



AEC Collection What's New in Revit® 2022



New Features and Enhancements

Autodesk Revit 2022

Design Productivity

- ✓ Tapered Walls
- ✓ Edit Wall Profile for Slanted Walls
- ✓ Enhanced RPCs in Realistic Views
- ✓ Use RPC for Furniture Category
- ✓ Generative Design in Revit – New Sample Study Types
- ✓ Generative Design in Revit – Save Default Settings
- ✓ Generative Design in Revit – Drop-down Inputs
- ✓ Generative Design in Revit – Constant and Variable Inputs
- ✓ Generative Design in Revit – Manage Study Type Folders
- ✓ Dynamo for Revit 2.10
- ✓ Multiple Routes for Path of Travel
- ✓ Spatial Grids for Documenting Layouts
- ✓ Place People as Obstacles
- ✓ One-way Indicators for Path of Travel
- ✓ Enable Modeling Capability for Bridge and Road Categories
- ✓ Alignment Station Enhancements
- ✓ Rename Default Shared Site
- ✓ Reload Configuration Behavior Improvements
- ✓ Reload Configuration Performance Improvements
- ✓ Enable Room or Space Mode for Systems Analysis
- ✓ Fabrication Modeling Improvements
- ✓ Design to Fabrication Improvements
- ✓ New Family Categories for Equipment and Building Elements
- ✓ Model Rebar using the Real Bar Diameter
- ✓ Move Rebar in a Set
- ✓ Rebar Placement by Two Points
- ✓ Select Shape Code for Custom Bent Free Form Rebar
- ✓ Remember Settings when Placing Rebar
- ✓ Rebar Performance Improvements
- ✓ Associate Steel Connections with Profile Sizes
- ✓ Category Lists Sorting Improvement
- ✓ Remember Modify Tools Settings Across Revit Settings
- ✓ Revit Home Loading Performance Improvement
- ✓ Remember Last Used Tab in Material Browser
- ✓ Improved Parameter Identification UI
- ✓ Unified Cloud Model Initiate UI
- ✓ Update BIM 360 Branding to New ACC Branding
- ✓ Load Autodesk Family Resize View Filter Panels
- ✓ Resize Transfer Project Standards Dialog
- ✓ Resize Edit Multiline Text Dialog
- ✓ Resize Warning Dialogs
- ✓ Resize Wall Sweeps Dialog
- ✓ Resize Purge Unused Dialog
- ✓ Resize Sync with Central (with Comments) Dialog

New Features and Enhancements

Autodesk Revit 2022

Interoperability

- ✓ Native 2D PDF Export
- ✓ Link Rhino 3DM Files
- ✓ 3D Sketch and Send to Revit with FormIt Pro
- ✓ Import FormIt as a CAD Format
- ✓ IFC4 Certification for Architecture and Structure
- ✓ IFC Performance and Quality Improvements
- ✓ Link Inventor Assemblies as Revit Models
- ✓ Nameable Reference Geometry
- ✓ Persistent Tags for DirectShapes
- ✓ 2D Shared Views
- ✓ Open Cloud Model from File Menu

Documentation Efficiency

- ✓ Enable Scheduling of Worksets
- ✓ Shared Parameters in Key Schedules
- ✓ Split Schedules Across Sheets
- ✓ Filter Schedules by Family and Type
- ✓ Export Schedules to CSV by Default
- ✓ Multiple Values Indication
- ✓ Rotated Tags
- ✓ Multi-Leader Tags
- ✓ Tag Curtain Wall Mullions
- ✓ Multi-category Tag for All Taggable Categories
- ✓ Link Tag Re-hosting
- ✓ Dimension Prefix/Suffix

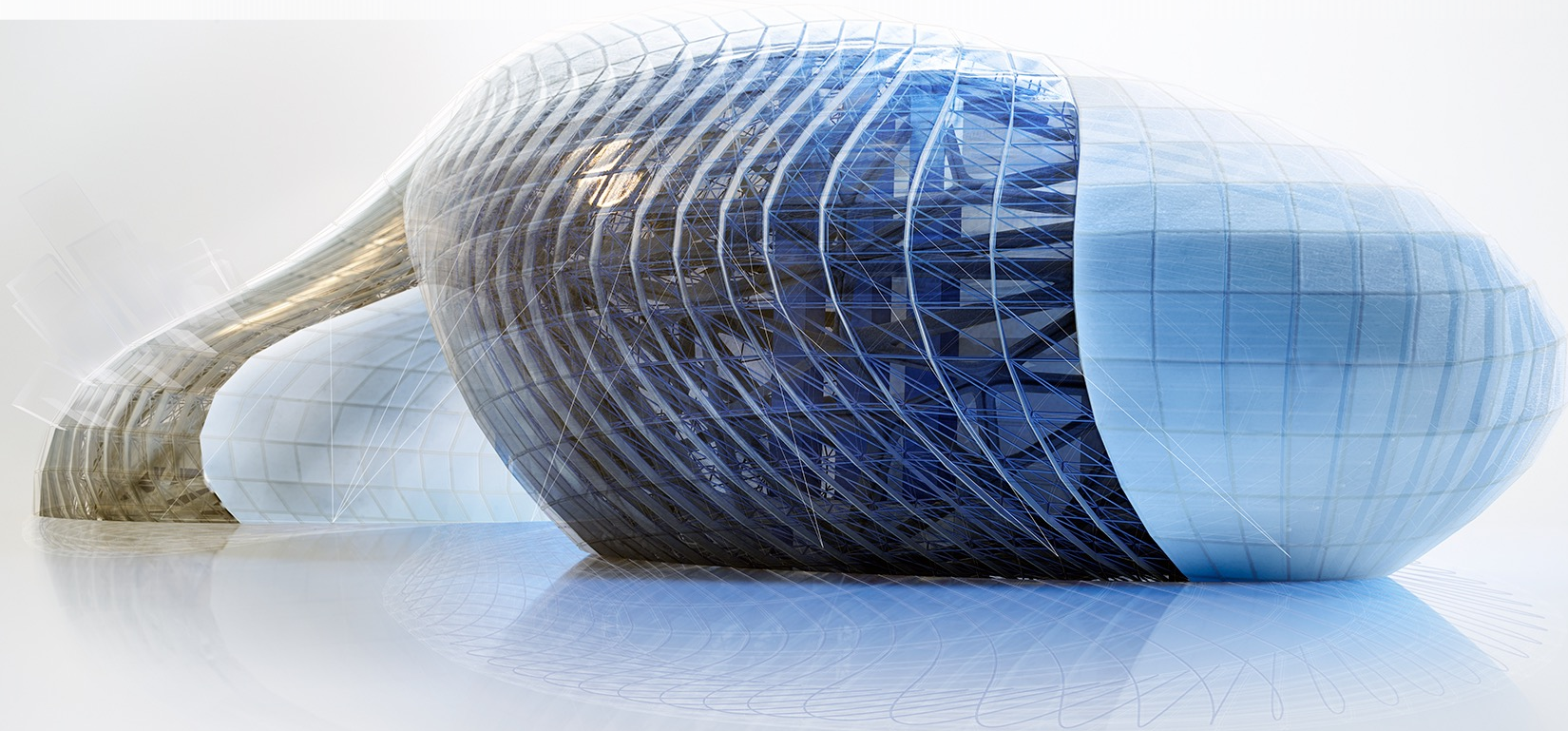
- ✓ Revision Numbering Flexibility Enhancements
- ✓ Spot Slopes and Elevations on Ramps
- ✓ Show Wall Core Only in Plan Views
- ✓ Grids in 3D Views
- ✓ Phase Parameters in View Filters
- ✓ Improved Default Color Fill Scheme
- ✓ Multi-Select Visibility/Graphics Overrides Filters
- ✓ Preserve Callouts when Deleting Parent Views
- ✓ Maintain Annotation Orientation for Shared Nested Families
- ✓ Maintain Annotation Orientation Added to Additional Categories
- ✓ Systems Analysis Load and Psychrometric Reports

- ✓ Fixes to Key MEP Documentation
- ✓ Auto-shading in Two-column Panel Schedules

Developer Tools

- ✓ New Dynamo Nodes for Revit Documentation
- ✓ Sketch API
- ✓ Viewport Label on Sheet API
- ✓ Color Fill API
- ✓ Cloud Model Initiate and Link API
- ✓ API for Mapping Cloud Model with Docs URNs
- ✓ Point Cloud API

Design Productivity

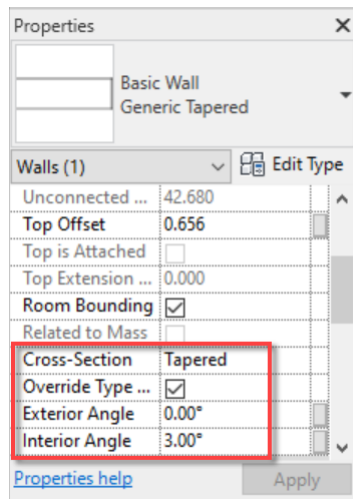


Design Productivity

Autodesk Revit 2022

Wall Enhancements

- Tapered Walls
- Specify sloping angles for interior and exterior surfaces
- Override type slope properties at the instance level
- Edit Profile for Slanted Walls



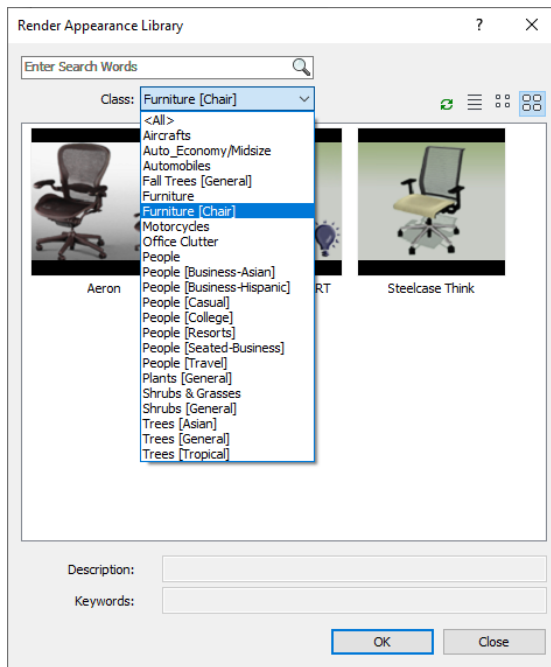
Improved wall modeling with tapered and slanted wall enhancements

Design Productivity

Autodesk Revit 2022

Enhanced RPCs in Realistic Views

- Display complex geometries, physical-based materials and lighting
- 'Billboard' mode orients RPCs towards the camera
- Use RPC for Furniture Category
- Expanded RCP Asset Library



Create better photorealistic renderings with RPC enhancements

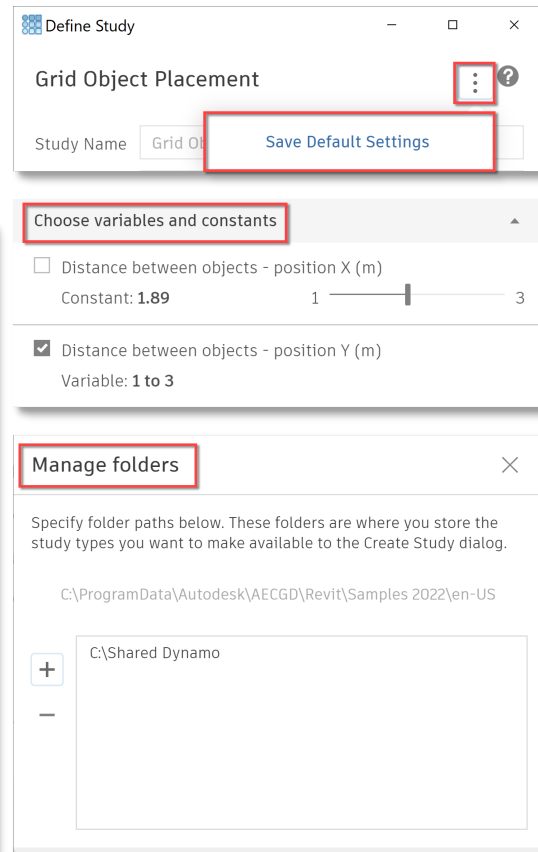
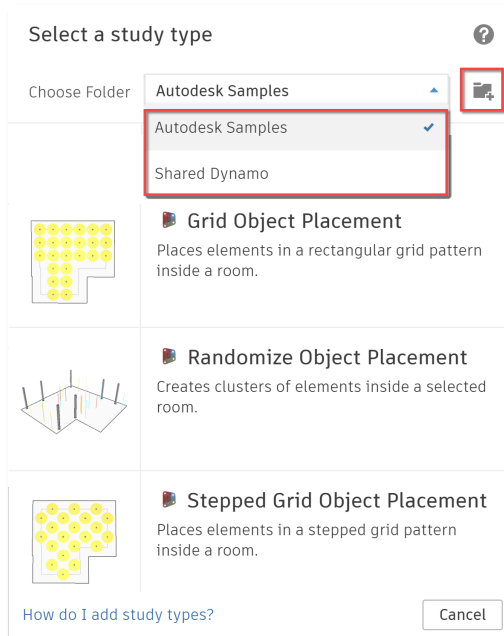
Design Productivity

Autodesk Revit 2022

Generative Design Enhancements

- New Sample Study Types
- Save Default Settings
- Drop-down Inputs
- Constant and Variable Inputs
- Manage Study Type Folders

Make informed design decisions faster with Generative Design

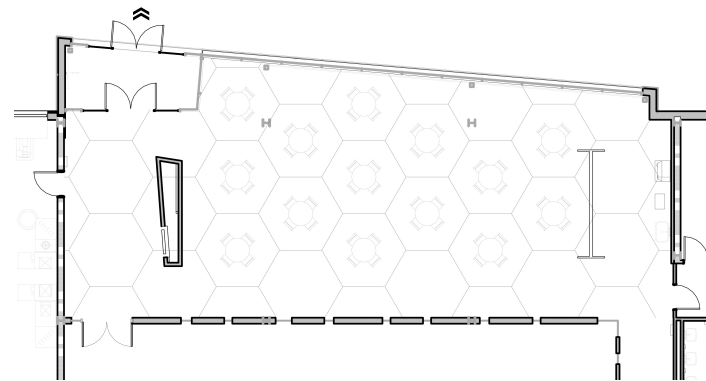
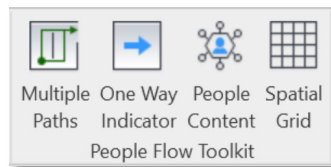
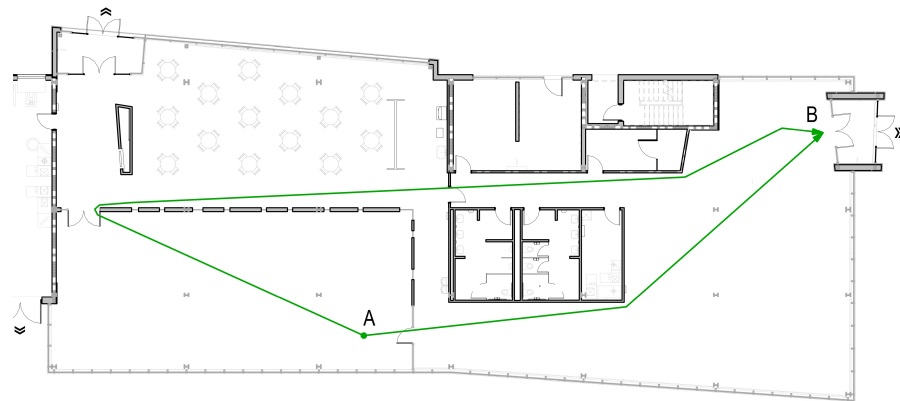


Design Productivity

Autodesk Revit 2022

Route Analysis Tools

- Visualize the multiple ways occupants move in space
- Use One-Way Indicators to restrict the direction of a path
- Place elements with built-in clearances
- Overlay spatial grids in rooms to aid with element distribution with physical distance requirements



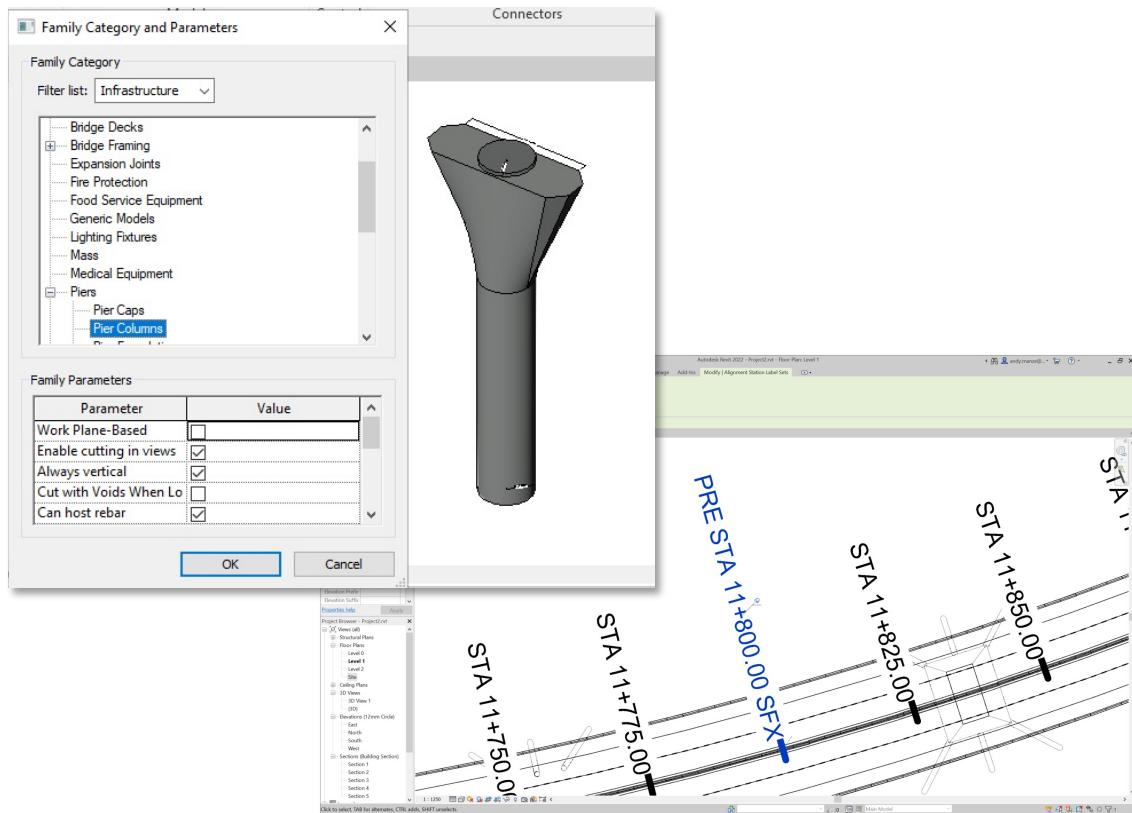
Automate distance and physical separation requirements in route analysis

Design Productivity

Autodesk Revit 2022

Infrastructure Enhancements

- Enable Modeling Capability for Bridge and Road Categories
- Alignment Station Enhancements
 - Add Prefix and Suffix to Alignment Station Text
 - Add Flip Control to the Alignment Station Label
 - Expose True Start and End Stations in Revit API



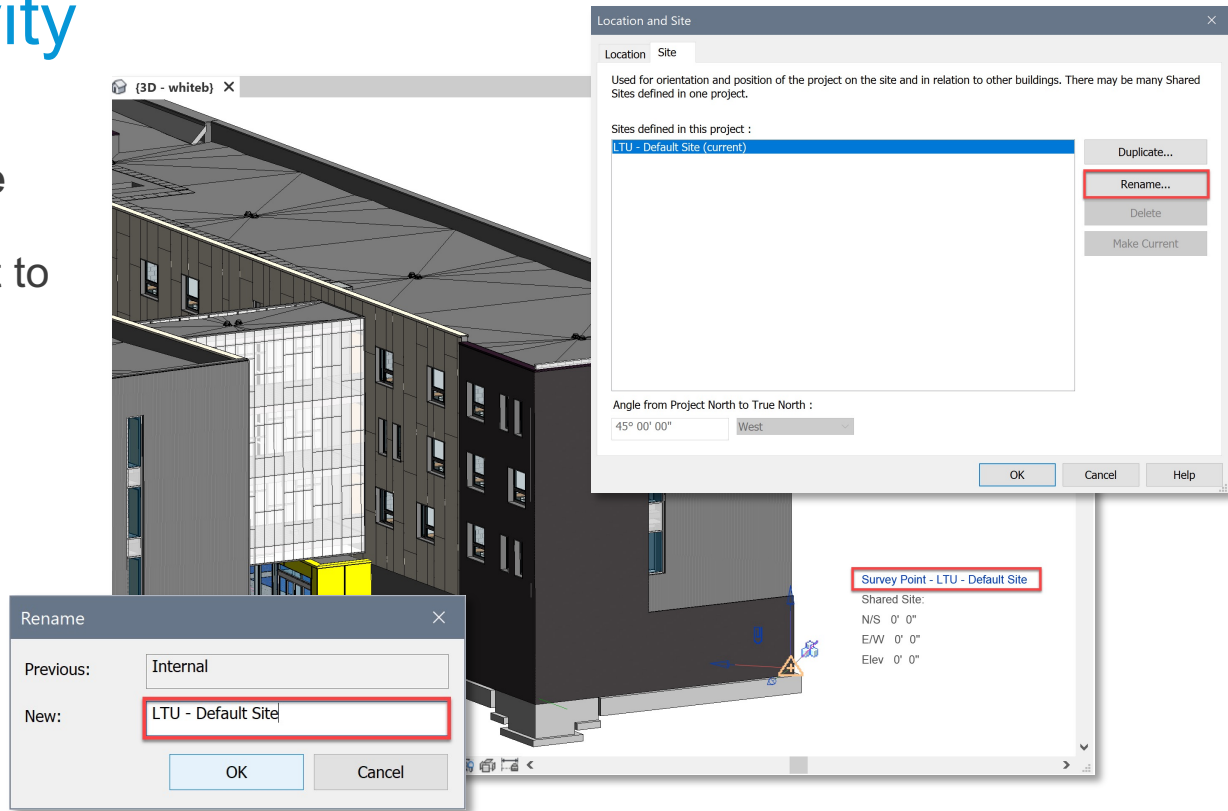
Improved capabilities and flexibility for infrastructure workflows

Design Productivity

Autodesk Revit 2022

Rename Default Shared Site

- Clearly named survey point to help avoid confusion
- Supports all 151 ENU templates for all countries



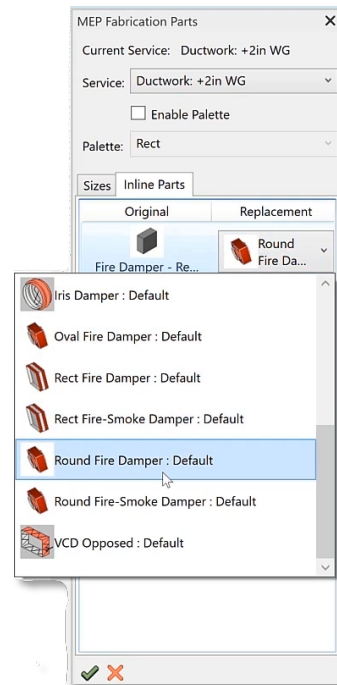
Rename the default shared site location in any template

Design Productivity

Autodesk Revit 2022

Fabrication Improvements

- Design to Fabrication Improvements
- Fabrication Modeling Improvements
- Reload Configuration Performance Improvements
- Reload Configuration Behavior Improvements



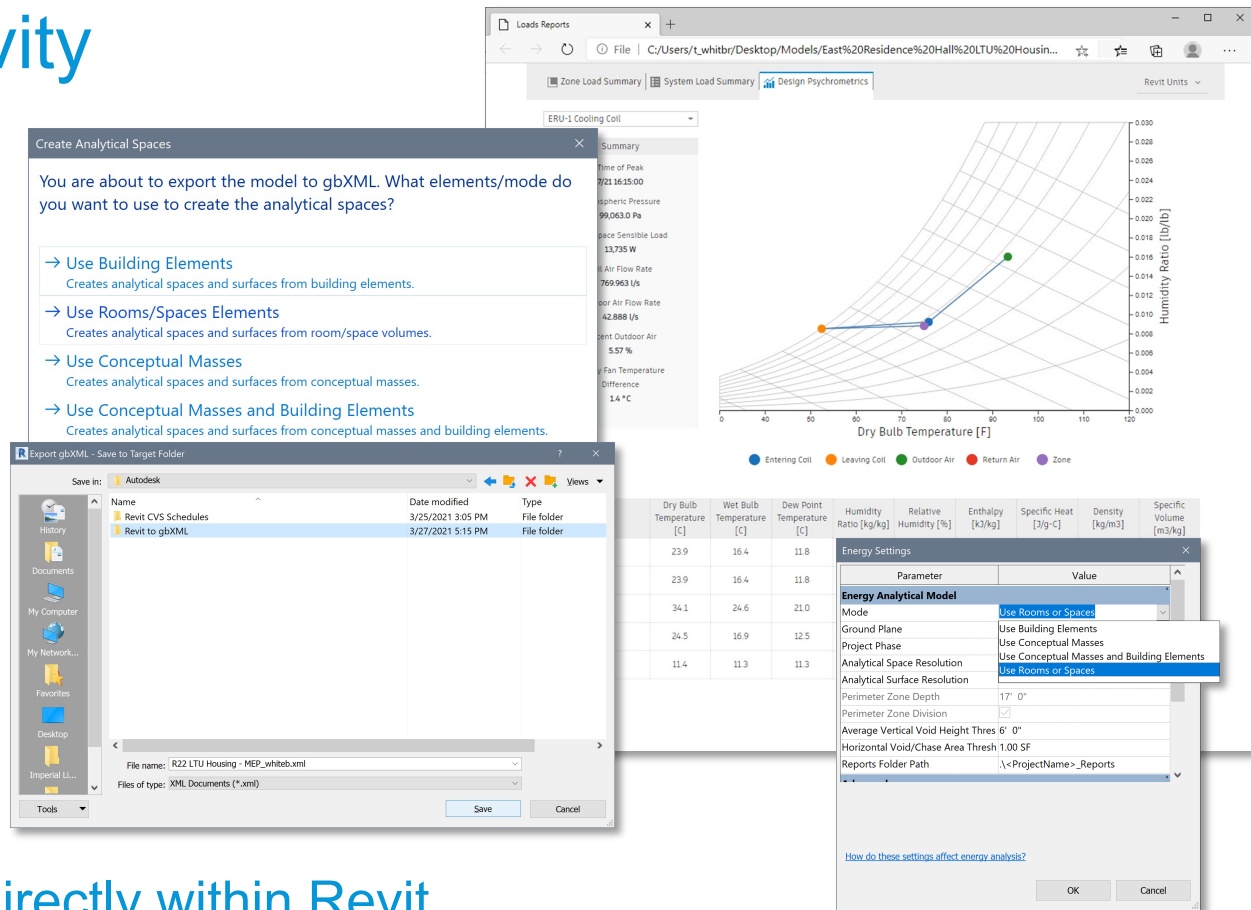
Revit provides more flexibility while working with fabrication parts

Design Productivity

Autodesk Revit 2022

Systems Analysis

- Systems Analysis Load and Psychrometric Reports
 - Get more detailed outputs
 - Explore results in new report
- Enable Room or Space Mode for Systems Analysis



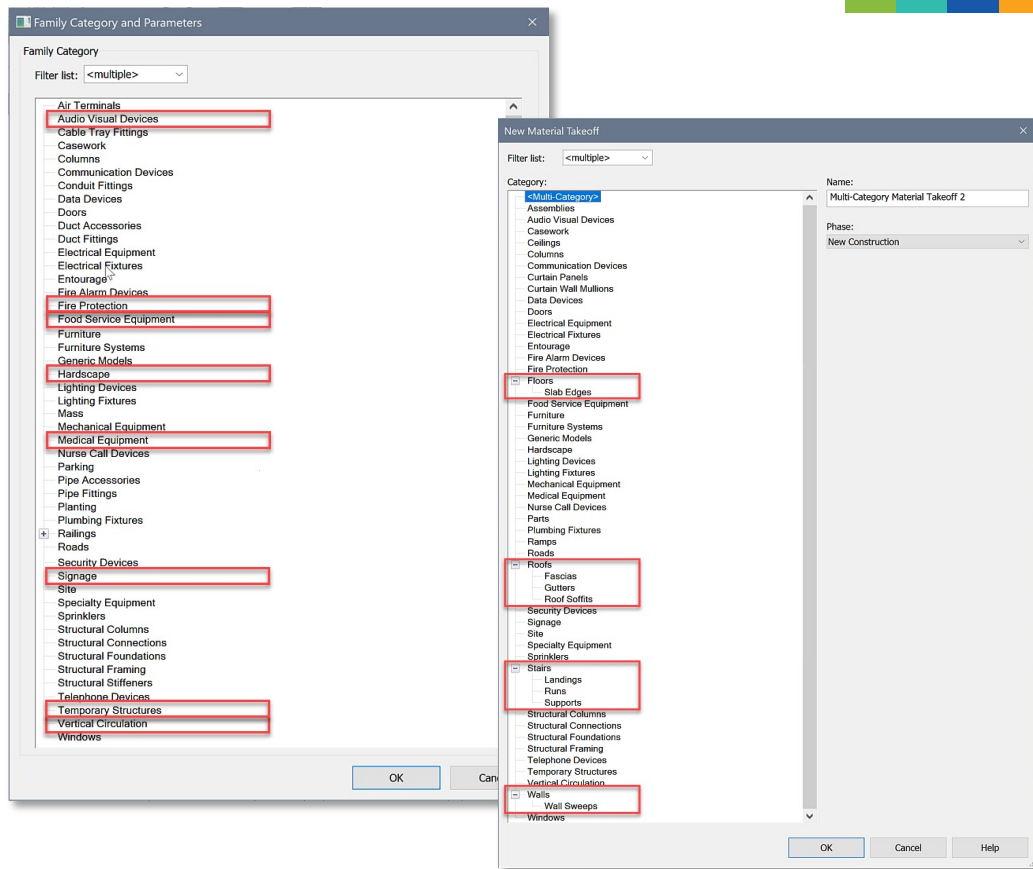
View detailed outputs directly within Revit

Design Productivity

Autodesk Revit 2022

Family Category Improvements

- New family categories for equipment and building elements
 - Assign generic models to specific categories to control visual display
- Expanded category list for multi-category schedules and Material Takeoffs
 - Enhance the ability to schedule system categories



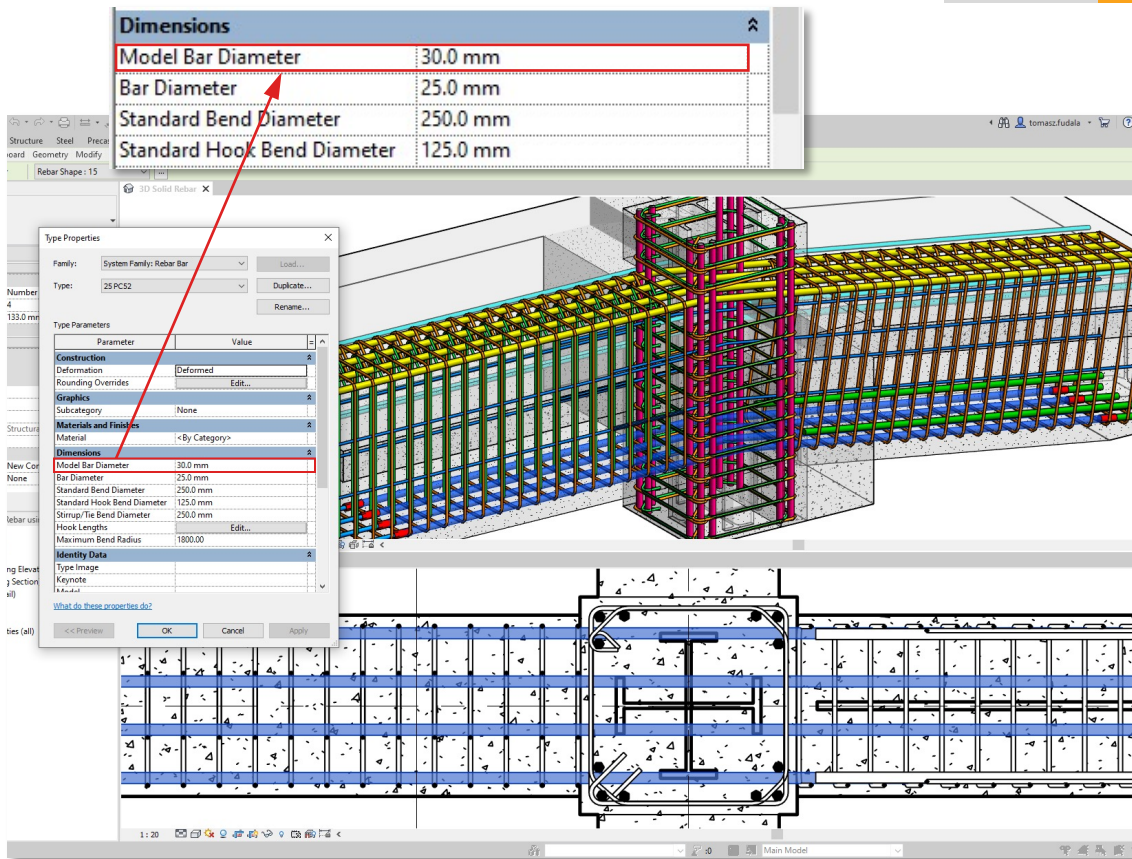
Optimize the visibility and scheduling of your Revit families

Design Productivity

Autodesk Revit 2022

Model Rebar Using the Real Bar Diameter

- New “Model Bar Diameter” parameter
- Avoid clashes in concrete elements containing many large diameter bars



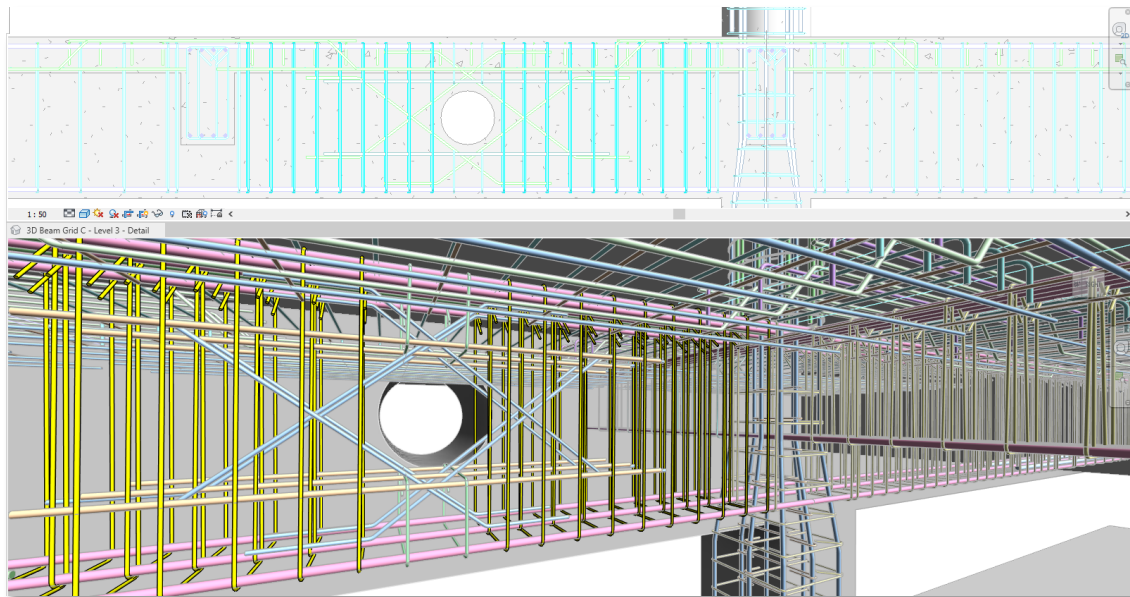
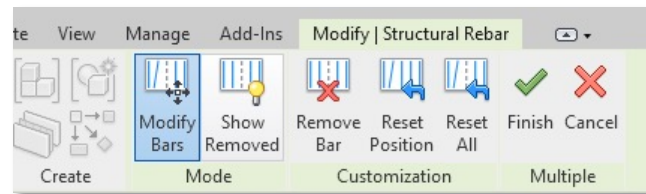
Improved user efficiency in modeling accurate concrete reinforcement

Design Productivity

Autodesk Revit 2022

Move Rebar in a Set

- Move or remove individual bars in rebar sets or area and path reinforcement systems
- Maintain the logic of the rebar set or system
- Edit multiple sets or systems at the same time



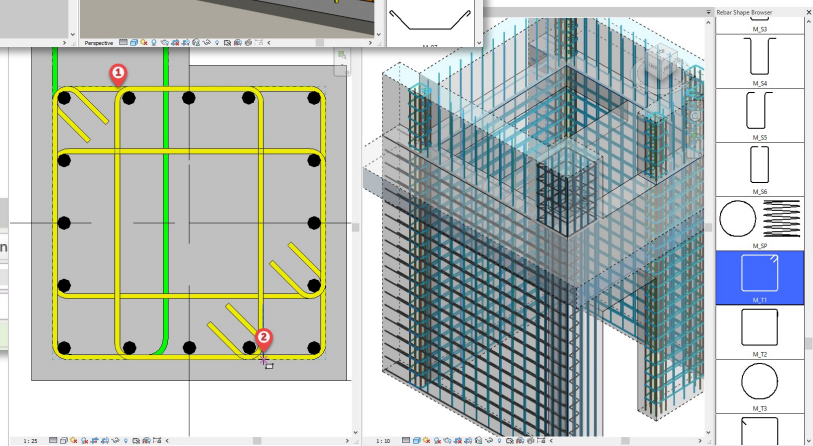
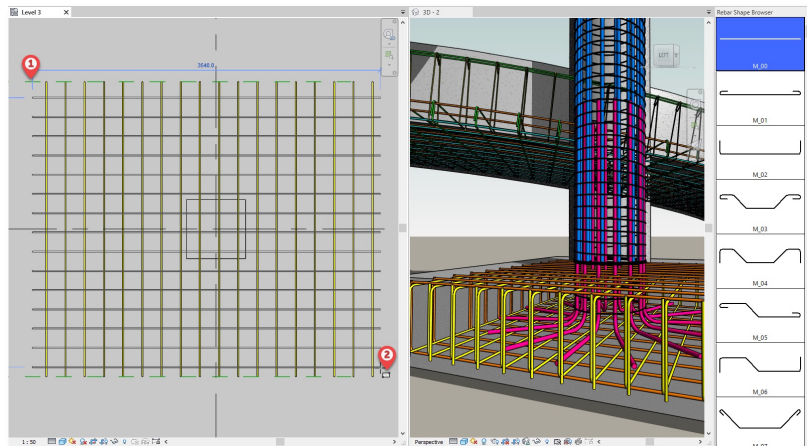
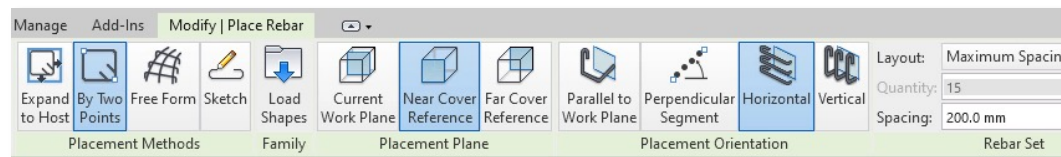
Improved user efficiency in modeling accurate concrete reinforcement

Design Productivity

Autodesk Revit 2022

Rebar Placement by Two Points

- New placement method
- Reduces number of steps needed to create bars



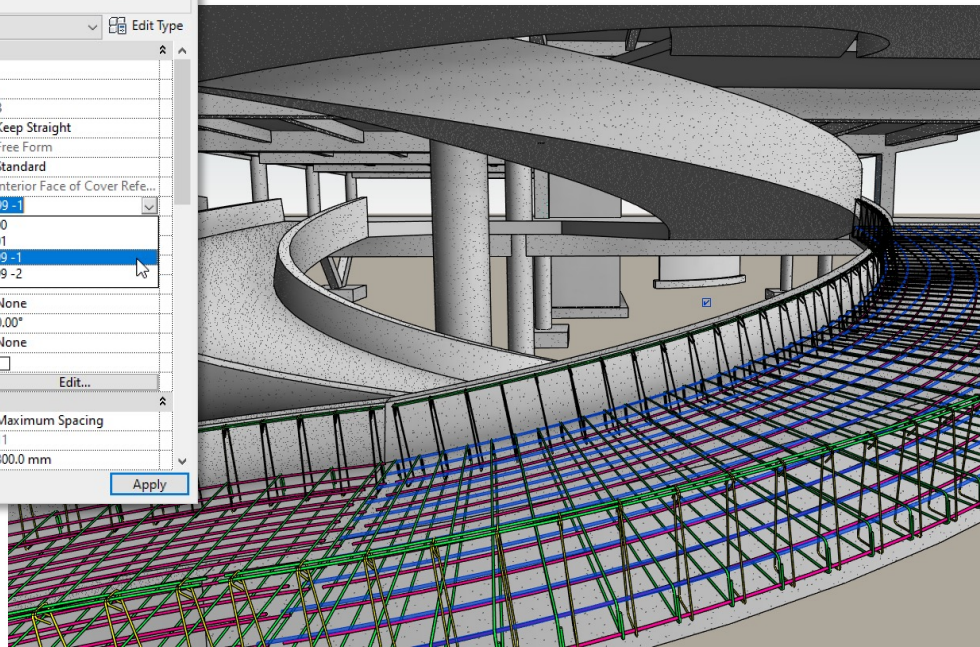
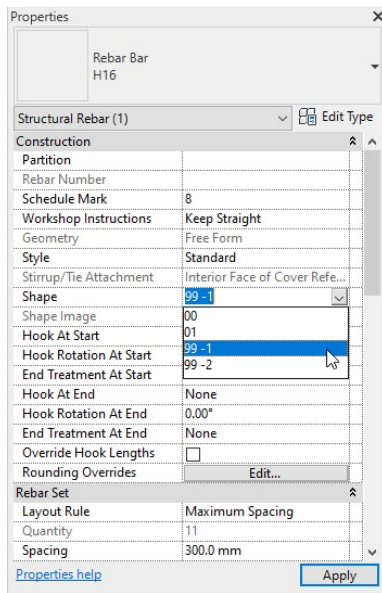
Improved ease of use and productivity in modeling reinforced concrete

Design Productivity

Autodesk Revit 2022

Select Shape Code for Custom Bent Free Form Rebar

- Use the Shape parameter dropdown to assign a new shape
- Preserve engineering rebar definition



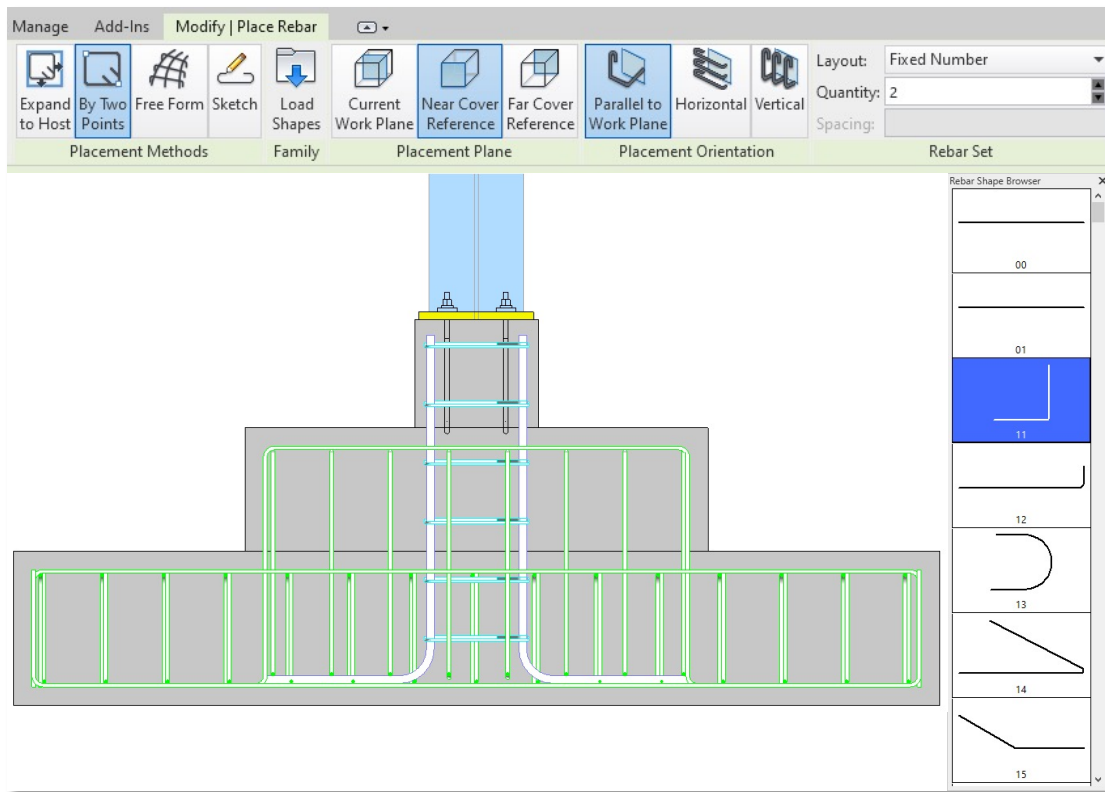
Improved rebar bending schedules for fabrication

Design Productivity

Autodesk Revit 2022

Remember Settings when Placing Rebar

- Rebar options keep their values when restarting rebar placement
- No need to reapply rebar settings for each set



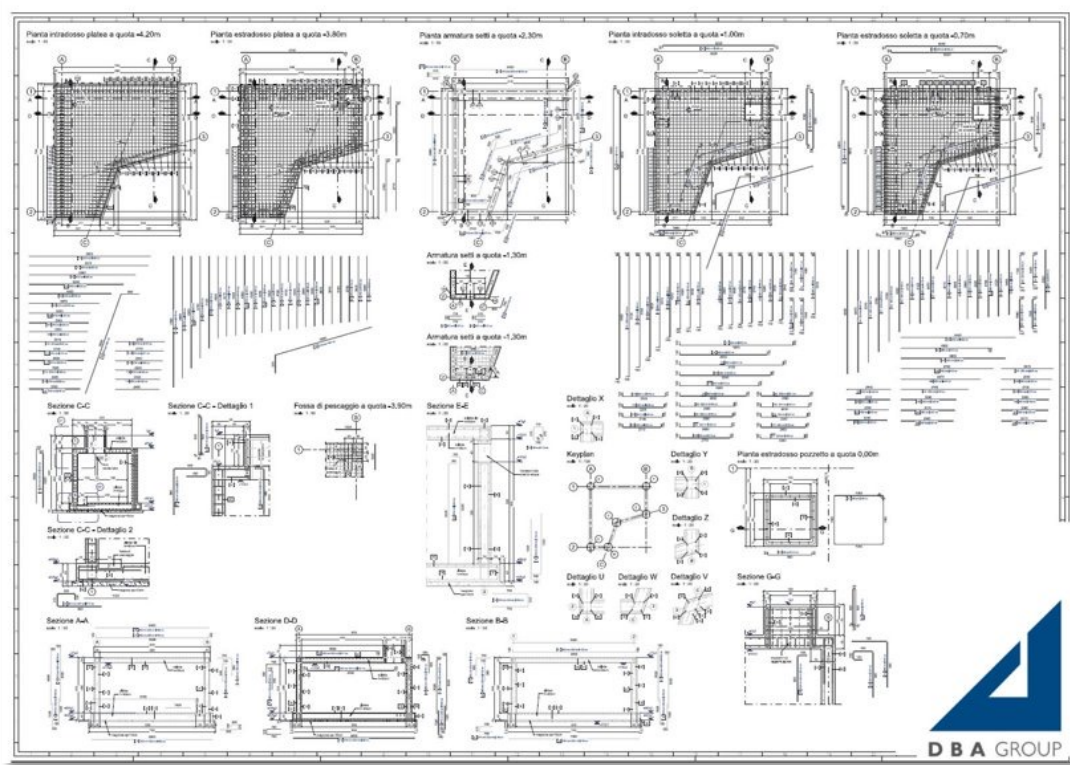
Improved productivity during rebar placement

Design Productivity

Autodesk Revit 2022

Rebar Performance Improvements

- Improved zooming and panning in 2D views at Fine detail
- Quick regeneration of views containing rebars



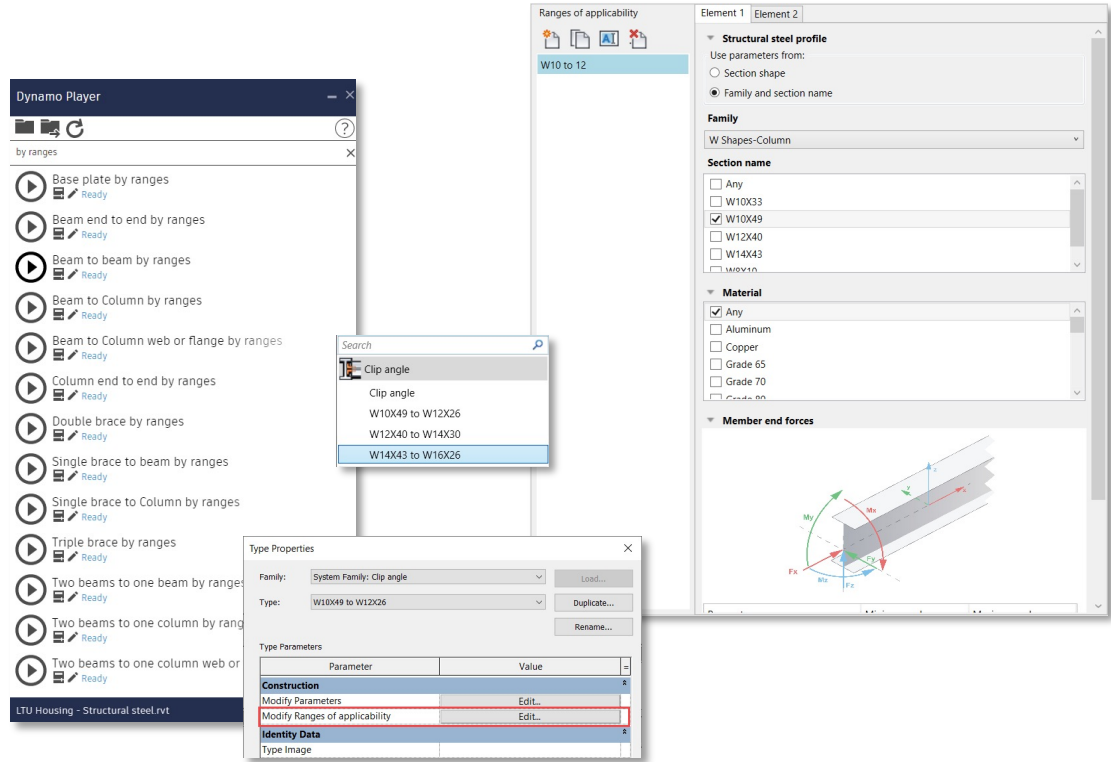
Improved performance when working on concrete details

Design Productivity

Autodesk Revit 2022

Associate Steel Connections with Profile Sizes

- Create a library of steel connections with predefined ranges of applicability
- Use Dynamo Player to create the steel connections
- Correct types are inserted in accordance with the ranges of applicability



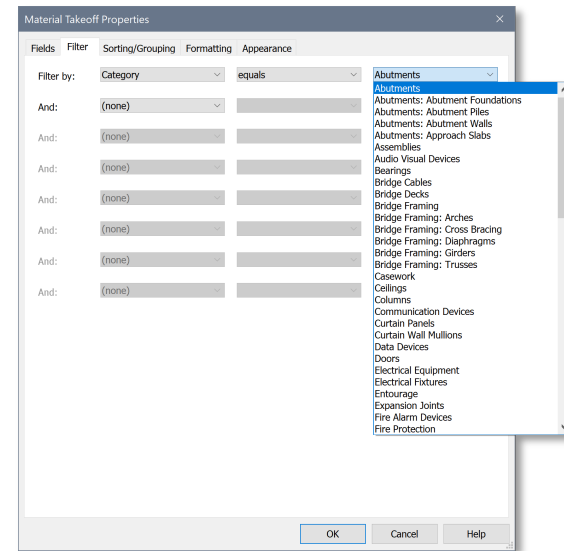
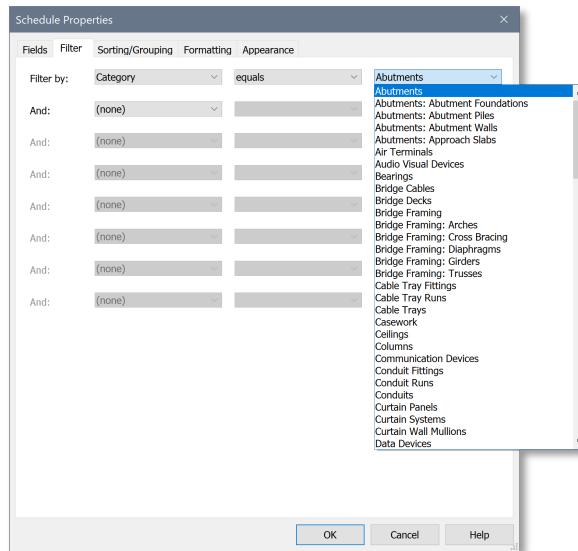
Place steel connections using predefined ranges of applicability

Design Productivity

Autodesk Revit 2022

Category Lists Sorting Improvement

- Consistent alphabetical sorting order for Schedule Properties and Material Takeoff Properties



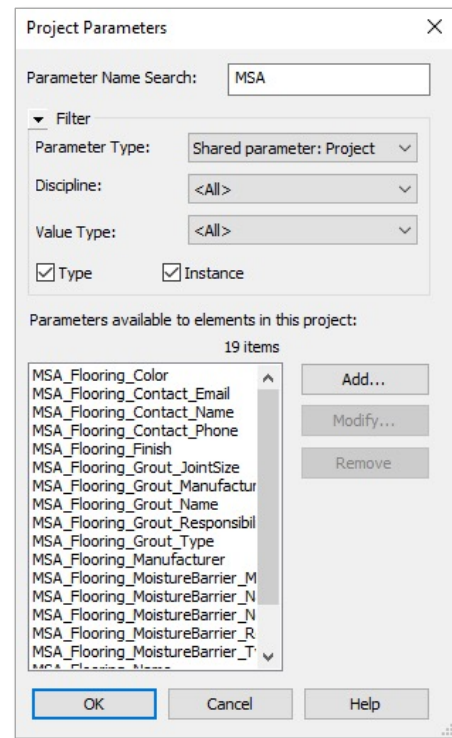
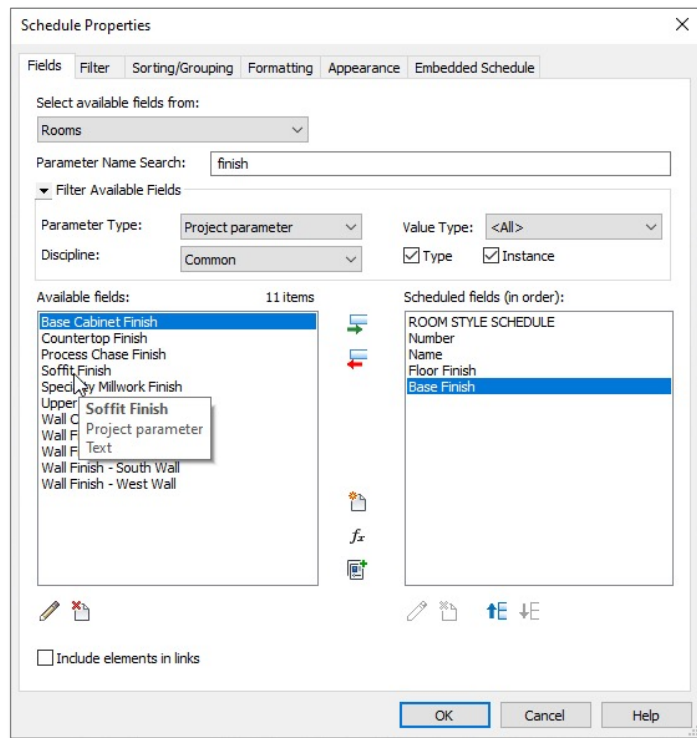
Easily sort schedule categories alphabetically

Design Productivity

Autodesk Revit 2022

Improved Parameter Identification UI

- Search parameters by name
- Filter parameters by their properties
- Use information in the tooltips to help identify the correct parameter to work with



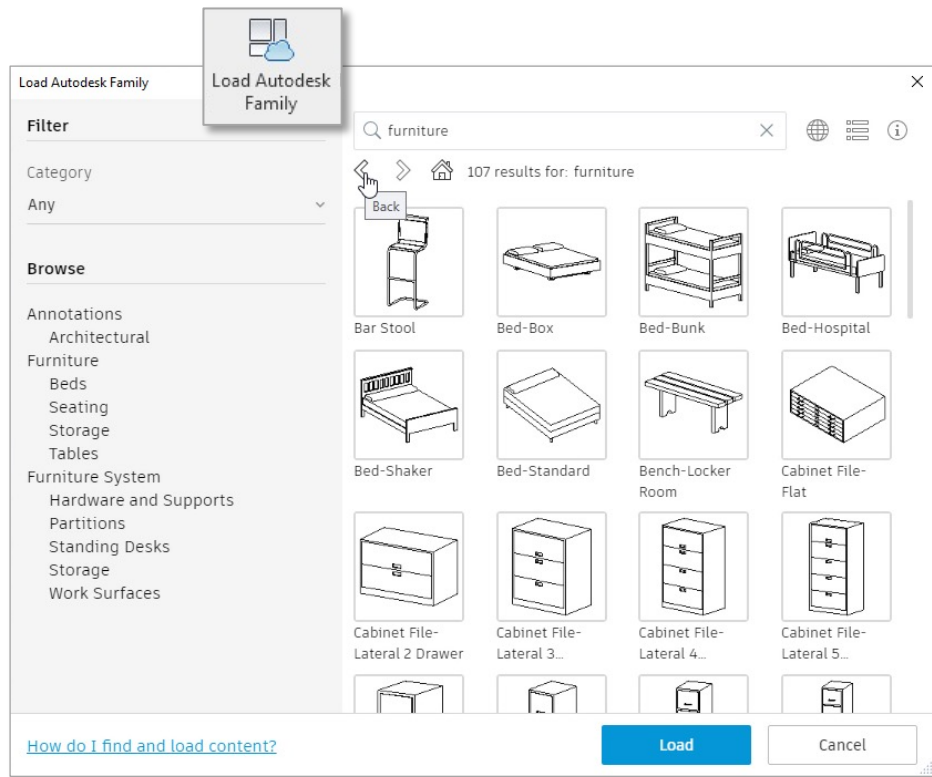
Manage parameters more accurately and efficiently

Design Productivity

Autodesk Revit 2022

Load Autodesk Family

- No longer a technology preview
- Sequential search facets display each criterion added to the search
- New buttons navigate the sequence



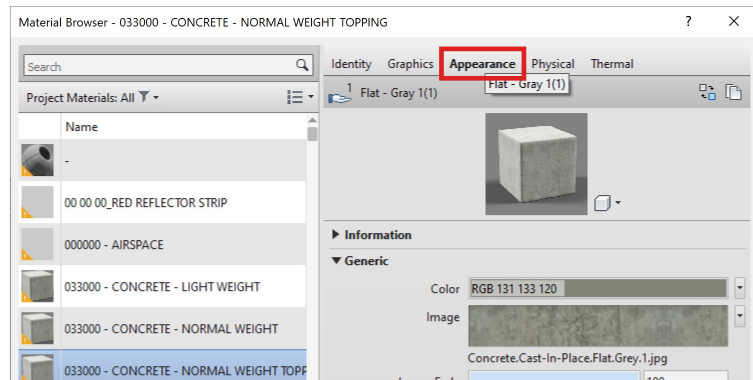
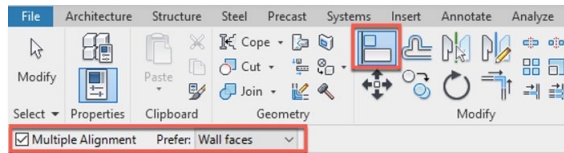
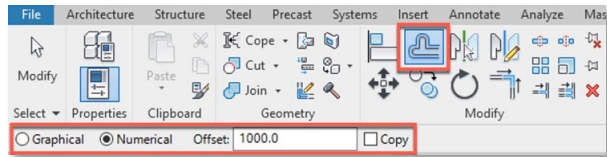
Find the right family content more quickly

Design Productivity

Autodesk Revit 2022

Small Enhancements

- Remember Modify Tools Settings Across Revit Sessions
- Remember Last Used Tab in Material Browser
- Revit Home Loading Performance Improvement



Small productivity enhancements

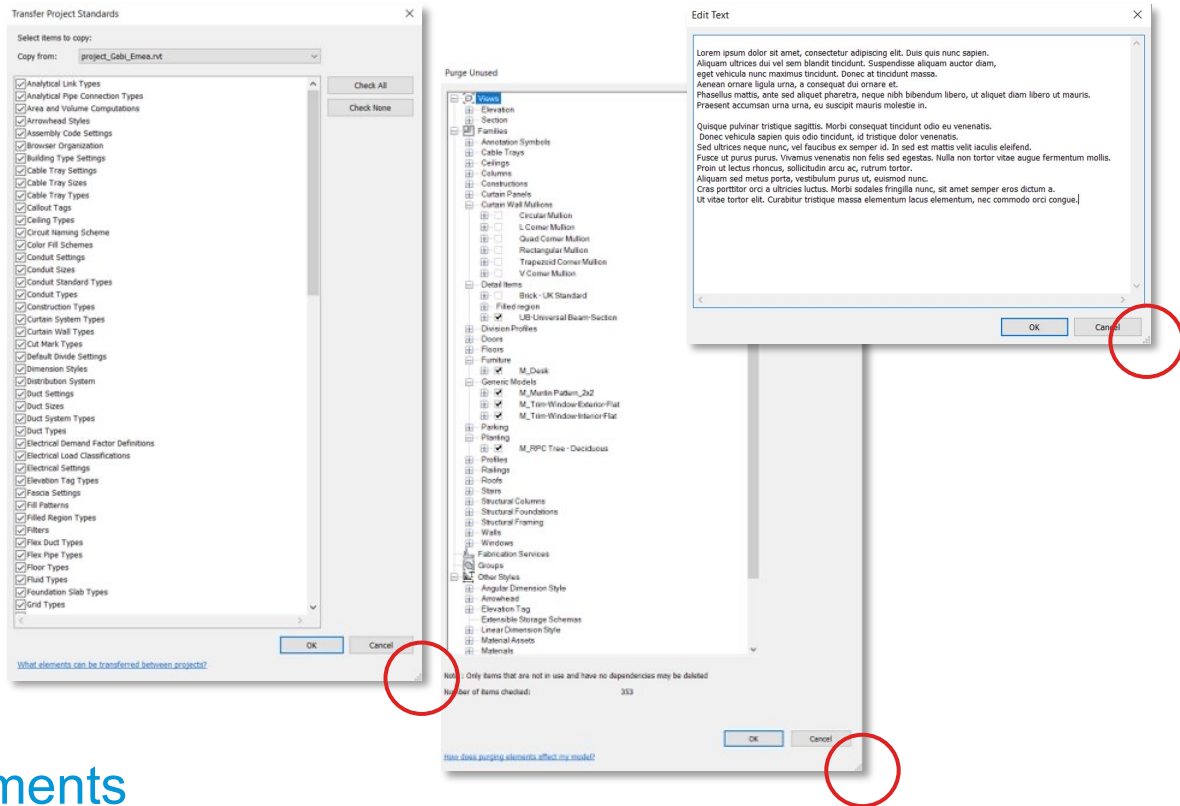
Design Productivity

Autodesk Revit 2022

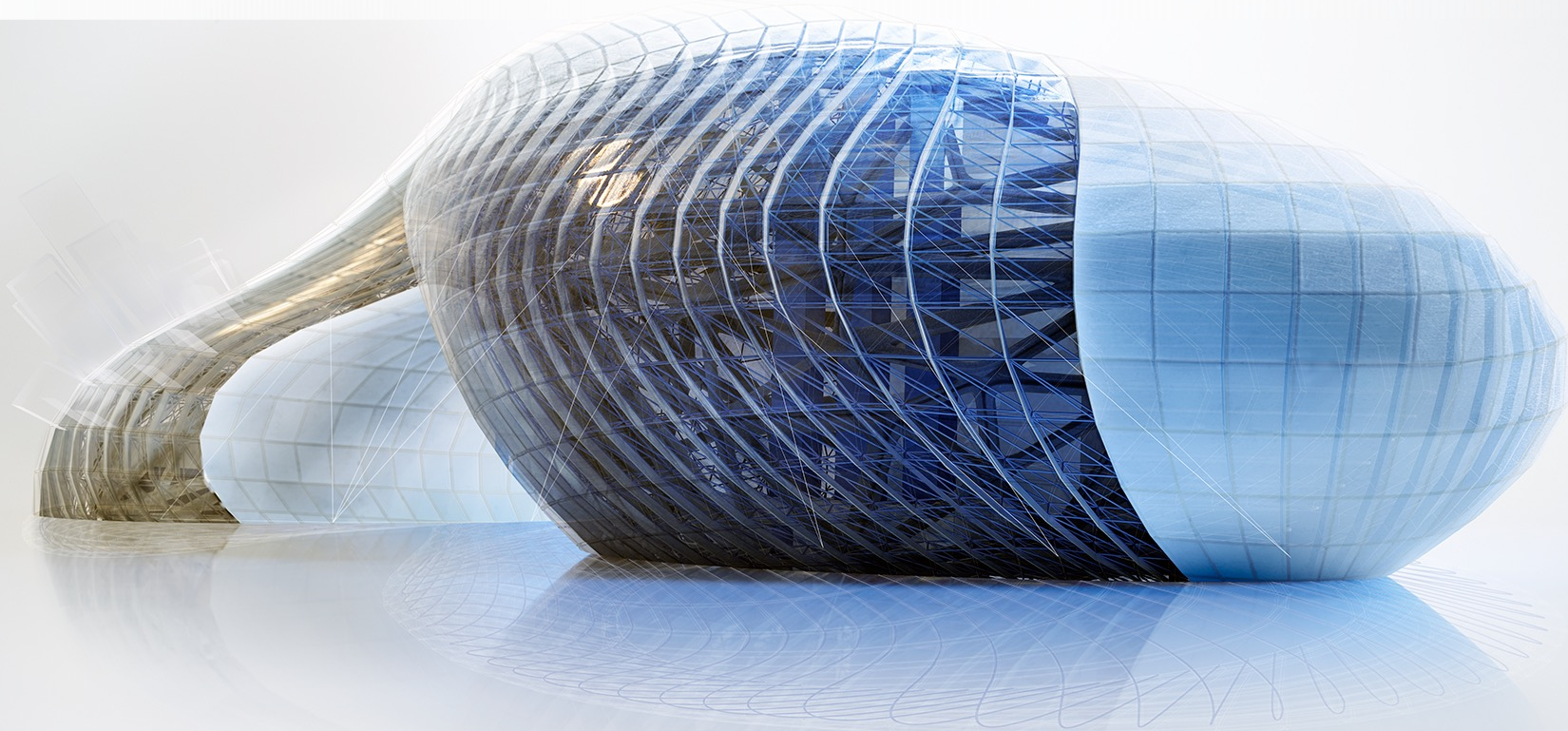
Small Enhancements

- Resize Dialogs
 - Transfer Project Standards
 - Sync with Central (with Comments)
 - Purge Unused
 - Wall Sweeps
 - Warnings
 - Edit Multiline Text
 - View Filter Panels

Small productivity enhancements



Interoperability

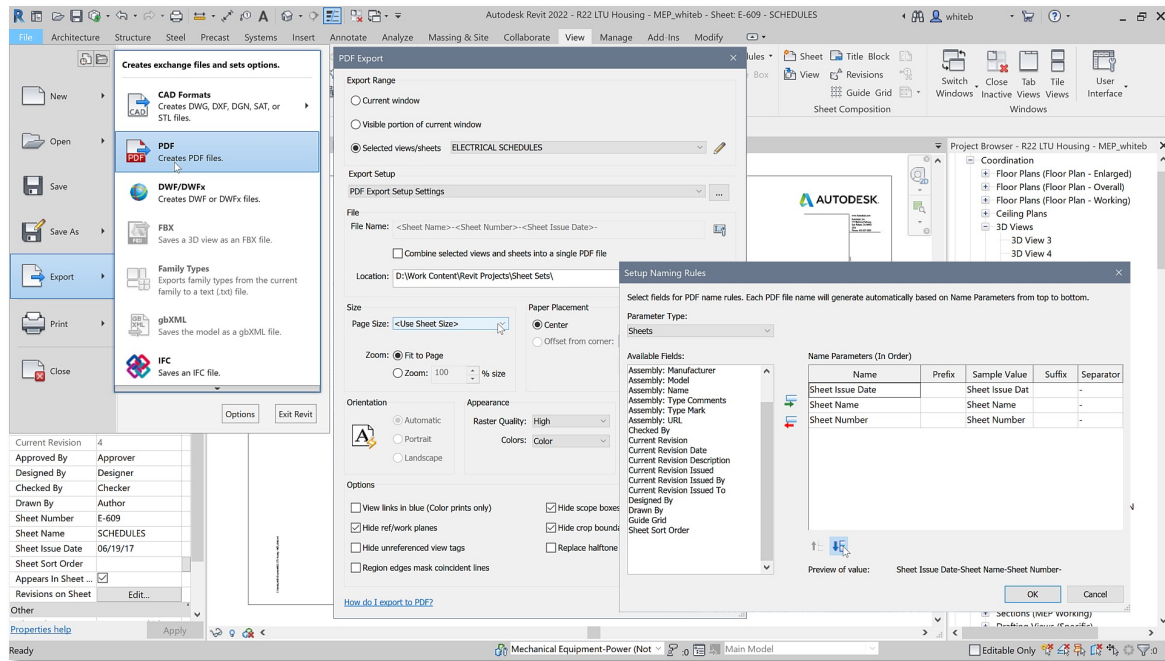


Interoperability

Autodesk Revit 2022

Native 2D PDF Export

- Configurable 2D PDF export
- Set up PDF naming rules within the Export Setup
- Generate PDF file names automatically from project or shared parameters
- Detect output size and orientation automatically



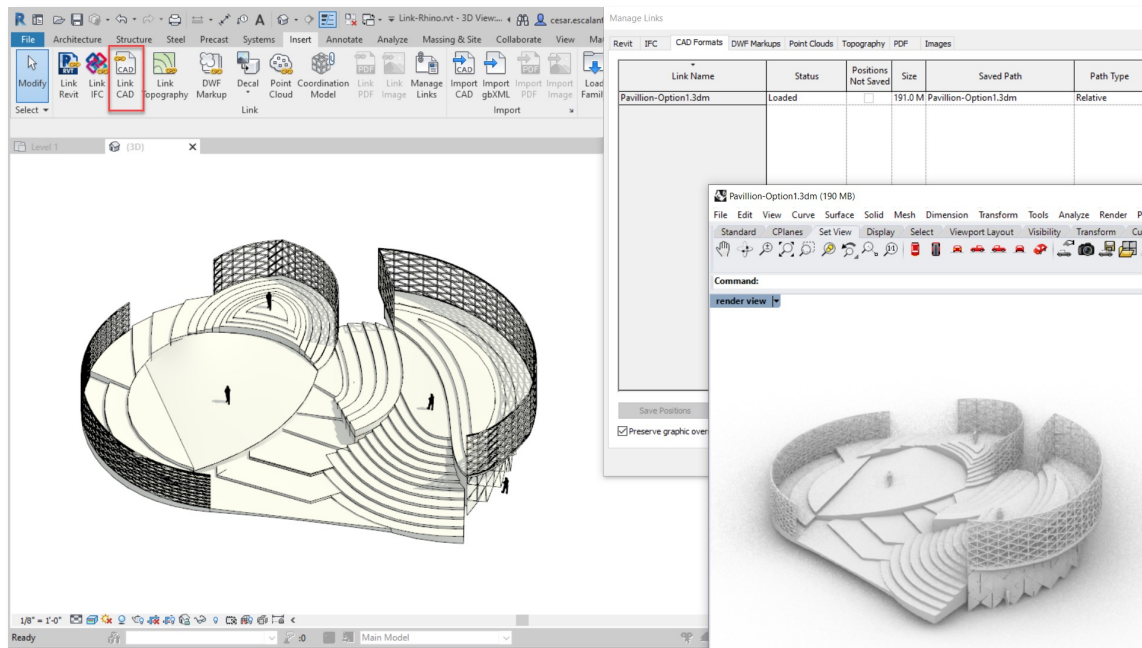
Native Revit PDF exporter improves documentation efficiency

Interoperability

Autodesk Revit 2022

Link Rhinoceros® (3DM) Files

- Link 3DM files as a CAD format under Manage Links
- Rhino layers are preserved and controlled via Visibility/Graphics Overrides
- Snap to linked geometry in projection views



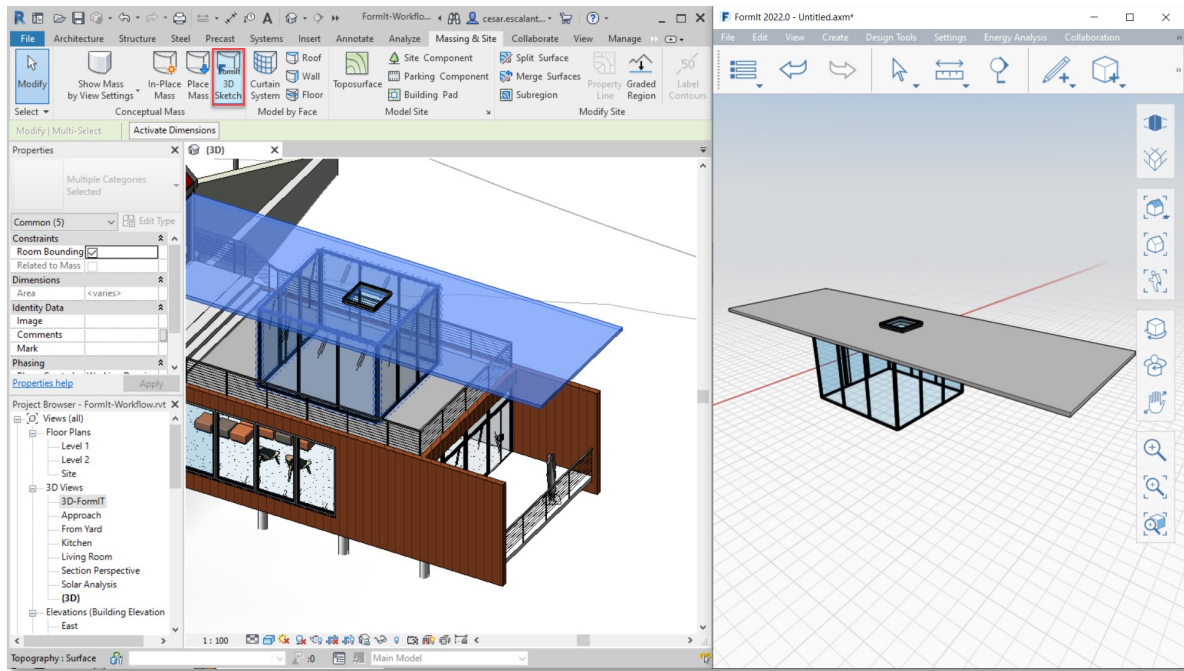
Accelerate conceptual documentation workflows with linked Rhino files

Interoperability

Autodesk Revit 2022

3D Sketch and Send to Revit with FormIt Pro

- Translate Revit geometry into FormIt using the new 3D Sketch tool
- Send FormIt geometry into Revit, preserving materials and layers
- Control FormIt layers via Visibility/Graphics



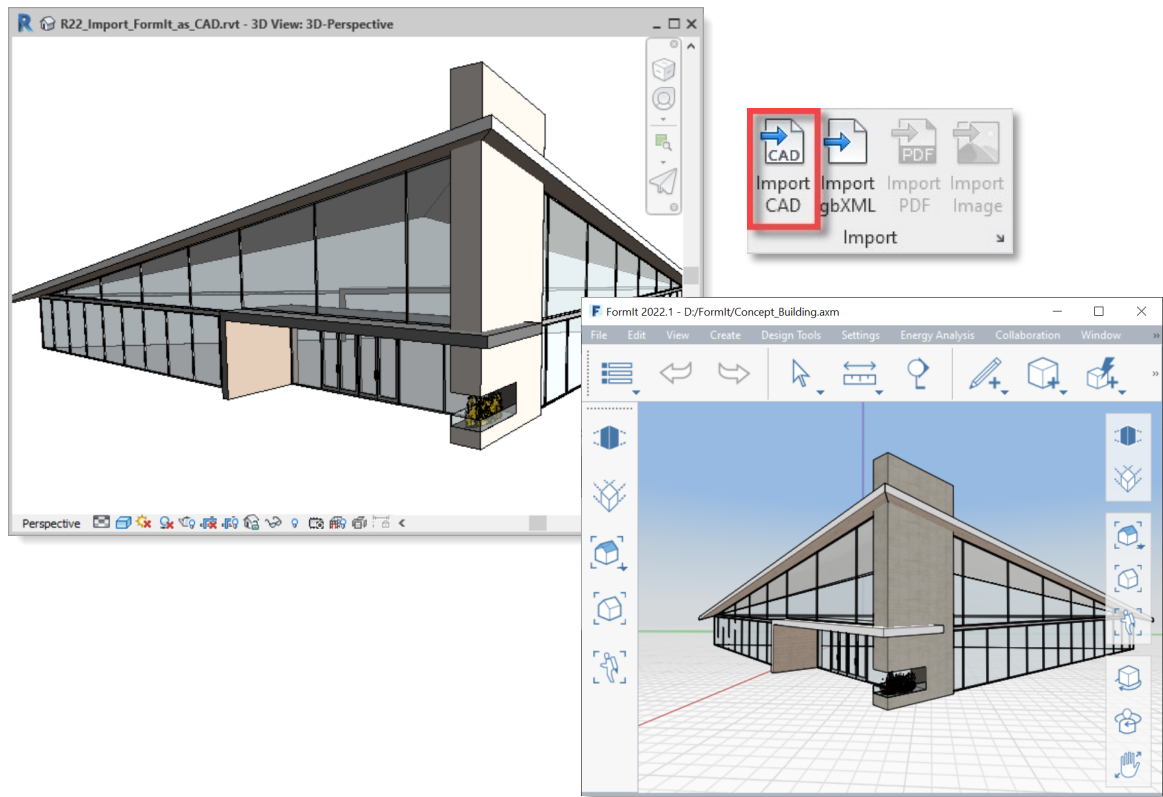
Improve conceptual design workflows with seamless FormIt Pro integration

Interoperability

Autodesk Revit 2022

Import FormIt as a CAD Format

- Import AXM files with preserved materials, layers and group definitions
- Control the display of layers via Visibility/Graphics
- Faster performance



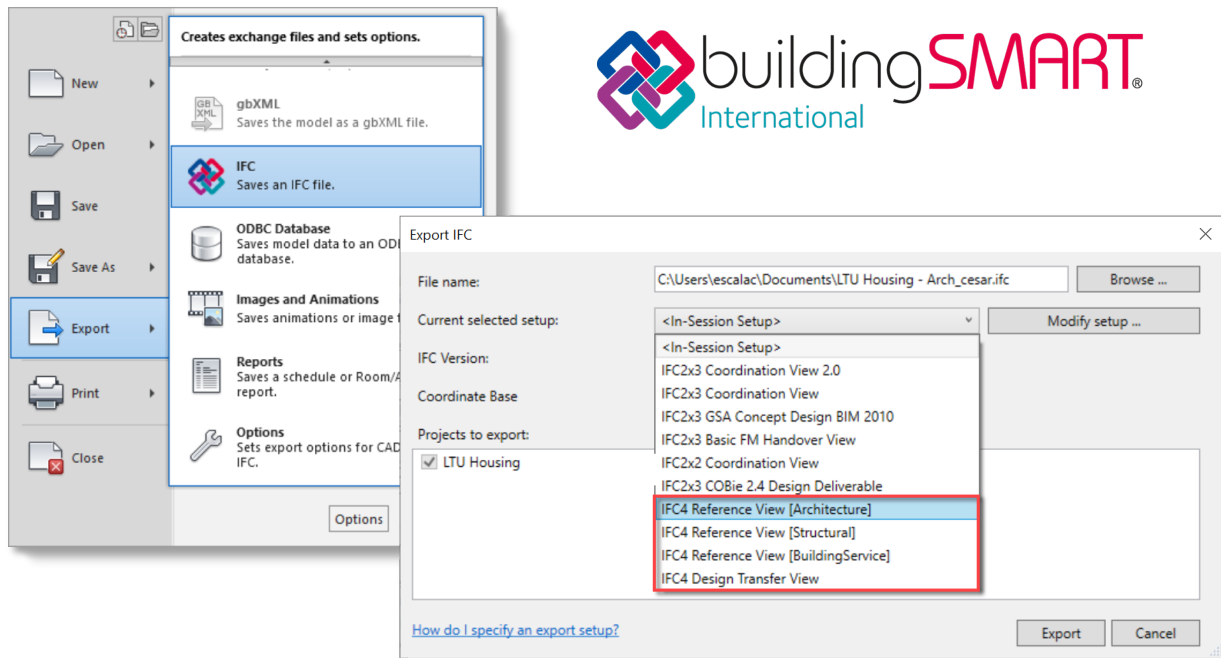
Improve conceptual design workflows with FormIt (AXM) import

Interoperability

Autodesk Revit 2022

IFC4 Certifications

- Achieved IFC4 export certifications for Architecture and Structural Reference Views
- Improved the IFC4 export UI to provide better support for the IFC4 Geographic Coordinate Reference Information



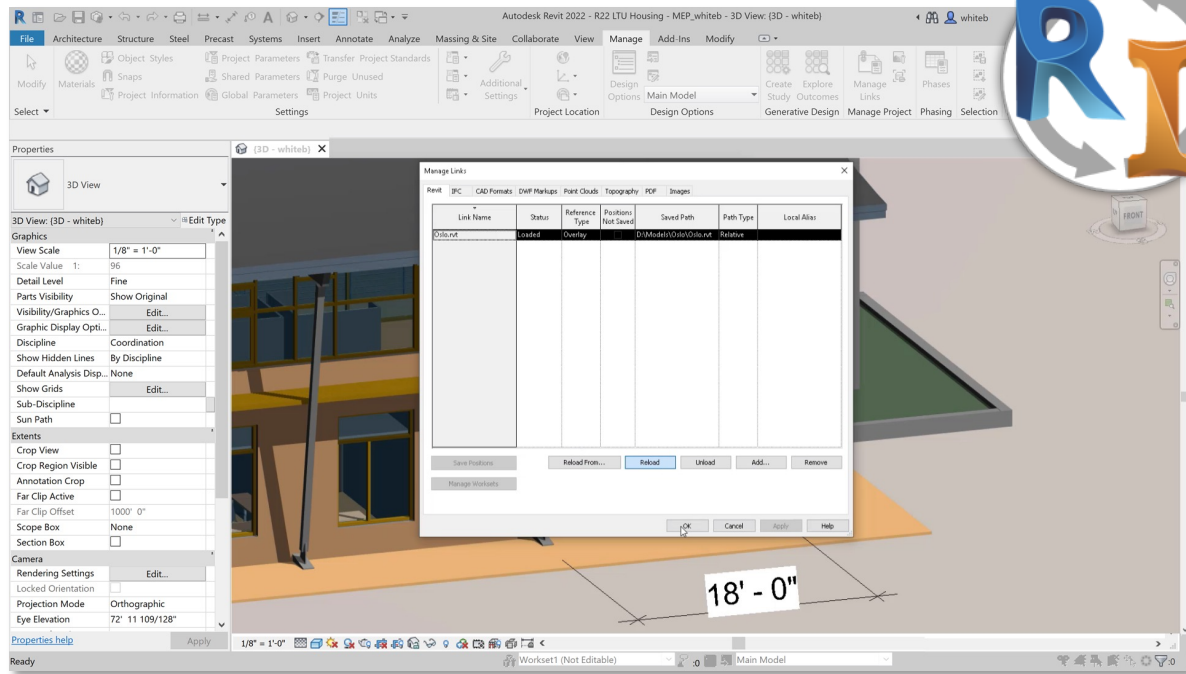
Improved interoperability workflows with updated IFC4 certifications

Interoperability

Autodesk Revit 2022

Inventor to Revit Models

- Link Inventor Assemblies as Revit Models
- Nameable Reference Geometry
- Persistent Tags for DirectShapes



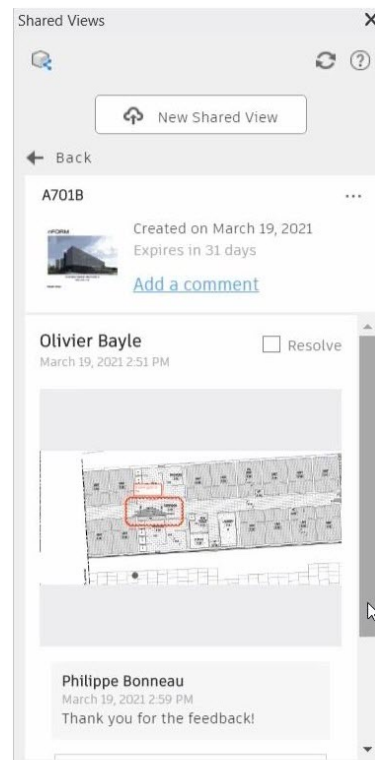
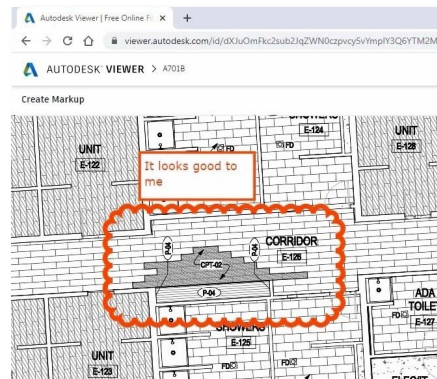
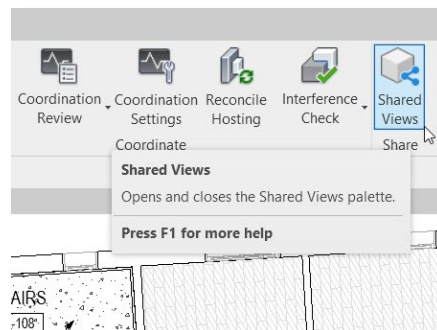
Improved interoperability between Revit and Inventor

Interoperability

Autodesk Revit 2022

2D Shared Views

- Share 2D views and sheets of your Revit project with other stakeholders
- View, comment and mark up the result in a web browser
- View and response to comments and markups directly in Revit



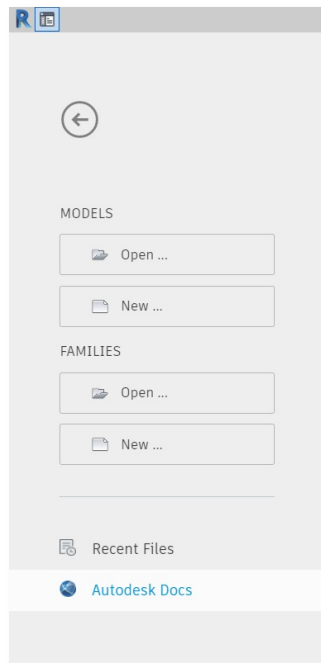
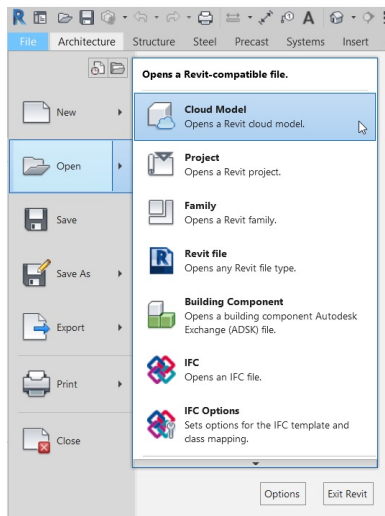
Share 2D views and sheets of Revit projects with anyone

Interoperability

Autodesk Revit 2022

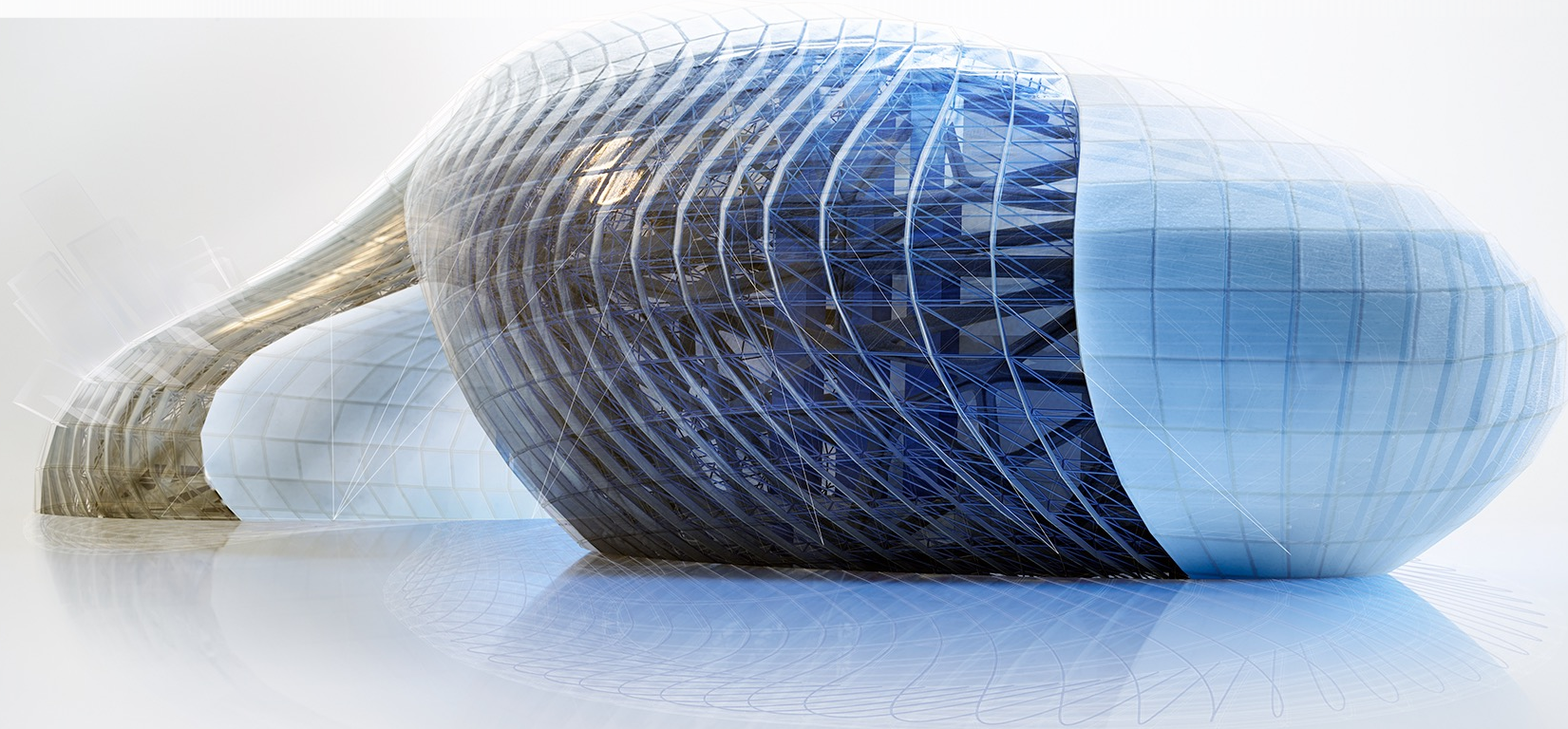
Cloud Model Improvements

- Open Cloud Model from File Menu
- Unified Cloud Model Initiate UI
- Access to Autodesk Docs



Updated, consistent access to cloud-based projects

Documentation Efficiency

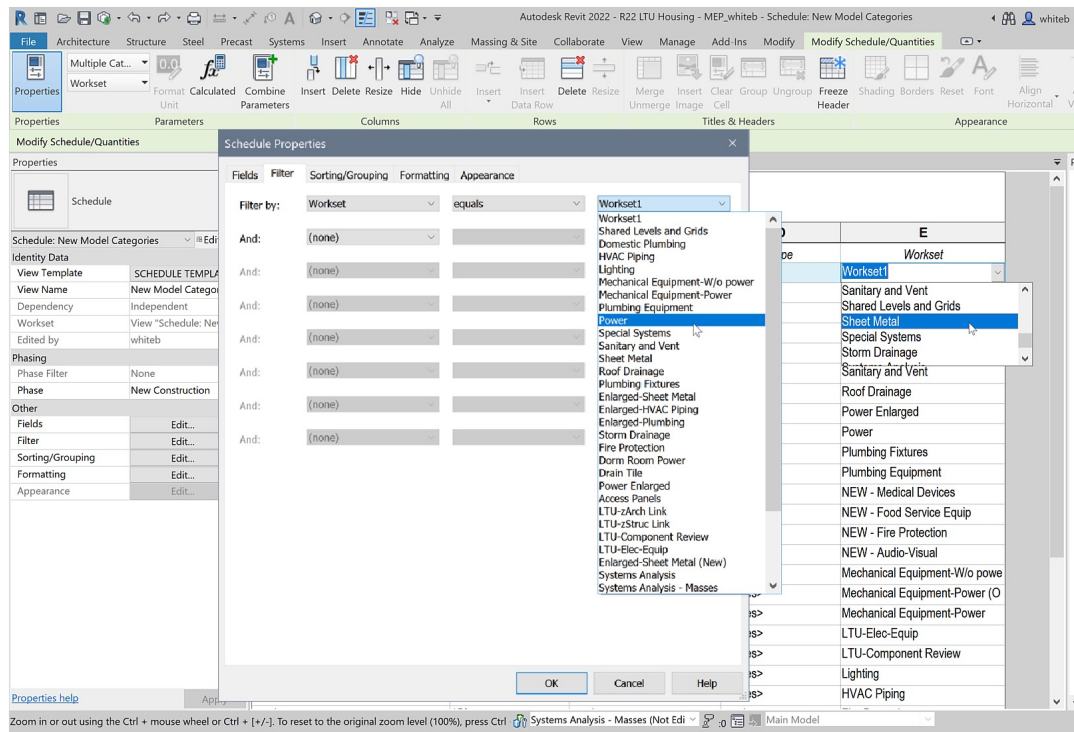


Documentation Efficiency

Autodesk Revit 2022

Enable Scheduling of Worksets

- Added Workset parameter
- Filter and schedule by Worksets
- Workset parameter available in:
 - Material Takeoffs
 - View lists
 - Sheet lists
 - Title Blocks



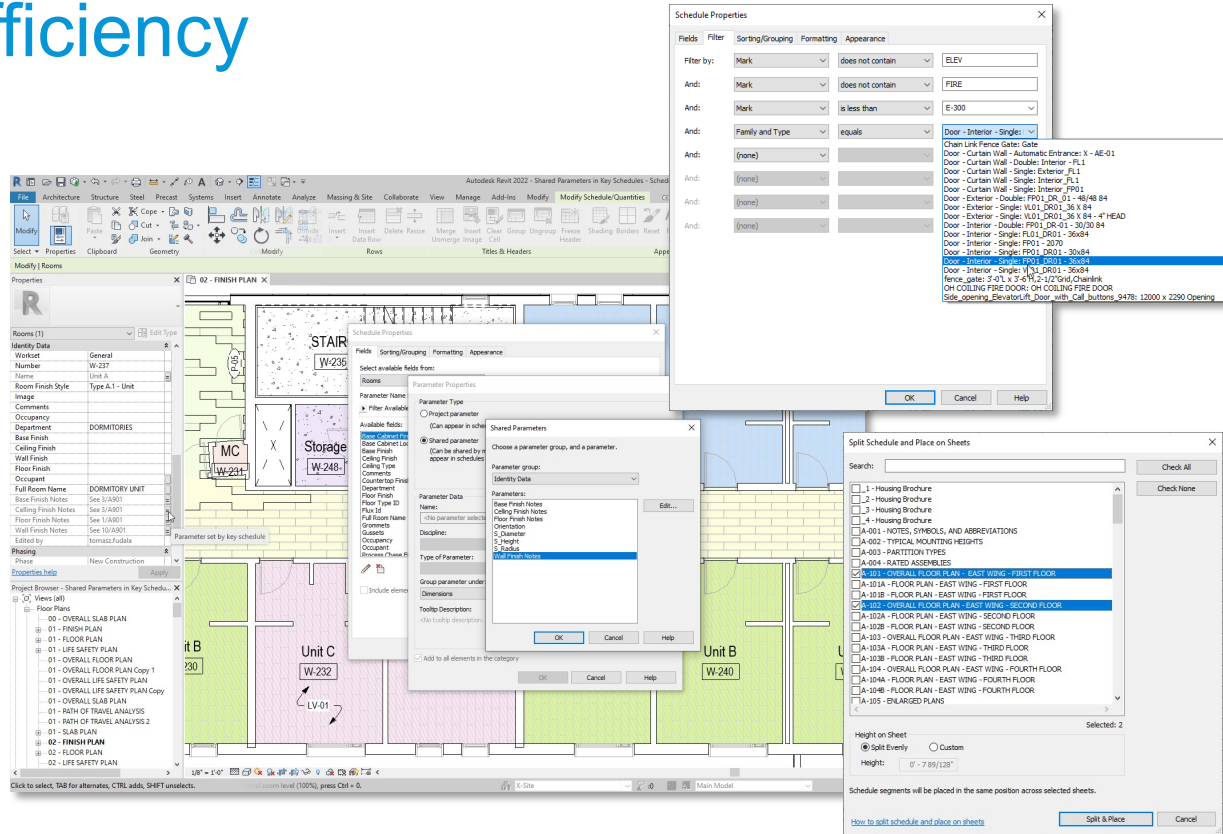
Filter by worksets and update directly within schedules

Documentation Efficiency

Autodesk Revit 2022

Schedule Enhancements

- Shared Parameters in Key Schedules
- Filter Schedule by Family and Type
- Split Schedules Across Sheets



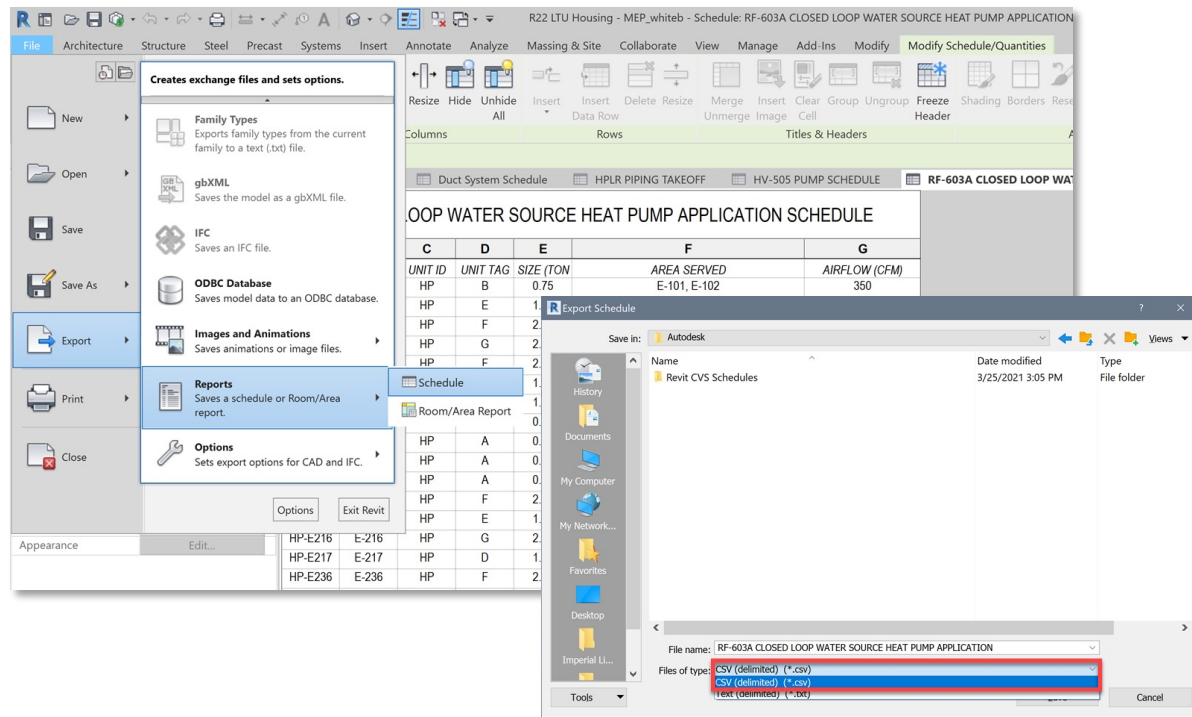
Better control over data entry, filtering and display of schedules

Documentation Efficiency

Autodesk Revit 2022

Export Schedules to CSV by Default

- Directly export Schedules to CSV files from Revit
- Supports Drone and Total Station file type inputs



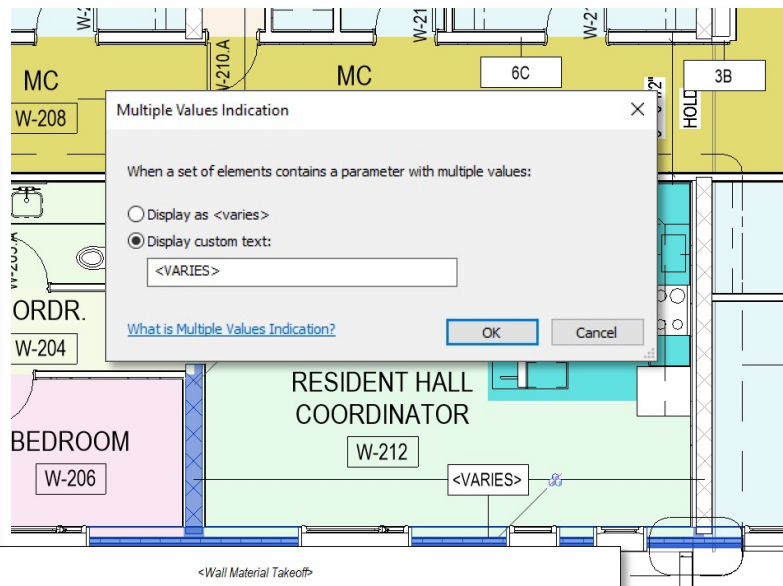
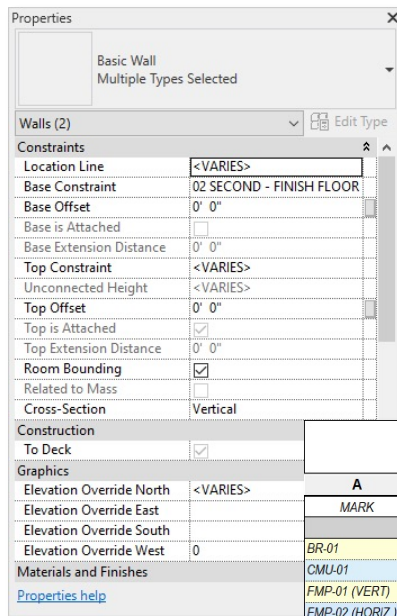
Export schedules directly to CSV for convenient data exchange

Documentation Efficiency

Autodesk Revit 2022

Multiple Values Indication

- Display desired text in the Properties Palette when a set of elements is selected with varying parameter values
- Apply multiple values indication to all types of schedule
- Customize the indication value



<Wall Material Takeoff>					
A	B	C	D	E	F
MARK	MANUFACTURER	MODEL	NAME	DESCRIPTION	COMMENT
BR-01	INTERSTATE BRICK	NORMAN	042613 - MASONRY VENEER	BRICK VENEER	DARK I/S VELOR
CMU-01	GRAND BLANC CEME		<VARIES>	CONCRETE MASONRY BOARDMAN	
FMP-01 (VERT)	BERRIDGE	KYNAR 500	074213 - FORMED METAL	FORMED METAL WAL	ZINC GREY
FMP-02 (HORIZ)	BERRIDGE	KYNAR 500	074213 - FORMED METAL	FORMED METAL WAL	ZINC GREY
FMP-03 (HORIZ)	BERRIDGE	KYNAR 500	074213 - FORMED METAL	FORMED METAL WAL	ZINC GREY
MIRROR			088300 - MIRROR	Mirror glass	
P-01	BENJAMIN MOORE	OC-14	<VARIES>	OFF-WHITE COLORS	NATURAL CREAM

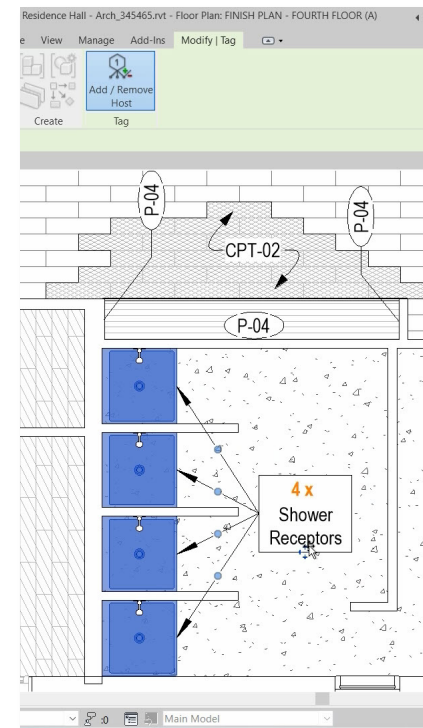
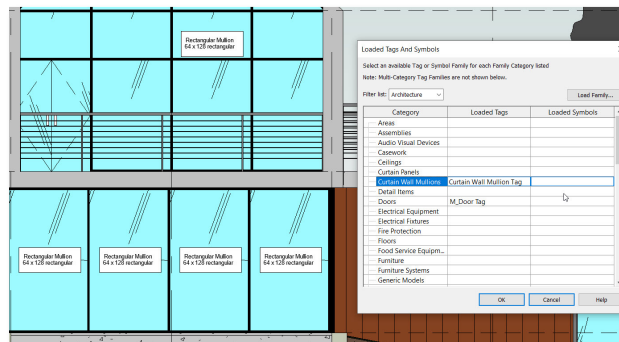
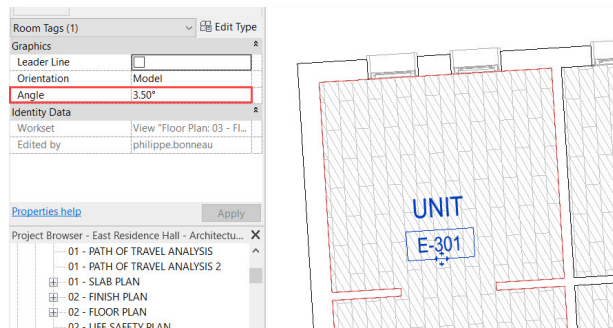
Improve productivity by quickly identifying varying parameter values

Documentation Efficiency

Autodesk Revit 2022

Tag Improvements

- Rotated tags
- Multi-leader Tags
- Tag Curtain Wall Mullions



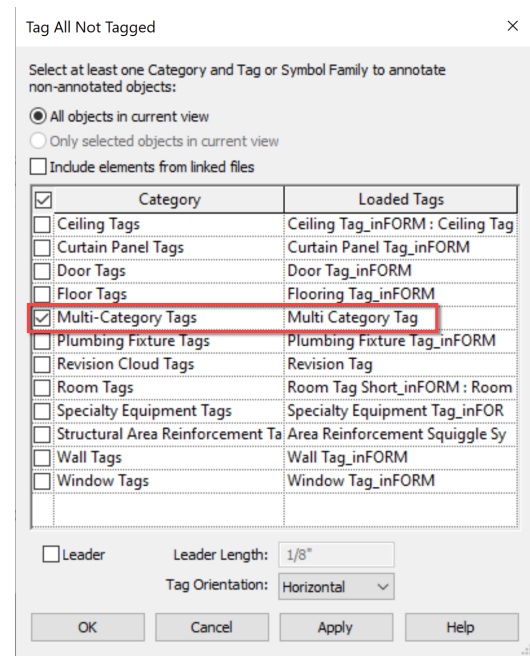
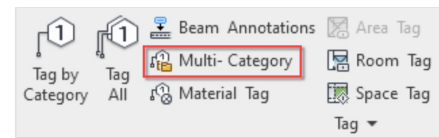
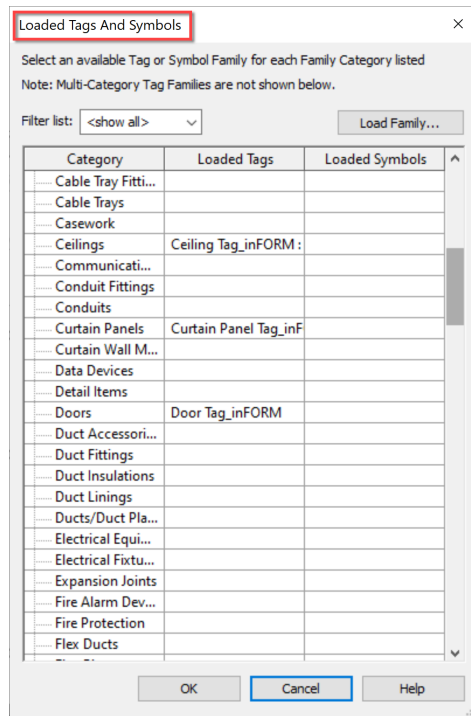
Create more accurate, readable, and efficient annotations

Documentation Efficiency

Autodesk Revit 2022

Multi-category Tag for All Taggable Categories

- Apply a multi-category annotation to all taggable elements
- Use shared parameters in multi-category tags
- Additional categories include stair subcategories, structural connections, structural internal loads, and more



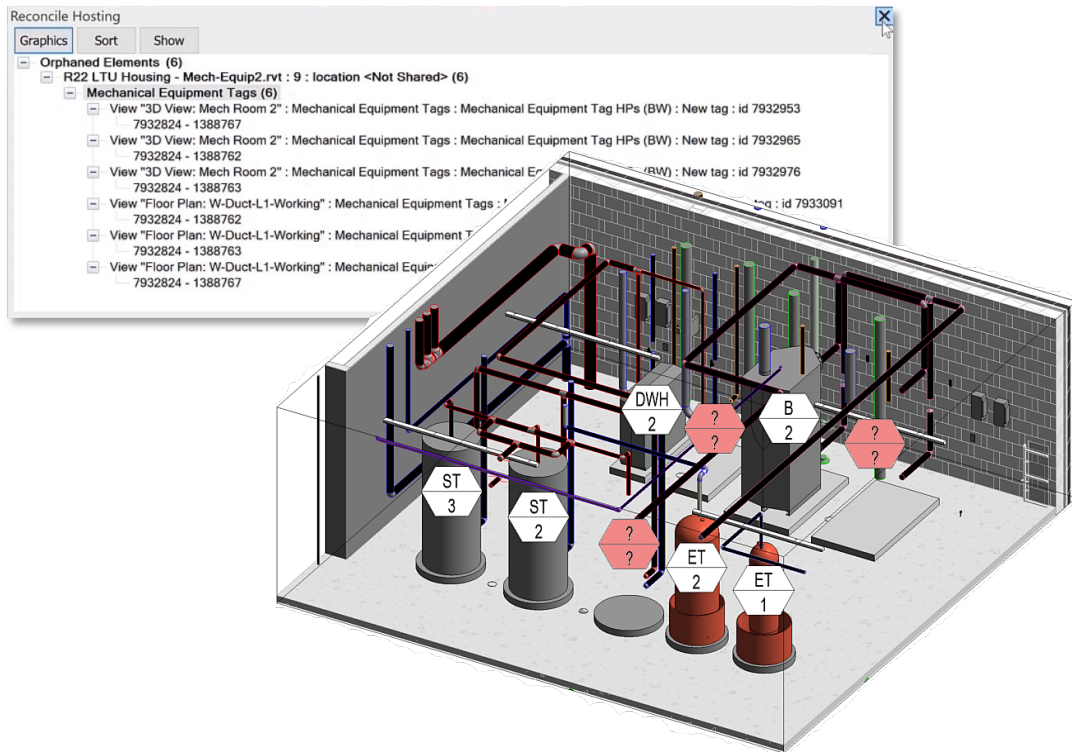
Improve efficiency when tagging elements across multiple categories

Documentation Efficiency

Autodesk Revit 2022

Link Tag Re-hosting

- Tags in host model attached to elements in a linked model will now remember the linked element ID
- Unloaded or out-of-date links will reattach orphaned tags automatically when reloaded



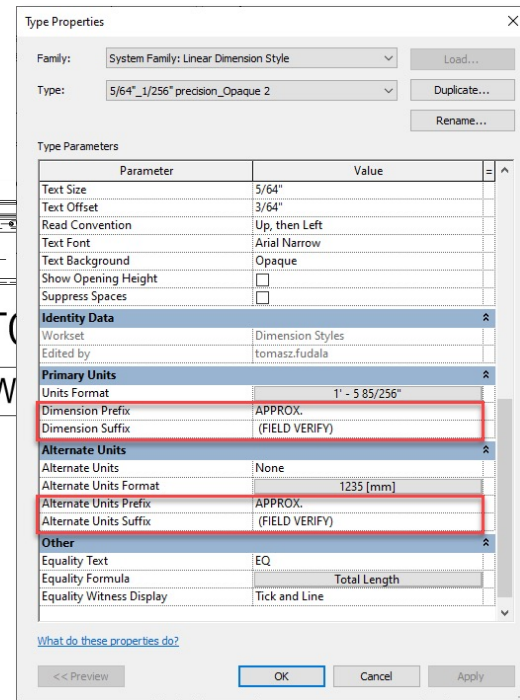
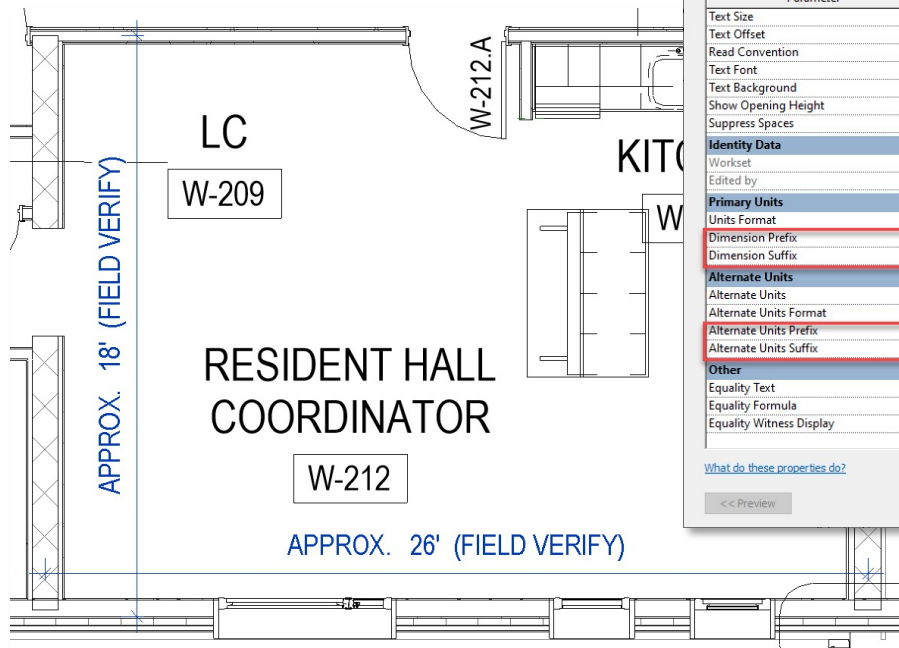
Improved productivity for linked model annotation workflows

Documentation Efficiency

Autodesk Revit 2022

Dimension Prefix/Suffix

- Add prefix and suffix as type parameters
- Primary and alternative unit parameters have been reorganized



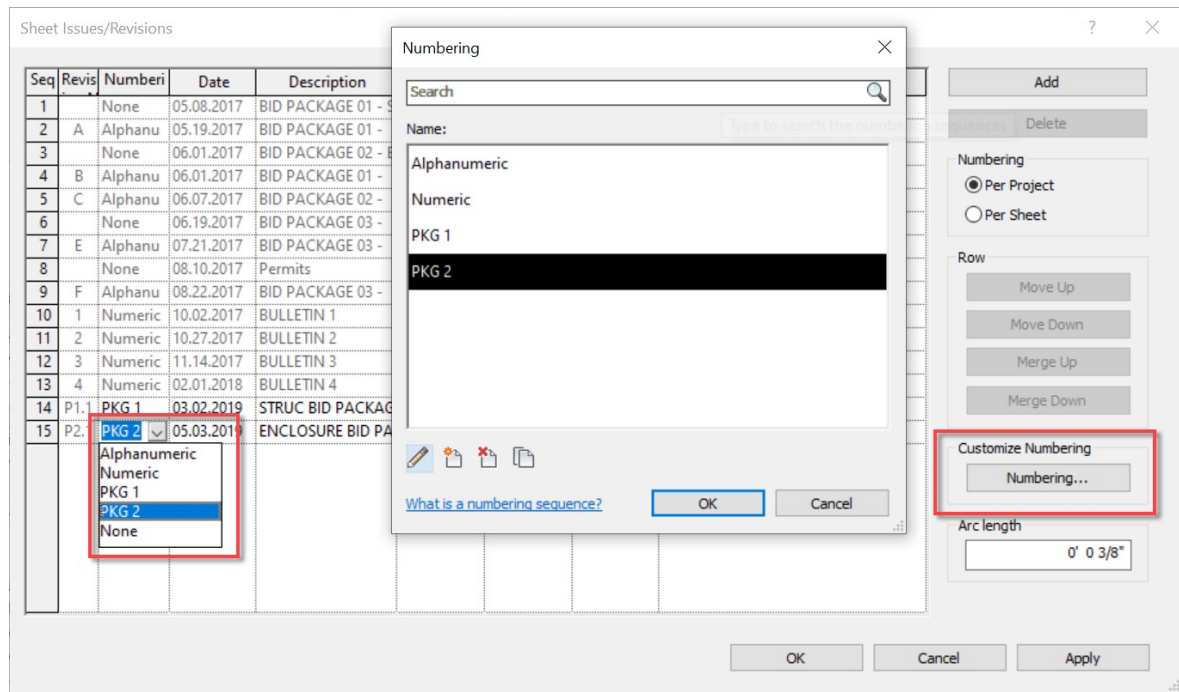
Improved productivity for dimensions

Documentation Efficiency

Autodesk Revit 2022

Revision Numbering Flexibility Enhancements

- Create custom revision numbering sequences
- Meet ISO 19650 and/or local standard requirements
- Add a prefix or suffix to denote a project stage
- Share using the Transfer Project Standards tools



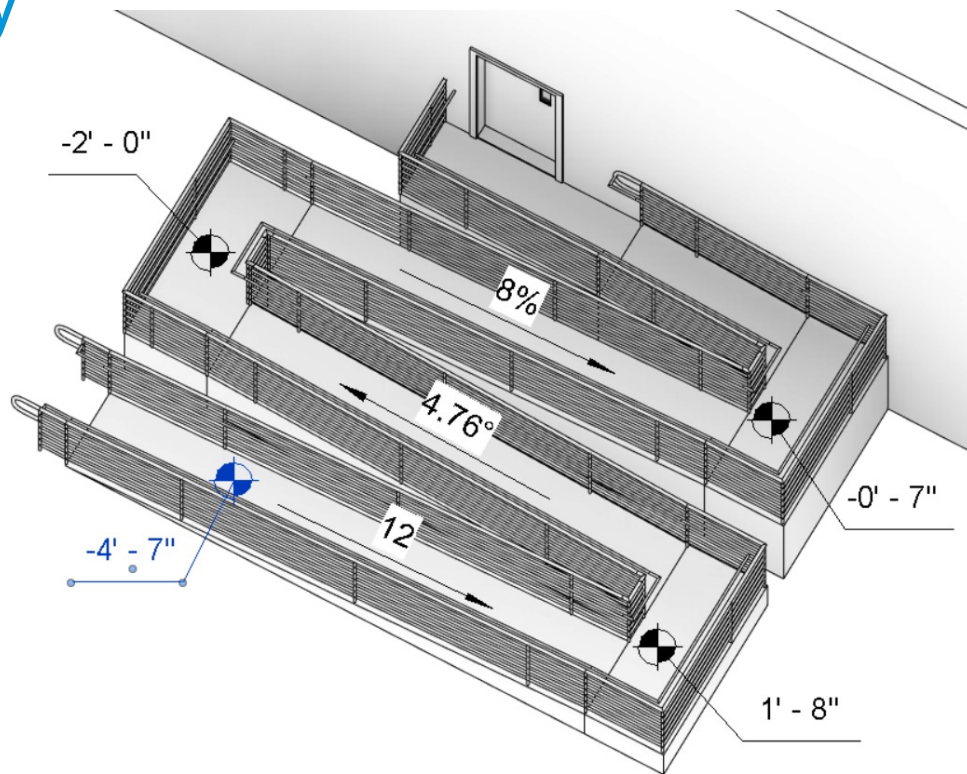
Improve documentation with flexible revision numbering sequences

Documentation Efficiency

Autodesk Revit 2022

Spot Slopes and Elevations on Ramps

- Add spot slope spot elevation annotations on a ramp run in plans, elevations, sections, and 3D views
- Customize the annotation type parameters to meet documentation standards



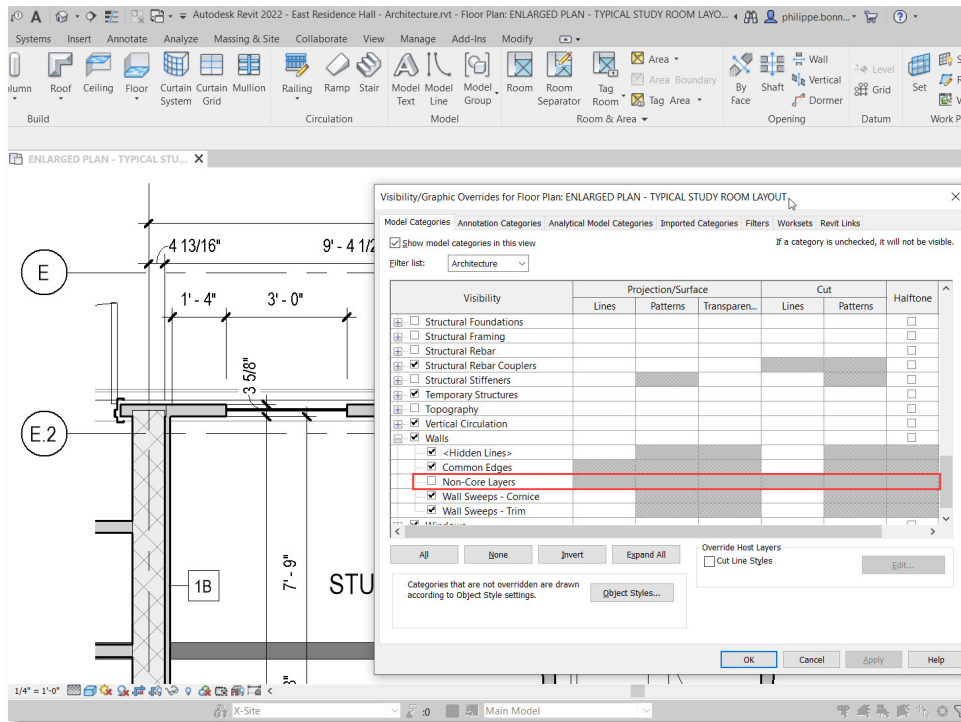
Achieve better documentation with spot slopes and elevation on ramps

Documentation Efficiency

Autodesk Revit 2022

Show Wall Core Only in Plan Views

- Display a simplified representation of walls in your 2D plan views
- New “Non-Core Layers” option available under Walls in the Visibility/Graphics dialog box
- Wall layers located between core boundaries remain visible



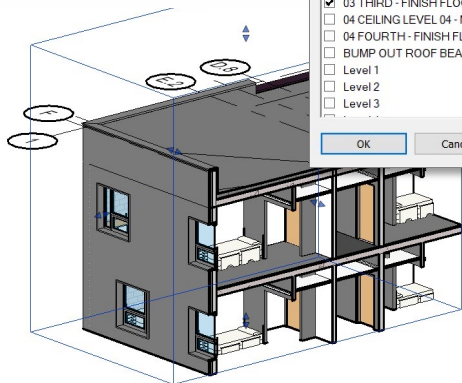
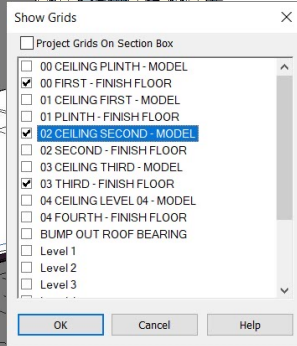
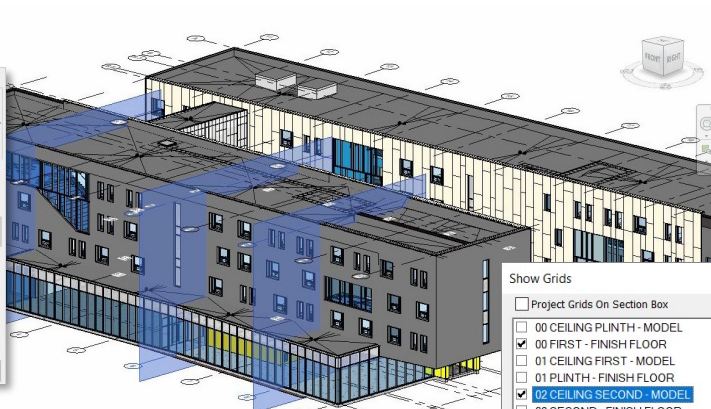
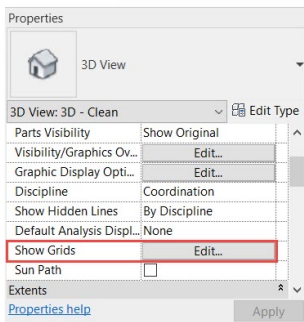
Quickly refine plan views to display wall core layers only

Documentation Efficiency

Autodesk Revit 2022

Grids in 3D Views

- Display grid lines in your 3D views
- *Show Grids* parameter in the Properties palette
- Only grids that intersect selected levels appear in the view
- Grid planes are available on hover or selection



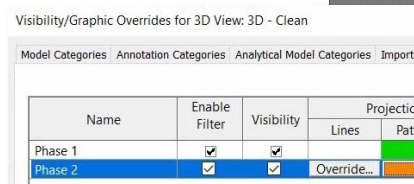
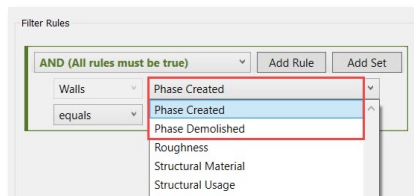
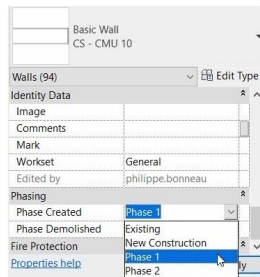
Work with grids in 3D views

Documentation Efficiency

Autodesk Revit 2022

Phase Parameters in View Filters

- Support phases in view filters
- Easily locate elements and understand their phases in your model
- Two new filter rules:
 - Phase Created
 - Phase Demolished



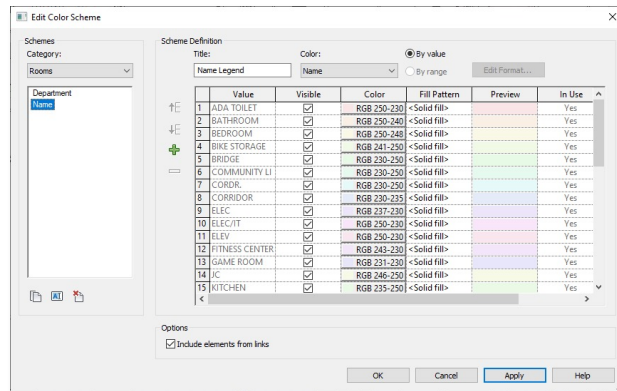
Take advantage of phase parameters in view filters

Documentation Efficiency

Autodesk Revit 2022

Improved Default Color Fill Scheme

- New default color scheme
- Lighter pastel colors
- No need for manual color adjustments



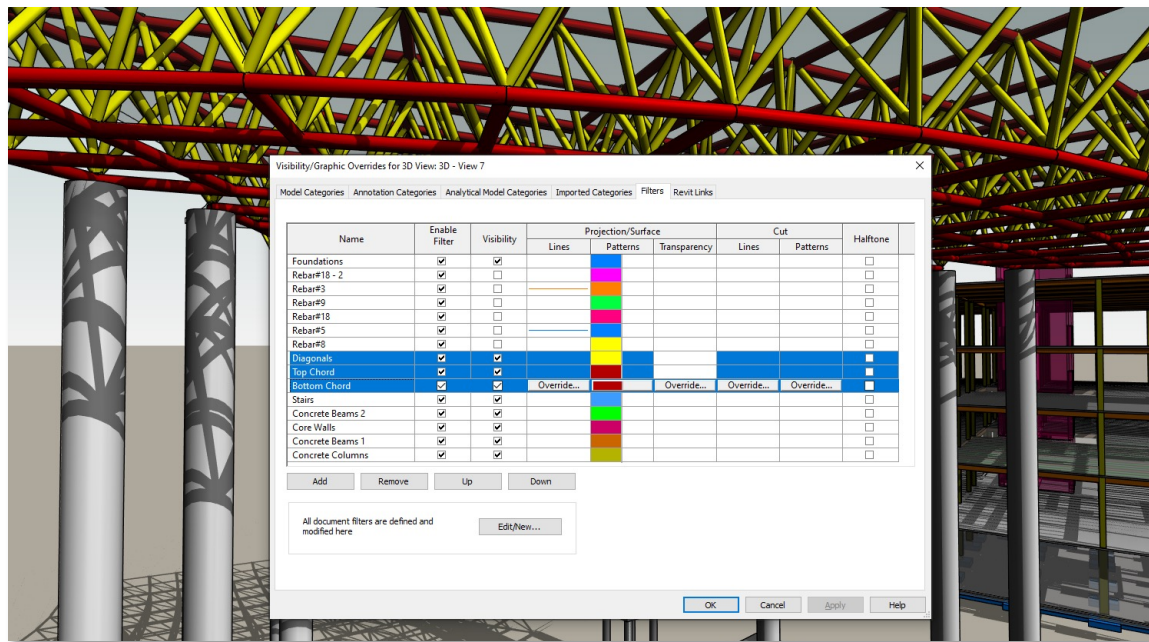
Better color fill schemes with new default lighter pastel colors

Documentation Efficiency

Autodesk Revit 2022

Multi-select Visibility/Graphics Overrides Filters

- Improved consistency with other Visibility/Graphic Overrides tabs
- Select, modify, and remove more than one filter in the list at one time
- Multiple subsequent filters can be moved up or down together, to adjust overall priority



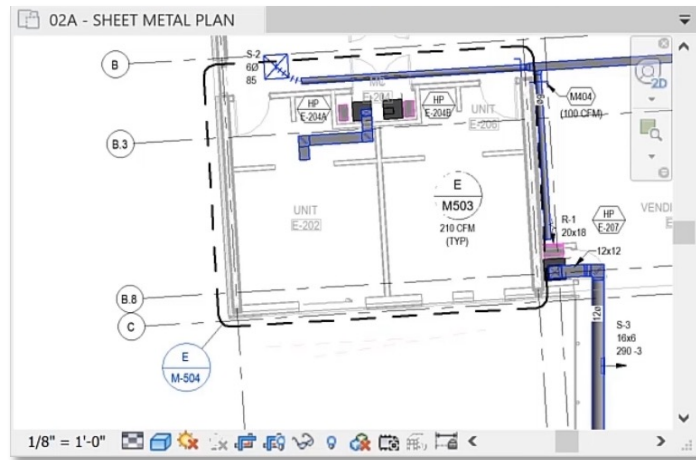
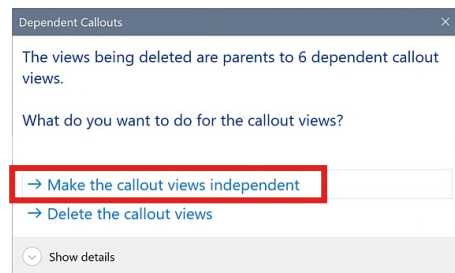
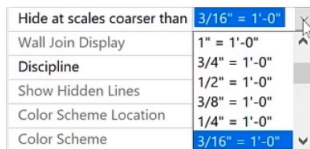
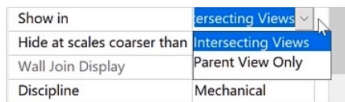
Improved productivity with better control over filters

Documentation Efficiency

Autodesk Revit 2022

Preserve Callouts When Deleting Parent Views

- Switch between parent and intersecting Views
- Callouts in intersecting views are visible
- Delete parent view and preserve callouts
- Hide callouts at scales coarser than the size in view



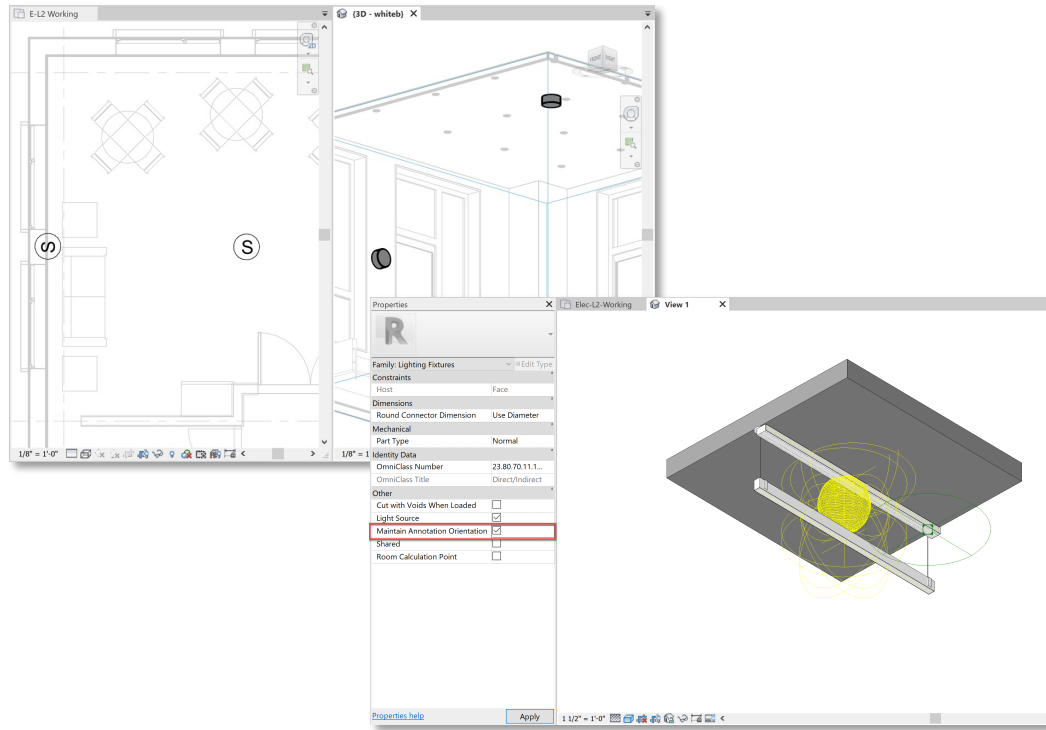
Preserve callouts when parent views are deleted

Documentation Efficiency

Autodesk Revit 2022

Maintain Annotation Orientation

- Added to Additional Categories
 - Electrical Equipment
 - Generic Model
 - Lighting Fixtures
 - Mechanical Equipment
 - Plumbing Fixtures
 - Specialty Equipment
- Shared Nested Families



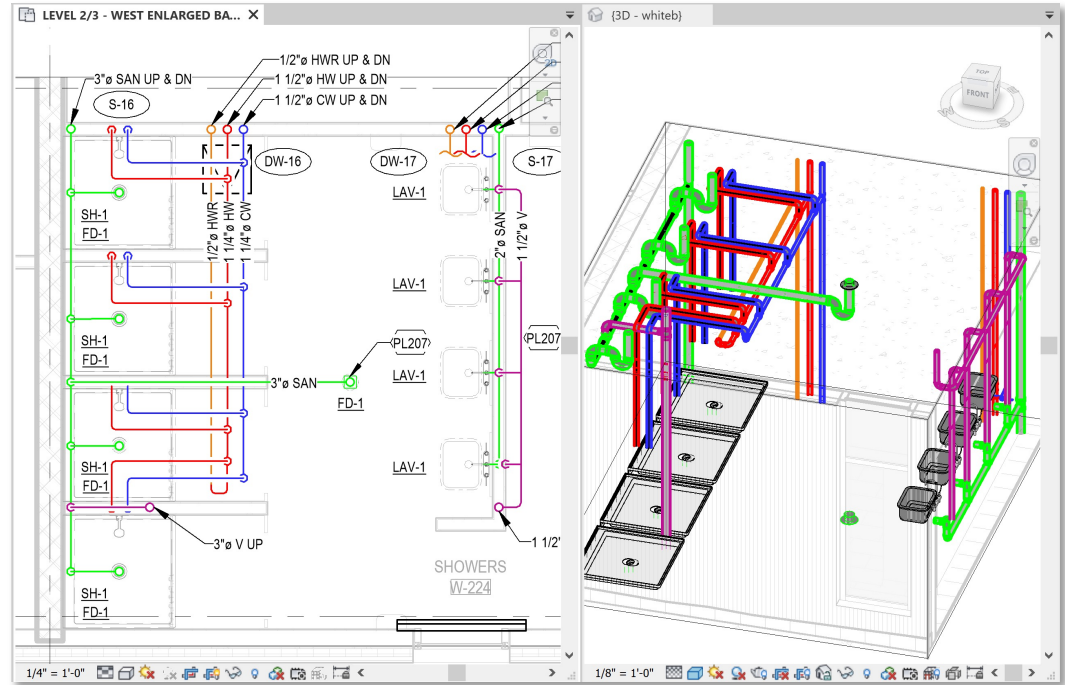
Improvements to annotation display across additional categories

Documentation Efficiency

Autodesk Revit 2022

Fixes to Key MEP Documentation

- Improvements in many areas
 - Offset tag
 - Missing riser symbol
 - Vertical pipe tag
 - Single line improvement
 - Nested families
 - Pinned elements



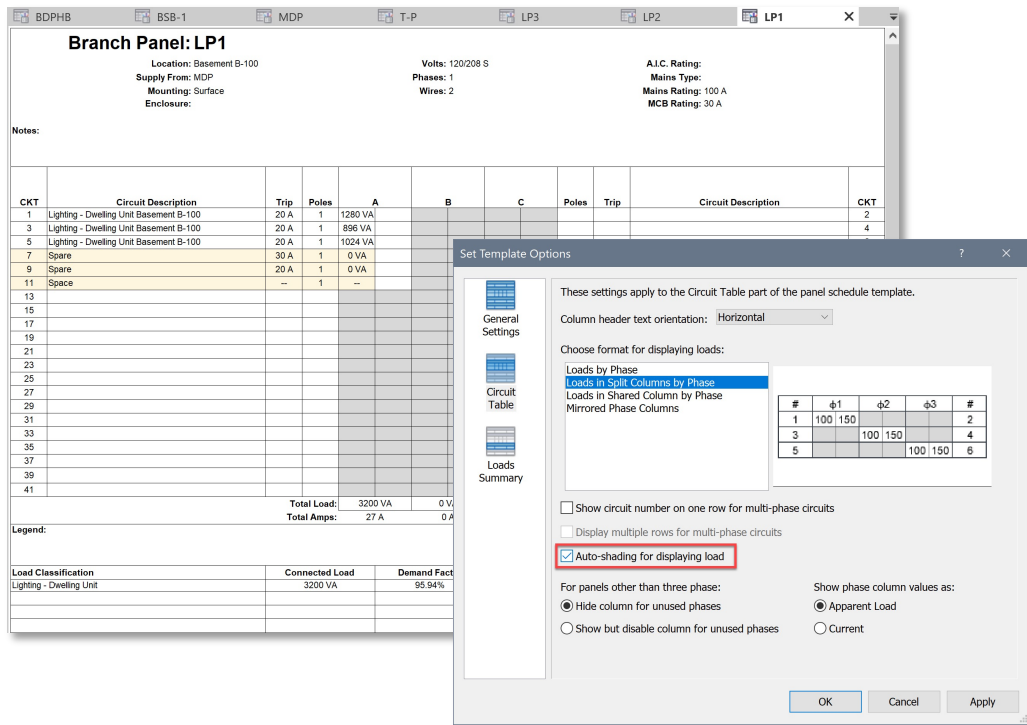
Improvements to many key aspects of MEP documentation

Documentation Efficiency

Autodesk Revit 2022

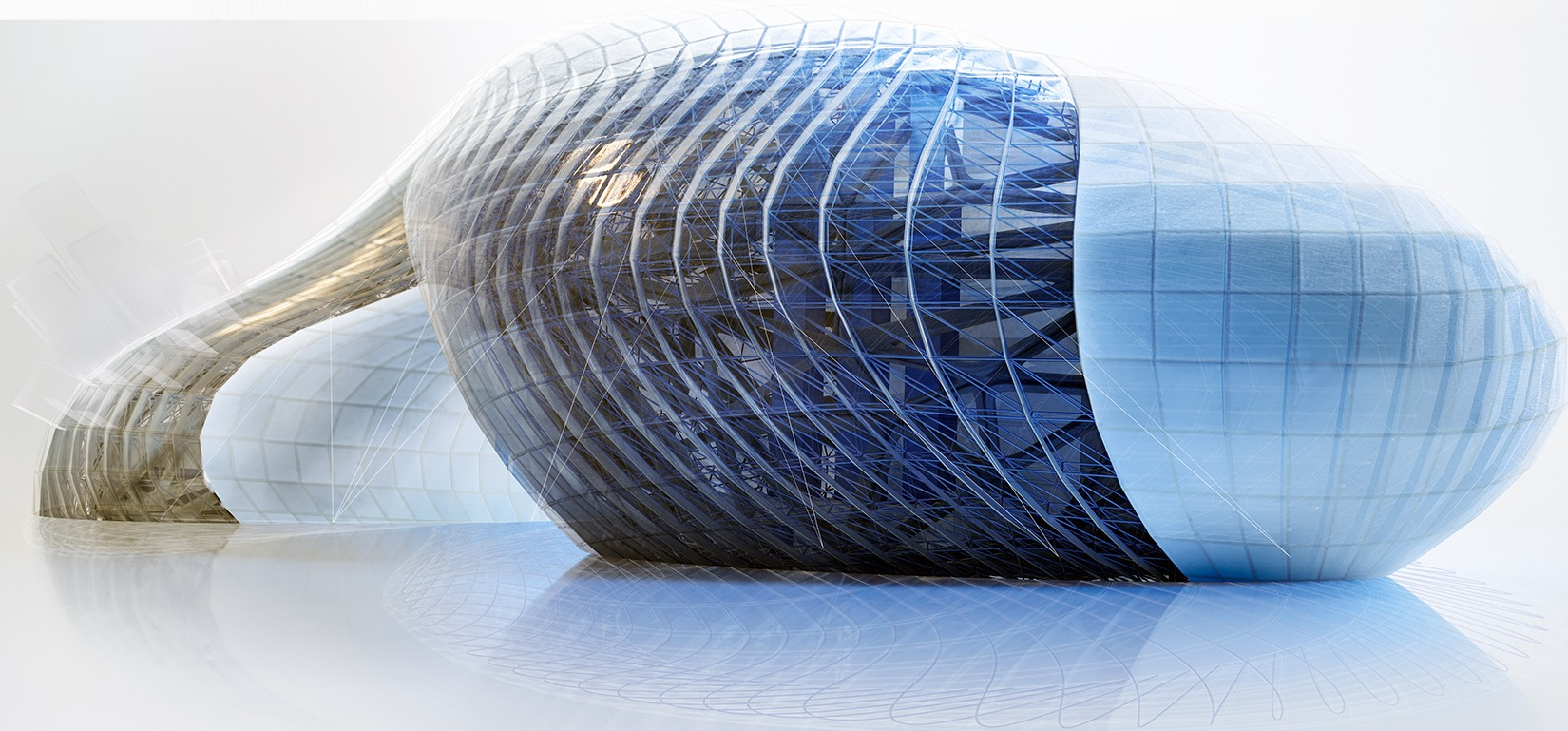
Auto-shading in Two-column Panel Schedules

- Reduces the quantity of templates required
- Enable auto-shading in a panel schedule template
- Easier project template management
- Unused phase columns are shaded automatically



Simplifies electrical project setup and management

Developer Tools

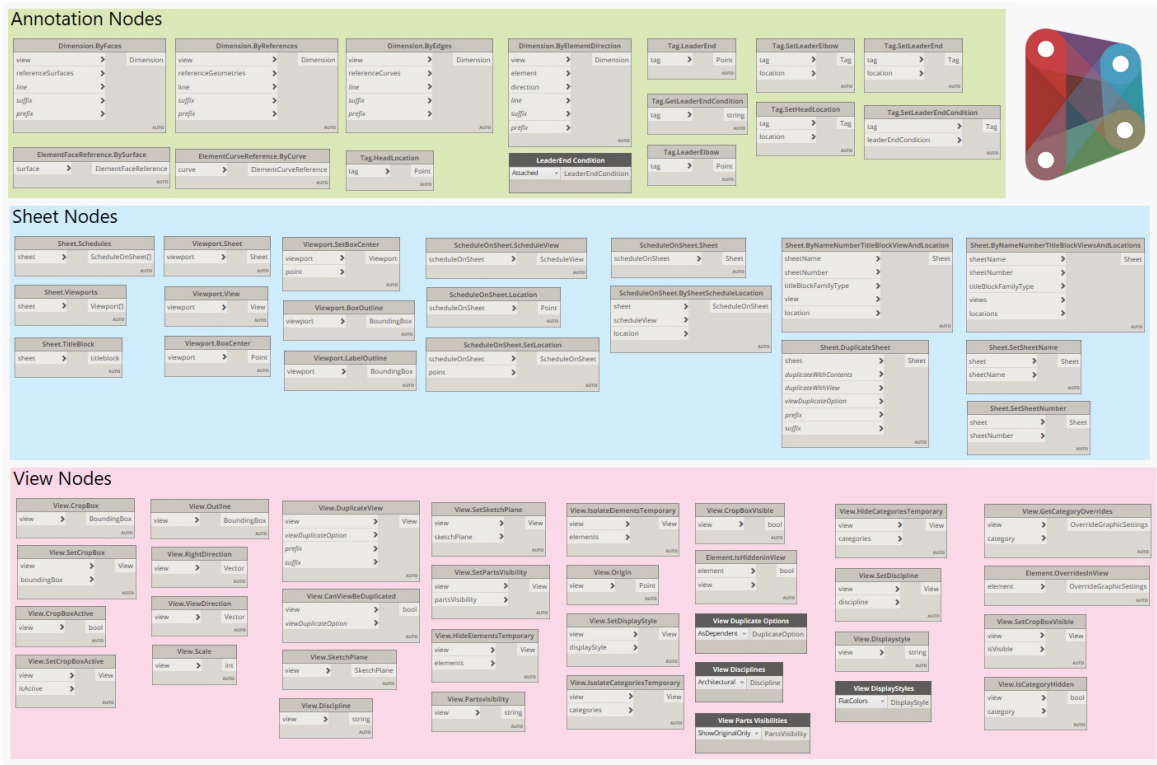


Developer Tools

Autodesk Revit 2022

New Dynamo Nodes for Revit Documentation

- 67 commonly-requested nodes have been added
- Wide range of categories
 - Annotation nodes
 - Sheet nodes
 - View nodes
- Dynamo for Revit 2.10 included with Revit 2022



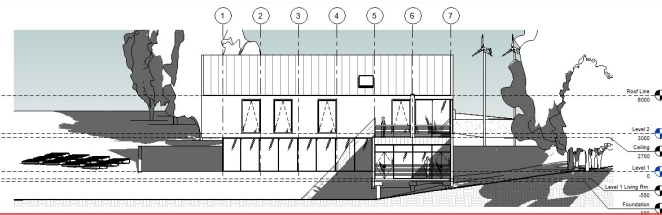
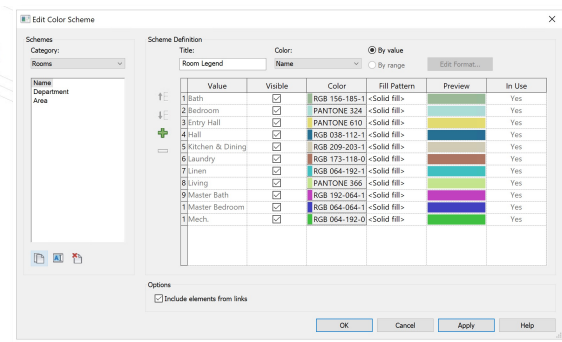
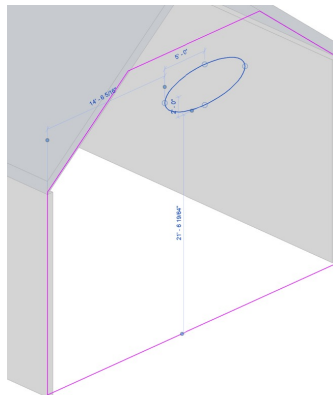
Improved capabilities for task automation

Developer Tools

Autodesk Revit 2022

New APIs for Developers

- Sketch API
- Viewport Label on Sheet API
- Color Fill API
- Cloud Model Initiate and Link API
- API for Mapping Cloud Model with Autodesk Docs URNs
- Point Cloud API



Examples

1 South
1:100

C#

```
private ReCapWrapper.RCProject GetRCProject(Document doc)
{
    PointCloudType type = PointCloudType.Create(doc, "rcs", "c:\\32_cafeteria.rcs");
    // Get RCProject, you need to include ReCapWrapper.dll
    ReCapWrapper.RCProject proj = type.GetReCapProject();
    // You can get access to functions from ReCap SDK, for example get total point number of ReCap project
    UInt64 numOfPoints = proj.getNumberOfPoints();
    return type.GetReCapProject();
}
```

Better support of add-in apps with the enhanced API



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