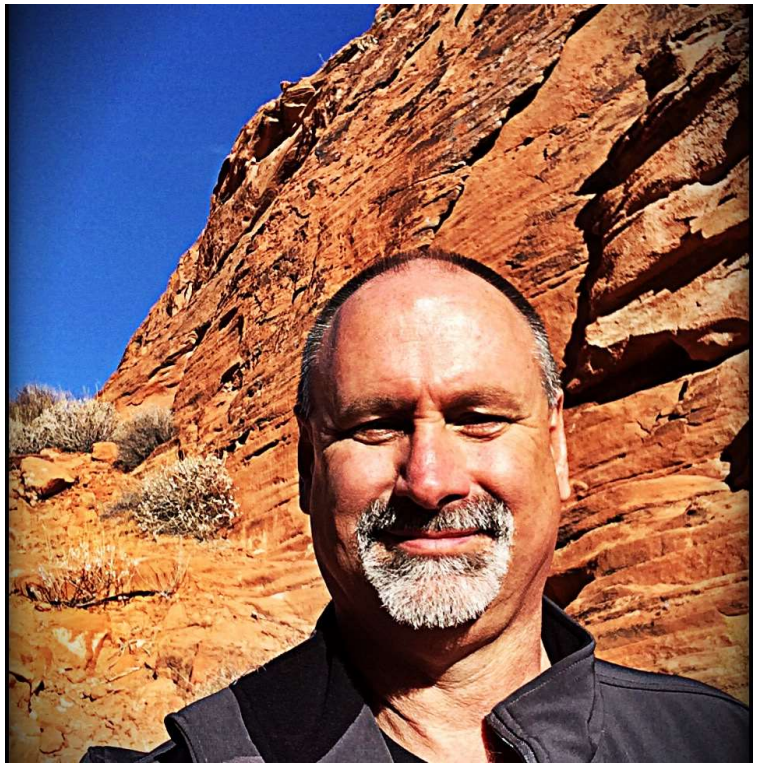
Perfecting the System For Revit

David Butts

BIM Specialist, Gannett Fleming



About the speaker

David Butts, BIM Specialist – Gannett Fleming

- 30+ Years experience with Autodesk software products
- AAS Architectural Technology
- 13 years – Autodesk Reseller, Senior Application Engineer/Training Manager
- 8 years with Gannett Fleming, manages the implementation/training/optimization of engineering applications

AUTODESK CERTIFIED PROFESSIONAL

AUTODESK BUILDING PERFORMANCE ANALYSIS CERTIFICATE

AUTODESK EXPERT ELITE

About the Lab Assistants…

Anthony Conchado, BIM Specialist – Gannett Fleming

Mike Doherty, BIM Specialist – Gannett Fleming

Ron Onderko, BIM Specialist – Gannett Fleming

Class summary

This hands-on lab will teach you the comprehensive steps needed for controlling project system settings, and then demonstrate how to capitalize on (or disable) sizing and analysis tools related to the system. You'll learn about creating the target-source relationship between parts, and then review using the systems to improve the quality of your documentation. The class will cover HVAC (heating, ventilating, and air conditioning) and piping items.

Key learning objectives

At the end of this class, you will be able to:

- Learn comprehensive steps for controlling project system settings, including mechanical and piping system project settings
- Understand how to create the target and source relationship between equipment without routing a duct or pipe
- Learn how to capitalize on the system sizing and analysis tools, and learn how to maximize project performance when you don't need these features
- Learn how to improve the quality of your construction documents by capitalizing on system-based features

The System Rules and Four Step Process

The Four Stop Process

ANALYZE/PLACE EQUIPMENT

PREDESIGN/
SCHEMATIC DESIGN PHASE

Spaces/Zone/Analysis Tools

Target Equipment

Source Equipment

DEFINE SYSTEMS

LATE SCHEMATIC/
DESIGN DEVELOPMENT

Air/Fluid Systems

Electrical Circuits

Special Systems

ADD CONNECTING GEOMETRY

DESIGN DEVELOPMENT
CONSTRUCTION DOCUMENT

Duct/Inline Accessories

Pipe/Inline Accessories

Conduit

Cable Tray

Wiring

ANNOTATE/ DOCUMENT

CONSTRUCTION DOCUMENT/FINAL

Tags

Text/Leaders

Dimensions

Schedules

Details

Legends

Why?

- By following the same repeatable process, you can get more efficient at completing projects on time and under budget.
- Process follows traditional design phases
- Can follow 4 step by area, floor or entire building/project
- Can move tasks forward (i.e. tag duct during placement)
- Can preload schedules to automatically populate
- Use predefined families that include scheduling parameters

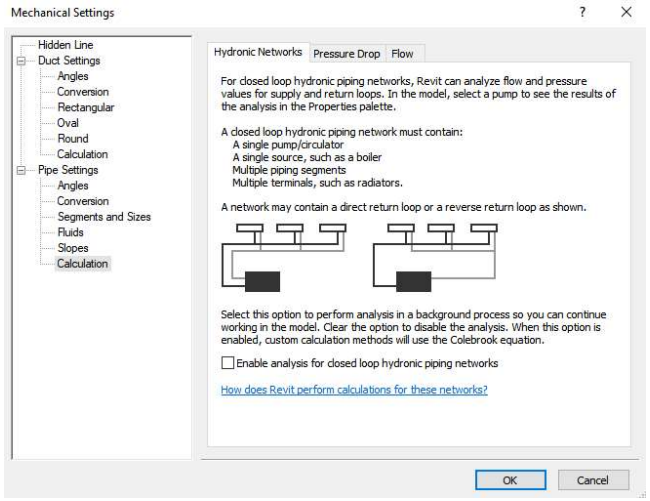
Before you start – follow these rules:

- Always start from a template (or starter project)
- Include in the template families that require predefined type mark values (but don't overload the template)
- Include in the template predefined system types for duct, pipe, etc.
- Begin by selecting and adding **target** and **source** equipment
- **Systems** are defined by targets, but do not require a source to complete the system
- Turn calculations on/off as needed
- Use Worksets for additional system control
- ALWAYS WORK FROM THE SAME REVIT BUILD!

Exercise 1 –
Define Project System Settings
Use BES227181-L-MEP.rvt!

Key Steps

- Define Duct and Pipe Settings in the template
- Defining System Types



Exercise 2 –
Creating the Target Source Relationship
Continue using BES227181-L-MEP.rvt!

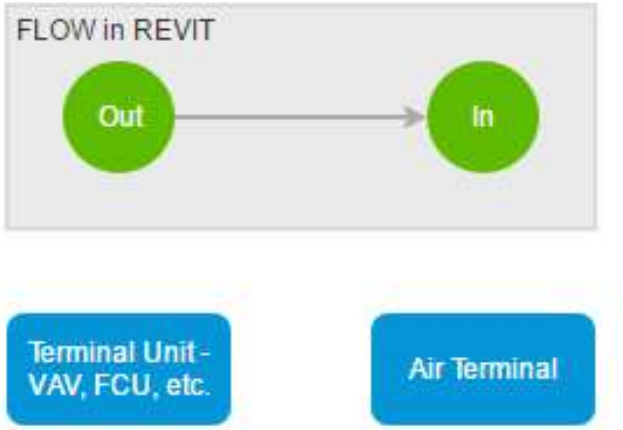
Key Steps

- Define System by targets
  - Air Terminals
  - Pumps/Tanks/Plumbing Fixtures
  - Name your systems!
- Add sources to complete the system
  - HVAC Units
  - Pumps/Tanks
  - One per system
  - Item can be both target and source

Exercise 3 –
Leveraging Systems for Sizing and Analysis
Open BES227181-L-MEP-Analysis.rvt!

Key Steps

- Understand the role of the family duct/pipe connector and its settings, including flow



- Understand connector system settings

Key Steps

- When using sizing/load tools, it must be a well-formed system
- When sizing, the system must have calculations enabled
- Sizing tools are based on industry standard formulas, but may not contain detail that external applications could provide
- **Other** systems don't do squat!

Exercise 4 – Key Tips and Benefits Continue with BES227181-L-MEP-Analysis.rvt!

Key Steps

- Using TAB System based selections
- Use View Filters based on Systems
  - Rule Based
  - Selection Based

- Tracking System Equipment Data with Spaces
  - Duct Systems

Questions!

Remember – BES227181-L is the class – please remember to complete the survey!

Thanks for attending!