ceilings)
- Rooms and spaces must also be included.
- Avoid “over bounding” – not every item in a room needs to be set to room bounding.
- Check your energy settings – understand the differences between conceptual masses and building elements
- Assign your building and space types appropriately.
- Review the materials and their thermal properties if using the Detail Elements option.
- Keep your DWG’s out of the model!

In the End…Schematics in Revit

Revit Schematic Elements

DEFINING DETAIL SYMBOLS

- Editing Object Styles for Appearance and Visibility
- Defining the framework and linework for parametric behavior

ADDING SCHEMATIC LINES

- Review Schematic Line Styles
- Leveraging Masking Regions to Improve Results
- Define Pattern Based Symbology

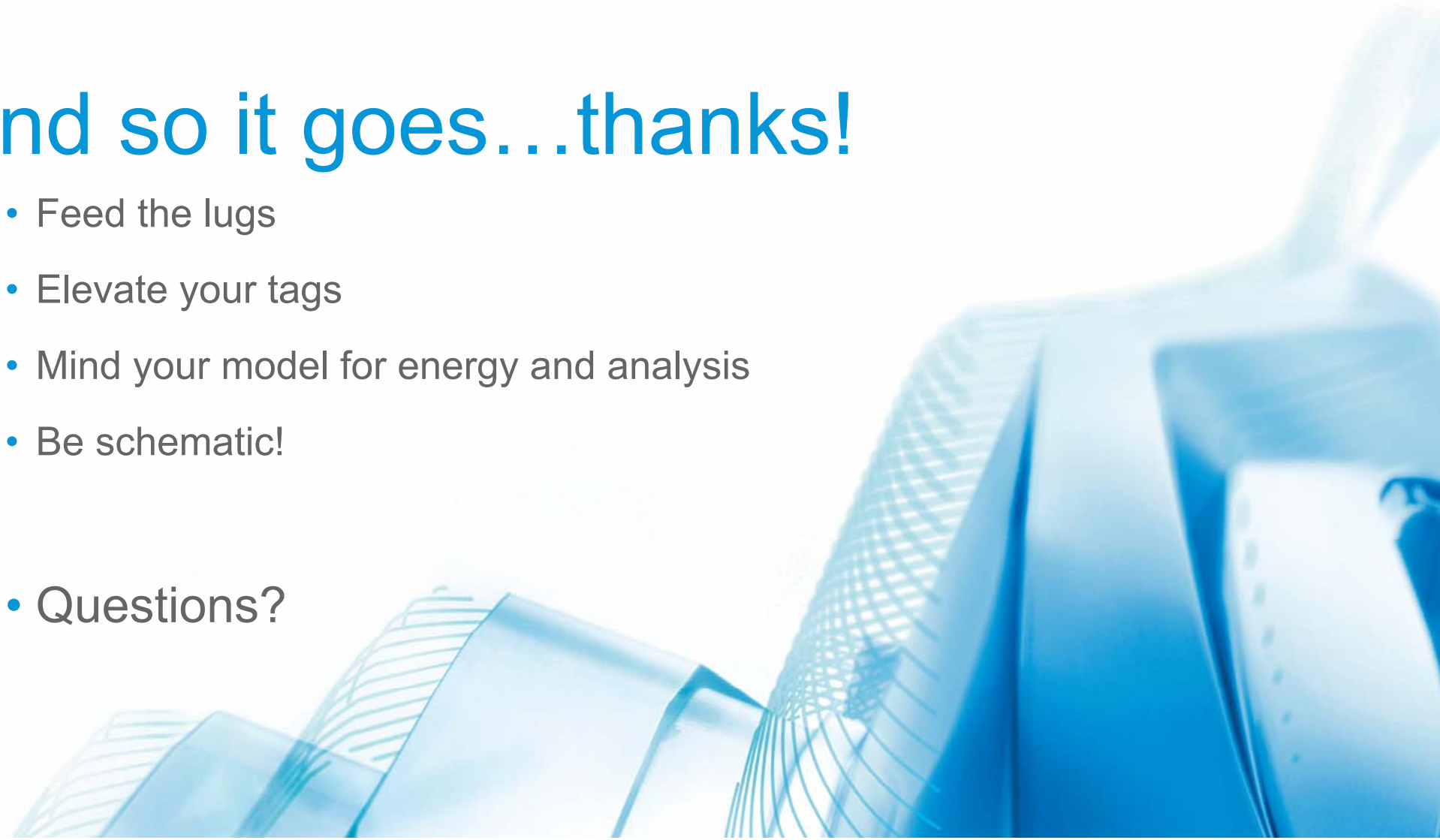
ADDING VISIBILITY CONTROLS

- Leveraging Yes/No parameters for visibility

And so it goes…thanks!

- Feed the lugs
- Elevate your tags
- Mind your model for energy and analysis
- Be schematic!

- Questions?



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