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
- Dvnamo 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

 \checkmark

- Real-time Realistic Views \checkmark
- ~ Slanted Walls
- Revit to Inventor Linking 1
- ~
- Sun and Shadow Refinements

- Structure
- Create New Standard 3D Rebar Shapes
- Couplers for Arc-shaped Rebar 1
- ~ End Treatments without Couplers for Rebar
- 3D Solid Fabric Sheets Visualization \checkmark
- Override Hook Lengths by Instance ~
- 1 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 \checkmark
- New Pipe Flow Units (and Units Framework) \checkmark
- ~ MEP Fabrication Extension Integration
- MEP Systems Analysis* ~







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

Link Name		Status	Reference Type	Size	Saved Path	Path Type	Count
2020 pipeline center real_2021 1213.pdf		Loaded	Link	6600 x 5100	C\Server\2020 pipeline center real_2021 1213.pdf	Absolute	2
38 Brant 15 A New rail.pdf		Loaded	Link	792 x 612	BIM 360 Team://Skyscraper Internal Autodesk Hub/RevitQAPlayground2019/P DF/38 Brant 15A New rail.pdf	Cloud	2
Building-Office.pdf		Not Loaded	Link	1650 x 1275	\.\.\Server\Building-Office.pdf	Relative	1
ROBIE-2020 TRANSP 60.pdf	1		Import	3300 x 2550	C\Server\ROBIE-2020 TRANSP 60.pdf	Absolute	4
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Utilize and manage PDFs and images much more easily





Autodesk Revit 2021

Cloud Model Hosting in Europe

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





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Create a new account		
create a new account		
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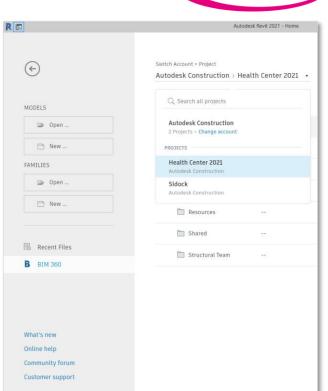
Enjoy more choice in where your cloud-hosted projects are stored



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

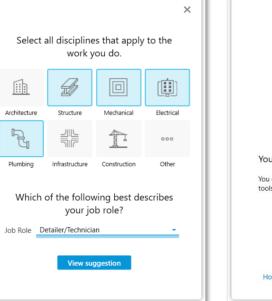




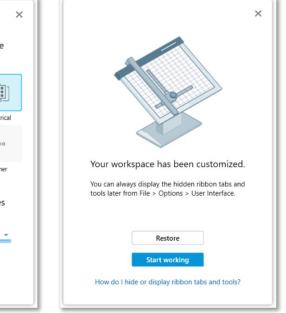
Autodesk Revit 2021

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



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

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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	CeilingTile
1	Level 0	1-L0-05	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	CeilingTile
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2	Level 0	2+LO-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+LO-04	Shower/Changing	20 m²	W.C	Ceramic Tile	Ceramic Tile	CeilingTile
2	Level 0	2-LO-05	Shower/Changing	20 m²	W.C	Ceramic Tile	Ceramic Tile	CeilingTile
2	Level 0	2-LO-06	Rest Area	40 m²	Staff Rest Area	Matt Vinyl Paint	Composite Timber	CeilingTile
2	Level 0	2-LO-07	W.C	6 m²	W.C	Ceramic Tile	Ceramic Tile	CeilingTile
2	Level 0	2-L0-08	W.C	6 m²	W.C	Ceramic Tile	Ceramic Tile	CeilingTile
2	Level 0	2+LO-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-LO-02	Ticket 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-L0-04	Station Foyer	315 m²	Circulation	Fair Faced Blockwork	Terazzo	Exposed Soffit

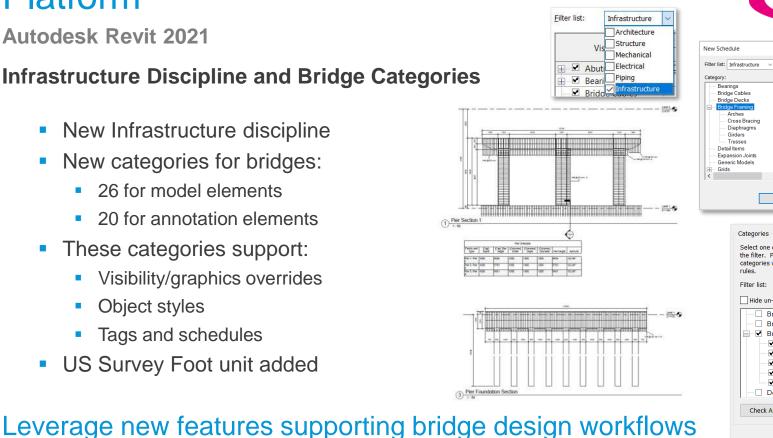
Improve the readability of large schedules



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





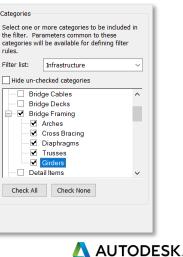
Schedule kevs

New Construction

Cancel

Help

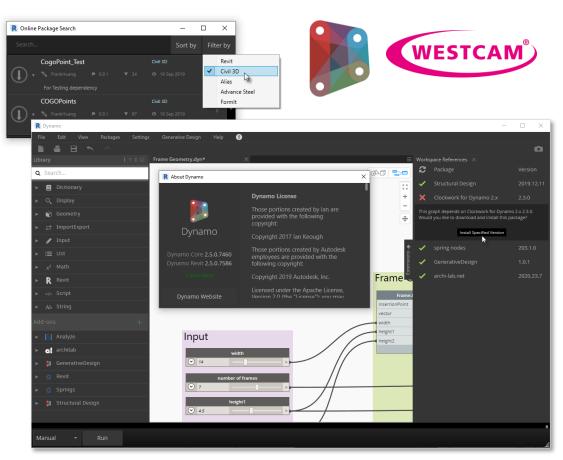
Phase:



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



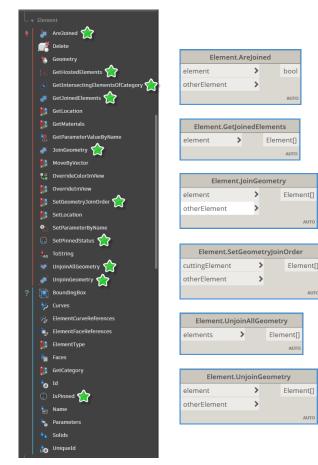
The latest Dynamo capabilities are now installed with Revit



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





Element.GetHostedE	lements	
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includeShadows	>	
includeEmbeddedWalls	>	
includeSharedEmbeddedInserts	>	
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Element.Get	IntersectingEl	ementsOfCategory
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category	>	
		AUTO

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		AUTO

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element	>	bool
		AUTO

Take advantage of improved capabilities for task automation



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



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Bottom Chord		✓						
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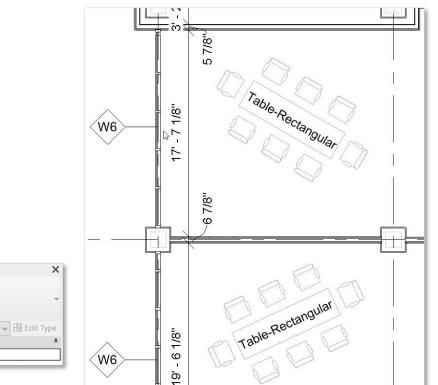
Easily toggle view filter graphic overrides



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



WEST

Create more accurate and readable annotations

Properties

Other

Family: Furniture Tags N

Rotate with component



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

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Use parameters to drive smarter void behaviors in families



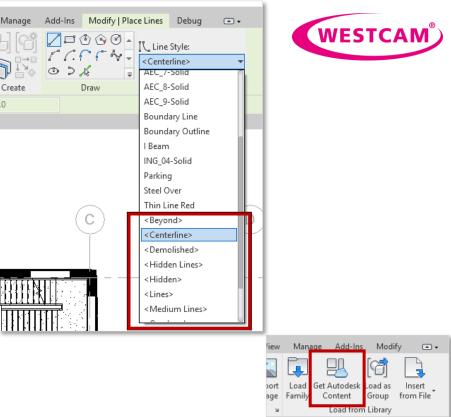


Autodesk Revit 2021

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



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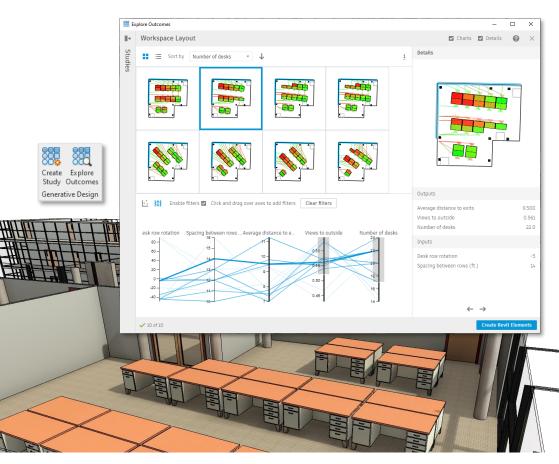


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Autodesk Revit 2021

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



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

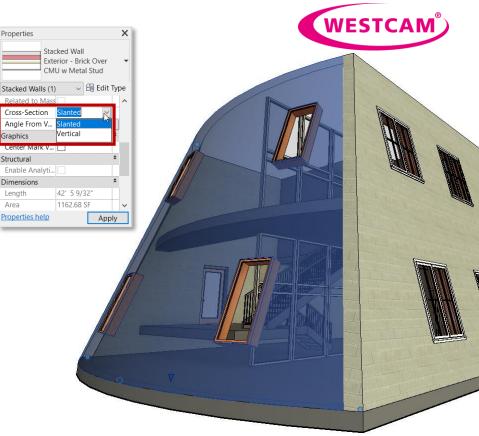


Autodesk Revit 2021

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.



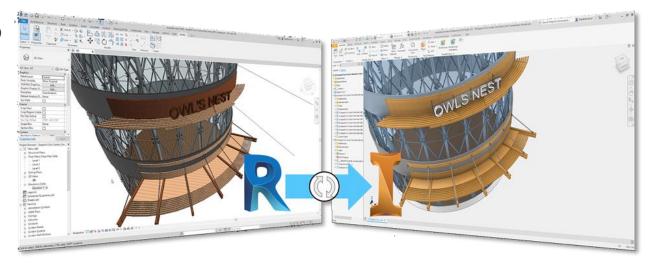


Autodesk Revit 2021

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

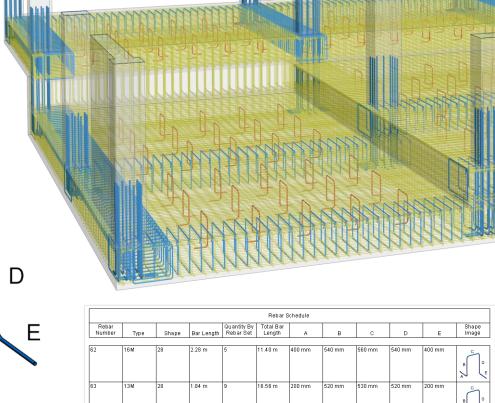




Autodesk Revit 2021

Create New Standard 3D Rebar Shapes

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



48.18 m

120 mm

600 mm

660 mm

13M

28

2.19 m

Introduce new, intelligent 3D rebar shapes

В

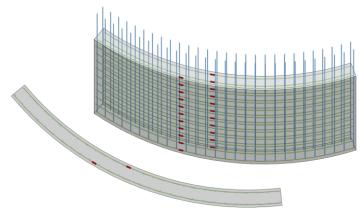


120 mm

Autodesk Revit 2021

Couplers for Arc-shaped Rebar

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





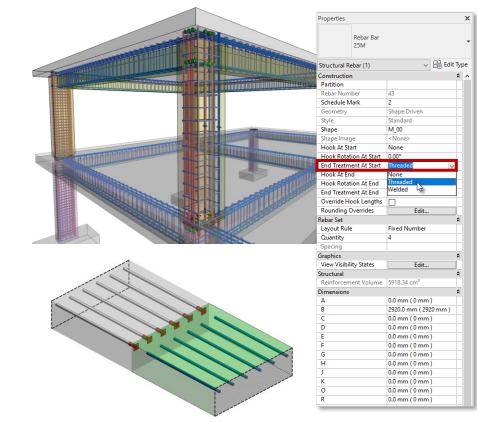
Model arc-shaped reinforcement at a higher level of detail



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



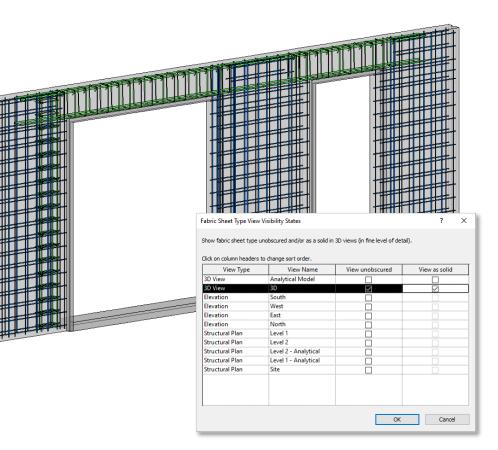
Easily model reinforcement end treatments



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



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

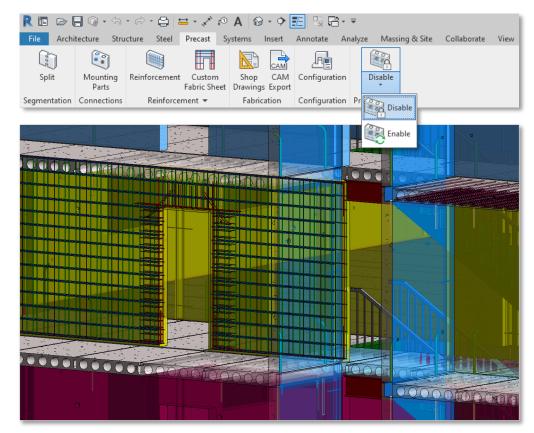
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Structural			\$
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Bar Length		1855.7 mm (18	50 mm)



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



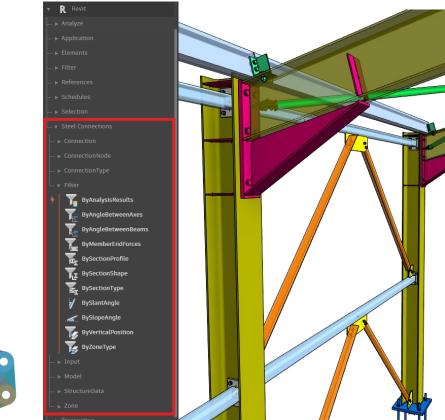
Powerful precast capabilities are now integrated into Revit



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



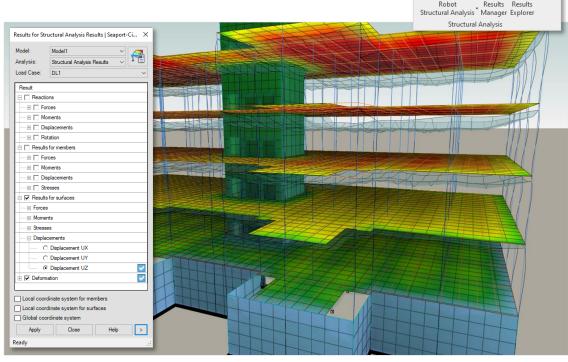
Dynamo nodes for steel connections are now installed with Revit



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

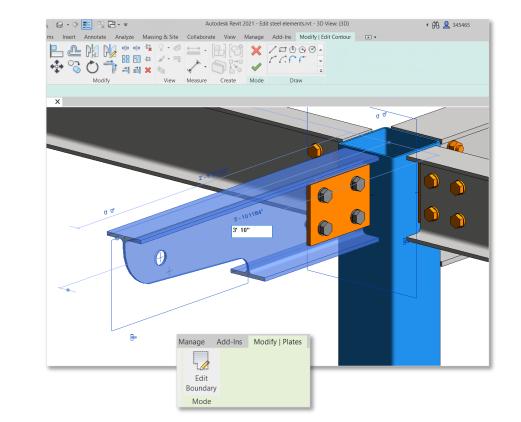


Autodesk Revit 2021

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

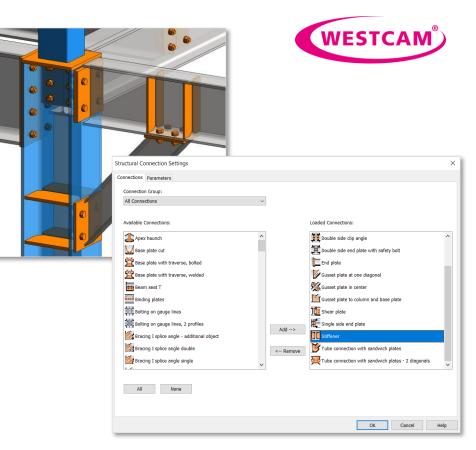




Autodesk Revit 2021

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



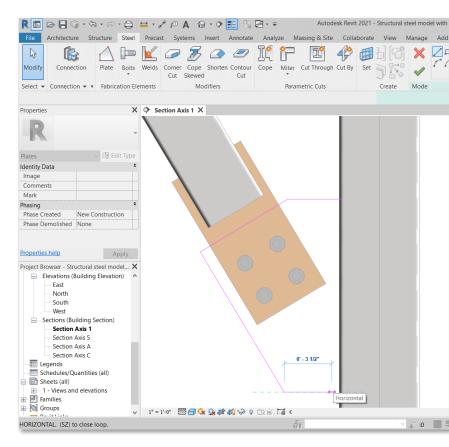
Create and modify stiffeners with dedicated features



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



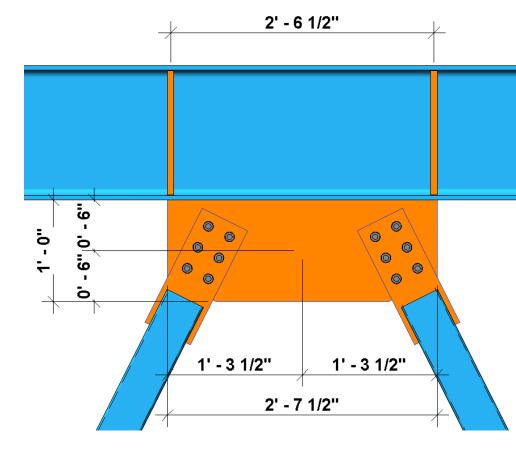
Model steel components in any 2D or 3D view



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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

Select one or more parameters to co Parameter Type:	mome the	Circuit Naming Scheme Na	me:				200
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Circuit Parameters:		Circuit Naming Parameter:					
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Load Name Number of Poles	÷	Phase Label		Phase Label			
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Better flexibility with circuit naming schemes





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)

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Choose format for displaying loads: Loads by Those Loads a Split Columns by Phase Loads as Shared Columns by Phase	Loads by Phase Loads in Split Columns by Phase Loads in Shared Column by Phase					Main Model	Phase Single	Configuration	Wires 2	🤨 🎝 🛼 대	? L-G Voltage	
Show circuit number on one row fi			- Wit			0/208 Wye	Three		4	None 208	120	

Support single phase L-N panels in your projects



ОК

Cancel

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"

S	Switchboard: BSB- Location: Basement Supply From: Mounting: Enclosure:	_	Volts: Phases: Wires:	A.I.C. Rating: Mains Type: Mains Rating: MCB Rating: 600 /				
	Circuit Description	1	# of Poles	Frame Size	Trip Rating	A	в	с
Rece	ptacle MDF B-104		2	400 A	30 A		1500 VA	1500 V
Rece	ptacle MDF B-104		2	400 A	30 A	1500 VA	1500 VA	
	ptacle MDF B-104		2	400 A	30 A	1500 VA		1500 V
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_	Properties Metering Switc BSB-2		×		Total Conn. Load: Total Amps:	18000 VA 50 A		
	Electrical Equipment (1)	🗸 🗄 Edi						
	Electrical - Circuiting		* ^					
	Feed Through Lugs							
	MCB Rating	600.00 A						
	Max Number of Circuits	12 I 🗄						
	SubFeed Lugs	\checkmark						
	Feed							
	Circuit Naming	Standard						
	Circuit Prefix Separator							
	Circuit Prefix							
	Modifications							
	Mains							
	Short Circuit Rating							
	Distribution Costans	420 (200) 11						
	Distribution System	120/208 Wye	\sim					

Accurately reflect the quantity of circuits in your schedules



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

Change Rebalance Ren	ructure Steel Pre	cast Systems	Insert Annotate Analyz Insert Annotate Analyz Aove Assign Assign Remove To Spare Space Spare/Spare Circuits	e Massing & Site	Update Edit	View Ma	anage Add	I-Ins Modify		nedule: BSB	
Modify Panel Schedule											
Properties		🗙 📑 BSB-1	📴 BSB-2	×							
Electrical Circuits (1) Wire Size # of Runs # of Hot Conductors # of Neutral Conductors	✓ Eli Edit T 2-#8, 1-#8, 1-#8 1 2 1	ype Notes:	Locatic Supply Fro Mountir Enclosu	g:		Volts: 120 Phases: 3 Wires: 4	0/208 Wye			A.I.C. Ratir Mains Typ Mains Ratir MCB Ratir	pe: ng:
# of Ground Conductors Number of Elements Receptacle Connected	1 1 3000.00 VA	скт	Circuit	Description	# 0	f Poles	Frame Size	Trip Rating	А	в	
Identity Data Image	3000.00 VA	2	Receptacle MDF B-104 Receptacle MDF B-104 Receptacle MDF B-104	•		2 2 2	400 A 400 A 400 A	30 A 30 A 30 A	1500 VA 1500 VA 1500 VA	1500 VA 1500 VA	1
Comments Workset	Workset1	- 4	Receptacle MDF B-104 Receptacle MDF B-104			2	400 A 400 A	30 A 30 A	1500 VA	1500 VA 1500 VA	1
Edited by Properties help Project Browser - Seaport-Ch Project Browser - Seaport-Ch BDPHA BDPHA BDPHB BEDPHA	whiteb Appl vic-Center_All_ELEC	X 10 11 12	Receptacle MDF B-104			2	400 A	30 A	1500 VA		
BEDPHA-ATS BELA BHA BLA BSB-1		Legend: Load Class Receptacle	ification	Cc	nnected Load 18000 VA		nd Factor	Estimated Der 14000 VA			

Better communicate design intent and better analyze electrical loads



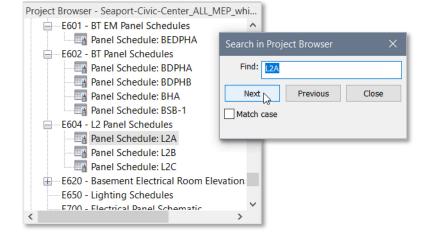


Autodesk Revit 2021

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





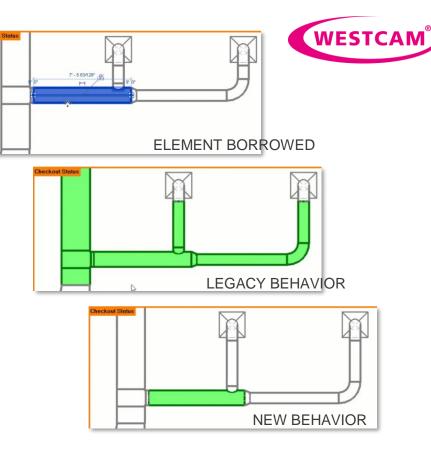




Autodesk Revit 2021

MEP Worksharing Enhancements

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



Worksharing enhancements facilitate better collaboration

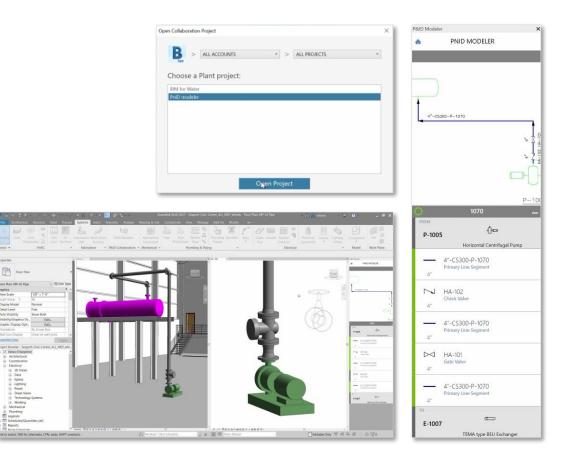




Autodesk Revit 2021

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 colorcoded to ensure correct usage and positioning



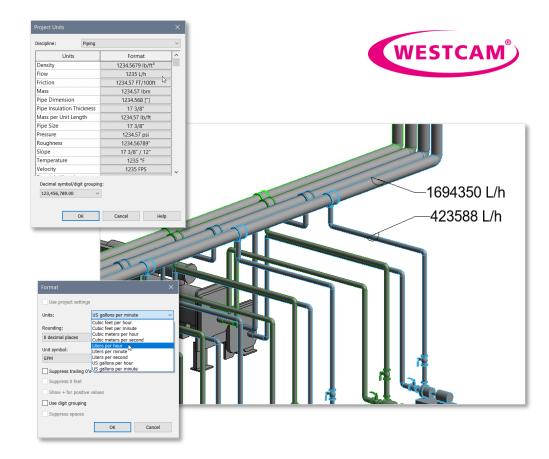
Centralized cloud platform for transfer of project information



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

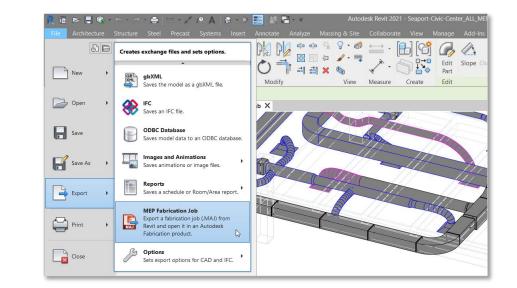




Autodesk Revit 2021

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



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Fabrication capabilities are now integrated into Revit

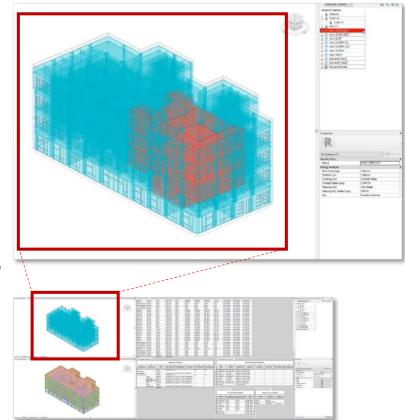


xports

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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