AEC Collection
What's New in Revit® 2021

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New Features and Enhancements

Autodesk Revit 2021

Platform

- ✓ PDF and Image Linking
- ✓ Cloud Model Hosting in Europe
- ✓ Improved BIM 360 Project Navigation in Revit Home
- ✓ Customized Revit Workspace
- ✓ Row Striping for Schedules
- ✓ Infrastructure Discipline and Bridge Categories
- ✓ Dynamo 2.5 Installed
- ✓ New Dynamo Revit Nodes
- ✓ Enable View Filters in View
- ✓ Rotate Tags with Components Improvements
- ✓ Voids Cut Family Geometry Type and Instance Parameters
- ✓ Consistent Linestyle Naming
- ✓ Get Autodesk Content

Architecture

- ✓ Generative Design
- ✓ Real-time Realistic Views
- ✓ Slanted Walls
- ✓ Revit to Inventor Linking
- ✓ Sun and Shadow Refinements

Structure

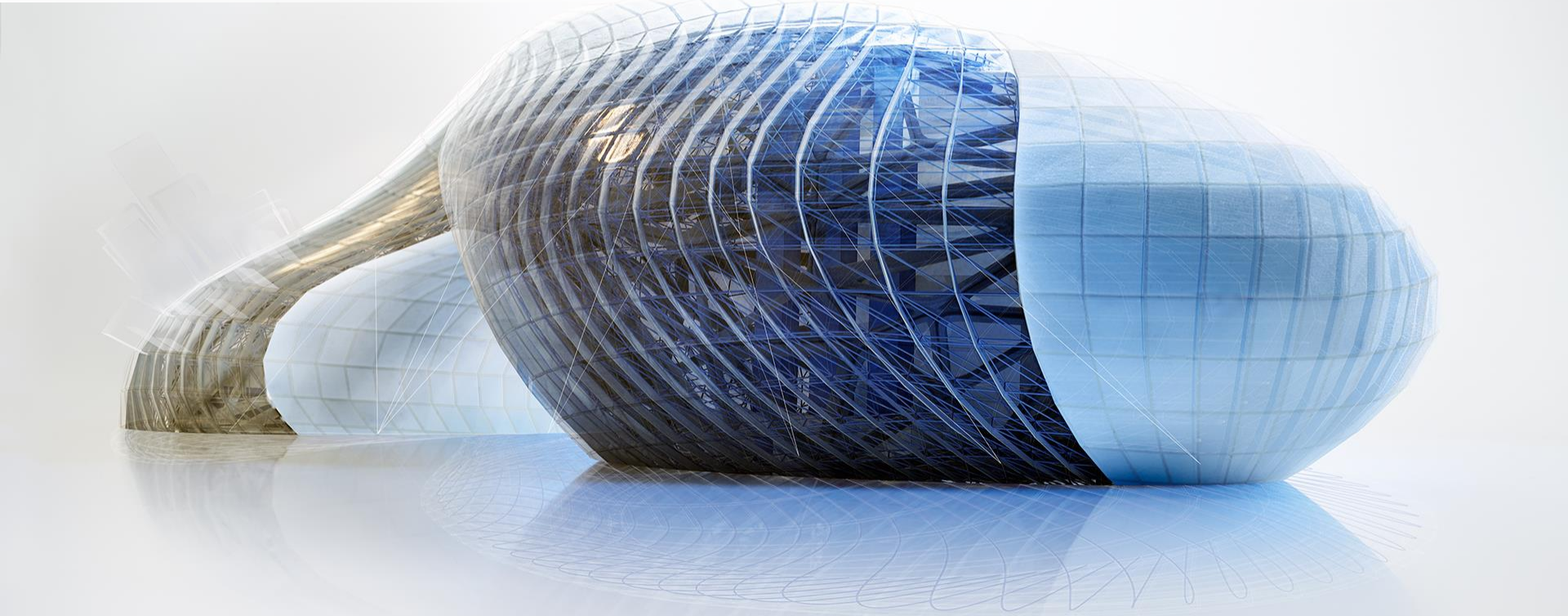
- ✓ Create New Standard 3D Rebar Shapes
- ✓ Couplers for Arc-shaped Rebar
- ✓ End Treatments without Couplers for Rebar
- ✓ 3D Solid Fabric Sheets Visualization
- ✓ Override Hook Lengths by Instance
- ✓ Integrated Precast Automation
- ✓ Integrated Steel Connection Automation Nodes in Dynamo for Revit
- ✓ Integrated Structural Analysis Results Exploration
- ✓ Steel Object Editing Enhancements
- ✓ Create Stiffeners on Beams and Columns
- ✓ Insert Steel Elements in Vertical Views
- ✓ Dimensions Snapping to Steel Plates

MEP

- ✓ Electrical Circuit Naming
- ✓ Single Phase L-N Panelboards
- ✓ Switchboard Circuit Quantity
- ✓ Switchboard Circuit Phase Selection
- ✓ Panel Schedule Nodes Listed Under Sheets in Project Browser
- ✓ MEP Worksharing Enhancements
- ✓ P&ID Modeler on BIM 360 Docs
- ✓ New Pipe Flow Units (and Units Framework)
- ✓ MEP Fabrication Extension Integration
- ✓ MEP Systems Analysis*

*Revit 2021 includes all enhancements released in Revit 2020.1 and 2020.2

Platform



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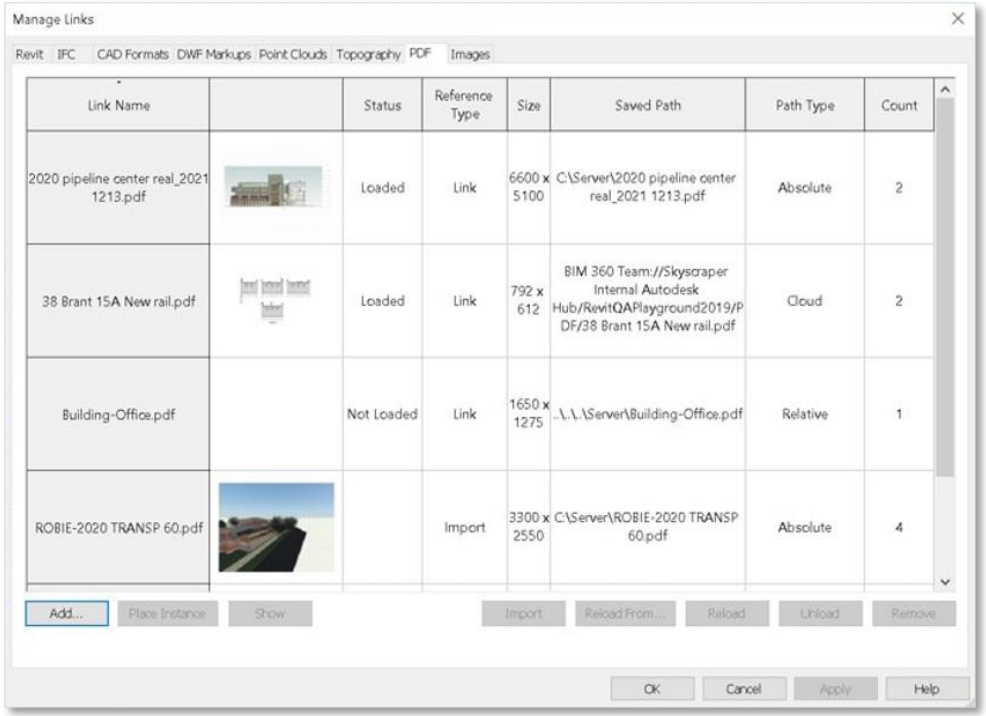
PDF and Image Linking

- Link PDFs and images from local or cloud file locations
- Select multiple rows to reload or remove links
- Convert links to imports as needed
- Use the Show button to find a PDF or image in a project



Utilize and manage PDFs and images much more easily

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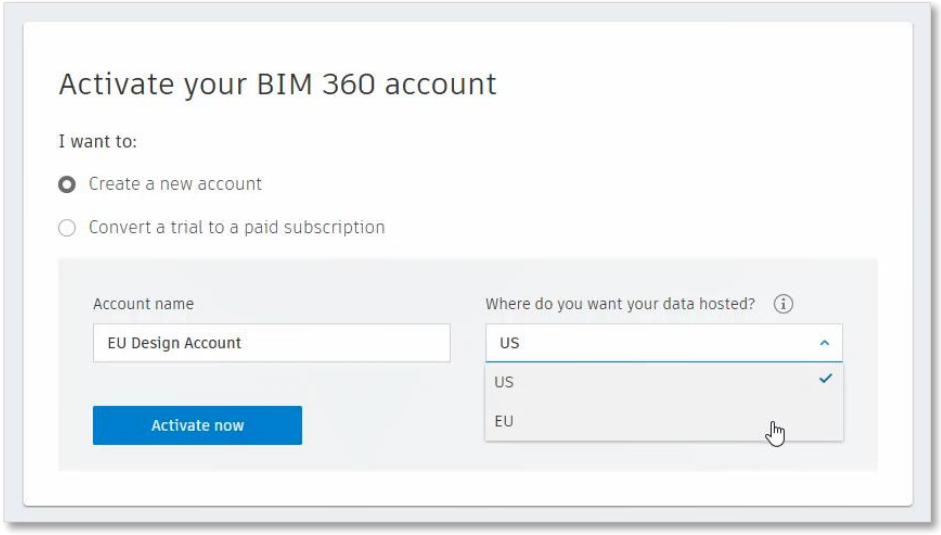
Cloud Model Hosting in Europe

- Store Revit cloud models on Europe data center
- Location determined by location of BIM 360 account



Enjoy more choice in where your cloud-hosted projects are stored

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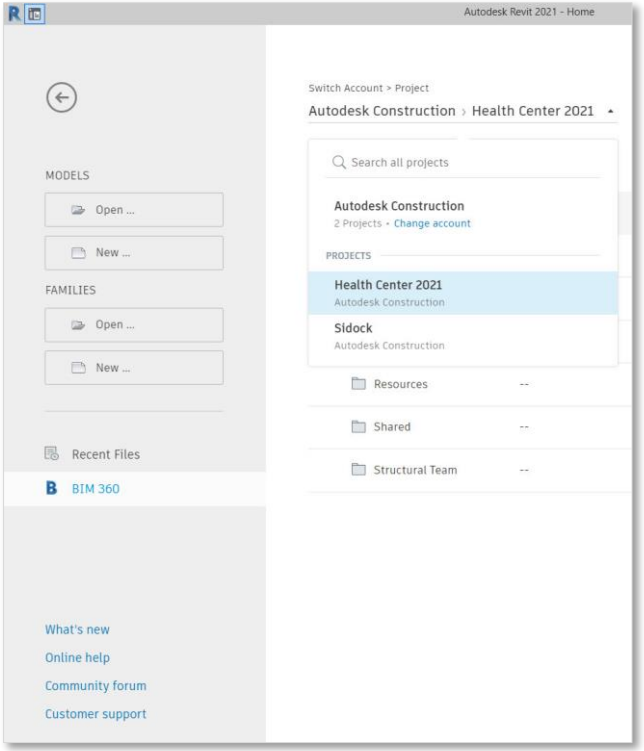
Autodesk Revit 2021

Improved BIM 360 Project Navigation in Revit Home

- Better experience of BIM 360 account and project navigation
  - Differentiate between recent files and cloud-hosted models
  - Search from a long list of projects
  - Direct access to the files saved in BIM 360 with the Go to BIM 360 button
- Easily access the help links



Locate and access cloud-hosted models more easily

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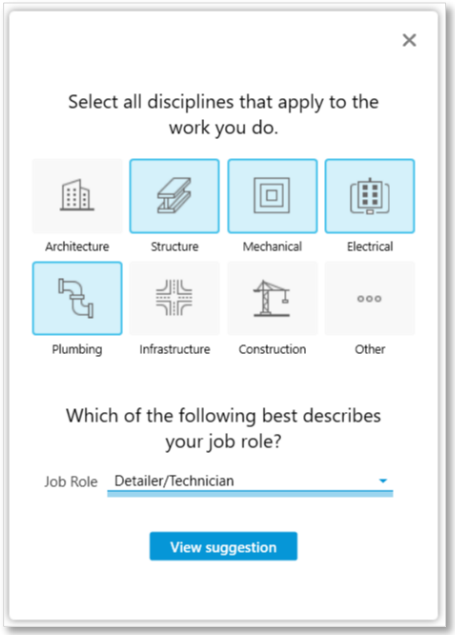
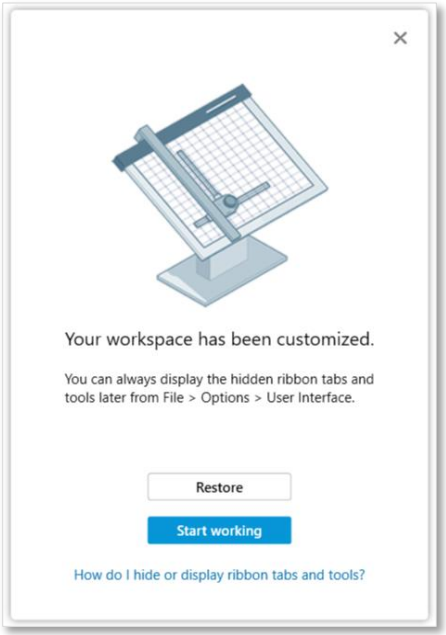
Customized Revit Workspace

- Provides a personalized experience for the way you work, based on your discipline and primary job role
- Proposes a customized UI that hides unnecessary Ribbon tabs
- You can accept or decline the result, and your customized UI is saved





Tailor your Revit interface to better meet your needs

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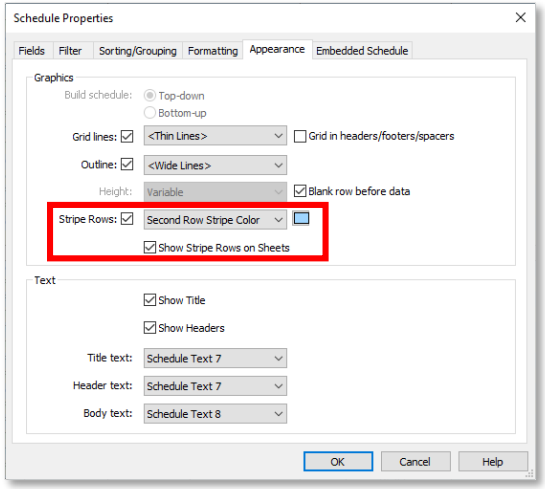
Row Striping for Schedules

- Makes it easier to follow rows across large schedules
- Select custom colors for alternating rows
- Easily scan information on both schedule views and sheets



A	B	C	D	E	F	G	H	I
Building Number	Level	Number	Name	Area	Room Type	Wall Finish	Floor Finish	Ceiling Finish
1	Level 0	1-L0-01	Training Room	53 m²	Office - General	Matt Vinyl Paint	Carpet Tile	Matt Vinyl Paint
1	Level 0	1-L0-02	Training Room	52 m²	Office - General	Matt Vinyl Paint	Carpet Tile	Matt Vinyl Paint
1	Level 0	1-L0-03	Conference Room	26 m²	Office - General	Matt Vinyl Paint	Carpet Tile	Matt Vinyl Paint
1	Level 0	1-L0-04	Food Kiosk	6 m²	Food Preparation	Ceramic Tile	Rubber	Ceiling Tile
1	Level 0	1-L0-05	Circulation	219 m²	Circulation	Fair Faced Blockwork	Terazzo	Exposed Soffit
1	Level 0	1-L0-06	W.C	3 m²	W.C	Ceramic Tile	Ceramic Tile	Ceiling Tile
1	Level 0	1-L0-07	W.C	3 m²	W.C	Ceramic Tile	Ceramic Tile	Ceiling Tile
2	Level 0	2-L0-01	Store	72 m²	Storage Area	Fair Faced Blockwork	Exposed Concrete	Exposed Soffit
2	Level 0	2-L0-02	Store	72 m²	Storage Area	Fair Faced Blockwork	Exposed Concrete	Exposed Soffit
2	Level 0	2-L0-03	Office	21 m²	Office - General	Matt Vinyl Paint	Carpet Tile	Matt Vinyl Paint
2	Level 0	2-L0-04	Shower/Changing	20 m²	W.C	Ceramic Tile	Ceramic Tile	Ceiling Tile
2	Level 0	2-L0-05	Shower/Changing	20 m²	W.C	Ceramic Tile	Ceramic Tile	Ceiling Tile
2	Level 0	2-L0-06	Rest Area	40 m²	Staff Rest Area	Matt Vinyl Paint	Composite Timber	Ceiling Tile
2	Level 0	2-L0-07	W.C	6 m²	W.C	Ceramic Tile	Ceramic Tile	Ceiling Tile
2	Level 0	2-L0-08	W.C	6 m²	W.C	Ceramic Tile	Ceramic Tile	Ceiling Tile
2	Level 0	2-L0-09	Circulation	67 m²	Circulation	Fair Faced Blockwork	Terazzo	Exposed Soffit
3	Level 0	3-L0-01	Ticket Machines	10 m²	Circulation	Fair Faced Blockwork	Terazzo	Exposed Soffit
3	Level 0	3-L0-02	Ticket Office	17 m²	Office - General	Matt Vinyl Paint	Carpet Tile	Matt Vinyl Paint
3	Level 0	3-L0-03	Station Office	15 m²	Office - General	Matt Vinyl Paint	Carpet Tile	Matt Vinyl Paint
3	Level 0	3-L0-04	Station Foyer	315 m²	Circulation	Fair Faced Blockwork	Terazzo	Exposed Soffit

Improve the readability of large schedules

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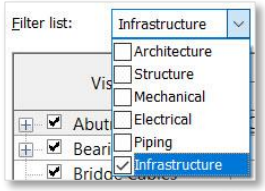
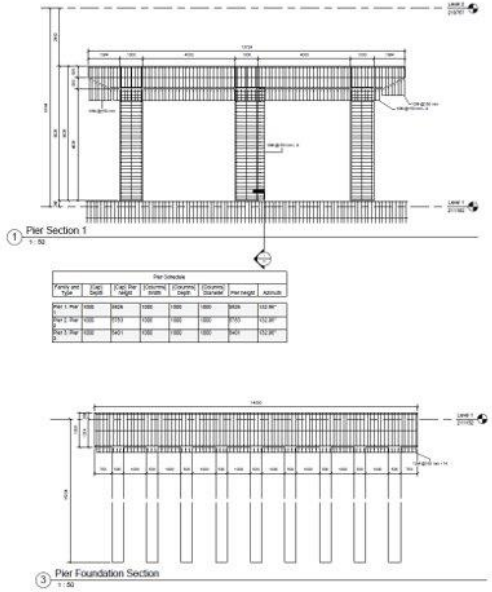
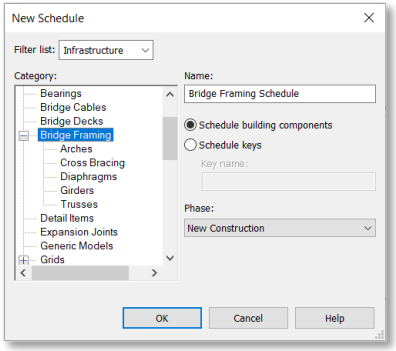
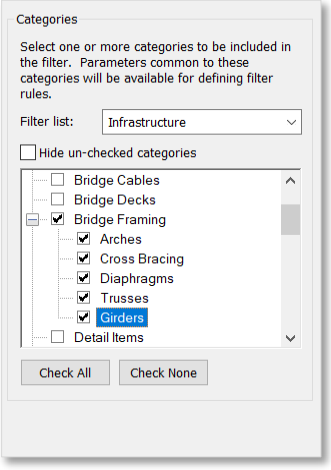
Infrastructure Discipline and Bridge Categories

- New Infrastructure discipline
- New categories for bridges:
  - 26 for model elements
  - 20 for annotation elements
- These categories support:
  - Visibility/graphics overrides
  - Object styles
  - Tags and schedules
- US Survey Foot unit added









Leverage new features supporting bridge design workflows

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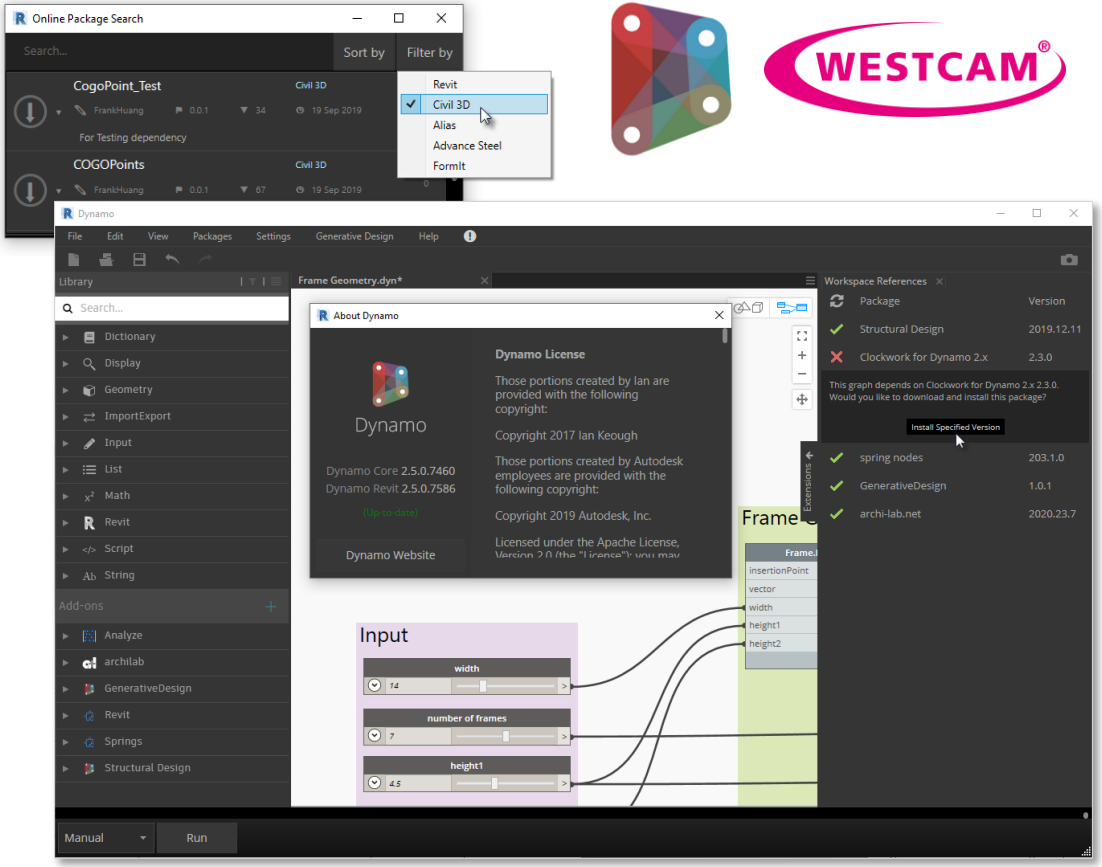
Dynamo 2.5 Installed

- Latest version of Dynamo now ships with Revit; no need to maintain multiple versions
- Automatically finds required packages
- Filters for external application dependencies
- Offers significant improvements to performance and memory management



The latest Dynamo capabilities are now installed with Revit

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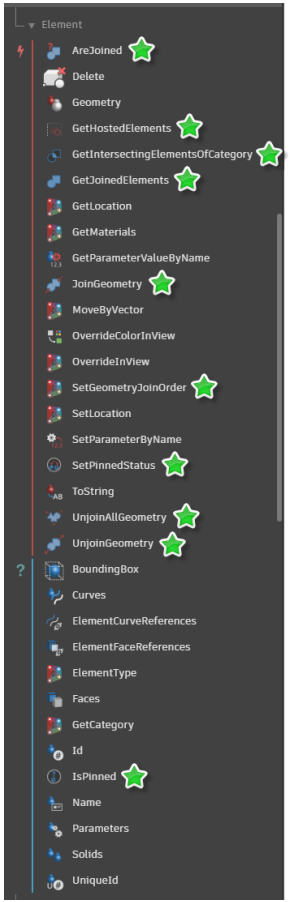
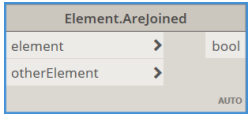
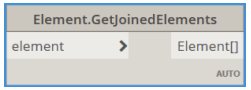
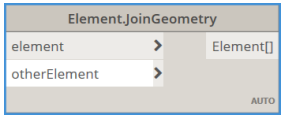
New Dynamo Revit Nodes

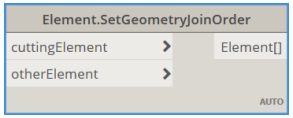
- 10 commonly-requested nodes have been added
- Revit geometry joining functions
- Set element pin/unpin and get status if element is pinned
- Get hosted elements

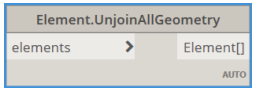


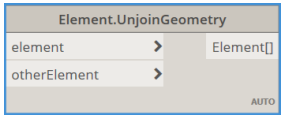


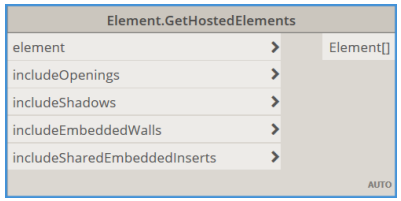


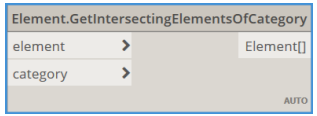


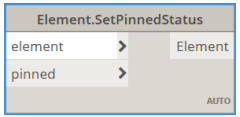


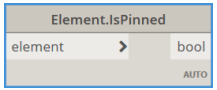












Take advantage of improved capabilities for task automation

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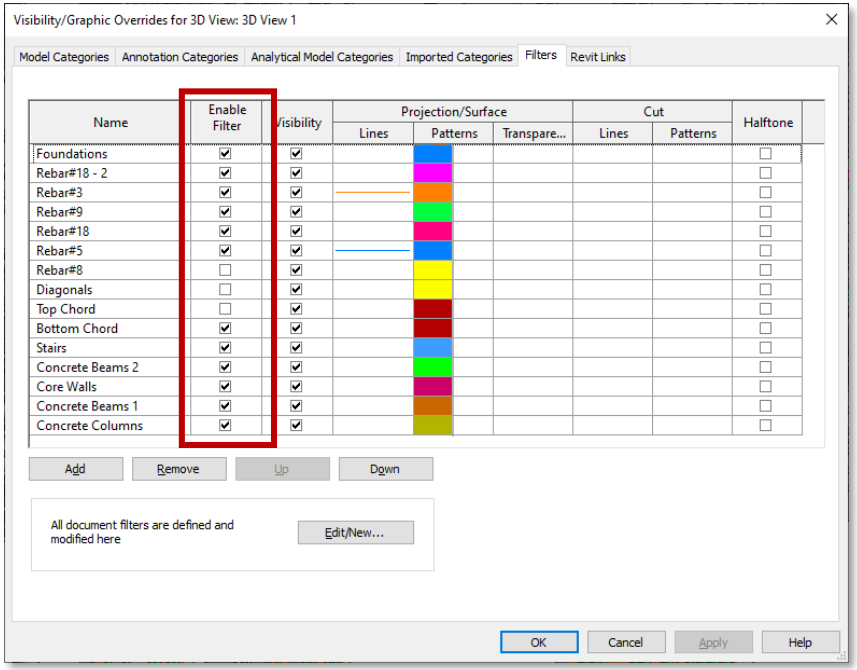
Enable View Filters in View

- New column "Enable in View" added to the Filters tab of the Visibility Graphics dialog
- Quickly disable a view filter without having to remove the filter from the view
- Continue to view the elements that fit the criteria of the filter
- Enabled by default when a new view filter is applied to the view



Easily toggle view filter graphic overrides

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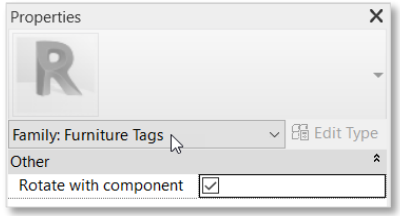
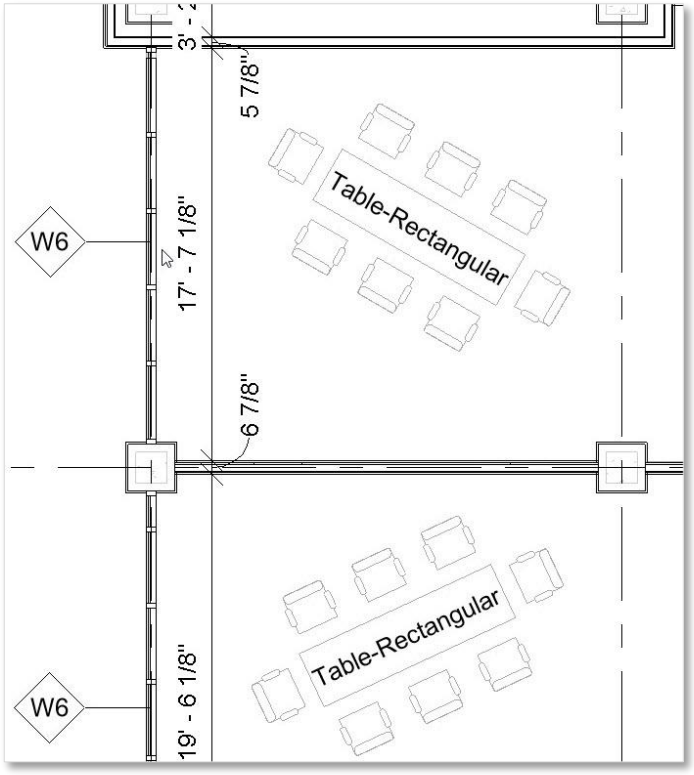
Rotate Tags with Components Improvements

- Ability to control tag rotation behavior
- Edit the tag in the Family editor
  - Enable the *Rotate with component* parameter in the Properties Palette
- Tag rotation matches the new component orientation





Create more accurate and readable annotations

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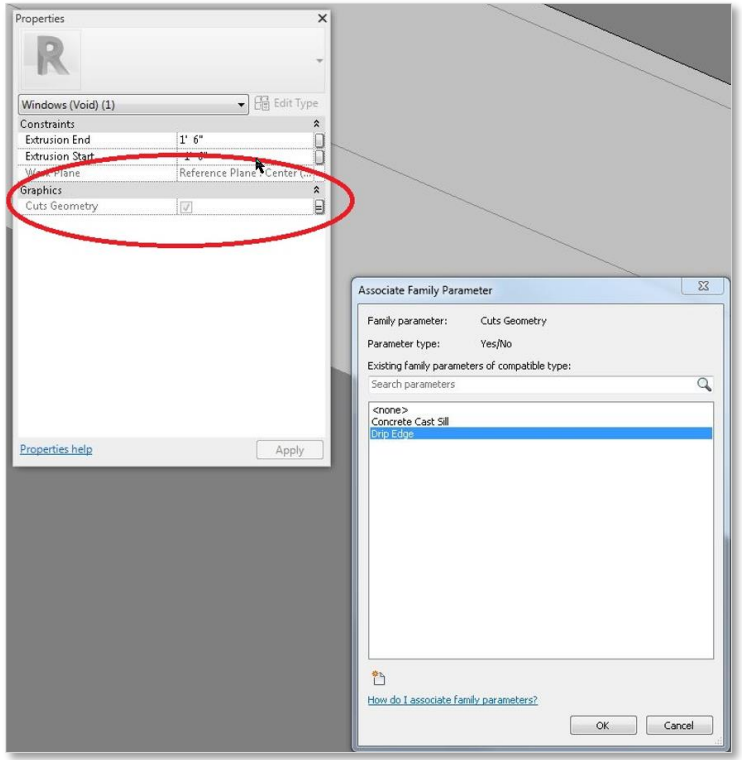
Voids Cut Family Geometry Type and Instance Parameters

- Voids can now be associated to family type and instance parameters
- Customers no longer need to create two families to achieve what can be done in one
- Voids can be controlled to cut some family types, but not others



Use parameters to drive smarter void behaviors in families

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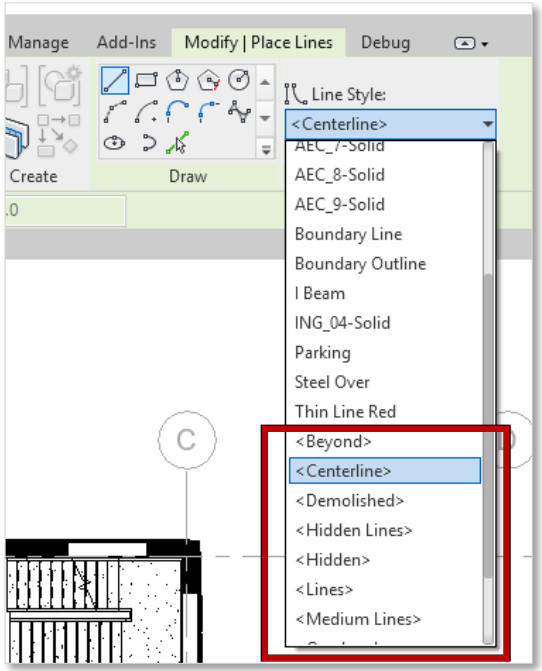
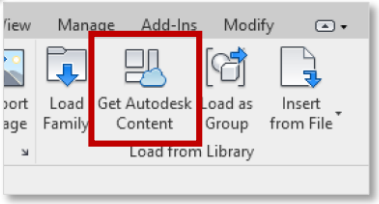
Other Additions and Improvements

- Consistent Linestyle Naming
  - “Hard-coded” Revit linestyles are now consistently bracketed and appear at the bottom of the list
- Get Autodesk Content
- Sun and Shadow Refinements
  - Improved the accuracy of shadows in polar locations
  - Sunrise and sunset times now updated with project location





Revit 2021 features many small user productivity enhancements

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Architecture

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Architecture

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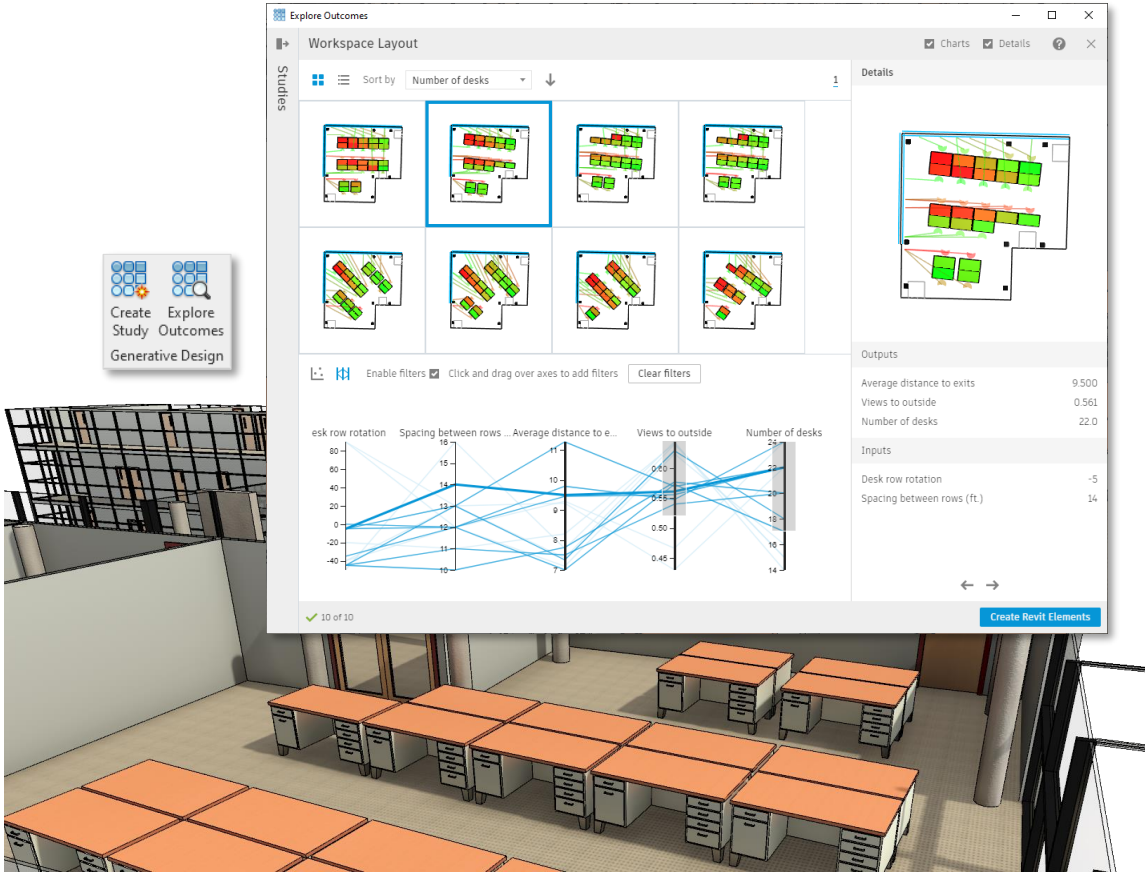
Generative Design

- Create and explore generative studies directly in Revit
  - Generate design options
  - Filter and rank results
  - Explore outcomes
  - Evaluate goals
  - Create Revit elements
- Sample studies included



Quickly evaluate design options and save time with automation

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Architecture

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Real-time Realistic Views

- More than 10x improvement in performance – much faster and smoother view navigation
- More convincing material and lighting appearance
- Automatic lighting exposure control
- Replaces previous realistic mode

Work directly in better, easier, and faster realistic views

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Architecture

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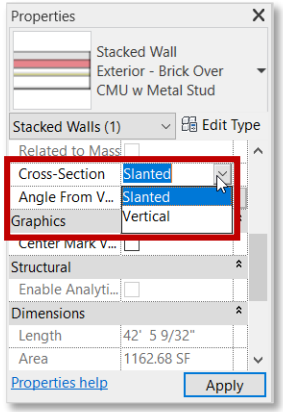
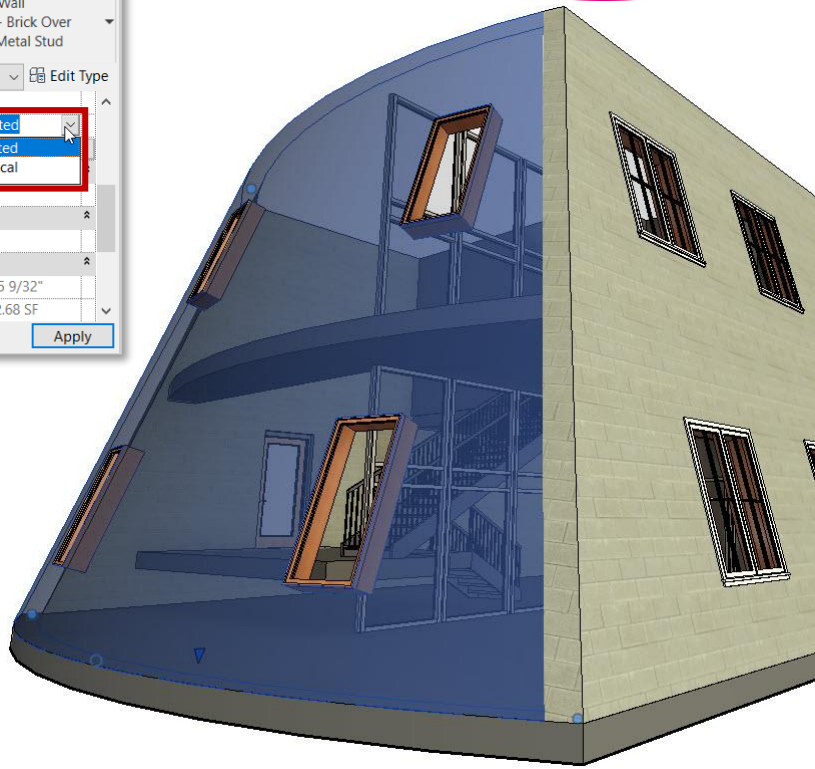
Slanted Walls

- Apply a slant or tilt to walls
  - During or after wall creation
  - Works for walls curved in plan
  - Adjustable with grips
- Cross-Section and Angle from Vertical instance parameters
  - Vertical or Slanted
  - +90 to -90 degrees
- Hosted elements may be vertical or slanted (e.g. windows, doors)





Easily model slanted architectural, structural, and curtain walls.

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Architecture

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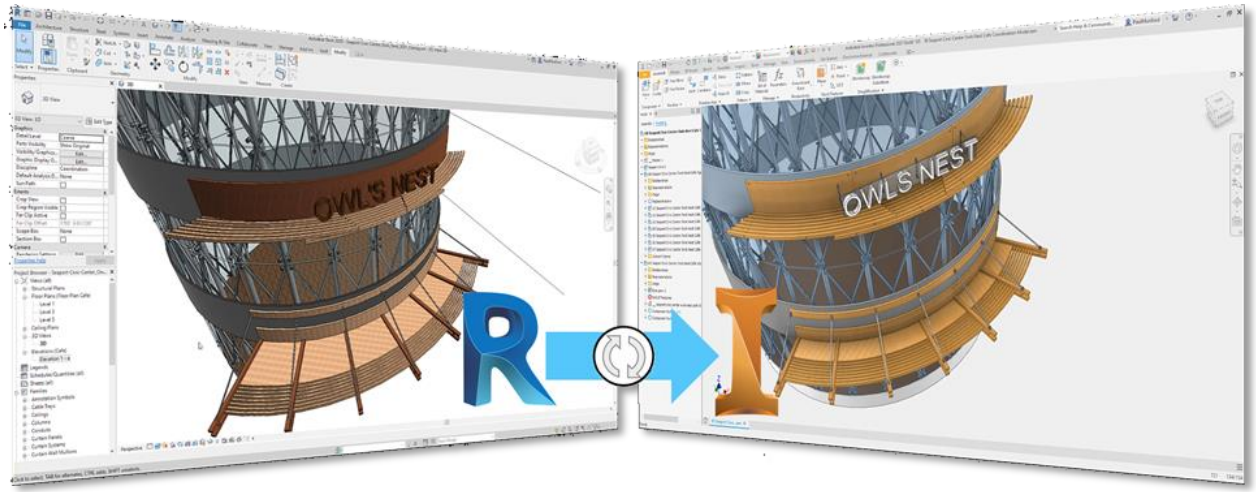
Revit to Inventor Linking

- Link Revit 3D data into Inventor assemblies with AnyCAD
- When the referenced model is updated in Revit, Inventor users receive a notification
- Inventor components with dependencies also update



Better support for design-to-fabrication workflows

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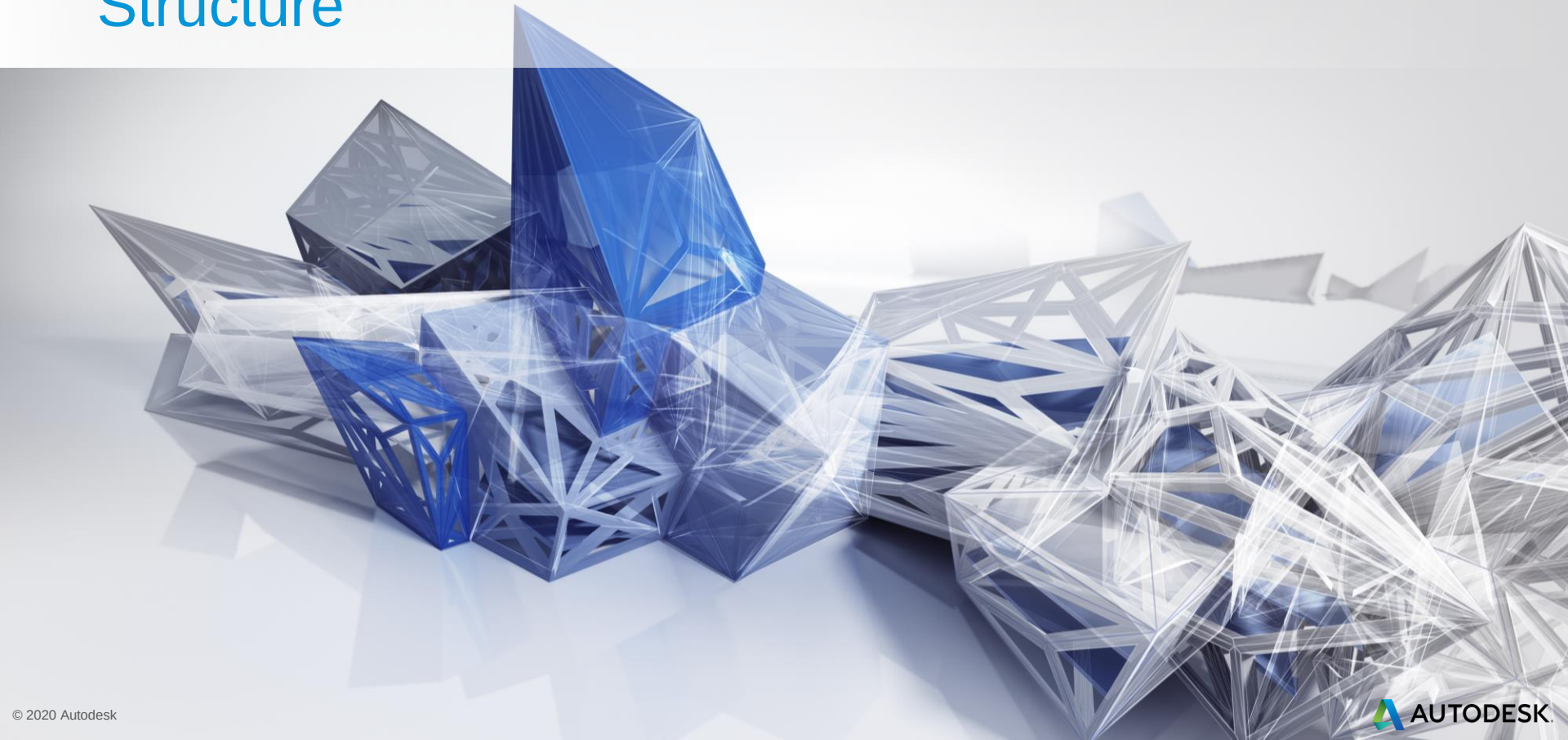
Structure



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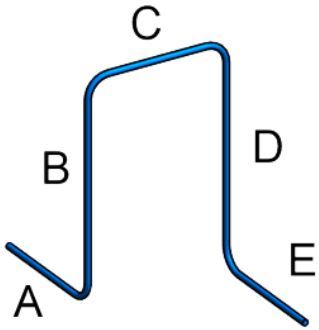
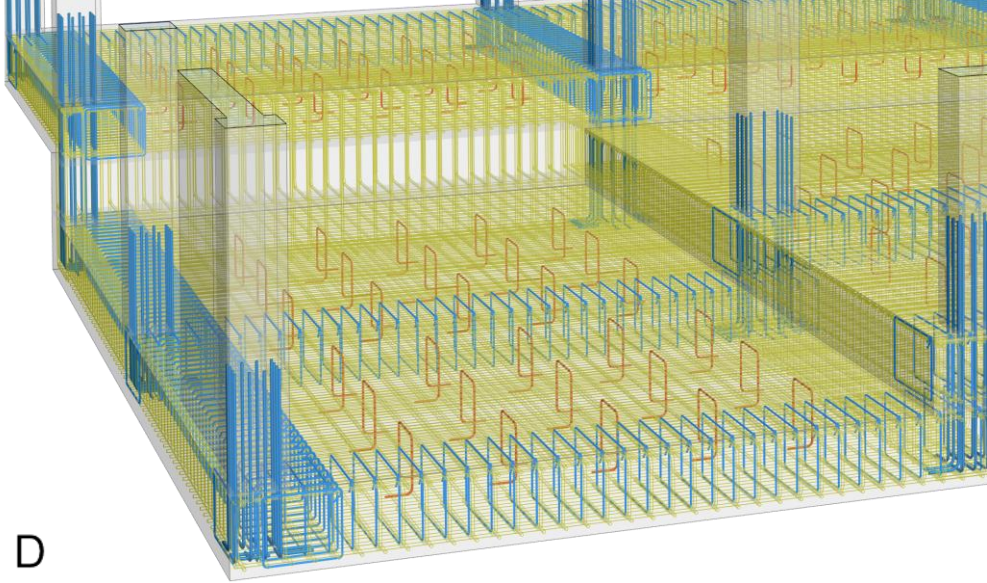
Structure

Autodesk Revit 2021

Create New Standard 3D Rebar Shapes

- Enable shape codes completeness
- Extract bending instructions
- Full fabrication instructions





Rebar Schedule

Rebar Number	Type	Shape	Bar Length	Quantity By Rebar Set	Total Bar Length	A	B	C	D	E	Shape Image
62	16M	28	2.28 m	5	11.40 m	400 mm	540 mm	560 mm	540 mm	400 mm	
63	13M	28	1.84 m	9	16.56 m	200 mm	520 mm	530 mm	520 mm	200 mm	
64	13M	28	2.19 m	0	48.18 m	120 mm	660 mm	600 mm	660 mm	120 mm	

Introduce new, intelligent 3D rebar shapes

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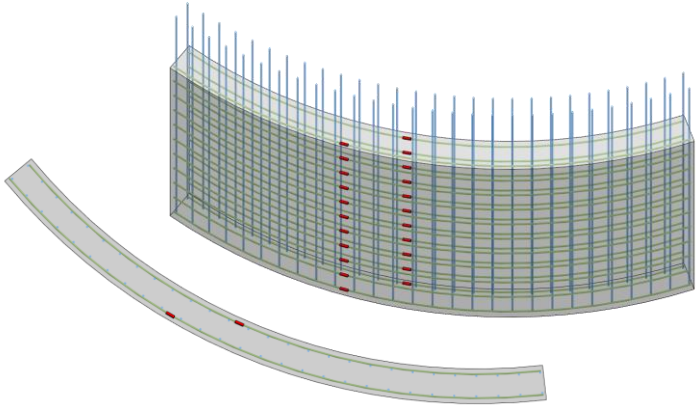
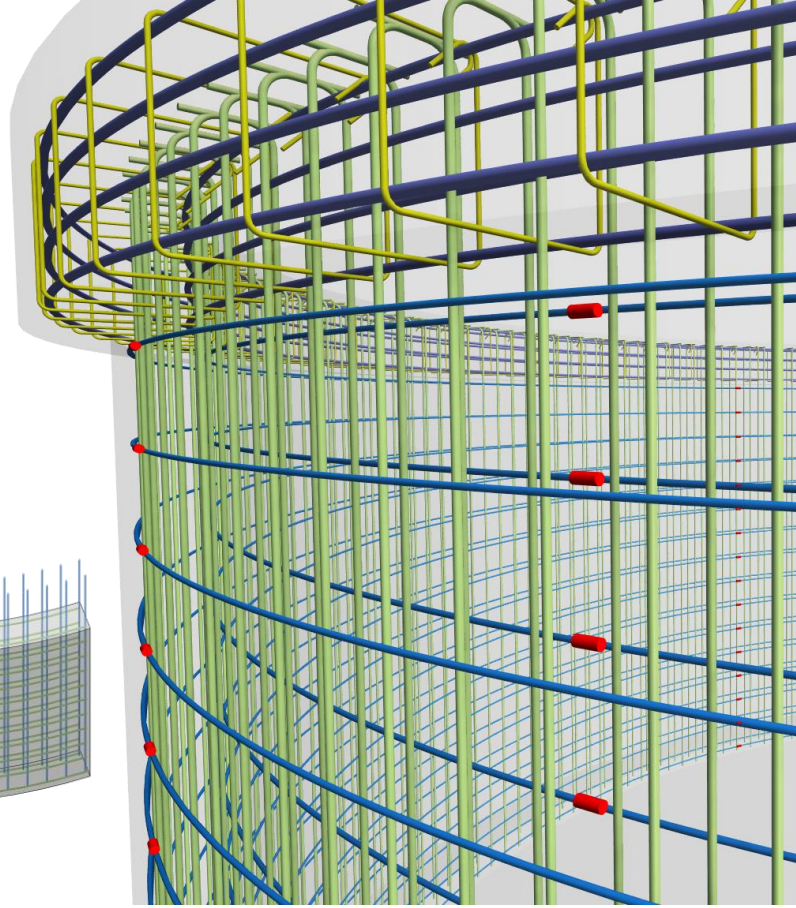
Autodesk Revit 2021

Couplers for Arc-shaped Rebar

- High fidelity of rebar modeling for fabrication
- Greater support of circular structures





Model arc-shaped reinforcement at a higher level of detail

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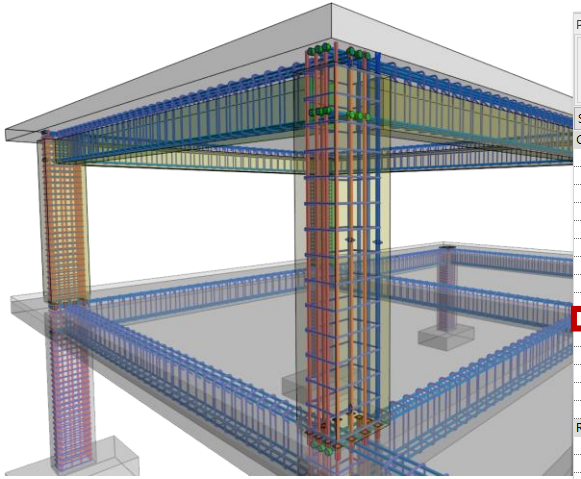
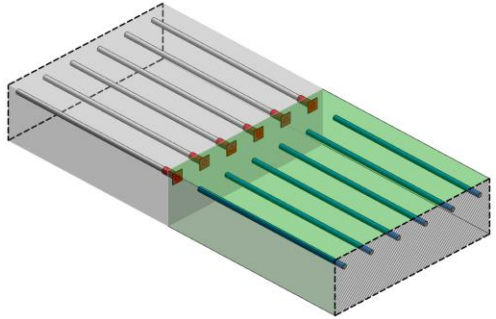
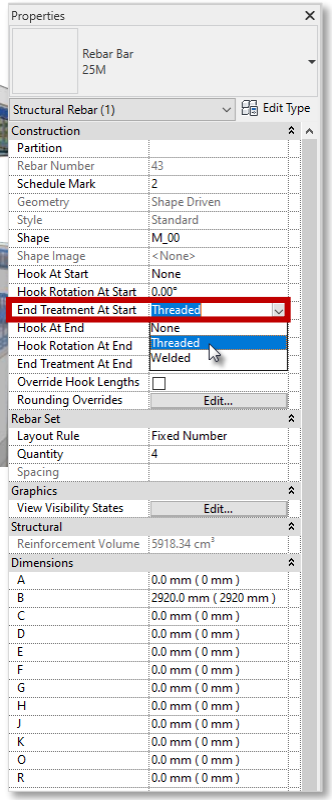
End Treatments without Couplers for Rebar

- Set up end treatment parameters
  - End Treatment At Start and End
  - Treated and Welded
- High fidelity rebar modeling for fabrication







Easily model reinforcement end treatments

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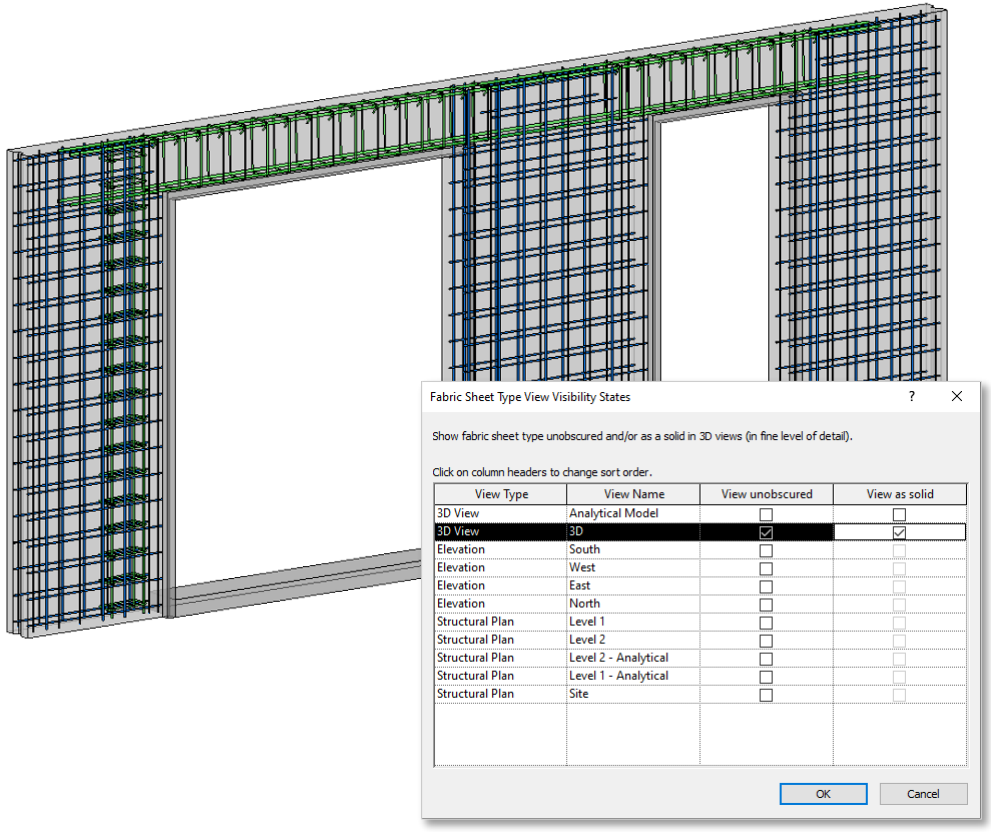
3D Solid Fabric Sheets Visualization

- Solid/unobscured representation of wire fabrics in 3D views
- Clash check for all reinforcement in 3D views



Improve visualization and coordination of reinforcement

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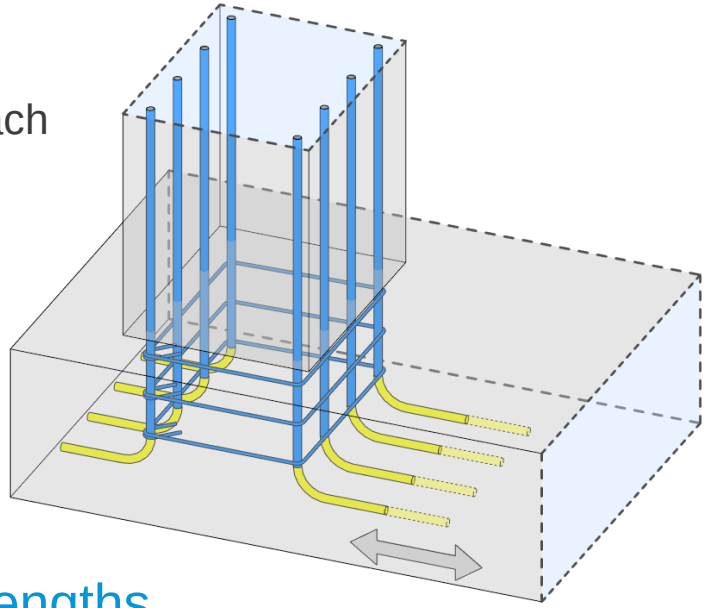
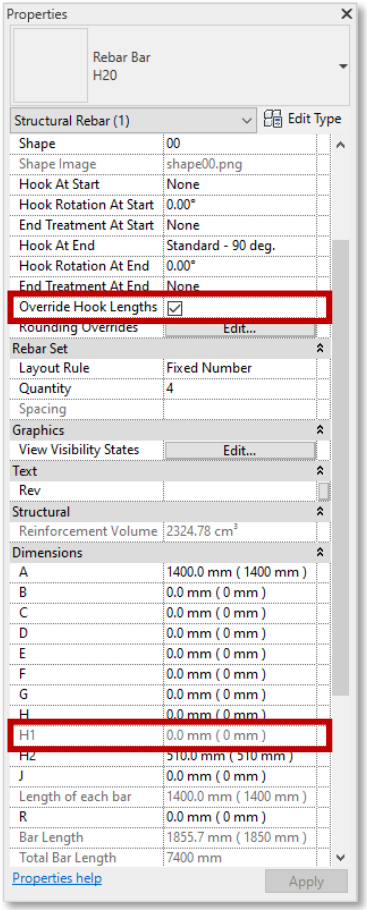
Override Hook Lengths by Instance

- Faster adjustment to accommodate design intent
- Specify the hook lengths for each rebar in the project
- Full fabrication instructions





Easily customize rebar hook lengths

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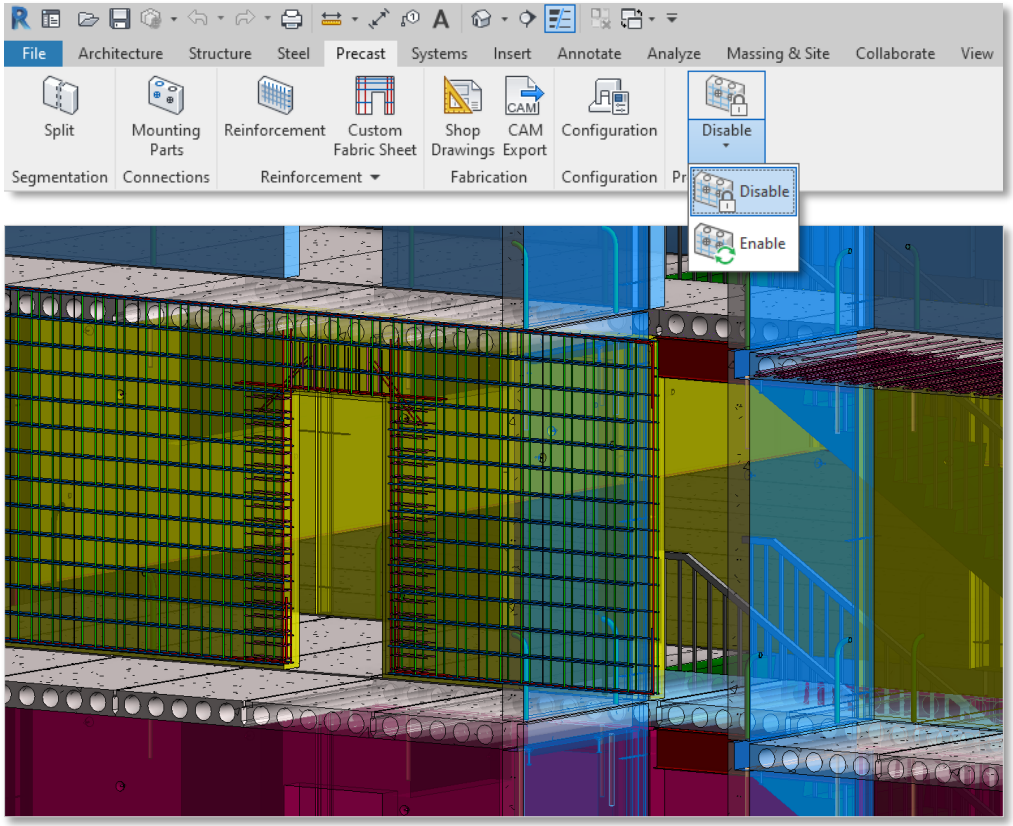
Integrated Precast Automation

- Fully integrated in Revit
- Localized to all Revit languages
- Imperial units are supported
- Simplified deployment
- Control modeling overrides for precast assemblies



Powerful precast capabilities are now integrated into Revit

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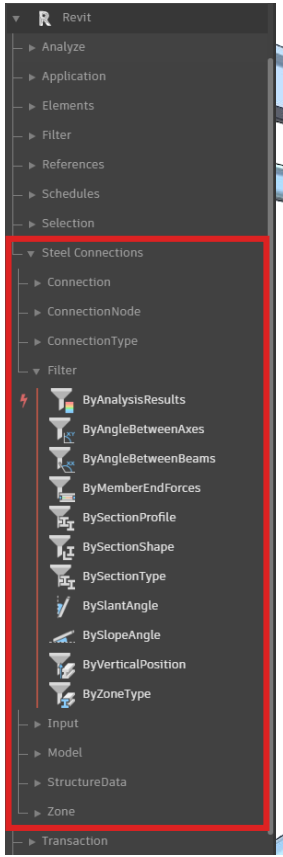
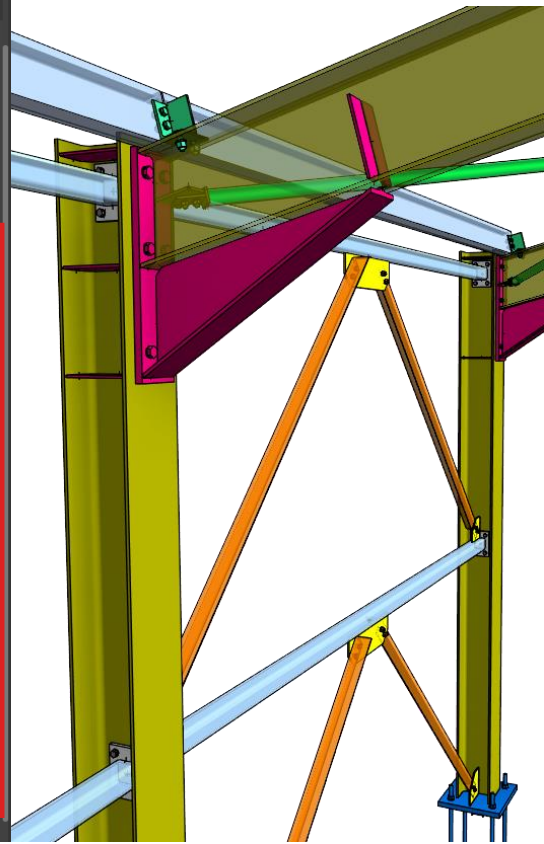
Integrated Steel Connection Automation Nodes in Dynamo for Revit

- Nodes available in Dynamo for Revit
- Thumbnail pictures for all nodes
- Sample scripts available





Dynamo nodes for steel connections are now installed with Revit

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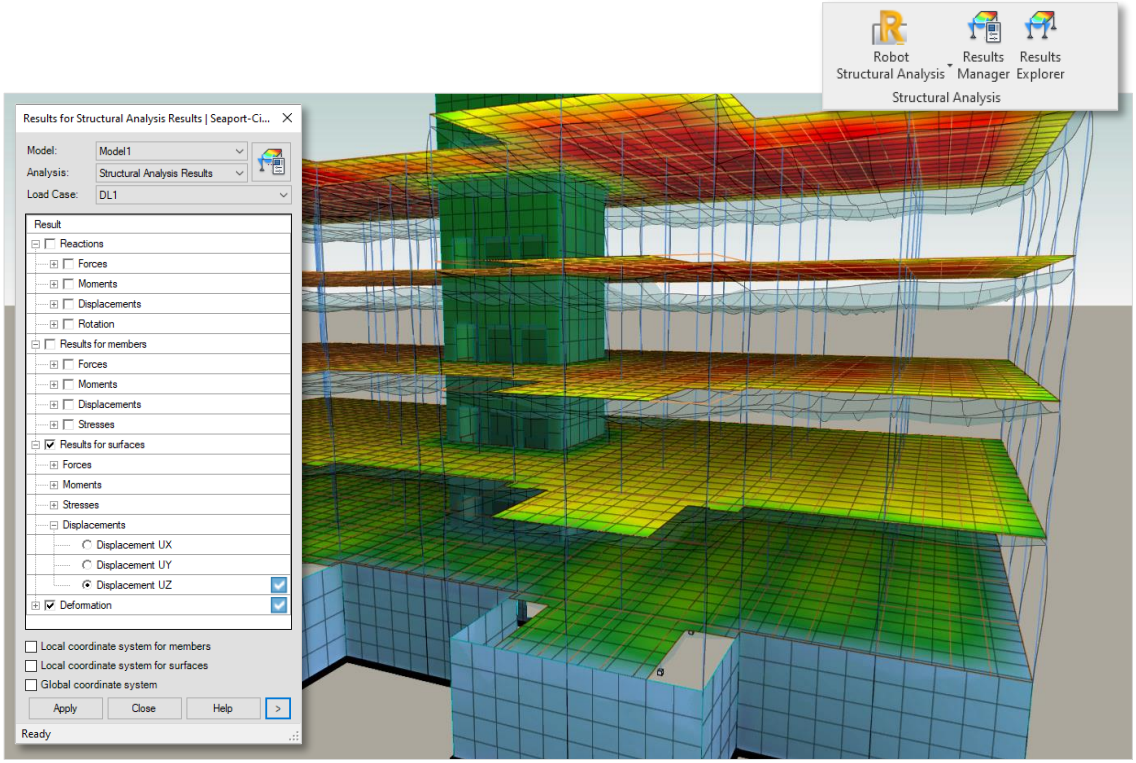
Integrated Structural Analysis Results Exploration

- Results Manager and Results Exploration tools are installed with Revit
- Manage and view analysis results directly with Revit
- Simplified deployment



Structural analysis visualization tools are now integrated into Revit

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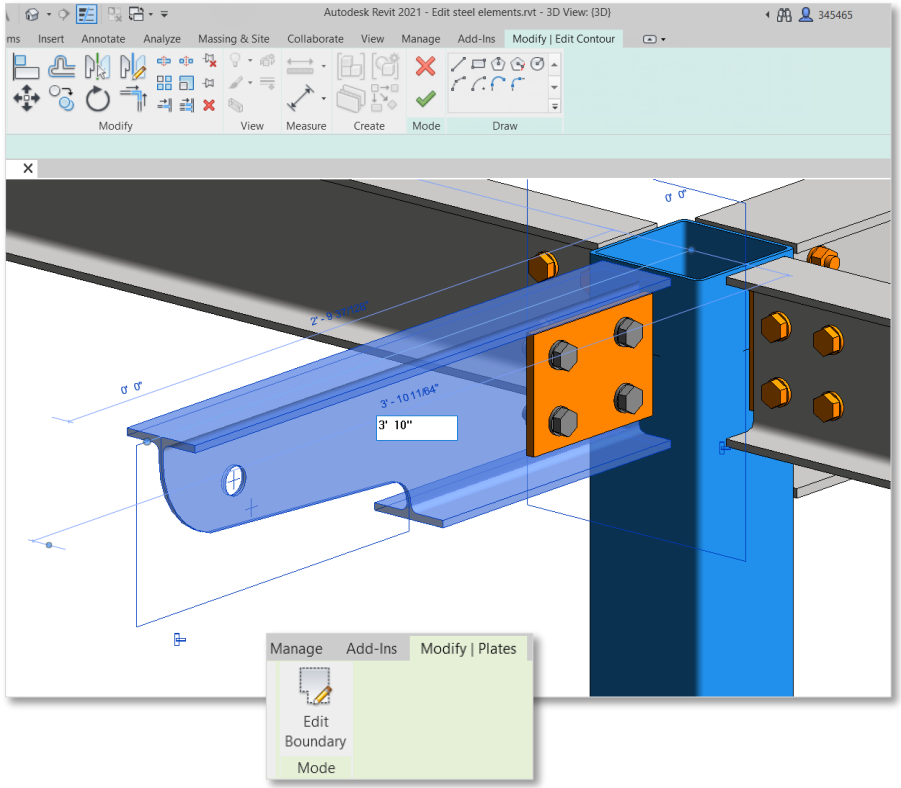
Steel Object Editing Enhancements

- Edit Boundary or Edit Pattern button
- Editable steel objects:
  - Steel plates
  - Contour cuts on beams / plates
  - Bolts / anchors / shear stud patterns
- Use the editing tools to:
  - Adjust the sketch
  - Stretch a plate
  - Specify the circular opening diameter



Easily create and modify steel component shapes

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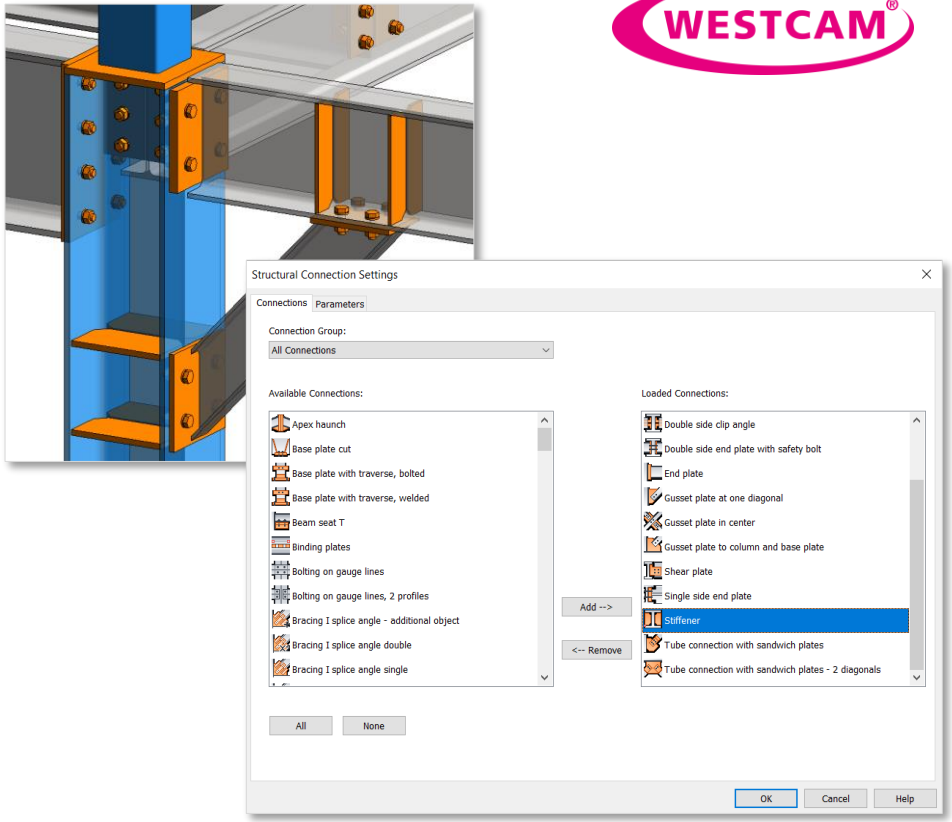
Create Stiffeners on Beams and Columns

- New dedicated tool (appears alongside other steel connections)
- Family type and instance parameters
  - Duplicate with different configurations (e.g. one or two stiffeners, with or without chamfers)
- Specific snap point for easier selection
- Can be moved, aligned, or copied along the beam or to different beams



Create and modify stiffeners with dedicated features

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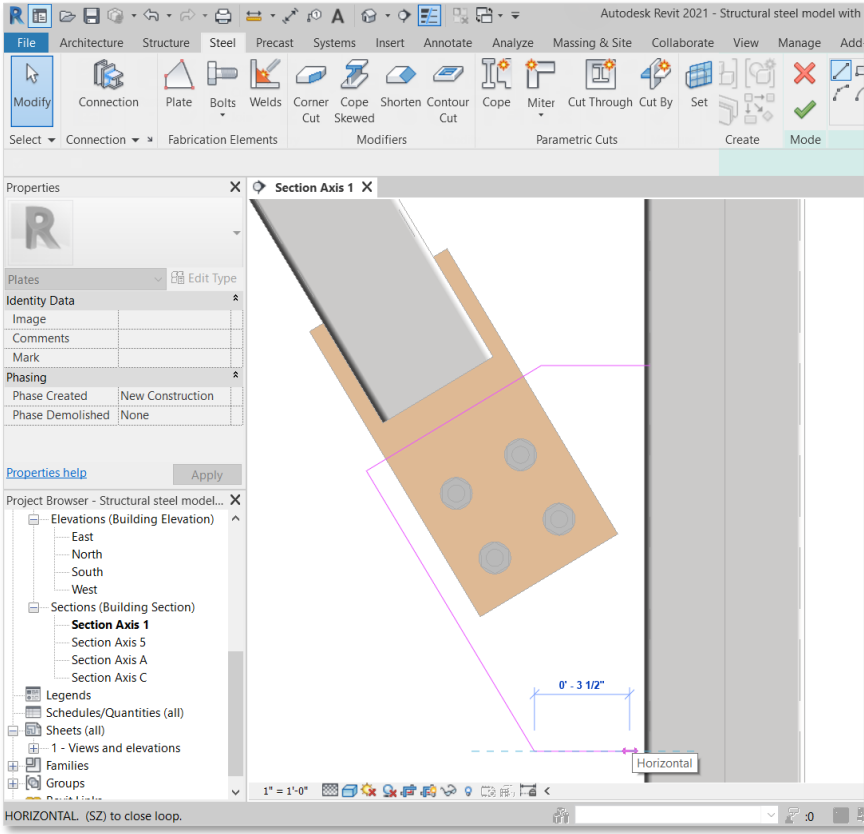
Insert Steel Elements in Vertical Views

- Model steel components in 2D and 3D views, such as sections and elevations
- Steel elements include:
  - Plates
  - Contour cuts on beams and plates
  - Bolts, anchors, shear studs, and holes



Model steel components in any 2D or 3D view

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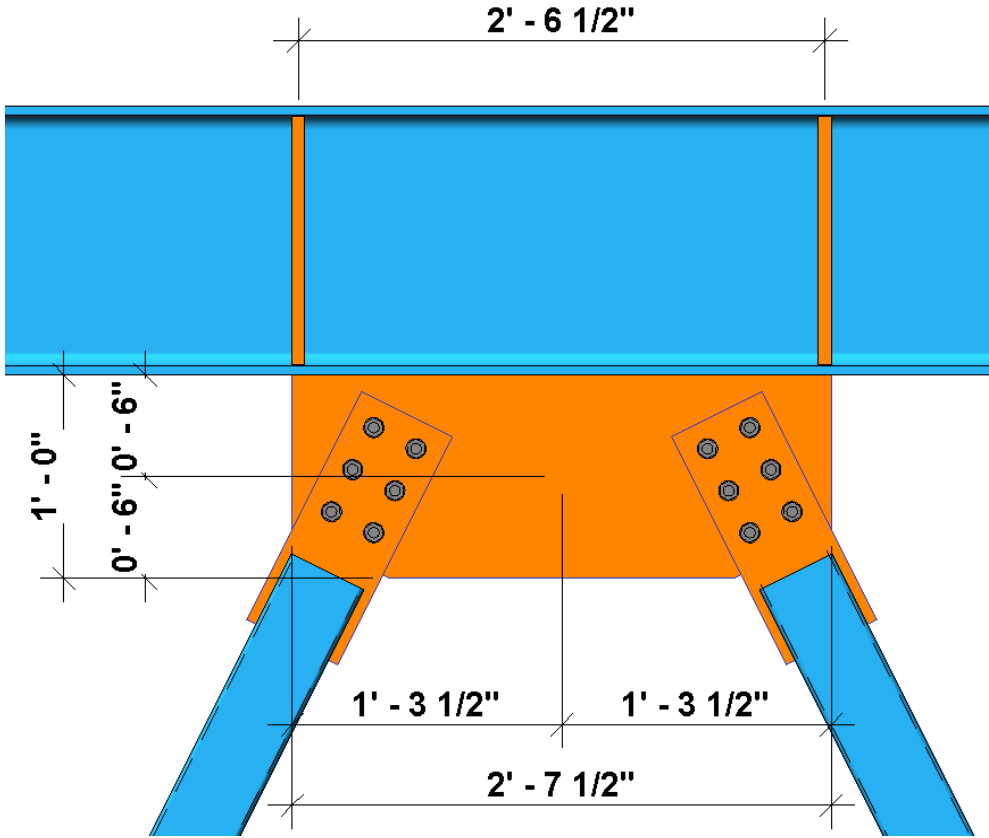
Dimensions Snapping to Steel Plates

- Dimension to the centerline in a front view
- Dimension to the midpoint in a side view



Create better documentation with more dimensioning options

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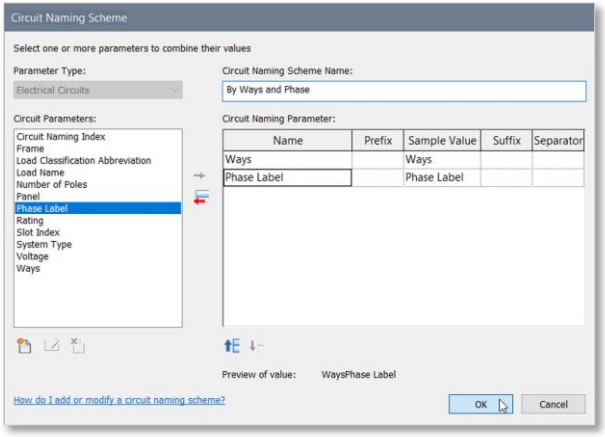
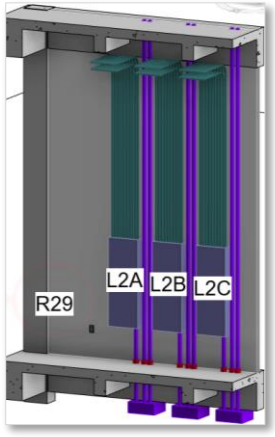
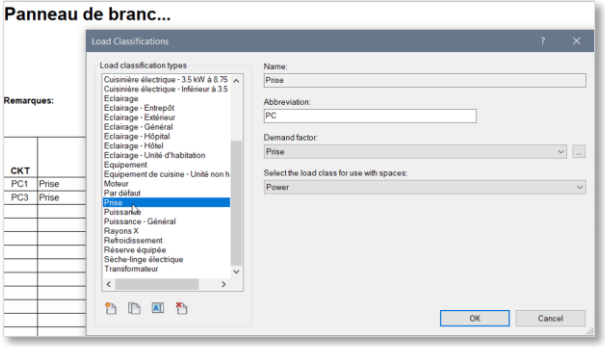
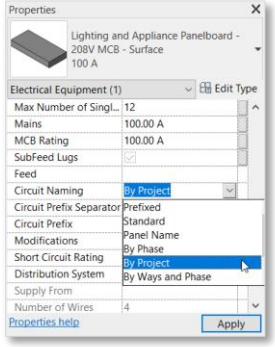
Electrical Circuit Naming

- Circuit naming schemes enabled in electrical settings
- Circuit identifier in panel schedules
- Circuit identifier on wire and device tags
- French and UK templates are preloaded with 'By Project' default settings









Better flexibility with circuit naming schemes

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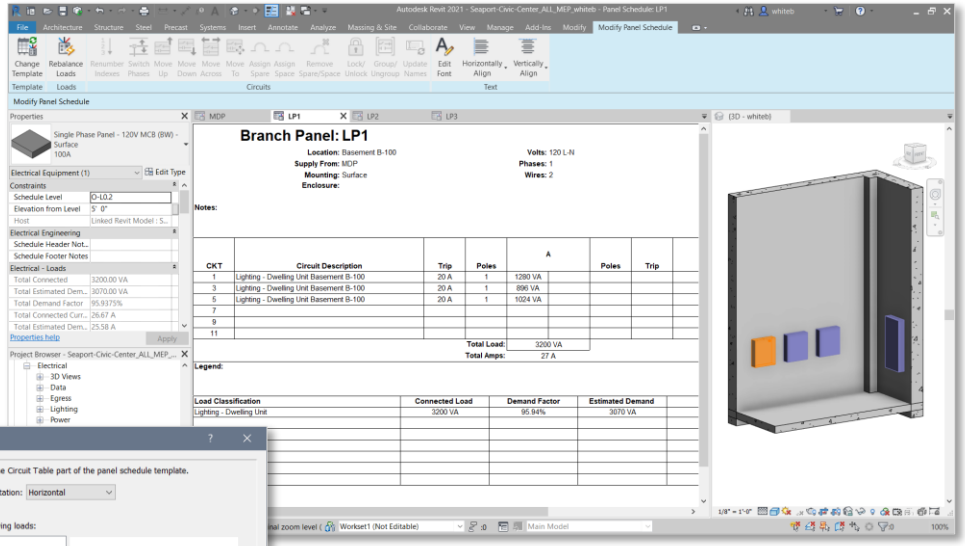
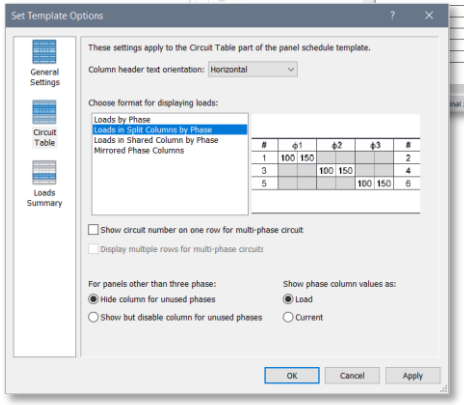
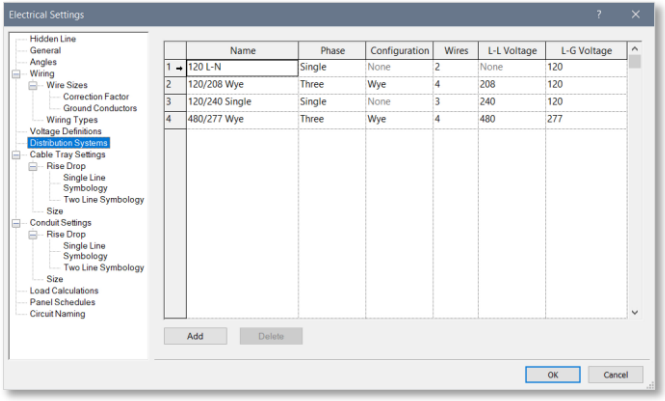
Single Phase L-N Panelboards

- Added single phase L-N panelboards
- Panel schedules now hide columns for unused phases
- Distribution systems and panels checked for compatibility (warning if mismatch)







Support single phase L-N panels in your projects

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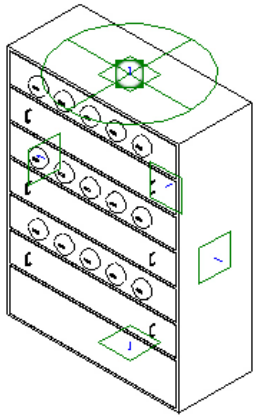
Switchboard Circuit Quantity

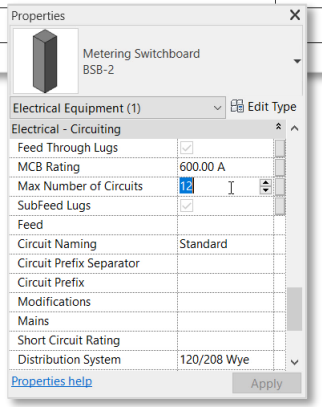
- The number of rows in panel schedules for switchboards now reflect the quantity of circuits, not the number of connected poles
- Updated parameter name “Max Number of Circuits”



Switchboard: BSB-2

Location: Basement B-100 **Volts:** 120/208 Wye **A.I.C. Rating:**
Supply From: **Phases:** 3 **Mains Type:**
Mounting: **Wires:** 4 **Mains Rating:**
Enclosure: **MCB Rating:** 600 A

Circuit Description	# of Poles	Frame Size	Trip Rating	A	B	C
Receptacle MDF B-104	2	400 A	30 A		1500 VA	1500 VA
Receptacle MDF B-104	2	400 A	30 A	1500 VA	1500 VA	
Receptacle MDF B-104	2	400 A	30 A	1500 VA		1500 VA
Receptacle MDF B-104	2	400 A	30 A	1500 VA	1500 VA	
Receptacle MDF B-104	2	400 A	30 A		1500 VA	1500 VA
Receptacle MDF B-104	2	400 A	30 A	1500 VA		1500 VA
			Total Conn. Load:	18000 VA		
			Total Amps:	50 A		



Accurately reflect the quantity of circuits in your schedules

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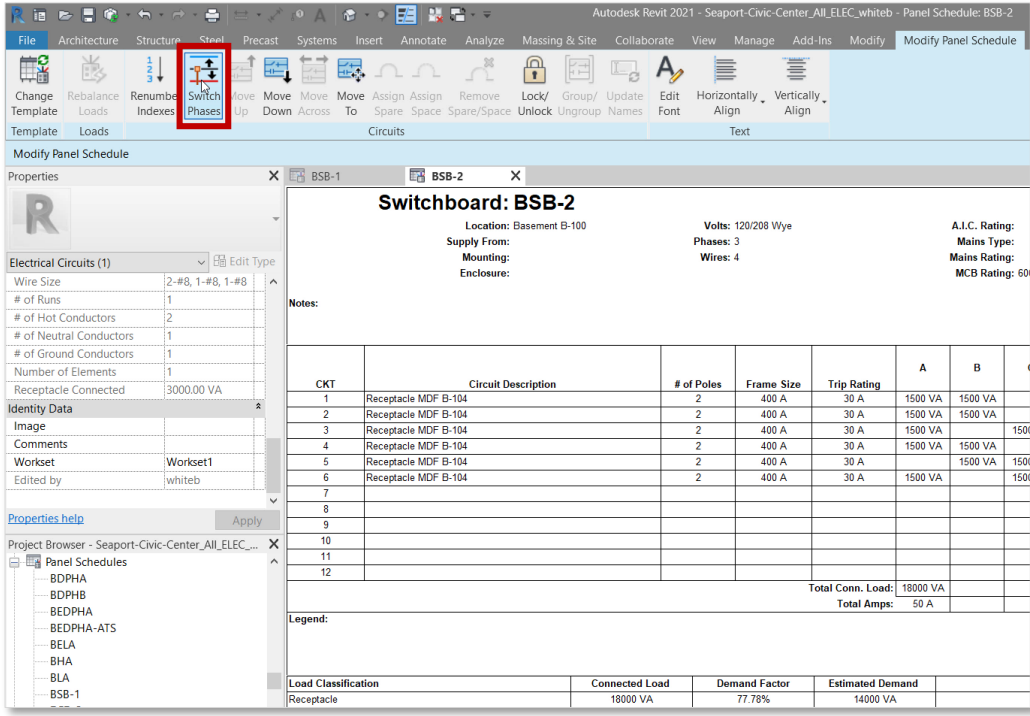
Switchboard Circuit Phase Selection

- Added switchboard ‘Switch Phases’ control to set phase of 1- and 2-pole loads
- Parameters of spares and spaces may be modified, e.g. poles and frame size



Better communicate design intent and better analyze electrical loads

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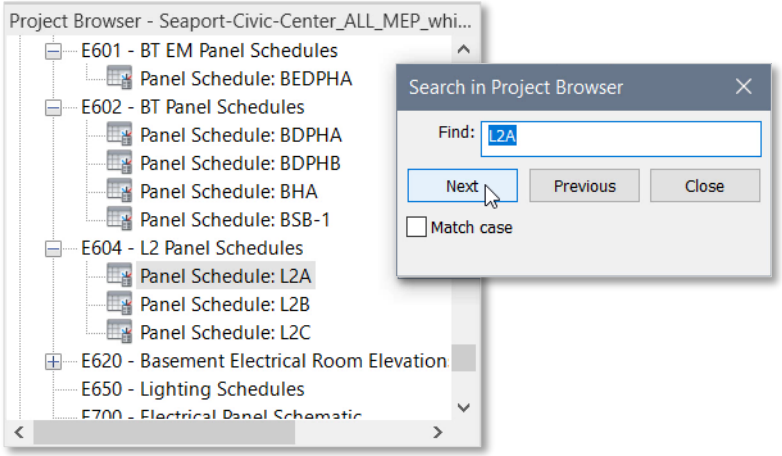
Panel Schedule Nodes Listed Under Sheets in Project Browser

- Panel schedules now appear under sheet list in properties
- Panel schedules are now searchable in the Project Browser
- Circuit and panel properties may be modified in the Properties Palette from the panel schedule view*



Better panel schedule access to assist with project navigation

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*Revit 2021 includes all enhancements released in Revit 2020.1 and 2020.2

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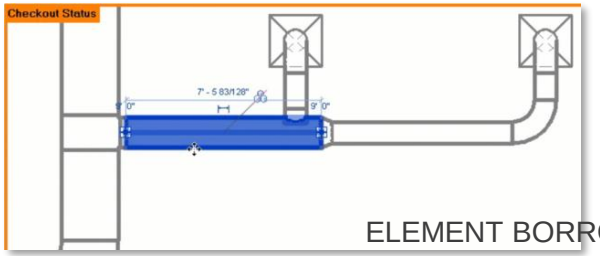
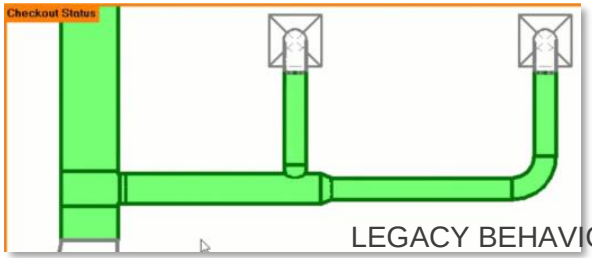
MEP Worksharing Enhancements

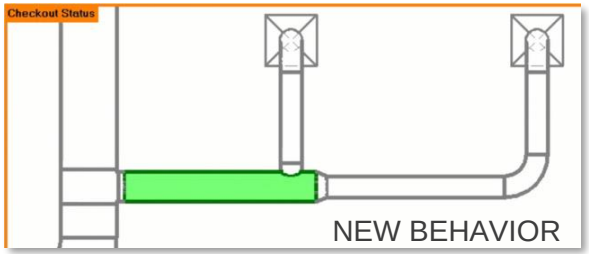
- Only directly-modified elements are borrowed
- Elements borrowed upon opening files resolved
- Circular syncing requests resolved



ELEMENT BORROWED



LEGACY BEHAVIOR



NEW BEHAVIOR

Worksharing enhancements facilitate better collaboration

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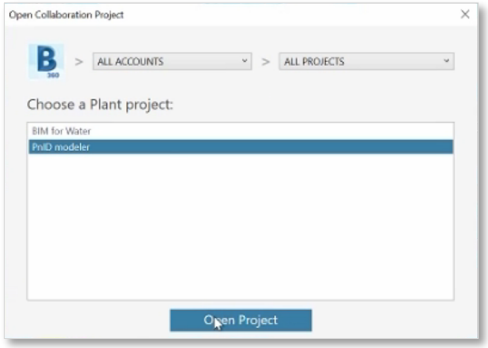
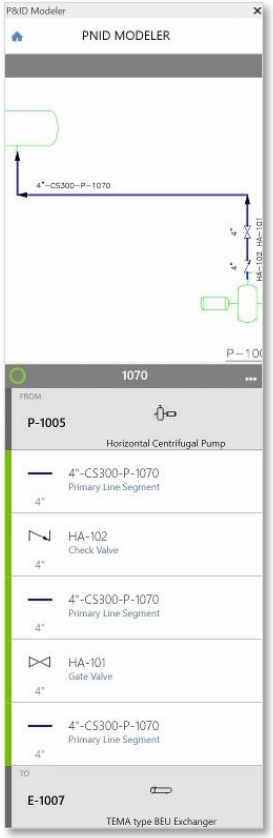
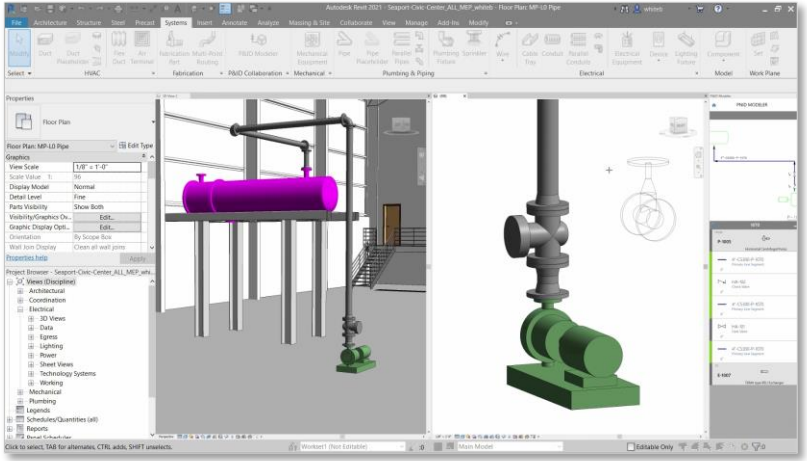
P&ID Modeler on BIM 360 Docs

- P&ID Modeler is now available on BIM 360 Docs
- Replaces functionality previously available on BIM 360 Team
  - P&ID diagrams are available in Revit
  - P&ID progress is color-coded to ensure correct usage and positioning







Centralized cloud platform for transfer of project information

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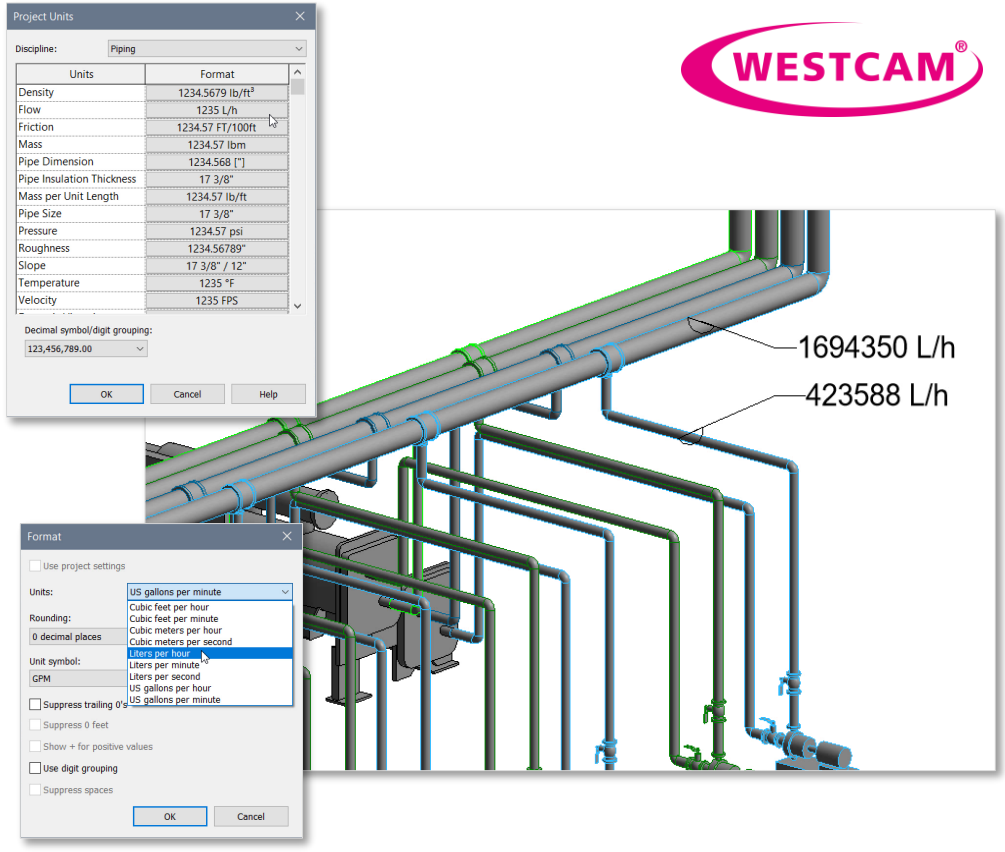
New Pipe Flow Units

- New pipe flow units have been added: Cubic Feet per Hour, Cubic Feet per Minute, and Liters per Hour



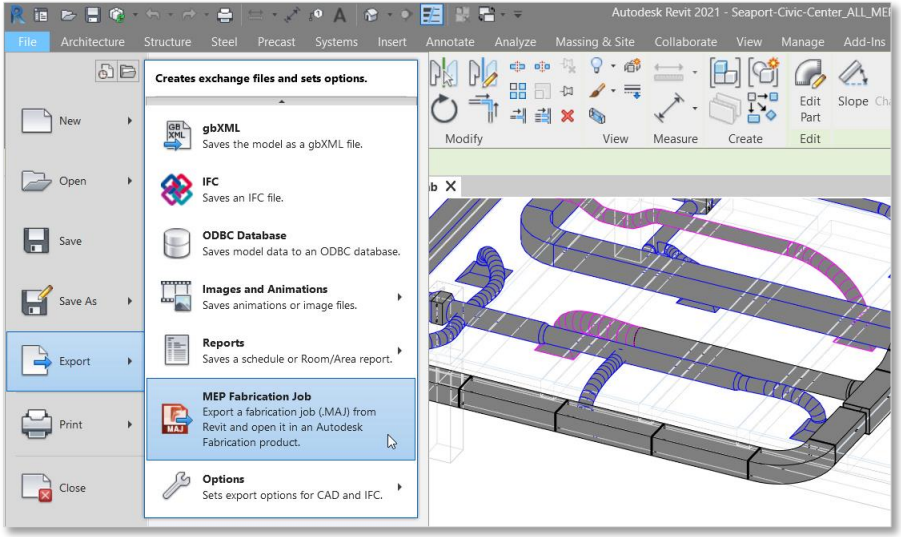
Popular units have been added for mechanical design

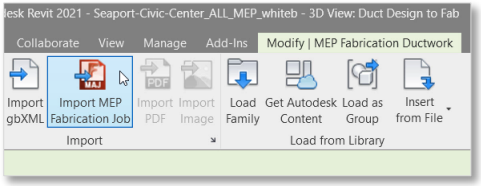
MEP

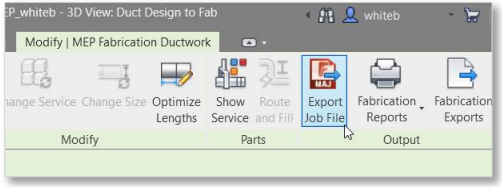
Autodesk Revit 2021

MEP Fabrication Extension Integration

- MEP Fabrication Export now located under the File tab
- Import MEP Fabrication Job on the Insert tab
- Export Job File on the Contextual Ribbon tab







Fabrication capabilities are now integrated into Revit

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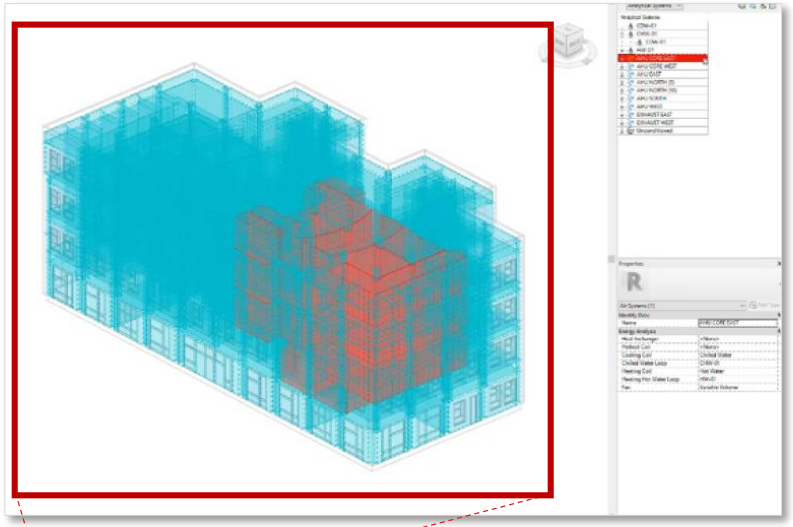
Autodesk Revit 2020.1*

MEP Systems Analysis

- Create analytical geometry from models
- Validate your model and review analysis
- Create custom analysis workflows
- HVAC systems sketch tool for spaces
- Extended zone equipment and plant loop types



Significantly more integrated HVAC systems design analysis

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*Revit 2021 includes all enhancements released in Revit 2020.1 and 2020.2

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