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MEP Mechanical Room Prefabricated with Revit—Make Your own Prefabrication Package

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Learning Objectives

- Revit Assemblies
- Learn how to cut down on installation costs by using prefabrication
- Learn how to create a model for prefabrication
- Discover the functionalities of Victaulic Tools For Revit

Description

Engineers will be intrigued by the conversion of an MEP mechanical room with numerous pump connections to a construction-ready model. Installers will be interested in our 3D Fab map with identified pieces and indication of the field connections. We'll divide the mechanical room in several sections to optimize fabrication in the workshop. We'll generate cut length sheets and bills of materials, which makes possible spool labeling per zone to minimize material handling and increasing jobsite efficiency. We'll realize all of this using Revit software, ReCap Pro software (retrofit jobs and jobsite scanning), Revizto (issue tracking and virtual reality), and the Victaulic Tools For Revit. We will present this in an interactive way by combining presentations and movies with live demonstrations.

Speaker(s)

Kenneth Verlinden is the global content manager at Victaulic, the leading manufacturer of mechanical pipe-joining systems. Kenneth has been working for Victaulic since 2001 and leads the teams responsible for software and content development, BIM and training, and drives the development of new offerings that enhance service to Victaulic customers throughout the project life cycle. Kenneth's specialties include CAD design, MEP and fire protection piping, standardization and pre-fabrication and working together with various software suppliers on a daily basis. Prior to joining Victaulic, Kenneth worked at a chemical plant as a design engineer. He holds an electro-mechanical bachelor's degree, is an Autodesk Revit MEP certified professional and an Autodesk Instructor.

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Fabrication - Modularization

Modular construction is a process in which buildings/parts are constructed off-site, under controlled plant conditions, using the same materials and designing to the same codes and standards as conventionally built facilities.
https://www.modular.org/

Articles
https://www.mckinsey.com/industries/oil-and-gas/our-insights/saving-time-and-money-on-major-projects

https://www.bechtel.com/services/modularization/

Victaulic VDC Services
- VDC services include, but are not limited to:

    o Customized drawing packages
    o Content development & support
    o Estimating analysis
    o Modularity review
    o Fabrication facility review
    o Revit and BIM Training

    If you want to learn more about our service check out our website:
    https://www.victaulic.com/virtual-design-construction/

Modeling

There are many ways to model, convert a model in Revit. You can use Revit families or Fabrication Parts to create your model.

Fabrication Parts

Autodesk Fabrication – CADmep is an AutoCAD arx based software developed in the late 1980's by MAP out of Europe. It uses the same database through its suite of products (FABmep, ESTmep, & CAMduct).

There are three basic elements to fabrication.
- Configuration/Database – contains connector, specification, & pricing information
- ITM files – Based off specific patterns developed by Autodesk (One pattern for all elbows, one pattern for all valves)
- Services – Define what products are placed when routing a specific system based on pipe size and material.

https://knowledge.autodesk.com/support/revit-products/learn-explore/caas/CloudHelp/cloudhelp/2017/ENU/Revit-Model/files/GUID-692C4E68-6A9D-4628-8E73-0C327E5677D4-htm.html#targetText=To%20open%20the%20Fabrication%20Settings,drop%2Ddown%20of%20available%20configurations.

Revit Families

- System families: walls, roofs, pipes, ducts
- Loadable families: a family that can be loaded into a project via the family editor
- In place families: unique elements that you build in function of the project
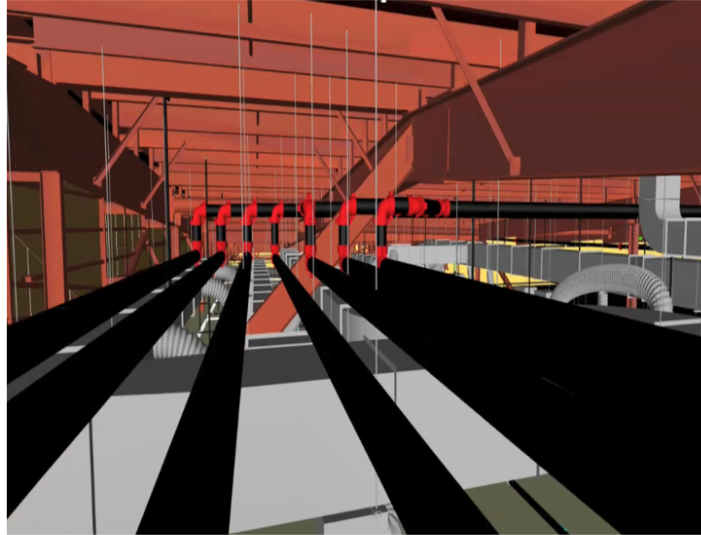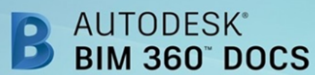
https://knowledge.autodesk.com/support/revit-products/learn-explore/caas/CloudHelp/cloudhelp/2019/ENU/Revit-Model/files/GUID-403FFEAE-BFF6-464D-BAC2-85BF3DAB3BA2-htm.html#targetText=The%203%20kinds%20of%20families,create%20nested%20and%20shared%20families.

Content

There is a lot of content available online. Check if the manufacturer has the products available as Revit families. Or go via one of the many content hosting platforms out there.
Bimobject, Mepcontent, MagiCAD Cloud, Bim&Co, BIMStore, nationalBIMlibrary, Buildingdata,Traceparts, Cadenas, ThorbiQ
And many, many more.

Coordination

Autodesk BIM 360

https://www.autodesk.com/bim-360/platform/bim-collaboration-software-constructability-review/

Assemblies

The Assemblies category of Revit elements supports construction workflows by letting you identify, classify, quantify, and document unique element combinations in the model.

https://knowledge.autodesk.com/support/revit-products/learn-explore/caas/CloudHelp/cloudhelp/2018/ENU/Revit-Model/files/GUID-ED80DAE8-D3CD-419C-A854-9626E69E68A5-htm.html
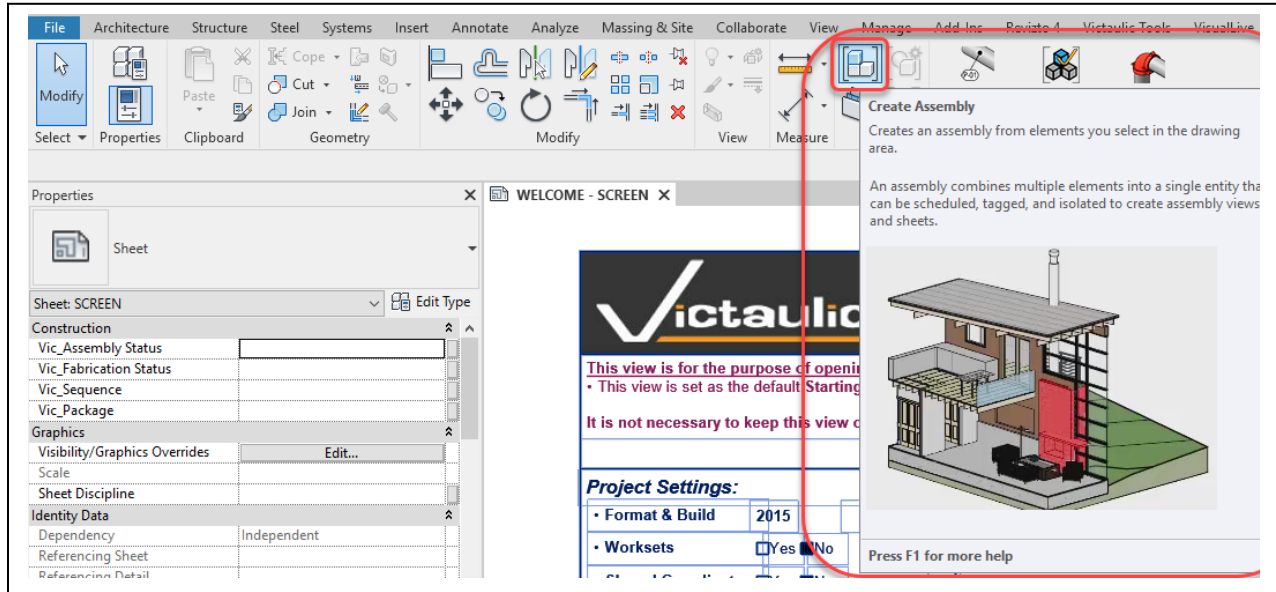
Pipe length optimization

Go Nest
http://www.gonest2d.com/product-pipe-cutting-software.html

Cut Optimizer
https://www.cutoptimizer.com/

Victaulic Tools For Revit
Pipe Optimization Report

Victaulic Tools For Revit

Create Assembly

This tool allows you to select all the families you want to be in your assembly (spool) drawing. There are some key differences between this tool and the native Revit assembly tool. This tool will ensure all nested families are correctly brought into the assembly where the native Revit assembly tool ignores all nested families. The Create Assembly tool will also keep assemblies completely separate from each other. Using the native Revit assembly tool will group assemblies if the parts selected are identical to a previous assembly. Depending on your needs, you can choose to use either Assembly Creation tool.

The Assembly Name window will allow you to define the assembly prefix and sequence number.

With the addition of formulas in the Create Assembly tool, parameters can be inserted as variables to populate the prefix value.

At the bottom of the project browser you will see your newly created assemblies. You will also see these newly created assemblies in the Victaulic Dock – Assembly Manager (See Pg. 14)

Using Continuous Spooling you will be prompted for the last component for each assembly. The components between your previous assembly and your selected element will be automatically added to the new assembly and incrementally numbered.

Field Material can also be defined. With this option checked, the last element in every defined assembly will be considered Field Material and the Vic_Field Material parameter will be set as checked.
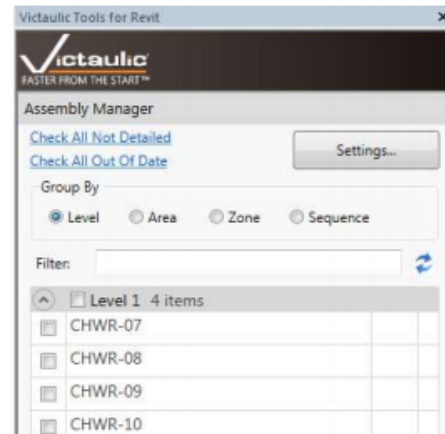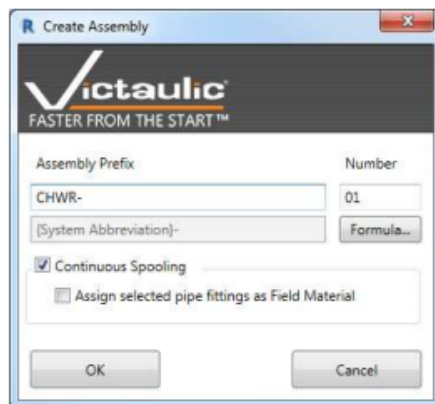
Project management

The Sequence Manager can help a project manager handle milestone dates for all delivery sequences for a project. The user can create and manage an unlimited amount of sequence with customizable dates, assign assemblies to sequences, and print project schedule deliverables.

Use the **(+) Plus** button to add a sequence, name it, assign it a color, and set a Material Onsite Date. Optionally, use the down arrow to expand the dates section and add additional milestone dates to your sequence.
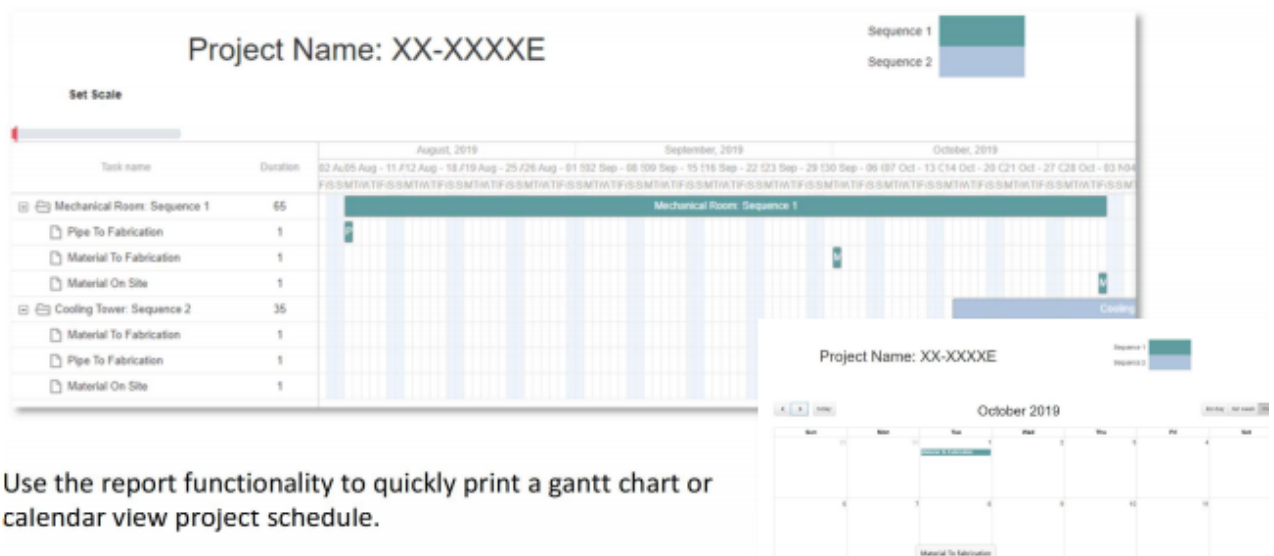
Use the report functionality to quickly print a gantt chart or calendar view project schedule.

Information about our tool
http://www.victaulicsoftware.com/

Check out our Youtube channel:
https://www.youtube.com/playlist?list=PL90FbxIdh1AoX7W7mCutx_i3r6uQe7gEp

Download our VTFR user guide here:
https://www.victaulic.com/assets/uploads/victaulic_tools_for_revit/vtfr_user_guide.pdf

GTP Stratus

STRATUS delivers a model-based work planning experience.
https://www.gtpstratus.com/

Bentley Synchro XR

SYNCHRO is a complete portfolio of integrated software and services for digital construction management.
https://www.bentley.com/en/products/brands/synchro

Oracle Primavera P6

Manage projects of any size with this cloud-based solution for globally prioritizing, planning, managing, and executing projects, programs, and portfolios.

https://www.oracle.com/applications/primavera/products/project-portfolio-management/