



AEC Collection **What's New in Revit® 2021**



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

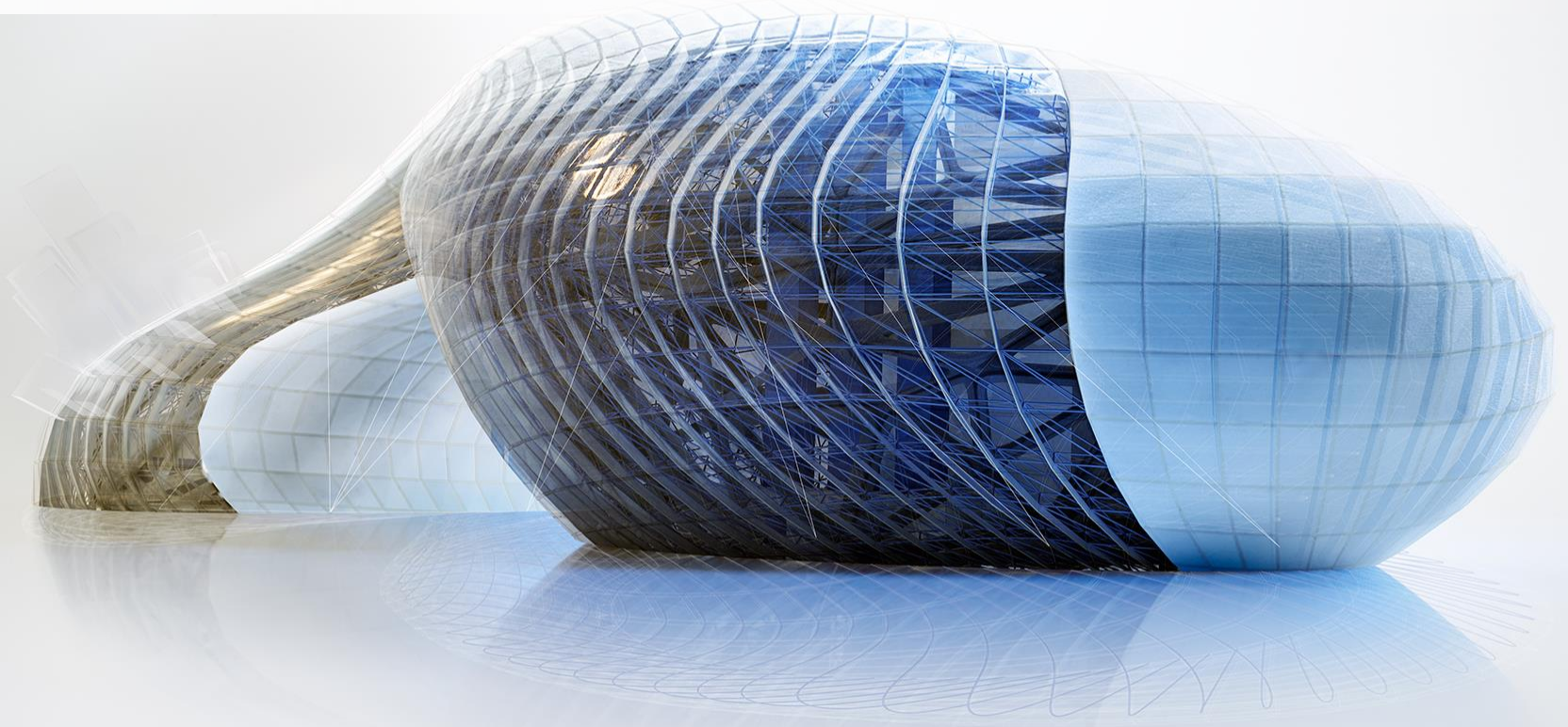
- ✓ Create New Standard 3D Rebar Shapes
- ✓ Couplers for Arc-shaped Rebar
- ✓ End Treatments without Couplers for Rebar
- ✓ 3D Solid Fabric Sheets Visualization
- ✓ Override Hook Lengths by Instance
- ✓ Integrated Precast Automation
- ✓ Integrated Steel Connection Automation Nodes in Dynamo for Revit
- ✓ 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

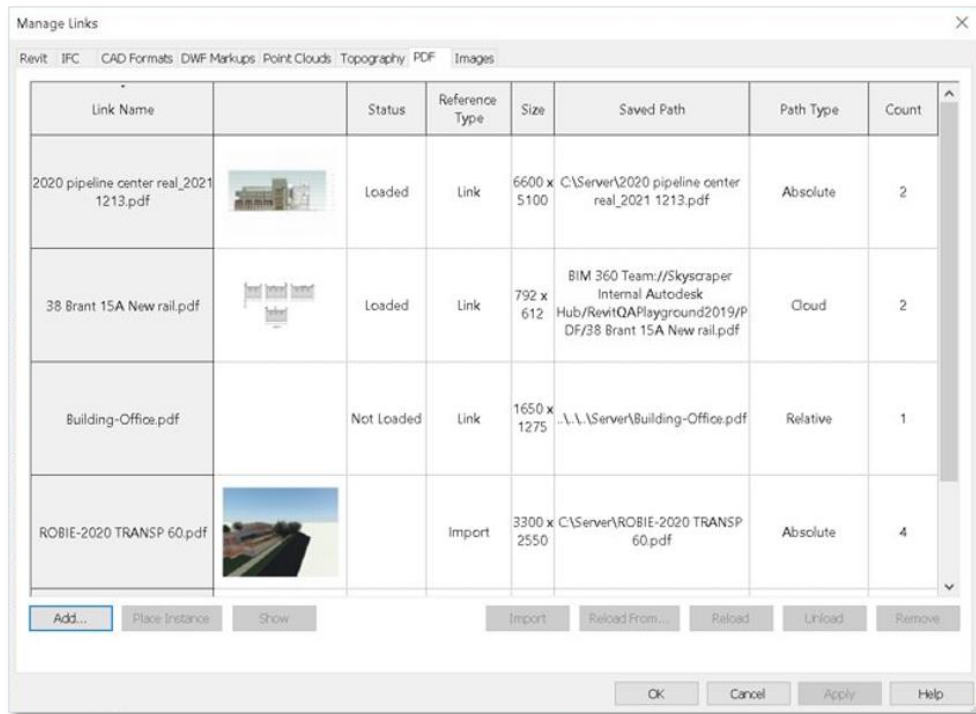


Platform

Autodesk Revit 2021

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

Platform

Autodesk Revit 2021

Cloud Model Hosting in Europe

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



Activate your BIM 360 account

I want to:

☒ Create a new account

☐ Convert a trial to a paid subscription

Account name

Where do you want your data hosted? ⓘ

US

US ✓

EU

Activate now

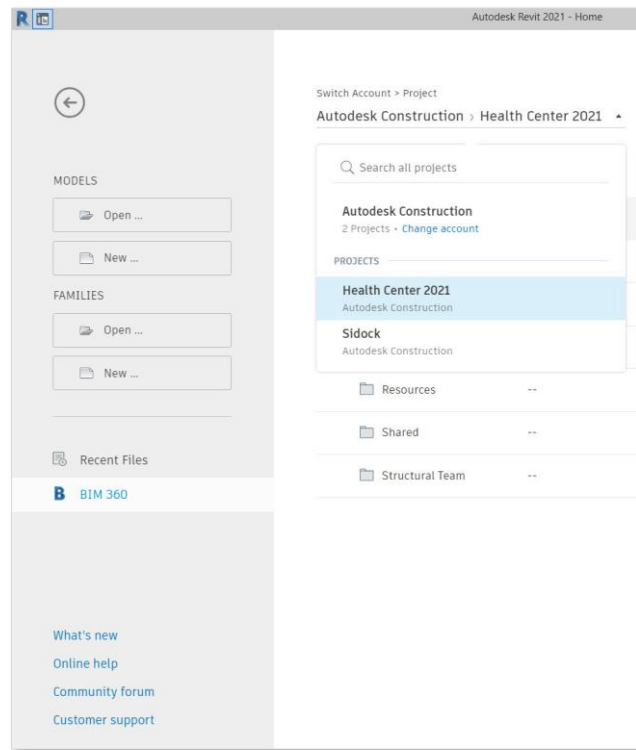
Enjoy more choice in where your cloud-hosted projects are stored

Platform

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



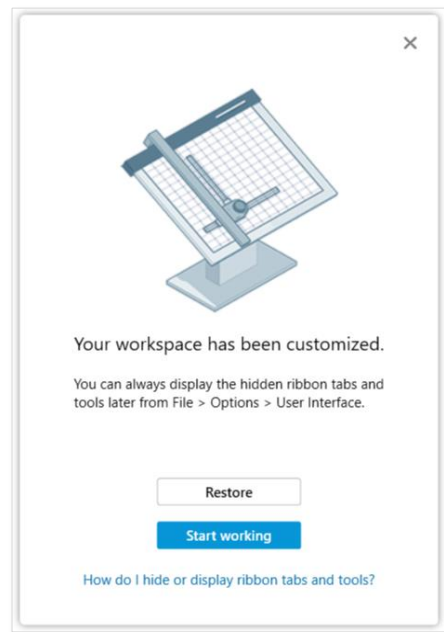
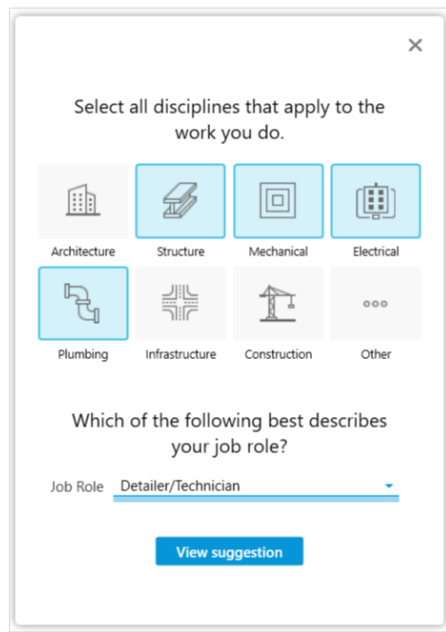
Locate and access cloud-hosted models more easily

Platform

Autodesk Revit 2021

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



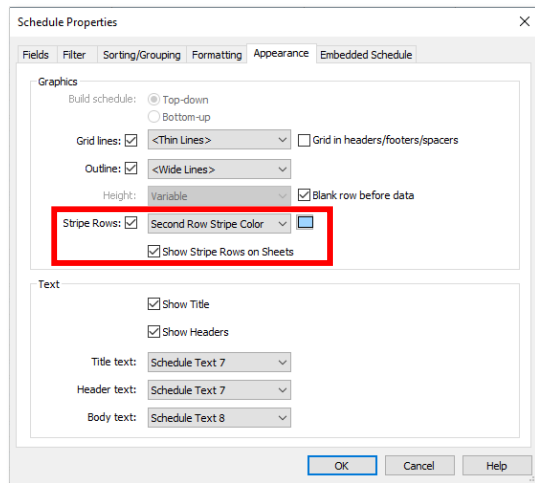
Tailor your Revit interface to better meet your needs

Platform

Autodesk Revit 2021

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

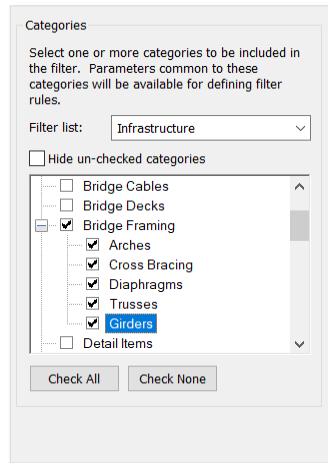
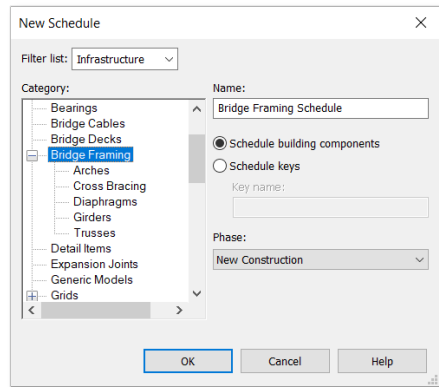
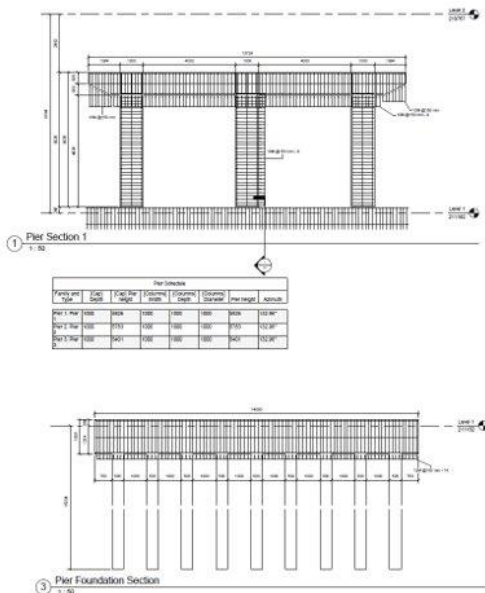
Improve the readability of large schedules

Platform

Autodesk Revit 2021

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



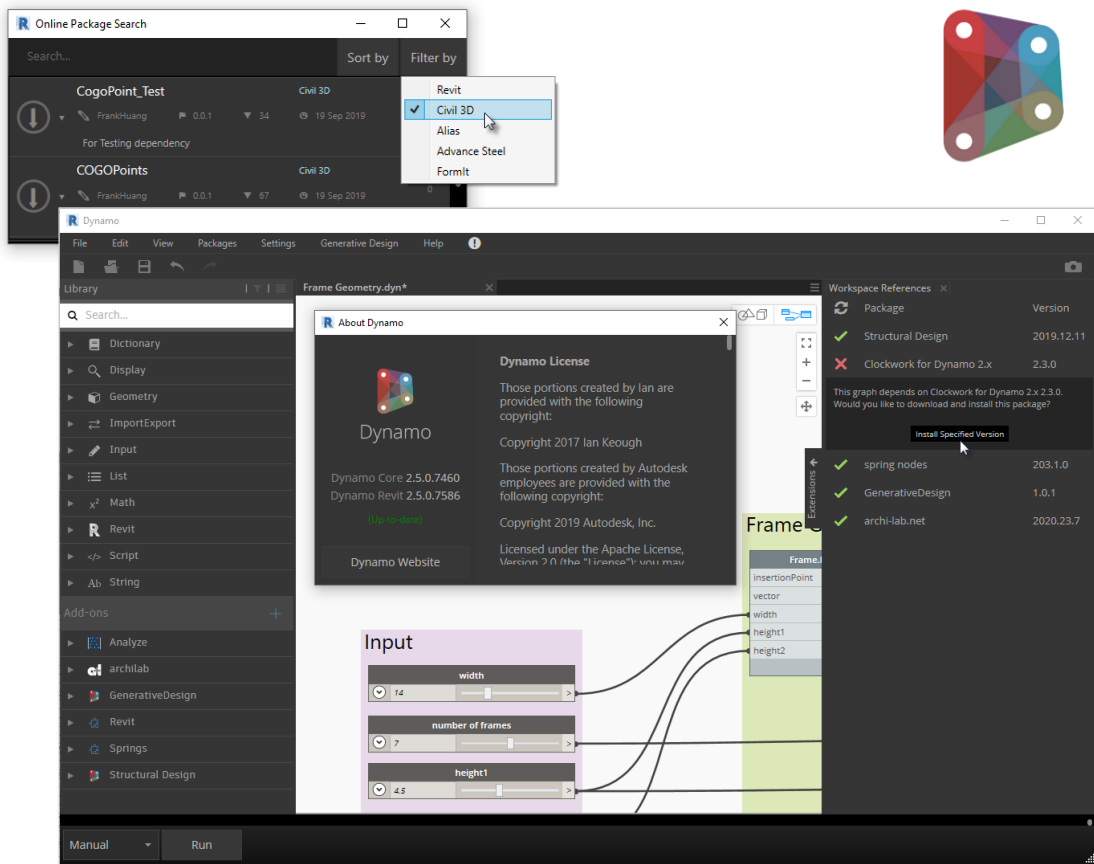
Leverage new features supporting bridge design workflows

Platform

Autodesk Revit 2021

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



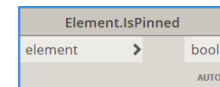
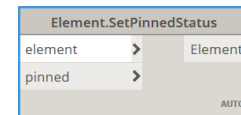
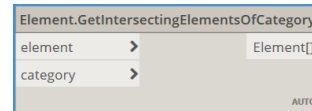
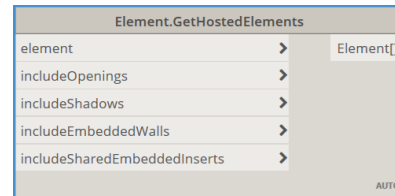
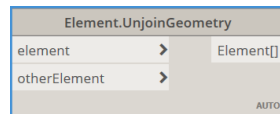
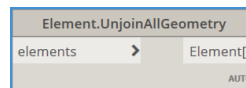
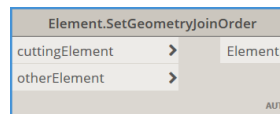
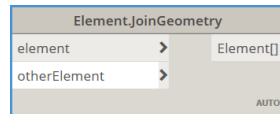
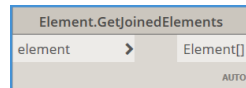
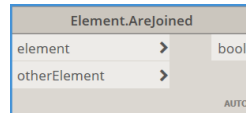
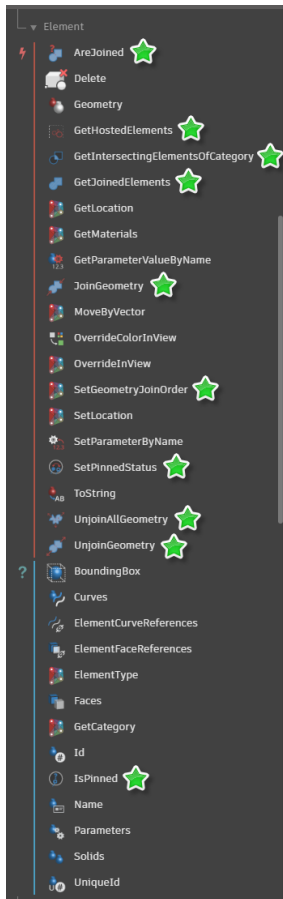
The latest Dynamo capabilities are now installed with Revit

Platform

Autodesk Revit 2021

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



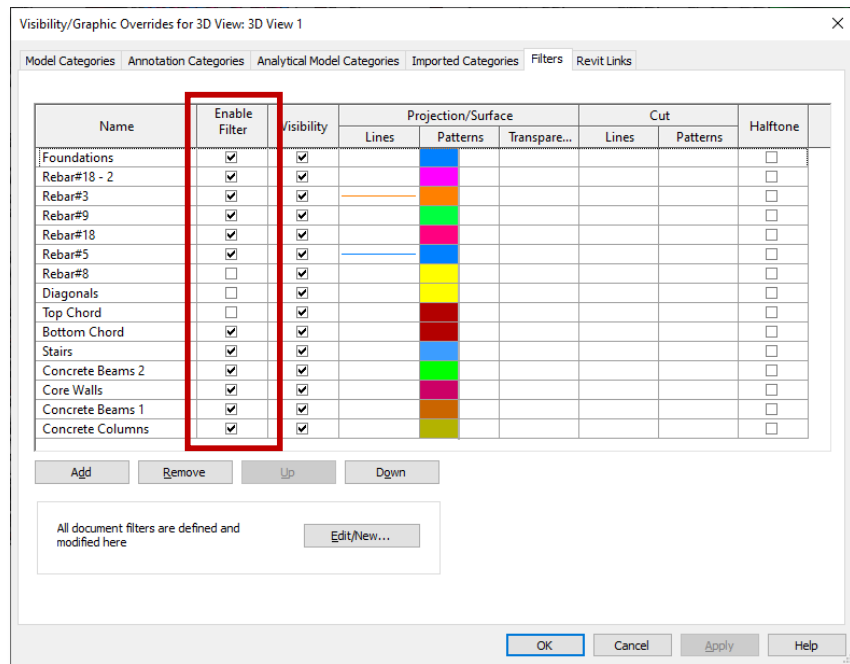
Take advantage of improved capabilities for task automation

Platform

Autodesk Revit 2021

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



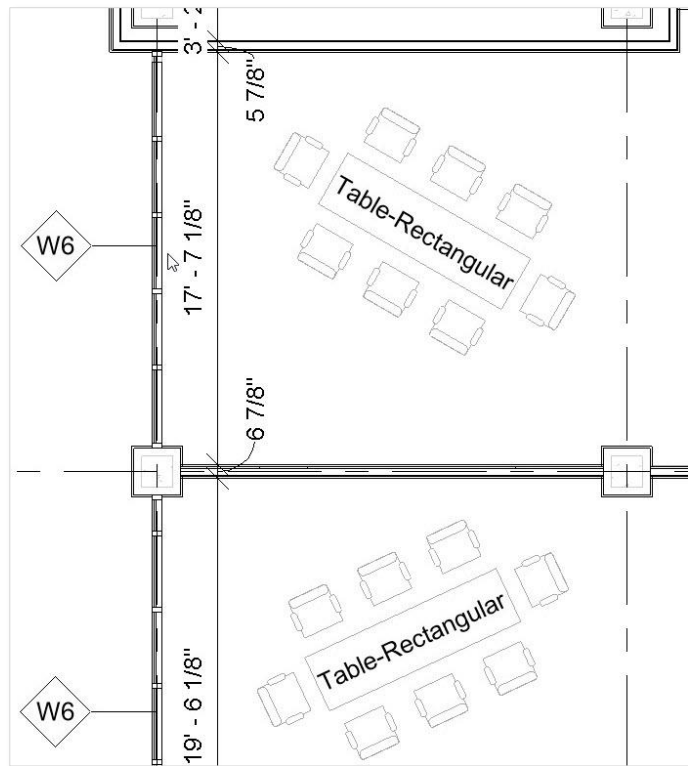
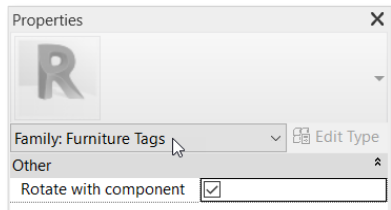
Easily toggle view filter graphic overrides

Platform

Autodesk Revit 2021

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



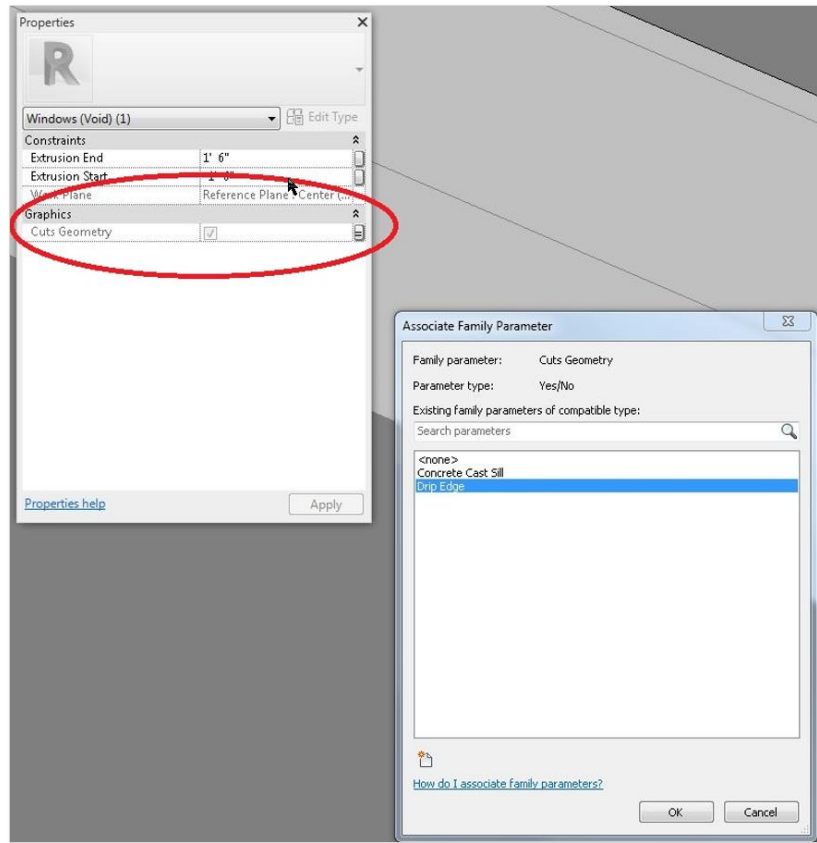
Create more accurate and readable annotations

Platform

Autodesk Revit 2021

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



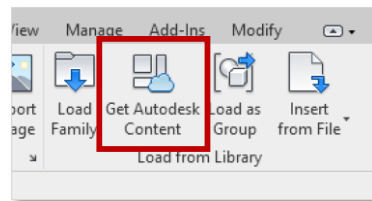
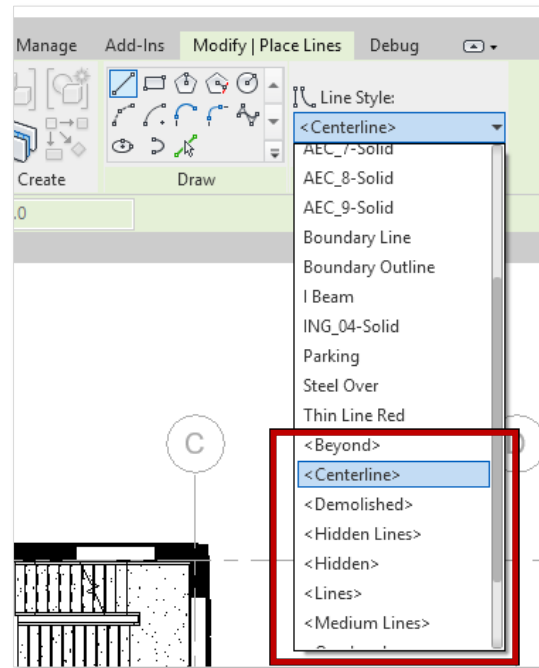
Use parameters to drive smarter void behaviors in families

Platform

Autodesk Revit 2021

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

Architecture

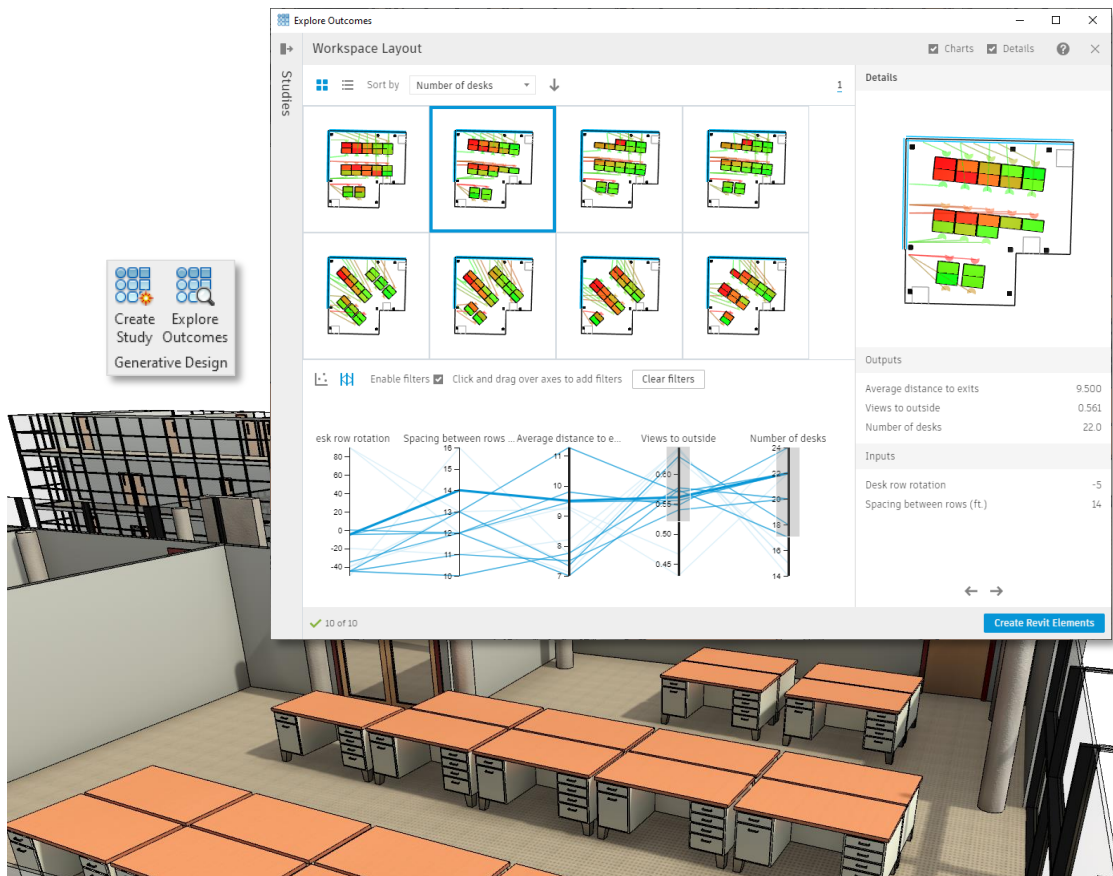
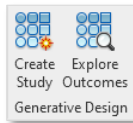


Architecture

Autodesk Revit 2021

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

Architecture

Autodesk Revit 2021

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



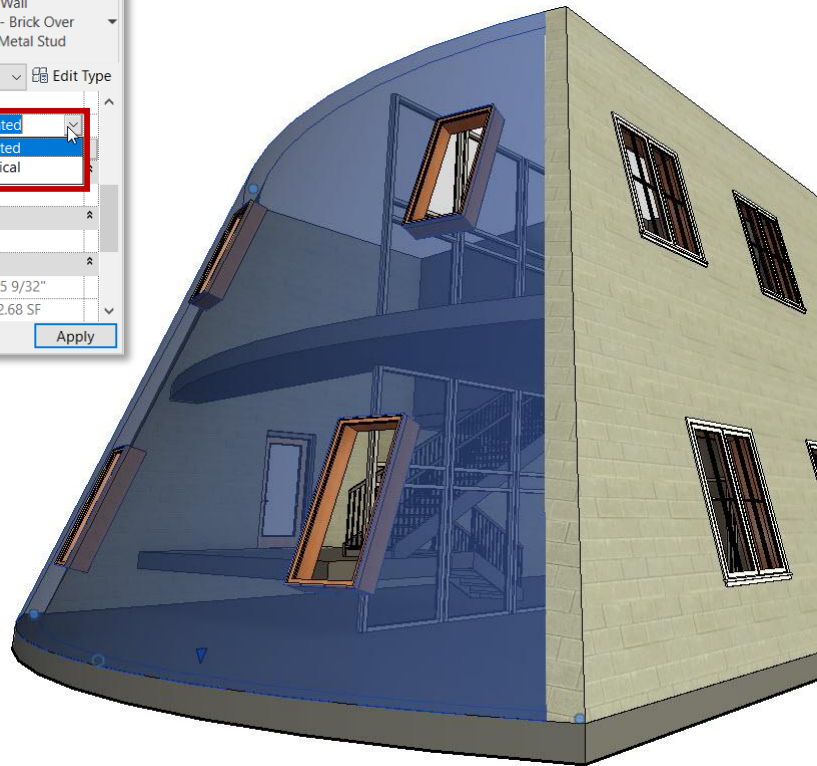
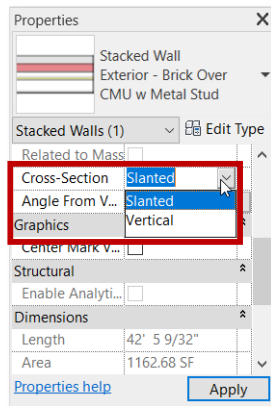
Work directly in better, easier, and faster realistic views

Architecture

Autodesk Revit 2021

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)



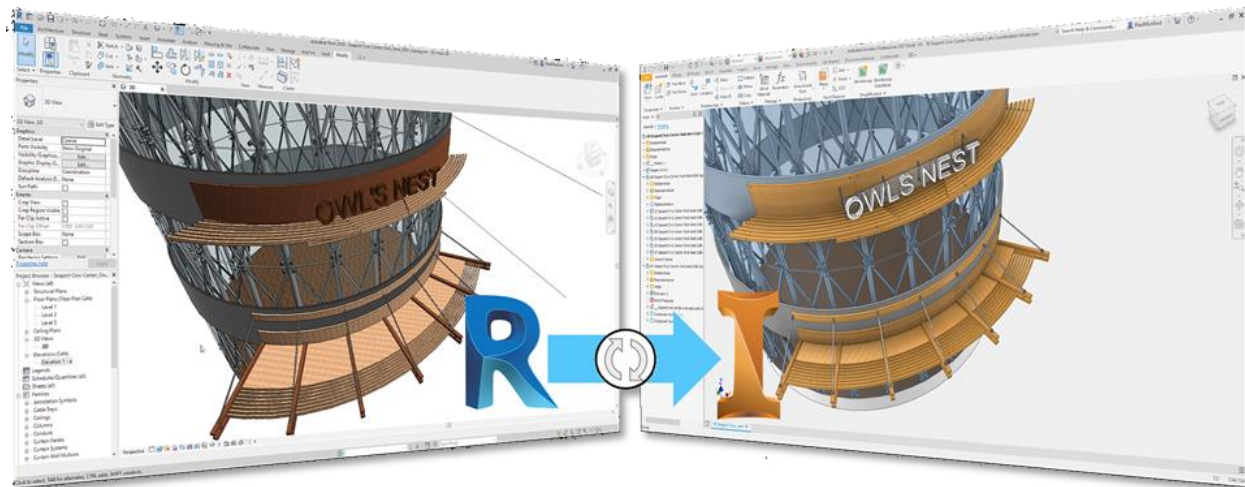
Easily model slanted architectural, structural, and curtain walls.

Architecture

Autodesk Revit 2021

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

Structure

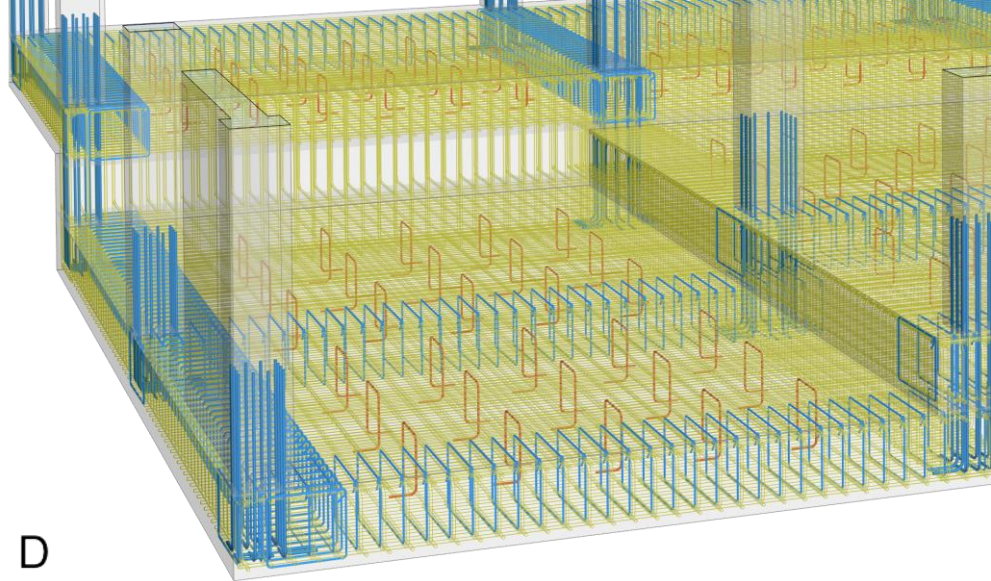
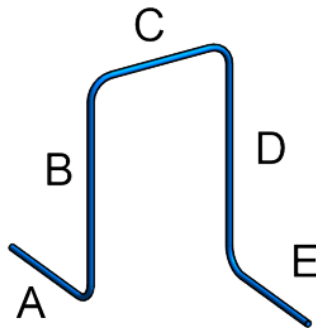


Structure

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	

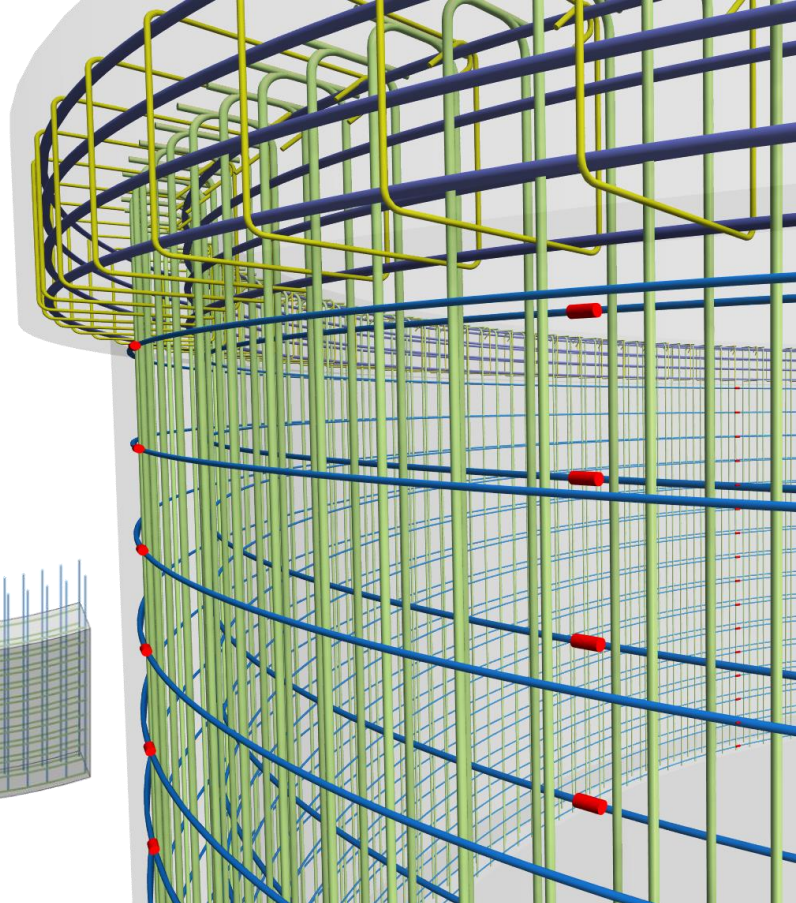
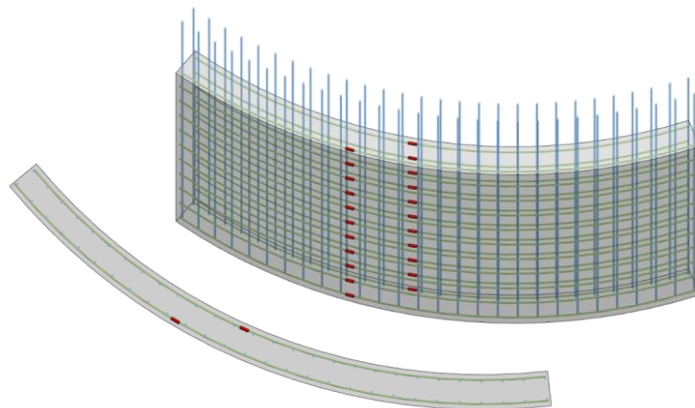
Introduce new, intelligent 3D rebar shapes

Structure

Autodesk Revit 2021

Couplers for Arc-shaped Rebar

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



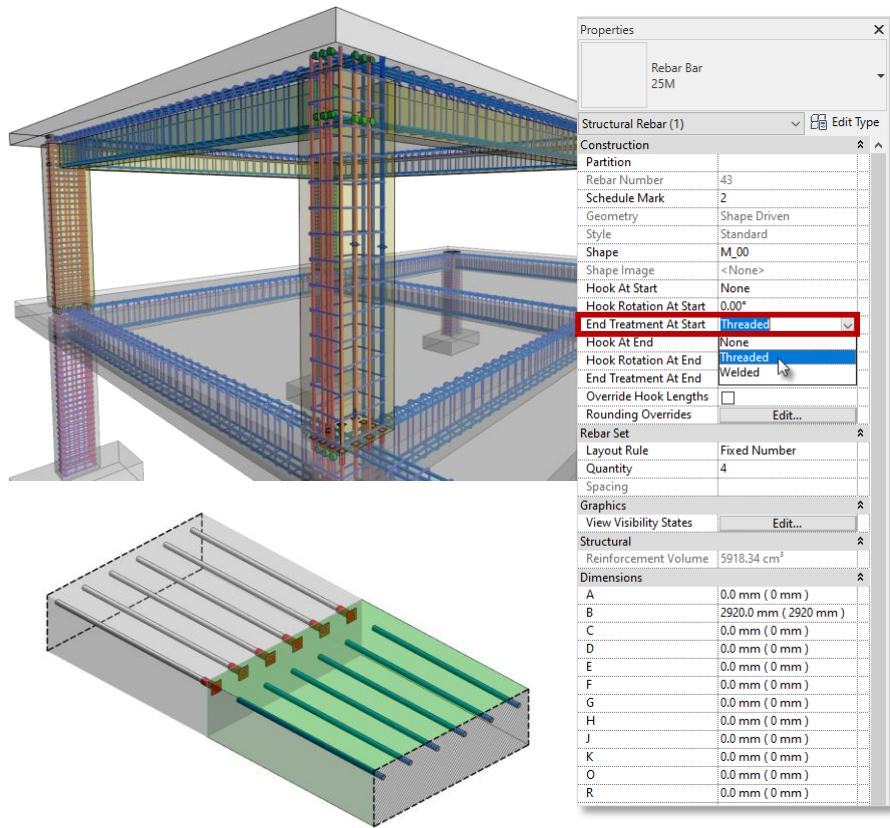
Model arc-shaped reinforcement at a higher level of detail

Structure

Autodesk Revit 2021

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



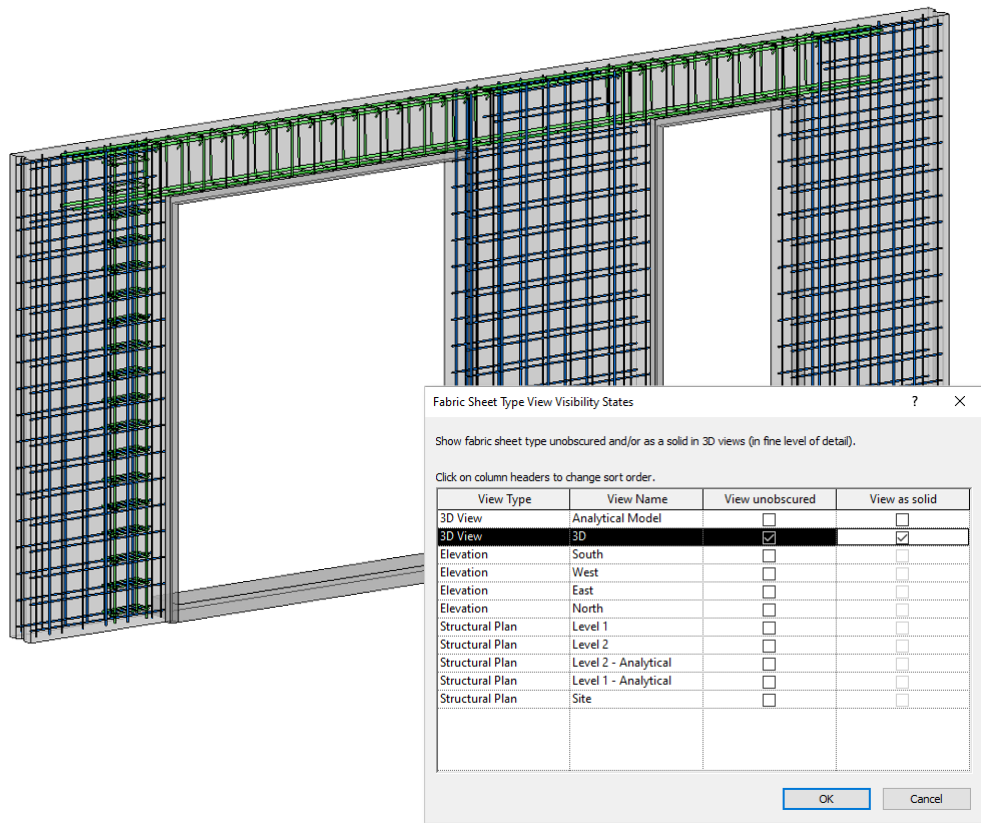
Easily model reinforcement end treatments

Structure

Autodesk Revit 2021

3D Solid Fabric Sheets Visualization

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



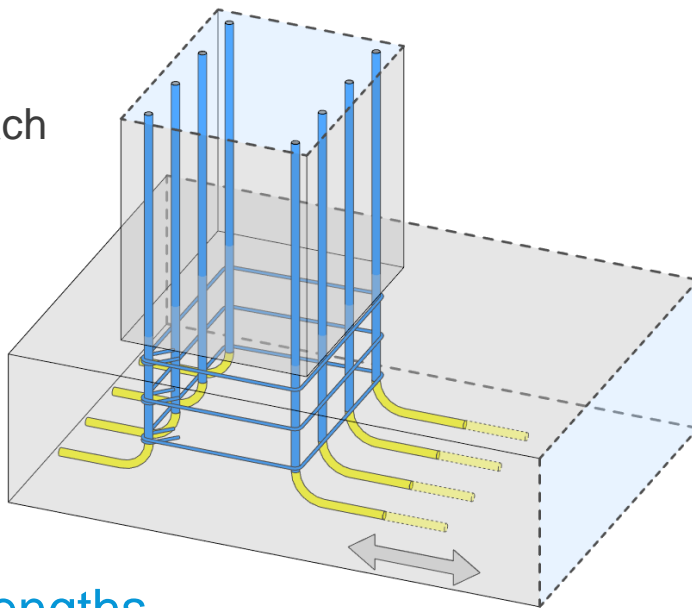
Improve visualization and coordination of reinforcement

Structure

Autodesk Revit 2021

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

Properties

Rebar Bar
H20

Structural Rebar (1) Edit Type

Shape	00
Shape Image	shape00.png
Hook At Start	None
Hook Rotation At Start	0.00°
End Treatment At Start	None
Hook At End	Standard - 90 deg.
Hook Rotation At End	0.00°
End Treatment At End	None
Override Hook Lengths	<input checked="" type="checkbox"/>

Rounding Overrides Edit...

Rebar Set

Layout Rule	Fixed Number
Quantity	4
Spacing	

Graphics

View Visibility States Edit...

Text

Rev

Structural

Reinforcement Volume 2324.78 cm³

Dimensions

A	1400.0 mm (1400 mm)
B	0.0 mm (0 mm)
C	0.0 mm (0 mm)
D	0.0 mm (0 mm)
E	0.0 mm (0 mm)
F	0.0 mm (0 mm)
G	0.0 mm (0 mm)
H	0.0 mm (0 mm)
H1	0.0 mm (0 mm)
H2	510.0 mm (510 mm)
J	0.0 mm (0 mm)
Length of each bar	1400.0 mm (1400 mm)
R	0.0 mm (0 mm)
Bar Length	1855.7 mm (1855 mm)
Total Bar Length	7400 mm

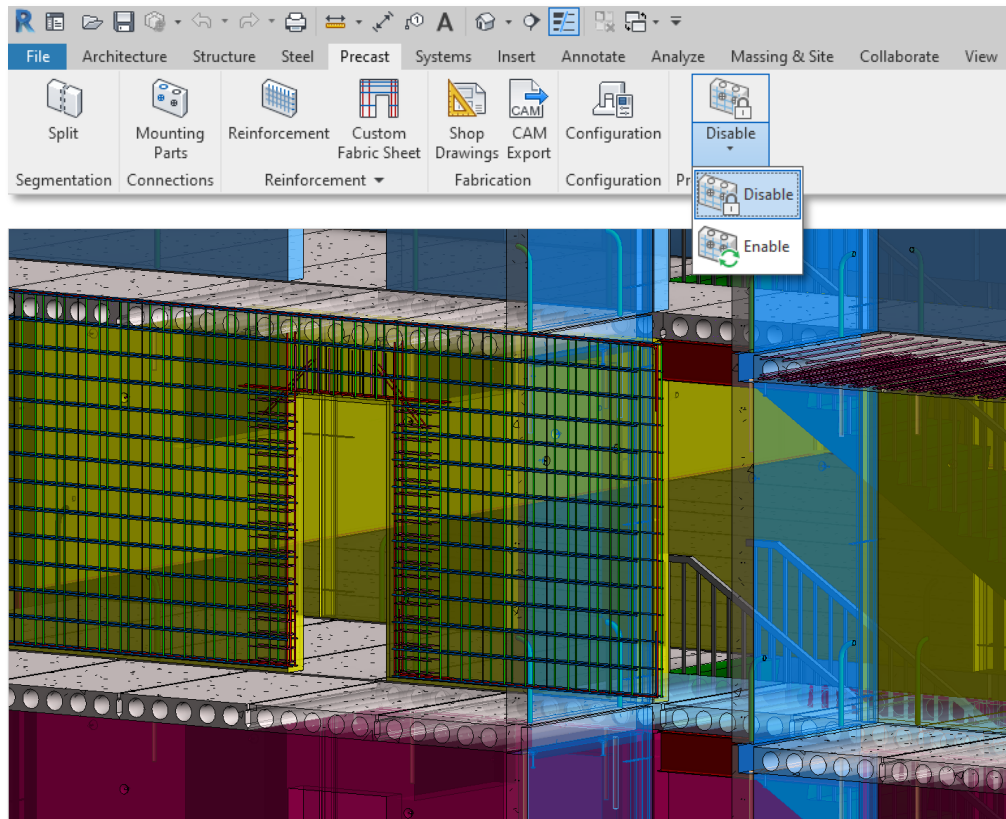
[Properties help](#) Apply

Structure

Autodesk Revit 2021

Integrated Precast Automation

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



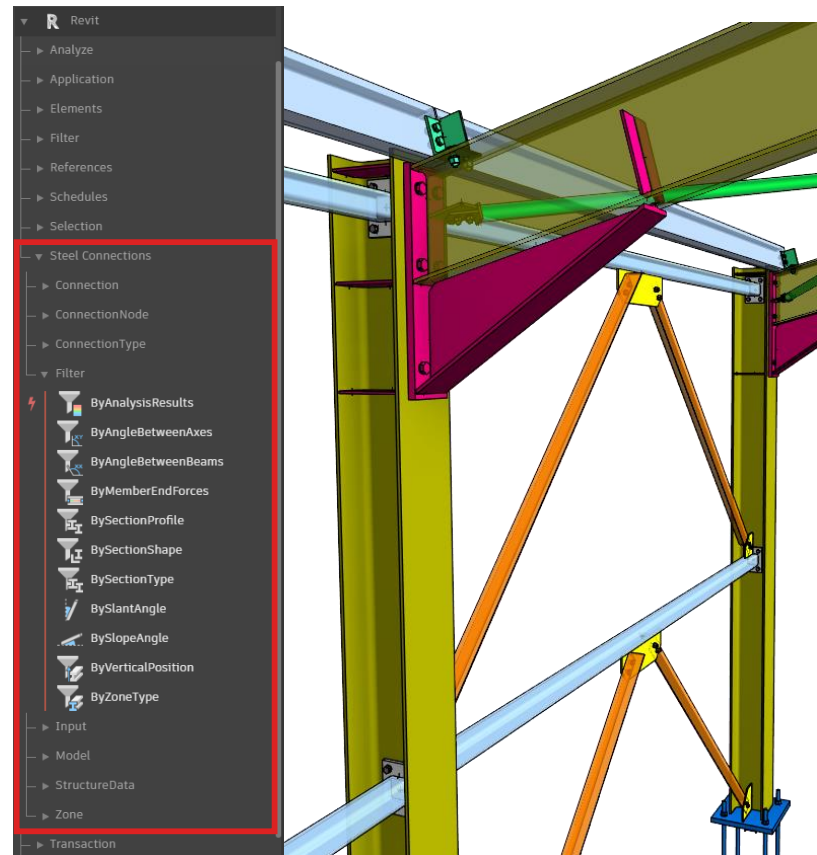
Powerful precast capabilities are now integrated into Revit

Structure

Autodesk Revit 2021

Integrated Steel Connection Automation Nodes in Dynamo for Revit

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



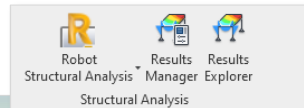
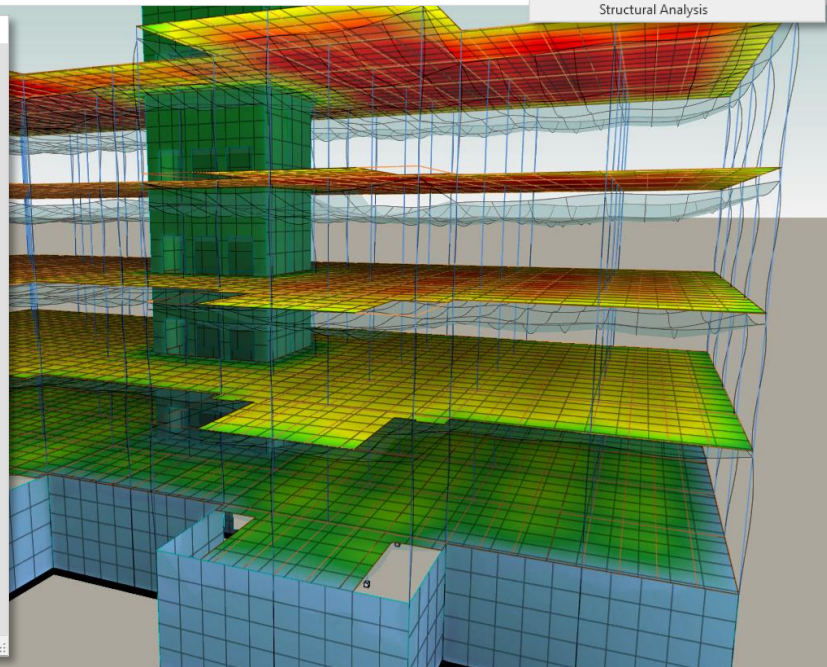
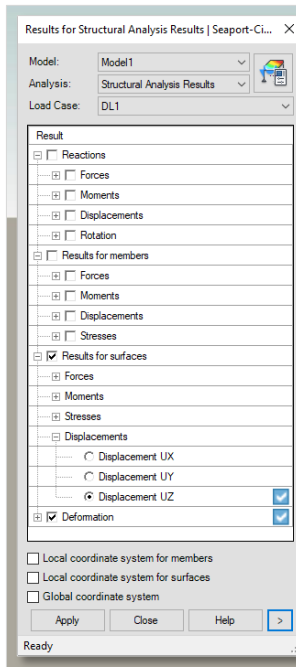
Dynamo nodes for steel connections are now installed with Revit

Structure

Autodesk Revit 2021

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



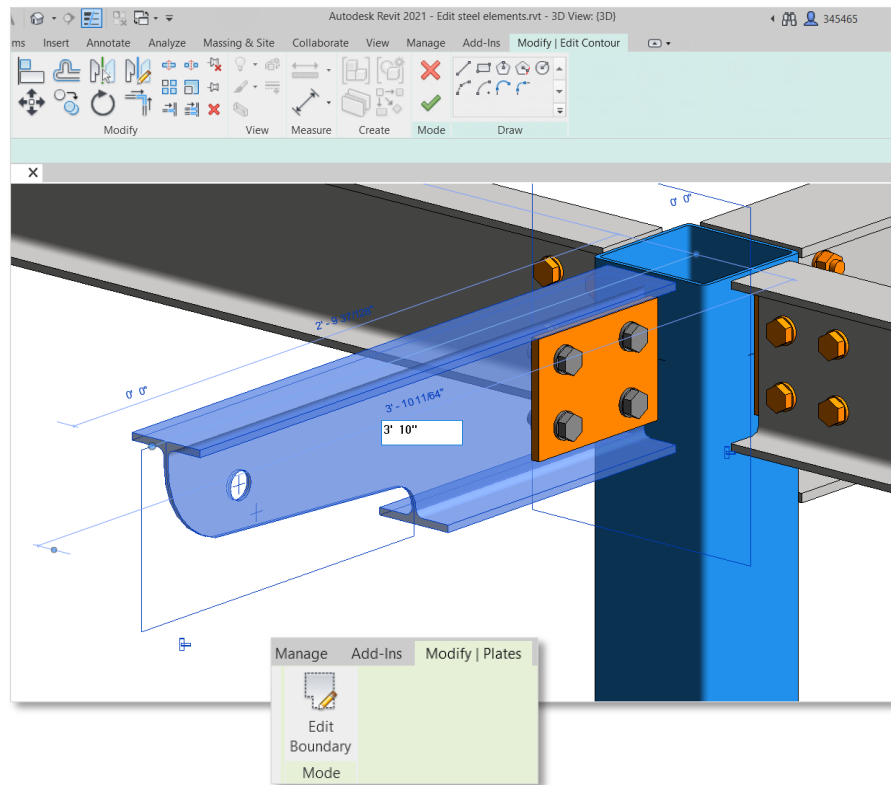
Structural analysis visualization tools are now integrated into Revit

Structure

Autodesk Revit 2021

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



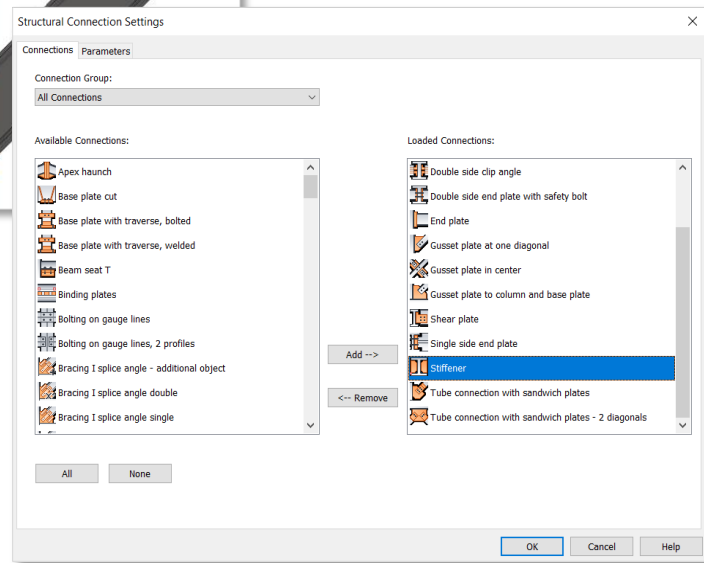
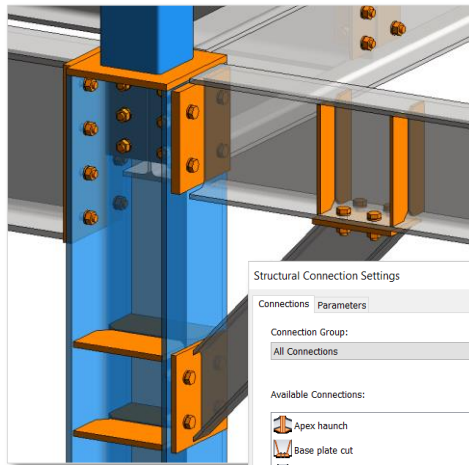
Easily create and modify steel component shapes

Structure

Autodesk Revit 2021

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



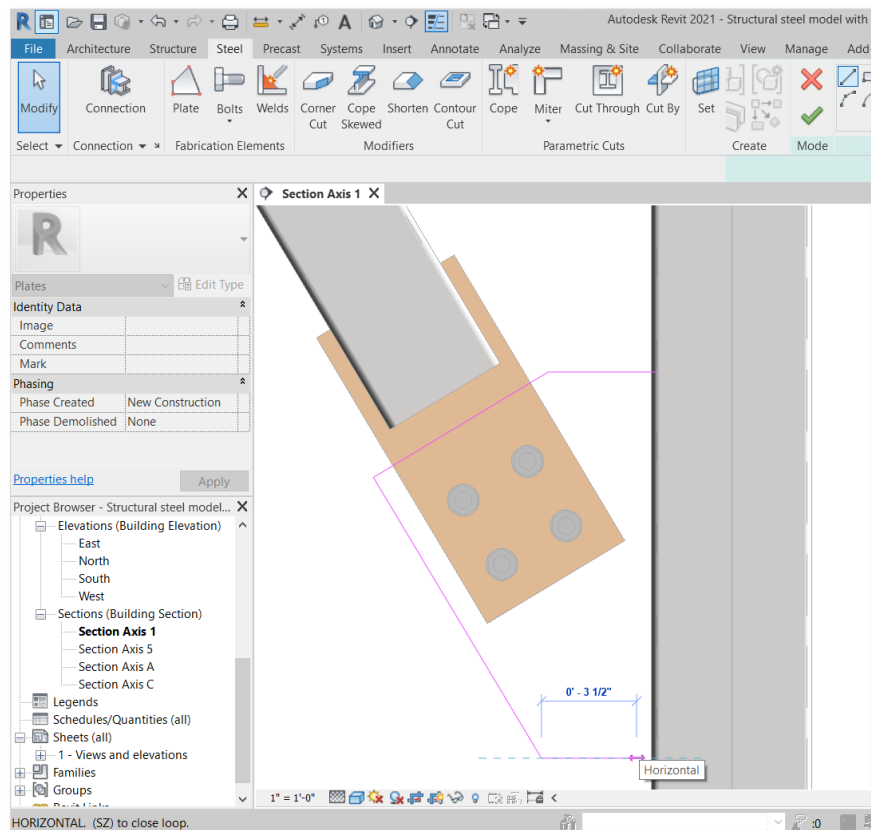
Create and modify stiffeners with dedicated features

Structure

Autodesk Revit 2021

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



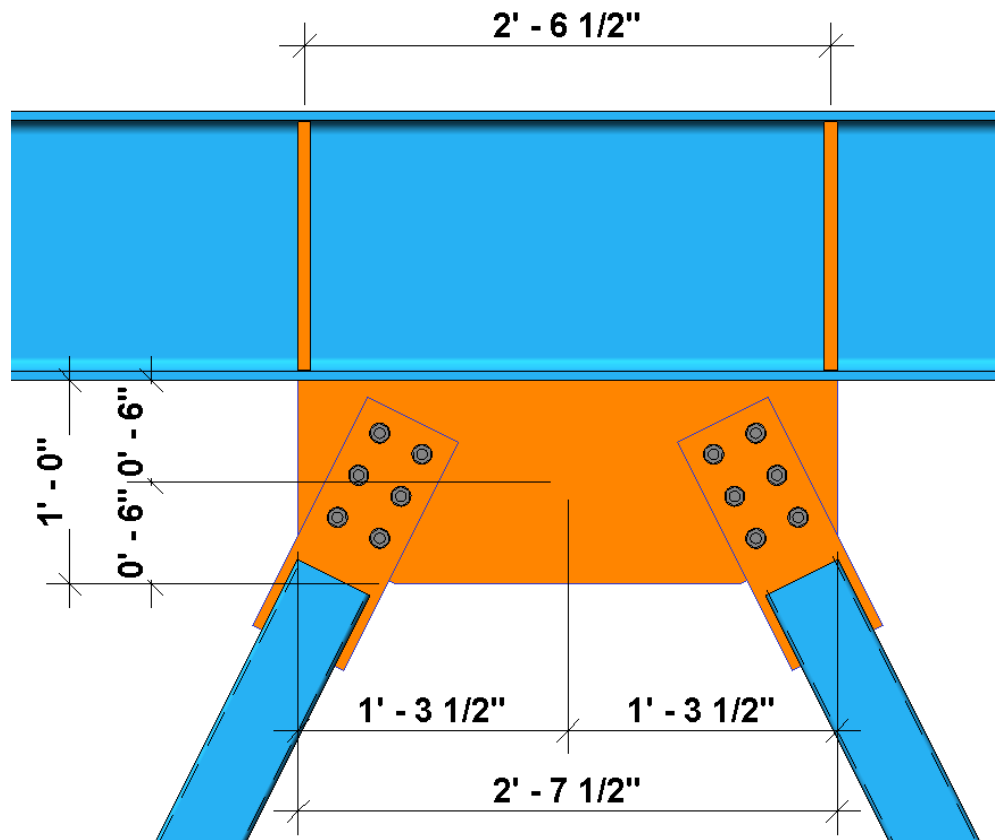
Model steel components in any 2D or 3D view

Structure

Autodesk Revit 2021

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

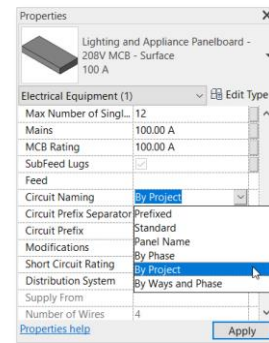
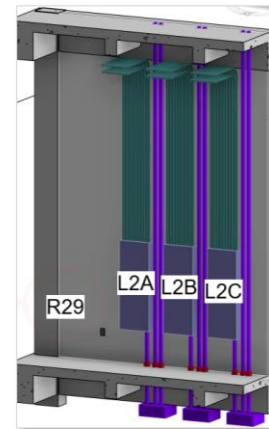
MEP



Autodesk Revit 2021

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

MEP

Autodesk Revit 2021

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

The screenshot displays the Autodesk Revit 2021 MEP interface. The main window shows a 'Branch Panel: LP1' with the following details:

- Location: Basement B-100
- Supply From: MDP
- Mounting: Surface
- Enclosure:
- Volts: 120 L-N
- Phases: 1
- Wires: 2

The 'Notes' section contains a table with the following data:

CKT	Circuit Description	Trip	Poles	A	Poles	Trip
1	Lighting - Dwelling Unit Basement B-100	20 A	1	1280 VA		
3	Lighting - Dwelling Unit Basement B-100	20 A	1	896 VA		
5	Lighting - Dwelling Unit Basement B-100	20 A	1	1024 VA		
7						
9						
11						
				Total Load	3200 VA	
				Total Amps	27 A	

The 'Legend' section shows a table with the following data:

Load Classification	Connected Load	Demand Factor	Estimated Demand
Lighting - Dwelling Unit	3200 VA	95.94%	3070 VA

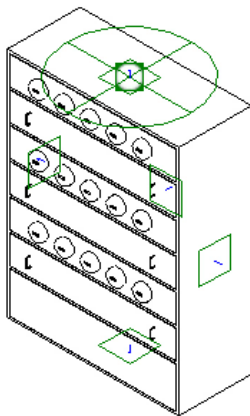
The 'Set Template Options' dialog box is open, showing the 'General Settings' tab. The 'Column header text orientation' is set to 'Horizontal'. The 'Choose format for displaying loads' section shows 'Loads by Phase' selected. The 'For panels other than three phase' section shows 'Hide column for unused phases' selected. The 'Show phase column values as' section shows 'Lead' selected.

The 'Electrical Settings' dialog box is also open, showing the 'Distribution Systems' tab. The 'Name' column is set to '120 L-N', the 'Phase' column is set to 'Single', the 'Configuration' column is set to 'None', the 'Wires' column is set to '2', the 'L-L Voltage' column is set to 'None', and the 'L-G Voltage' column is set to '120'.

Autodesk Revit 2021

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”

[illegible]

Properties

Metering Switchboard
BSB-2

Electrical Equipment (1) Edit Type

Electrical - Circuiting

Feed Through Lugs ☒

MCB Rating 6000 A

Max Number of Circuits 12

SubFeed Lugs ☒

Feed

Circuit Naming Standard

Circuit Prefix Separator

Circuit Prefix

Modifications

Mains

Short Circuit Rating

Distribution System 120/208 Wye

[Properties help](#) Apply

Accurately reflect the quantity of circuits in your schedules

MEP

Autodesk Revit 2021

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

The screenshot shows the Autodesk Revit 2021 interface. The 'Steel' tab is active, and the 'Switch Phases' tool is highlighted in the 'Circuits' panel. The 'Properties' panel on the left shows the 'Electrical Circuits (1)' section with parameters for Wire Size, # of Runs, # of Hot Conductors, # of Neutral Conductors, # of Ground Conductors, Number of Elements, and Receptacle Connected. The 'Identity Data' section includes Image, Comments, Workset, and Edited by. The 'Project Browser' on the left shows the 'Panel Schedules' list. The 'Switchboard: BSB-2' properties panel on the right shows the location, supply from, mounting, enclosure, volts, phases, wires, and A.I.C. Rating. It also includes a table of circuit data and a legend.

CKT	Circuit Description	# of Poles	Frame Size	Trip Rating	A	B	C
1	Receptacle MDF B-104	2	400 A	30 A	1500 VA	1500 VA	
2	Receptacle MDF B-104	2	400 A	30 A	1500 VA	1500 VA	
3	Receptacle MDF B-104	2	400 A	30 A	1500 VA	1500 VA	
4	Receptacle MDF B-104	2	400 A	30 A	1500 VA	1500 VA	
5	Receptacle MDF B-104	2	400 A	30 A	1500 VA	1500 VA	
6	Receptacle MDF B-104	2	400 A	30 A	1500 VA	1500 VA	
7							
8							
9							
10							
11							
12							
Total Conn. Load:					18000 VA		
Total Amps:					50 A		

Load Classification	Connected Load	Demand Factor	Estimated Demand
Receptacle	18000 VA	77.78%	14000 VA

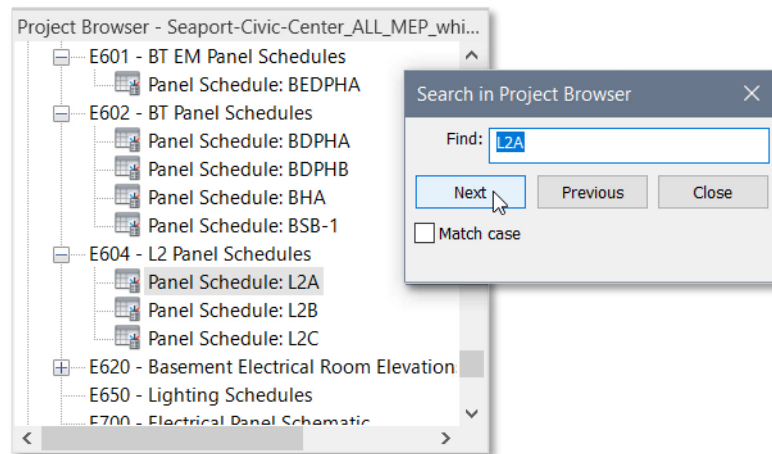
Better communicate design intent and better analyze electrical loads

MEP

Autodesk Revit 2021

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*



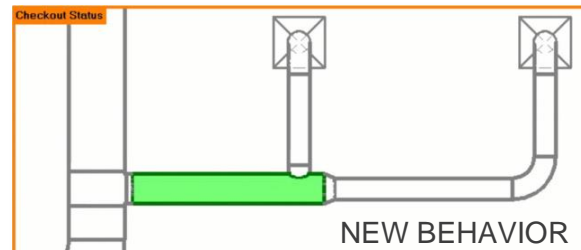
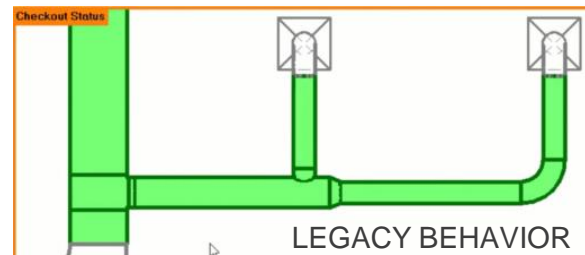
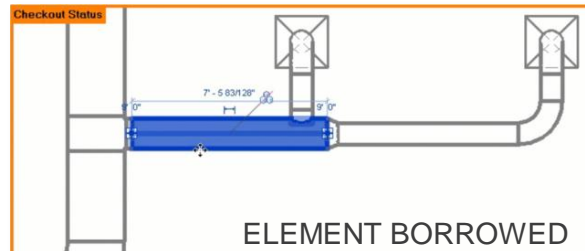
Better panel schedule access to assist with project navigation

MEP

Autodesk Revit 2021

MEP Worksharing Enhancements

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



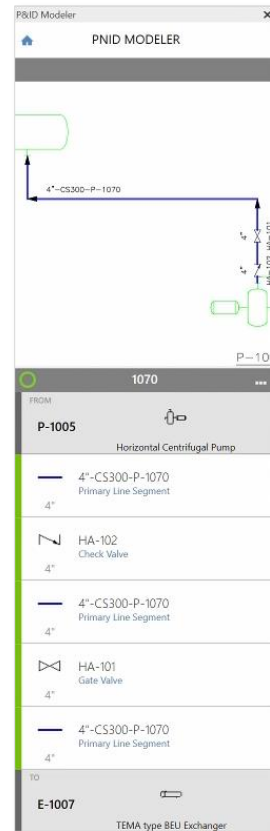
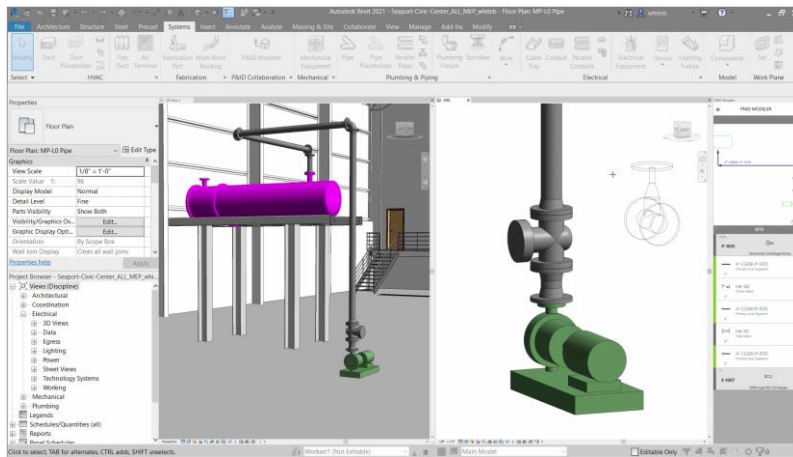
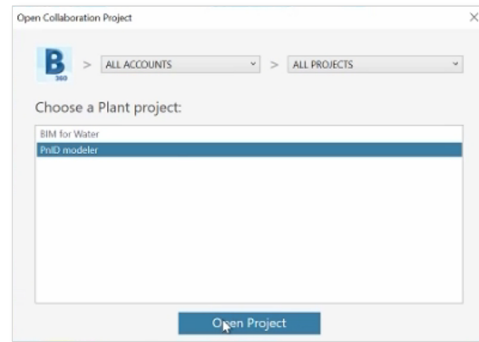
Worksharing enhancements facilitate better collaboration

MEP

Autodesk Revit 2021

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



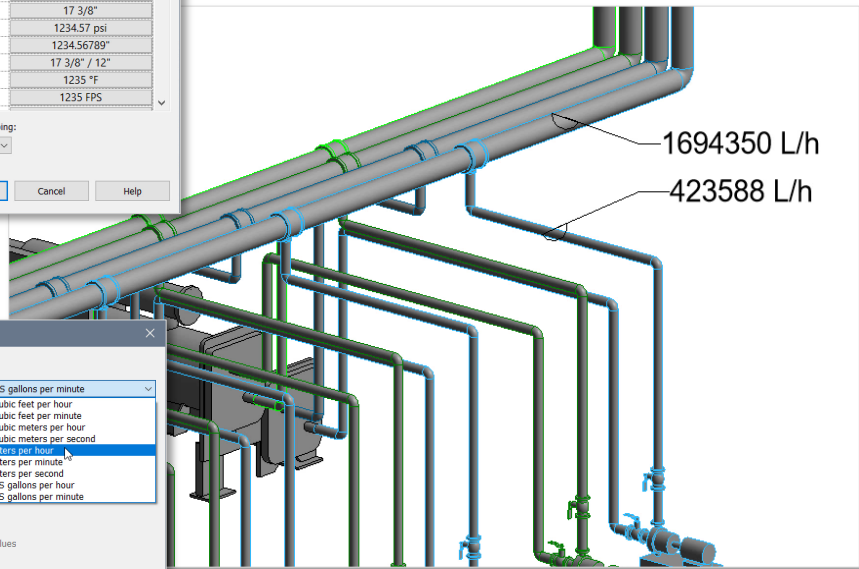
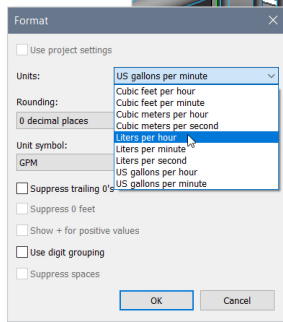
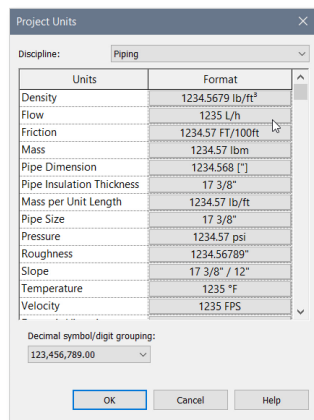
Centralized cloud platform for transfer of project information

MEP

Autodesk Revit 2021

New Pipe Flow Units

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



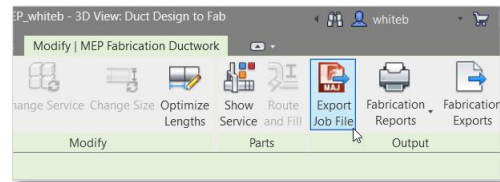
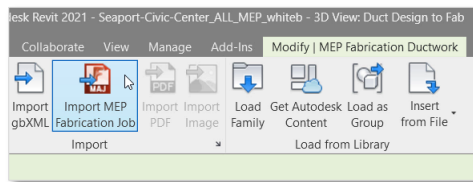
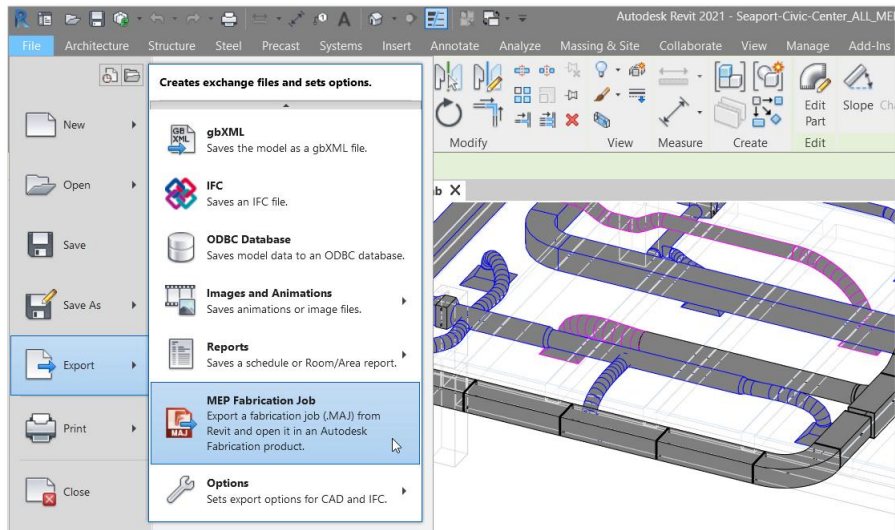
Popular units have been added for mechanical design

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



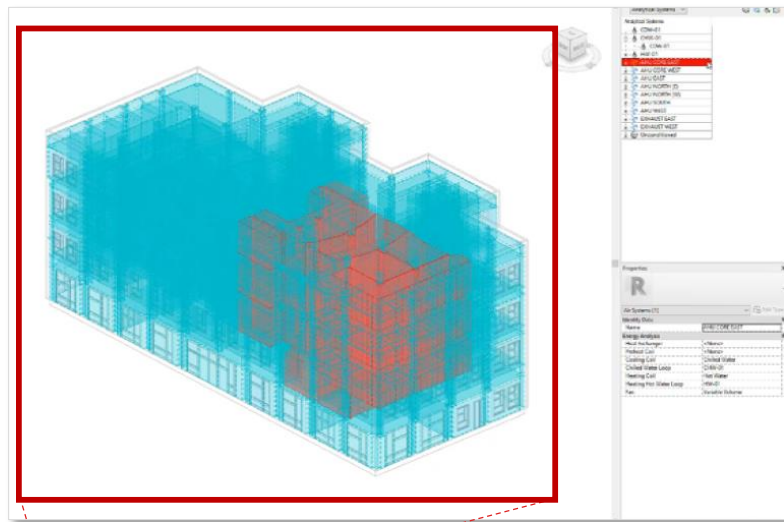
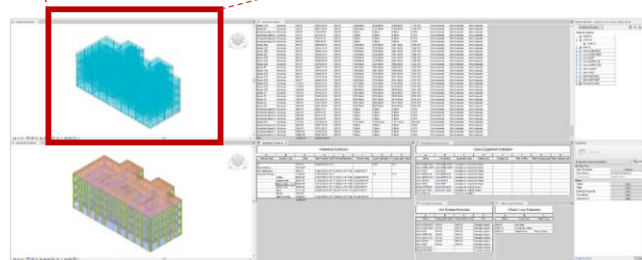
Fabrication capabilities are now integrated into Revit

MEP

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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