What's New in 9.1

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http://images.autodesk.com/adsk/files/whats_new_in_autodesk_revit_building_9_9.1.pdf
這邊主要節錄 Revit Building 9.1 的新功能介紹以及改進的部分
分爲 Interoperability(檔案共用)、Views(畫面顯示)、Modeling(模型)、Structure(結構)、Details and Annotations(細節和註釋)

Interoperability

Selecting units for DWG export
匯出爲 DWG 格式時可以設定輸出單位

You can set the DWG units for projects you export to DWG format. Unit options are feet, inches, meters, centimeters, and millimeters. The default units are inches for imperial projects and meters for metric projects.

To set the DWG unit:

1 Click File menu --> Export --> CAD Formats.
2 In the Export dialog, click Options.
3 In the Export Options dialog, select a unit from the One DWG unit drop-down list.

Exporting room and area properties to 2D DWF
匯出至 2D DWF 格式時包含房間名稱及面積資料

When you export a project or a view that has rooms or areas to 2D DWF , you can have the room/area properties exported on a separate layer than the geometric representation. Setting this option allows you to view individual rooms and room data when you are exporting a project or a view for use with facility management software (such as Autodesk® FMDesktop), or DWF markup software (such as Autodesk® Design Review).

To export room and area object data with 2D DWF:

1 Click File menu --> Export DWF --> 2D DWF.
2 In the Export dialog, click Options.
3 In the DWF Export Options dialog, select Rooms and Areas.
4 Click OK.

Export globally unique identifier (GUID) to 2D and 3D DWF
匯出至 2D DWF 格式時包含全球唯一識別元(GUID)資料

When you export object data to 2D or 3D DWF, a unique, consistent ID is also exported. This ID consists of the GUID and the element ID, which virtually eliminates duplicate element IDs when DWF files are merged from multiple sources outside of Revit Building.

Export unit information and unformatted values to 2D DWF
匯出圖面單位和未編排的資訊至 2D DWF，供其他軟體匯入用

When you export object data to 2D DWF, any property with an assigned unit of measurement exports user visible and user invisible information. This information is available when you import 2D DWF into Autodesk Desktop. User visible information

consists of formatted values. User invisible information consists of 2 additional fields; an unformatted, raw value and a field that describes the unit type or data type.

Importing and exporting portable network graphics (PNG) image files
匯入與匯出 PNG 影像檔

Import and export image functionality now allows you to import PNG files into projects, and export project views (shaded and non-shaded) as PNG files. Imported PNG images behave like other supported image formats; you can resize, mirror, array, copy, group the image and so on.

NOTE: PNG format is not supported for the Export Image command on the Rendering tab of the Design Bar. You can export a captured rendered view to a PNG file using the following procedure.

To export PNG files:

1 Click File menu --> Export --> Image.
2 In the Export Image dialog, Format field, select PNG.
3 Select other export options and click OK.

To import PNG files:

1 Click File menu --> Import/Link --> Image.
2 In the Open dialog, navigate to the PNG file and click Open.
3 Click in the drawing area to place the image.

Room/area reports with exclusions
匯出房間/面積資料時可以設定排除資訊

You can now create room/area HTML reports with different exclusion settings. When you create a room/area report with exclusions (for example, closets or room-bounding columns) triangulation is performed, reported, and displayed separately for each bounding loop.

This option only applies to Revit room area triangulation reports and not to Revit room area numerical integration reports.

To set room/area triangulation reports with exclusions:

1 Click File menu --> Export --> Room/Area Report.
2 In the Export a Room/Area Report to a file dialog, select Revit Room Area Triangulation Report from the Save as type drop-down list.
3 Click Settings.
4 Select Use triangulation with exclusions.
5 Click OK.

Specifying the building type and zip code for exported gbXML files
當匯出 gbXML 時可以加入建築類型及區域碼

You can now specify the building type and zip code for projects that export to gbXML. Several analysis software packages use this information when importing gbXML files to add default design values for energy use and costs, thermal loads, and construction.

To specify gbXML file settings:

1 Click Settings menu --> Project Information.
2 In the Element Properties dialog, click Edit for the gbXML Settings instance parameter.
3 In the Type Properties dialog, select the building type from the drop-down list and enter

the zip code.
4 Click OK.

Views

Hiding elevation tags

You can set the view scale at which elevation tags are hidden in project views. Each elevation tag instance can have a different view scale at which it is hidden.

To hide elevation tags:

1 Select an elevation tag in the drawing area.
2 On the Options bar, click . 
3 Select a value for the Hide at scales coarser than parameter.
4 Click OK.

Improved snapping for section views
改善剖面視景的鎖點功能

You can now snap a section line either parallel or perpendicular to a non-orthogonal datum or wall. Snapping to a wall is available in plan views.

Selecting rooms and viewing room properties in section view
在剖面視景可選擇房間並取得房間資訊

You can now select rooms and view room properties in a section view.

Modeling

Set room bounding condition for columns prior to placement

You can now specify whether an architectural column is room bounding before placing it. This setting persists until you change it.

To set the room bounding condition for columns:

1 On the Modeling tab of the Design Bar, click Column.
2 On the Options Bar, click Room Bounding.
3 Place the column in the drawing area.
Alternatively, you can right-click a column and click Properties to modify the room bounding parameter from the Element Properties dialog.

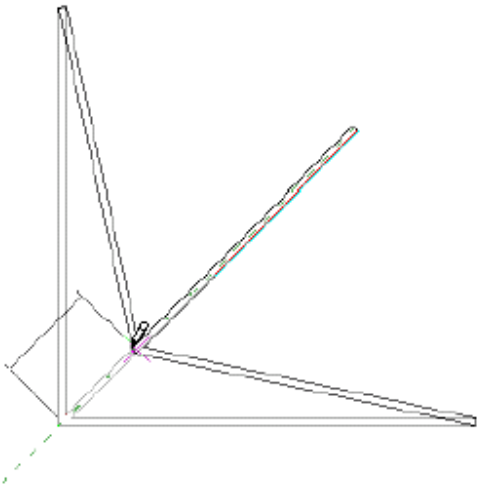
Placing windows and doors on in-place walls in plan view

In plan view, you can now place windows and doors on in-place and face-based walls, for example a sloped wall.

Moving end-joined components
移動(拉伸)共點的元件

Components that share a common end join can be moved simultaneously without breaking the join by using a new drag control or by selecting an option on the context menu. This functionality is available for walls, lines, beams, braces, and line-based families.

The following image shows 3 walls moving together by their common end join.



Only selected joined components move; components that are part of a join but are not selected are detached from the join when it is moved. The exception to this is braces that are joined to beams; braces always move with the beams they are joined to.

To move end-joined components:

1 Right-click a member of the join, and click Select Joined Elements.

2 In the drawing area, click the Drag End control, or right-click and select Drag End.

NOTE The name of the control and the context menu option both indicate the type of component you are moving (Drag Wall End, Drag Structural Framing Component End, and so on).

3 Drag the join to the desired location.

Using the Trim/Extend tool with beams and braces
樑柱物件可以使用延伸/截斷功能

You can now use the Trim/Extend tool (trim/extend to corner and trim/extend single element options) to trim or extend braces and beams.

Moving braces out of their originating plane

You can now copy, move, mirror, array, and rotate braces out of the vertical plane they were created in. You can accomplish this in plan and 3D views.

Non-planar beam systems
可設計非平面樑系統

You can create non-planar beam systems in which the elevation of a beam is defined by its sketch lines. Sketched beam lines:

■ Can only define slope when they are created using the Pick Supports tool.
■ That have a beam as their support always define slope.
■ That have a wall as their support have a Defines slope property you can edit. The default value is true.

Sketch lines that define slope are purple, and sketch lines that do not define slope are navy blue.

The elevation of the end of a beam in a beam system is determined as follows:

■ If the end of the beam connects to a sketch line that defines slope, the beam is connected to the top of the associated support.

■ If the sketch line does not define slope, then the end of the beam is elevated to a plane defined by the end points of the 2 nearest sketch lines that do define slope.
■ If there are no lines in the sketch that define slope, the beam system behaves like a 2D beam system.

To specify a beam system as non-planar:

1 On the Structural tab of the Design Bar, click Beam System.

2 On the Sketch tab of the Design Bar, click Structural Beam System Properties.

3 In the Element Properties dialog, select the 3D instance parameter.

4 Click OK.

New option for the Layout Rule instance parameter

The Layout Rule instance parameter for structural beam systems has a new Clear Spacing value. This value is similar to the Fixed Distance value, but measures spacing between the exteriors of the beams instead of between their centerlines. When you adjust the size of an individual beam in a beam system with the clear spacing layout rule value, adjacent beams move to maintain the distance between them.

Structure

Concrete drawing improvements

Concrete beams that are in the same plane and are joined to the same concrete column (where the beams are wider than the column) automatically clean up.

This improvement is not automatically applied to existing models that are being upgraded. You can click on existing concrete beam joins in the drawing to reconnect them and reestablish the join.

Automatic concrete joins

混凝土物件自動接合

The following concrete structural components now automatically join:

■ Beams that intersect beams
■ Beams that intersect columns
■ Foundations that intersect foundations

If you unjoin auto joined members using the unjoin geometry tool, auto join is suspended for these elements and they can only be joined again using join geometry. Upgraded elements from previous releases do not automatically join unless manipulated.

Beam Direction Edge tool renamed

The Beam Direction Edge tool has been renamed Beam Direction. This tool is available when you are sketching a beam system.

New options for sketching beam directions

When you are sketching a beam system and you click the Beam Direction tool, there is now a draw tool on the Options Bar in addition to the existing pick lines tool. The draw tool allows you to sketch a line that defines beam direction independent of the boundary lines.

The draw tool draws a sketch line between any 2 points you specify. This dashed blue line describes the direction of the beams in the beam system. The line has no other

function in the sketch other than to define direction and therefore cannot be used to close a loop. The line can overlap existing lines, but you will receive a warning.

Drawing a direction sketch line, or using the pick lines tool to pick another sketch line to define direction, deletes any previously existing direction sketch line. Arc walls can no longer be used to define the direction of a beam system.

Different display options for hidden, non-rectangular concrete beams

In the Family Editor, there is a new family parameter (under Settings menu --> Family Category and Parameters) named Display in Hidden Views. This parameter allows you to specify what edges display as hidden for the current concrete or pre-cast concrete family.

Details and Annotations

Independent visibility control for revision clouds and revision tags

You have the following options for revision cloud and revision tag visibility:

■ **None:** This option (formerly Off) turns off the display of the revision cloud and the revision tag in the drawing.
■ **Tag:** This new option displays the revision tag (if one has been applied) and draws the revision cloud but does not display it in the drawing. You can highlight and select the cloud to move or edit it.
■ **Cloud and Tag:** This option (the default) displays the revision cloud and the revision tag (if one has been applied) in the drawing. This was previously the On option.

To set the visibility control for revision clouds and revision tags:

1 Click Settings menu --> Revisions.

2 In the Revisions dialog, select an option from the Visible drop-down list.

New area property for filled region

To quickly determine area you can now use the filled region tool and view

the new area property.

You view the area property for a filled region in its Element Properties dialog.

The area value is the area of the region’s closed perimeter loop less the area

of any closed loops within the perimeter. The area property is reported in the project units (for example, square meters or square feet). The area property is read-only and cannot be scheduled or tagged.