Using Hydraulic Calculations in Revit to Do Comparative Modeling of Sprinkler Designs

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Who’s Here?

- Consulting Engineers: 56%
- Existing Customers: 21%
- Other: 16%
- Competitors: 7%
Class summary

Today we’re going to do a live Revit demo to:

- Model a fire sprinkler solution for a sample project
- Hydraulically analyze and resize that solution
- Use Revit schedules to cost that solution

Then we’ll do it twice more to compare 3 solutions (we’ll also look at the schedule details for the costing)
Key learning objectives

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

- Quickly alter a Revit-modeled sprinkler system to reflect alternate design configurations
- Evaluate various work flows to optimize the efficiency of the analysis process
- Better appreciate the power of parameters and schedules to promote the costing process
- Discover the requirement for a connected model in performing automated calculations
Here’s our Sample Project

Sample Revit Model and A Real Building
Create a Fire Sprinkler Model – from scratch

- Start with a template
- Copy typical content (Sprinklers, Pipe Types, Schedules)
- Insert Revit Link of Sample Project
- Adjust template settings for Sample Project
- Layout the sprinklers
- Connect sprinklers with pipes
- Leverage typical content
- Complete the riser and supply
Analyze and Resize the Sprinkler Model

- Create a water supply definition
- Identify the operating sprinklers
- Select the connected model
- Perform the hydraulic analysis
- Optimize the pipes sizing to match the water supply
- Return reference points and revised sizes to the model
Use the Revit Schedules to Cost the Current Design

- Pipe Cost Schedule Total +
- Fitting Cost Schedule Total +
- Sprinkler Cost Schedule Total +
- Accessory Cost Schedule Total = Total System Cost
Reconfigure the System and
Repeat the Process

• Covert the Grid to a Tree
  • Model
  • Analyze & Resize
  • Record the Cost

  ▪ Convert the Tree to a Loop
    ▪ Model
    ▪ Analyze & Resize
    ▪ Record the Cost

  ▪ Chose the best
A Little Closer Look at Our Schedules

- **Sprinkler Cost Schedule**
  - Perfect Example of Revit Schedule – out of the box
- **Pipe Cost Schedule**
  - Needs some help to handle cost per foot
  - Needs attention to deal with units
- **Pipe Fitting Cost Schedule**
  - Needs all the tricks from the Pipe Cost Schedule
  - And a little more
- **Pipe Accessory Cost Schedule**
  - Easy like Sprinklers – because you deserve a break today
A Little Closer Look at Our Schedules

- Pipe Cost Schedule
  - Needs some help to handle cost per foot
  - Needs attention to deal with units

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Dia.</th>
<th>Cost</th>
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<tbody>
<tr>
<td>1”</td>
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<td>1.89</td>
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<td>2”</td>
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So…..

- Model It
- Calc it and
- Cost it

And you’ll have the best design in Revit
Thank You!

Questions?

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