

Revit Component



Levels and Grids





Levels

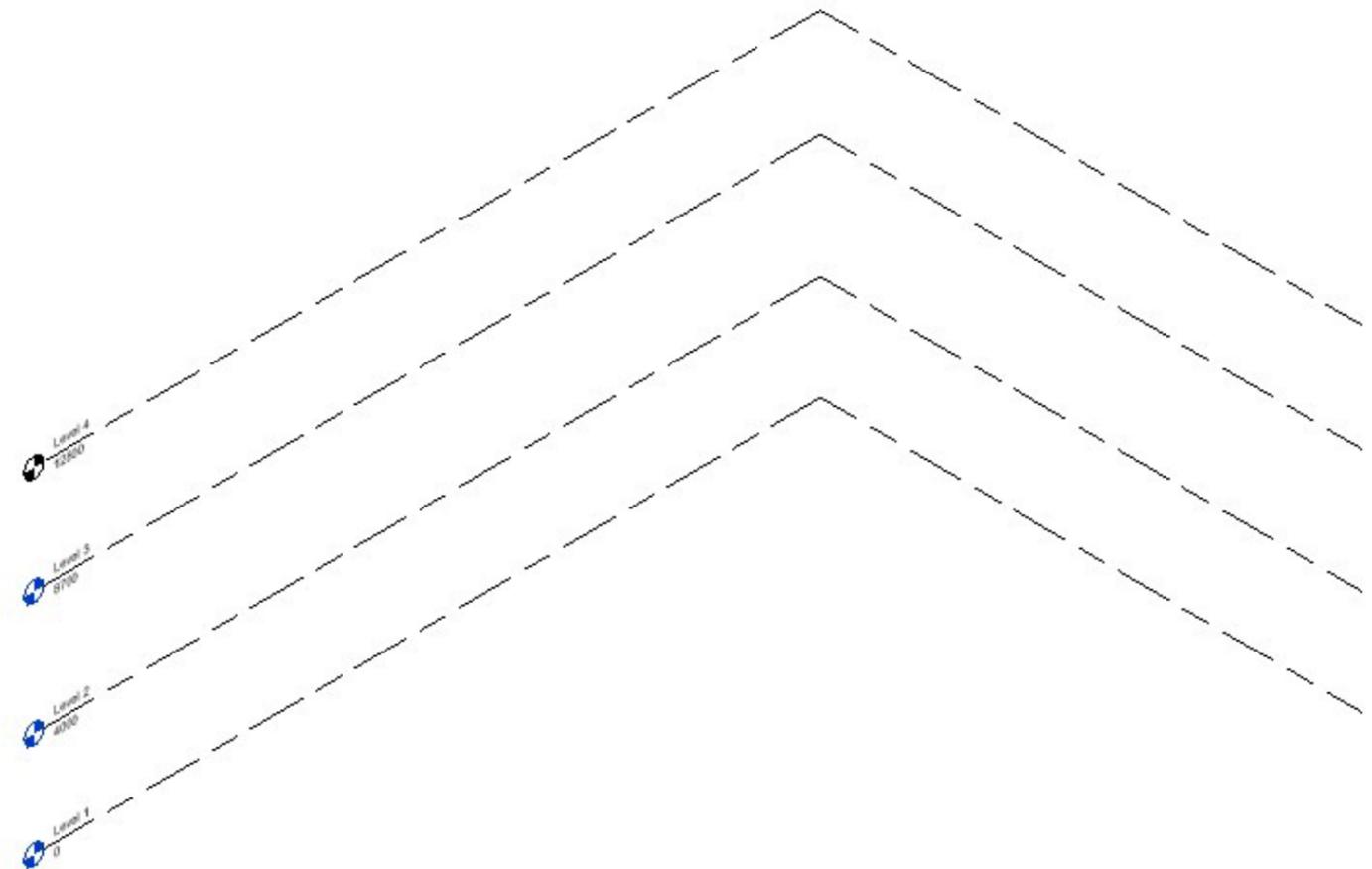
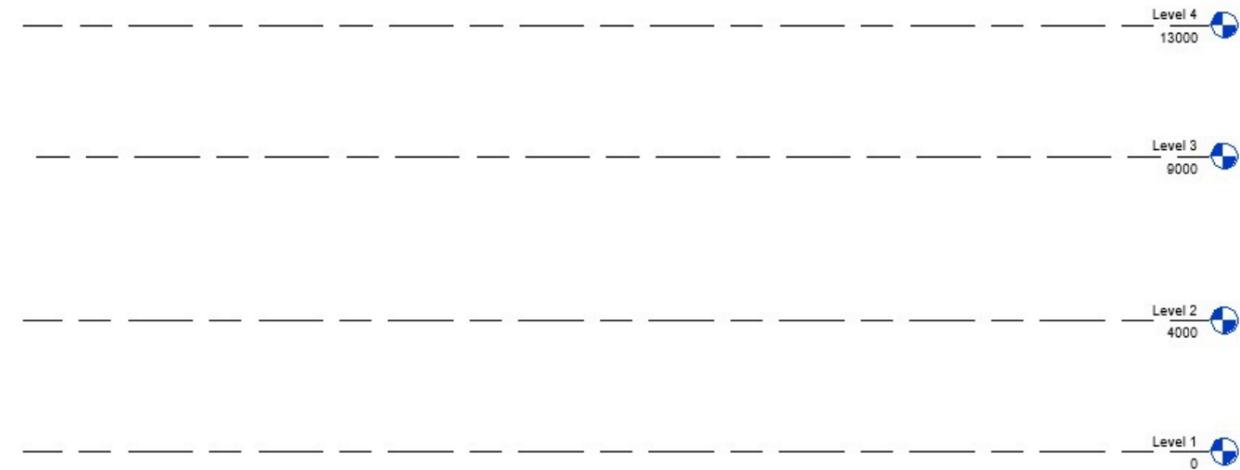
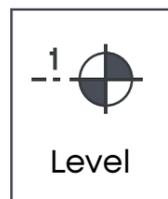
Levels are finite horizontal planes that act as a reference for level-hosted elements, such as roofs, floors, and ceilings. They define a vertical height or story within a building.

Add Levels

To add levels, you must be in a section or elevation view.

The Level Tool is placed on the
Architectural/Structural tab → Datum panel → Level

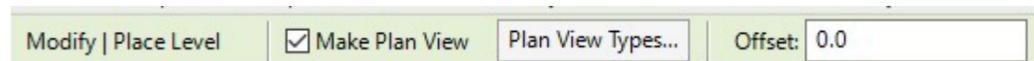
To place a Level, you need to place the cursor in the drawing area of an elevation or section view and draw the level line by moving the cursor horizontally. Finish the level line by clicking in the drawing area when the level line is the correct length.





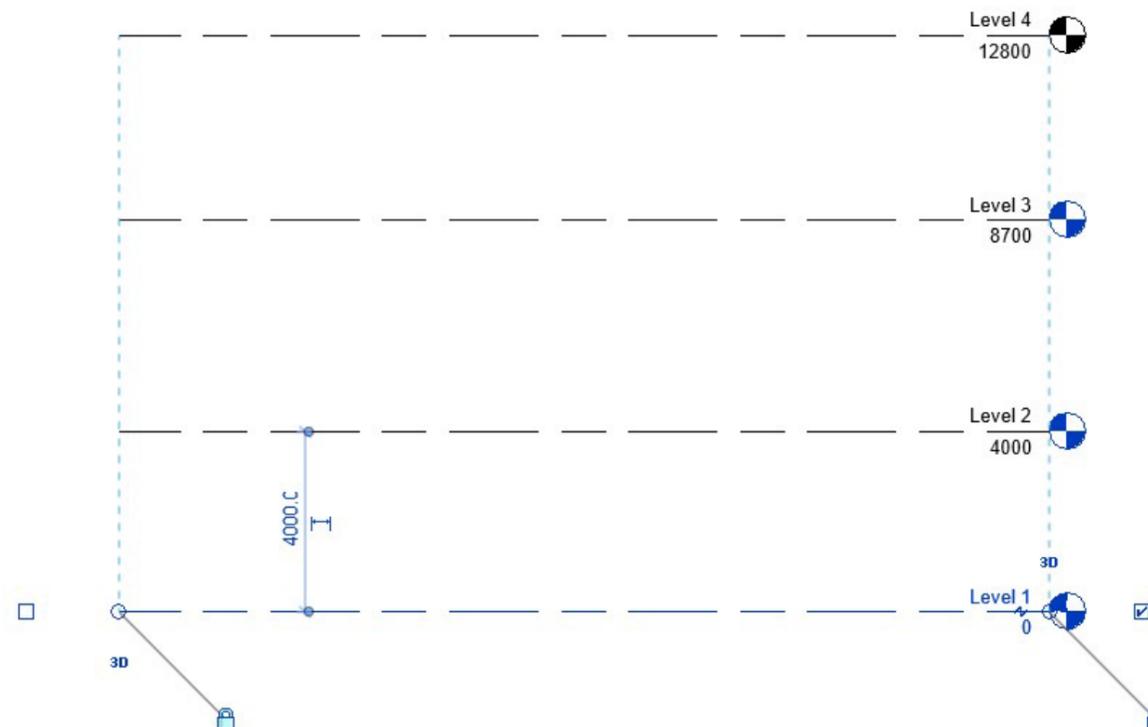
Levels

You can change the name of the level by clicking the number to select it. You can also change the height of the level by clicking the dimension. Revit assigns the label (for example, Level 1) and the level symbol to the new level. Use the Project Browser to rename the level, if desired. If you rename the level, you are asked if you would like to re-name corresponding plan views as well.



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As you place the cursor to create a level, if the cursor aligns to an existing level line, a temporary vertical dimension displays between the cursor and that level line. As you draw level lines, the heads and tails of the lines can align to one another. When you select a level line that is aligned with others, a lock appears to show the alignment. If you move the level line horizontally, all aligned level lines move with it.





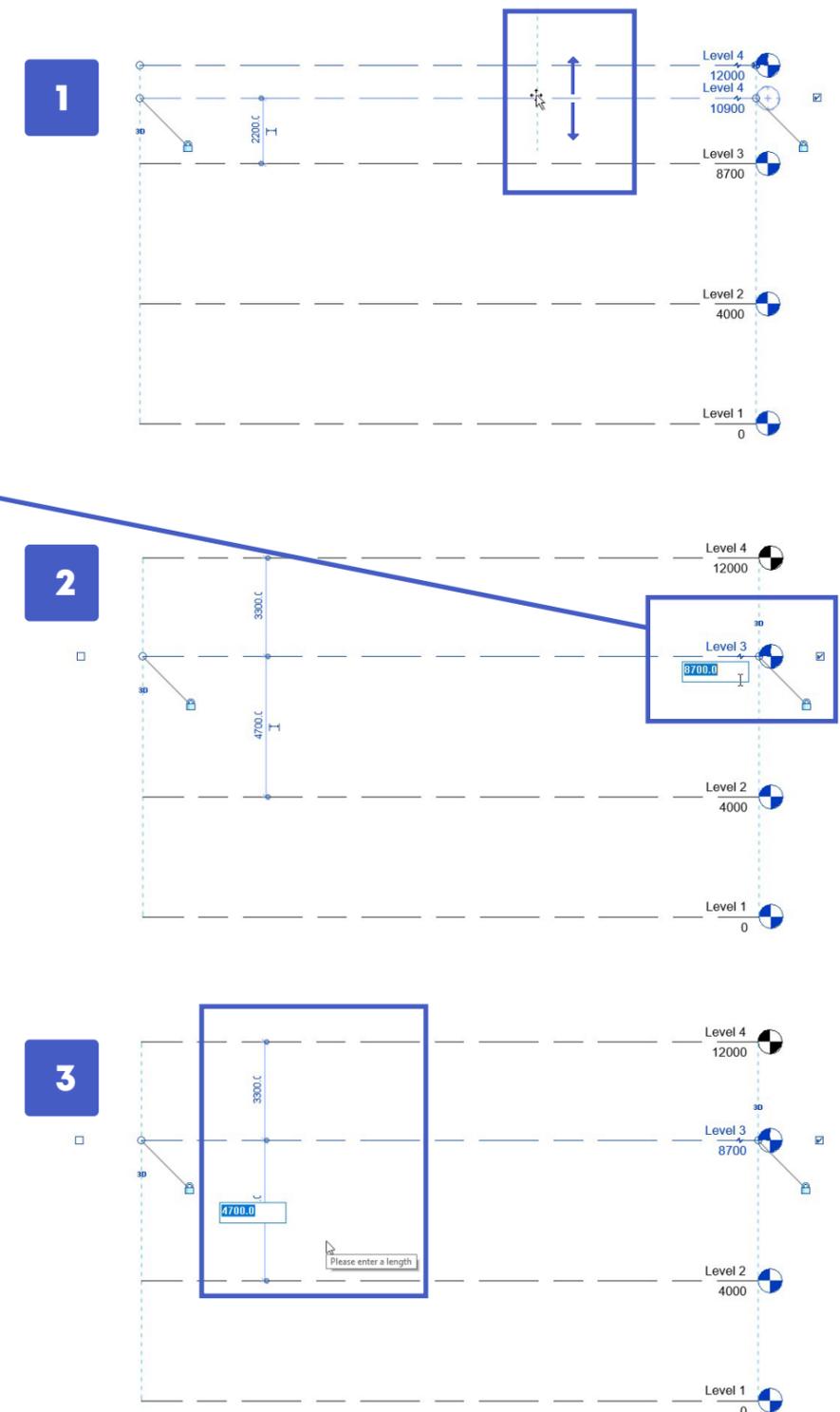
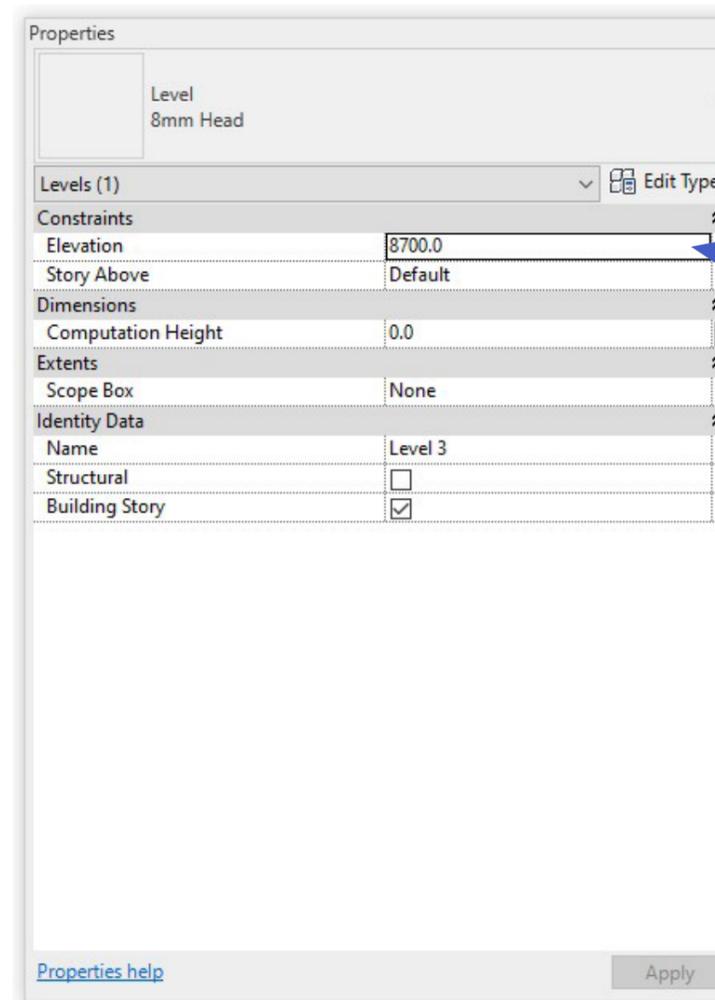
Levels

Move Levels

You can move a single level or multiple levels in elevations, sections, and 3D views by:

- dragging the level up or down **(1)**
- enter a new value for Elevation on the Properties palette or by clicking directly on the Elevation value in the level head **(2)**
- by clicking on a dimension length between levels to enter a new value **(3)**

To move multiple levels, select the desired levels and move them up or down.

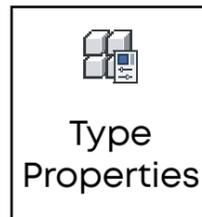




Levels

Levels Type Properties

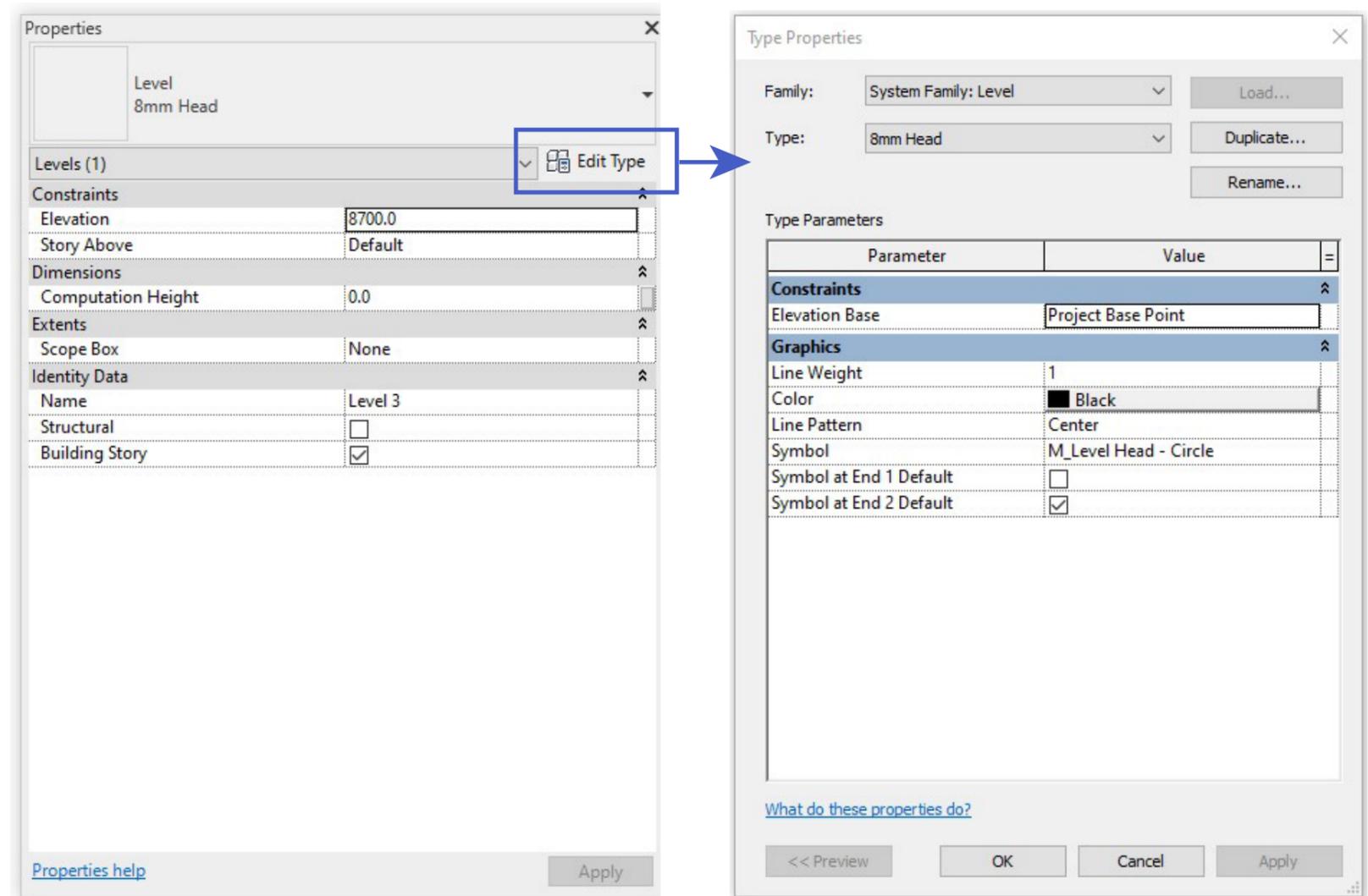
To change type properties, select an element and click
Modify tab → Properties panel → Type Properties



or

click on **Edit Type** in the Properties pallet

In the Type Properties you can modify Elevation Base, Line Weight, Color, etc.





Levels

Levels Type Properties

Constraints	
Elevation Base	Is used by the level as the origin for the elevation height value. The Elevation Base can be set to Survey Point or Project Base Point. If the elevation base value is set to Project Base Point, the elevation reported on a level is with respect to the project origin. If the base value is set to Survey Point, then the elevation reported is with respect to the fixed survey point.
Graphics	
Line Weight	Sets the line weight for the level type.
Color	Sets the color of the level line. You can choose from a list of colors defined in Revit, or define your own color
Line Pattern	Sets the line pattern of level lines. The line pattern can be solid or a combination of dashes and dots. You can choose from a list of values defined in Revit, or define your own line pattern.
Symbol	Determines the family that is applied to the end of the level line. Different level head annotation families can be selected from the drop-down list. Additional level head families can be loaded into the model for additional selections.
Symbol at End 1 Default	Determines the family that is applied to the end of the level line. Different level head annotation families can be selected from the drop-down list. Additional level head families can be loaded into the model for additional selections.
Symbol at End 2 Default	Places a bubble by default at the right end of the level line.



Levels

Levels Instance Properties

To change instance properties, select the element and change its properties on the Properties palette.

Note: Changes to instance properties apply to the selected instances in the project.

The screenshot shows the Properties palette for a Level instance. The palette is titled "Properties" and has a close button (X) in the top right corner. Below the title bar, there is a dropdown menu showing "Level" and "8mm Head". Below that, there is a section for "Levels (1)" with a dropdown arrow and an "Edit Type" button. The main area of the palette is divided into several sections, each with a header and a right-pointing arrow:

- Constraints**:
 - Elevation: 8700.0
 - Story Above: Default
- Dimensions**:
 - Computation Height: 0.0
- Extents**:
 - Scope Box: None
- Identity Data**:
 - Name: Level 3
 - Structural:
 - Building Story:

At the bottom of the palette, there is a "Properties help" link on the left and an "Apply" button on the right.



Levels

Levels Instance Properties

Constraints	
Elevation	The vertical height of the level. Elevation value is measured from Project Base point or Survey Point, depending on the Elevation Base type parameter setting of the level family.
Story Above	Used in conjunction with the Building Story parameter when exporting to IFC with the export option Split walls and columns by story. This parameter indicates the next building story for the level. By default, Story Above is the next highest level for which Building Story is enabled. To access a list of all building stories above the current one, click in the field. The Story Above does not need to be the next higher level or building story.
Dimensions	
Computation Height	The distance above the level to use when computing a room's perimeter, area, and volume.
Extents	
Scope Box	The scope box applied to the level. Identity
Identity Data	
Name	A label for the level. You can assign any label or name you wish to this property.
Structural	Identifies the level as primarily structural (for example, Top of Steel). By default, this parameter is disabled. Note: A level can be defined as both structural and a building story.
Building Story	Used in conjunction with the Story Above parameter when exporting to IFC with the export option Split walls and columns by level. This parameter indicates that the level corresponds to a functional story or floor in the model, as opposed to other levels, such as landings and parapets. By default, this parameter is disabled. When Building Story is enabled, the level can be used in Story Above parameter.
Design Option	A read-only field that indicates the design option in which the level lines display.



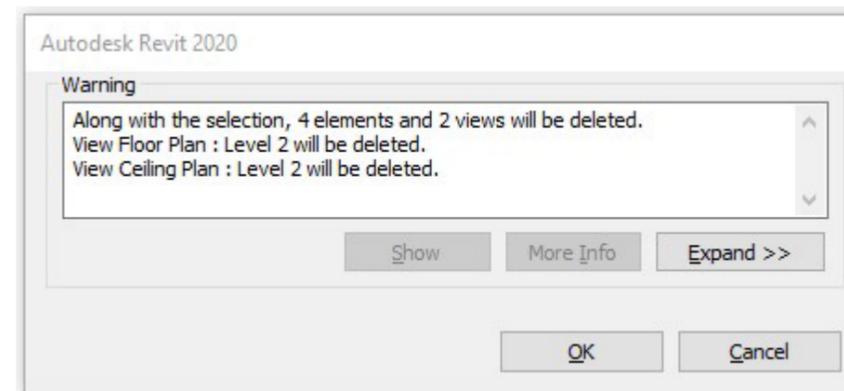
Levels

Delete Levels

When you delete a level, Revit also deletes associated views and model elements that are hosted by the level (for example: doors, furniture, and rooms).

A warning message displays so you can see the full list of items to be deleted with the selected level. You can cancel the deletion request if needed.

If the level to be deleted does not have any associated views or hosted elements, no warning is issued, and the level is deleted immediately.





Grids

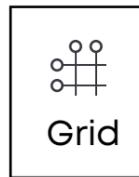
Grids are datum elements and there are visible in views that intersect the Grids extents. Grids can be used as references for a building model.

Add Grids

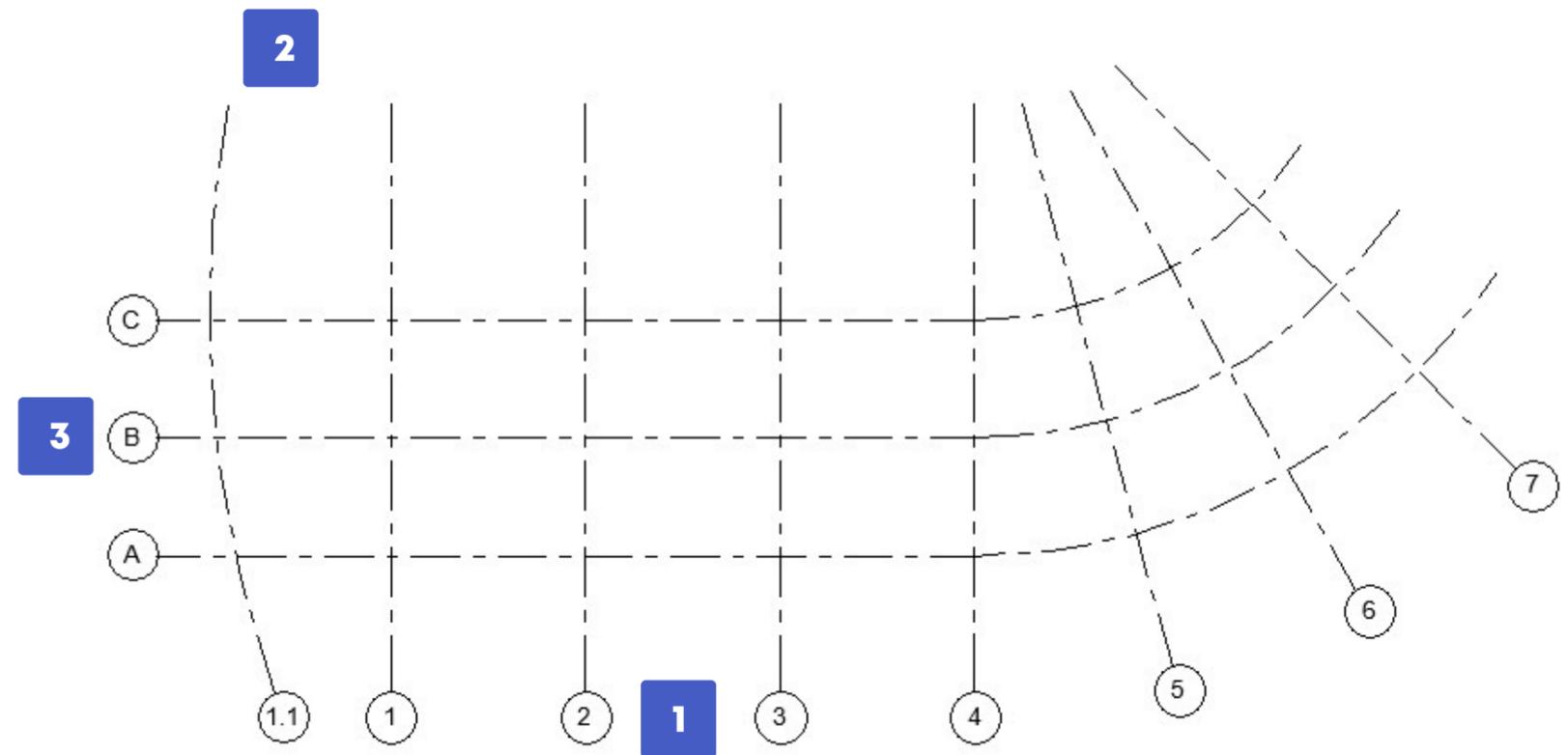
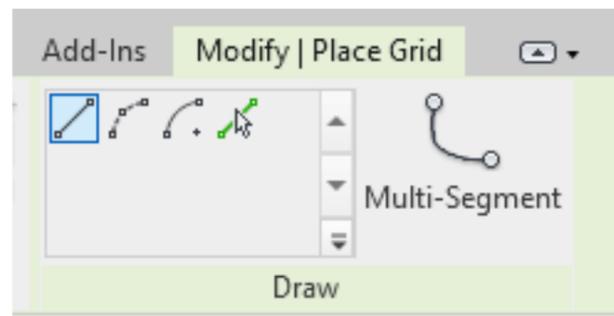
Grid lines can be added in plan, section, or elevation views.

The Grid Tool is placed on the

Architectural/Structural tab → Datum panel → Grid



On the draw panel, select the placement type. Grids can be created as straight lines **(1)**, arcs **(2)** or multisegmented **(3)**.



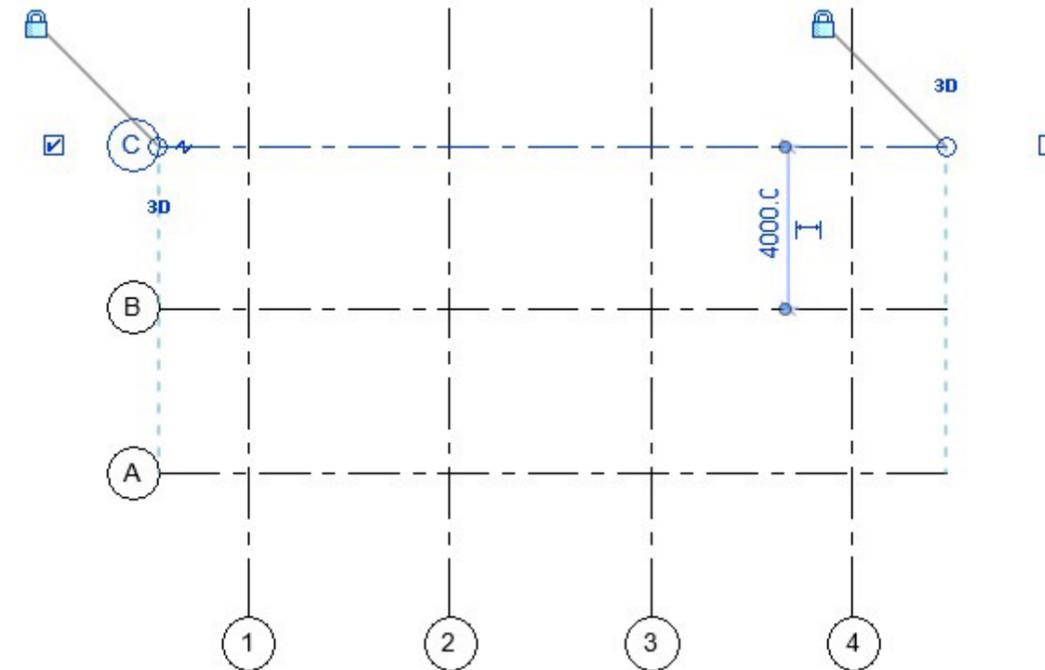


Grids

To place a Grid, you need to place the cursor in the drawing area of an plan, elevation or section view and draw the grid line by moving the cursor. Finish the grid line by clicking in the drawing area.

Grids include annotation elements. When you add a grid to a project, Revit automatically numbers each grid. This can be changed by clicking the number. Numbers and letters can be used for the grid line values. If you change the first grid number, all subsequent grid lines update appropriately.

As you draw grid lines, the heads and tails of the lines can align to one another. If grid lines are aligned and you select a line, a lock appears to indicate the alignment. If you move the grid extents, all aligned grid lines move with it.





Grids

Grids Type Properties

Modify grid lines, such as line style for the center segment or the symbol used for the ends of the grid line, on the Type Properties dialog.

Graphics	
Symbol	The symbol to use for the ends of a grid line. The symbol can be selected from the drop-down list. Additional grid head families can be loaded into the model for additional selections.
Center Segment	The type of center segment to display in the grid line. Select None, Continuous, or Custom.
Center Segment Weight	If the Center Segment parameter is Custom, the line weight is used for the center segment.
Center Segment Color	If the Center Segment parameter is Custom, the line color is used for the center segment. Select a color defined in Revit, or define your own color.
Center Segment Pattern	If the Center Segment parameter is Custom, the pattern is used for the center segment. The line pattern can be solid or a combination of dashes and dots.
End Segment Weight	The line weight to use for a continuous grid line, or if Center Segment is None or Custom, the line weight for the end segments.
End Segment Color	The line color to use for a continuous grid line, or if Center Segment is None or Custom, the line color for the end segments.
End Segment Pattern	The line style to use for a continuous grid line, or if Center Segment is None or Custom, the line style for the end segments.
End Segments Length	If the Center Segment parameter is None or Custom, the length of the end segments (in paper space).
Plan View Symbols End 1 (Default)	In a plan view, the default setting to display a bubble at the start point of a grid line. (That is, when you draw a grid line, the bubble displays at its start point.) If desired, you can show or hide bubbles for individual grid lines in views.
Plan View Symbols End 2 (Default)	In a plan view, the default setting to display a bubble at the endpoint of a grid line. (That is, when you draw a grid line, the bubble displays at its endpoint.) If desired, you can show or hide bubbles for individual grid lines in views.
Non-Plan View Symbols (Default)	In project views other than plan views (such as elevations and sections), the default location where bubbles display on the grid line: Top, Bottom, Both (top and bottom), or None. If desired, you can show or hide bubbles for individual grid lines in views.



Grids

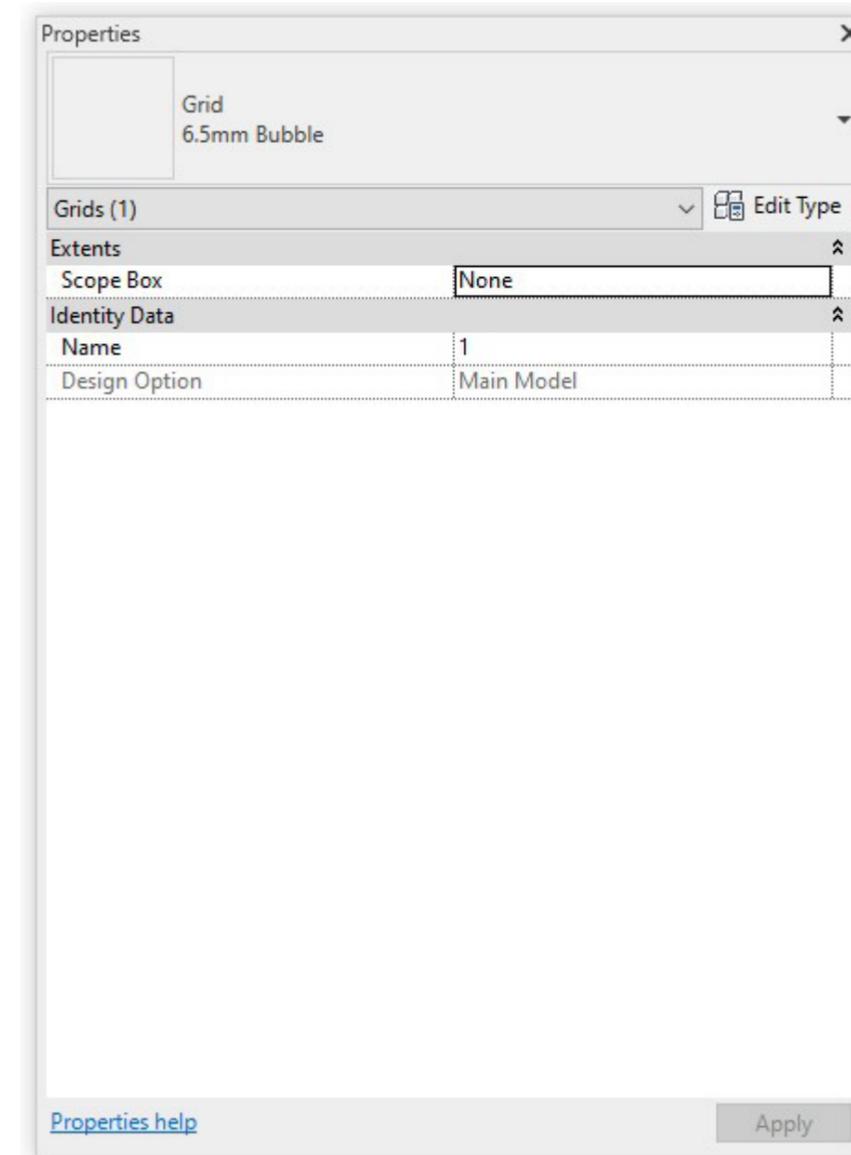
Grids Instance Properties

You can change properties for an individual grid line, such as the Name or Scope Box.

To change instance properties, select the element and change its properties on the Properties palette.

Note: Changes to instance properties apply to the selected instances in the project.

Extent	
Scope Box	The scope box applied to the grid.
Identity Data	
Name	A value for the grid line. This can be a numeric or alphanumeric value. The first instance defaults to 1.
Design Option	A read-only field that indicates the design option in which the grid lines display.



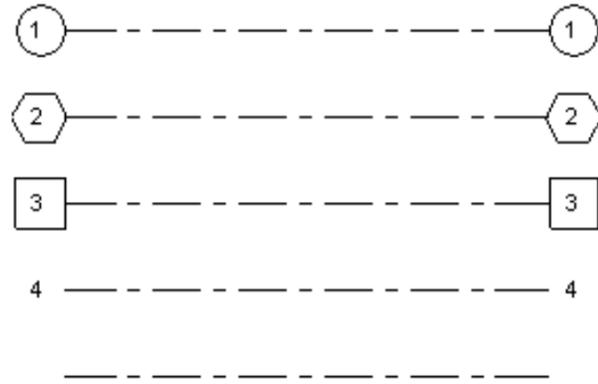


Grids

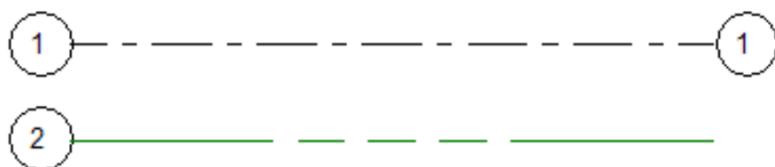
Modify Grids

You can customize grid types by changing the following (*Grids Type Properties*):

- Modify the Bubble grid type, or create your own

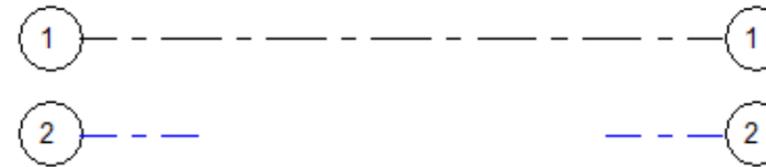


- Line color, weight, and pattern of entire grid line.



- Hide the center segment of the grid lines to create a gap, displaying only the end segments in views.

- Hide the center segment of the grid lines to create a gap, displaying only the end segments in views.



- Display the center segment of the grid line using a different line color, weight, and pattern than the end segments.

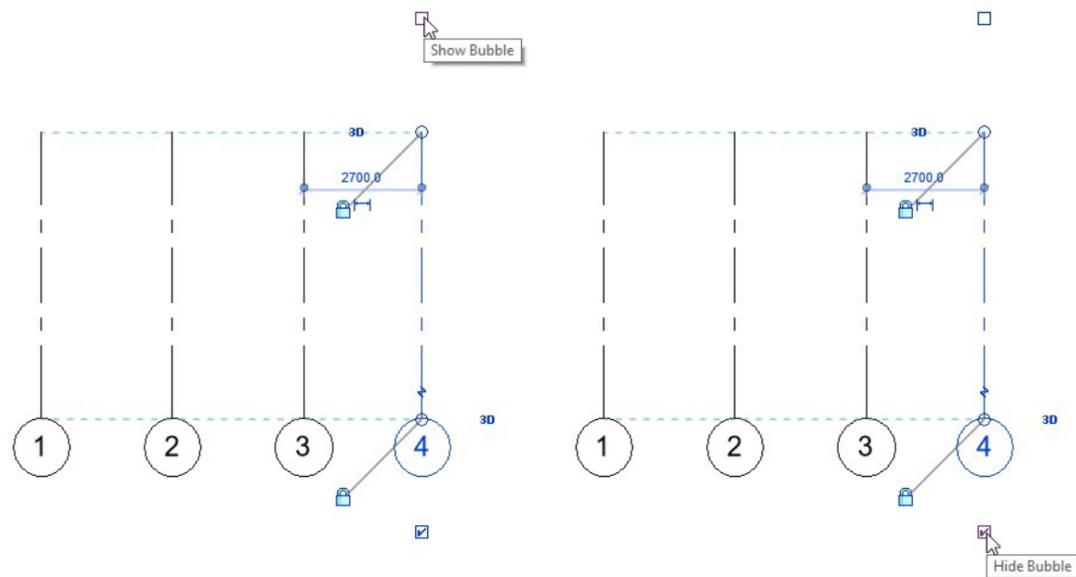




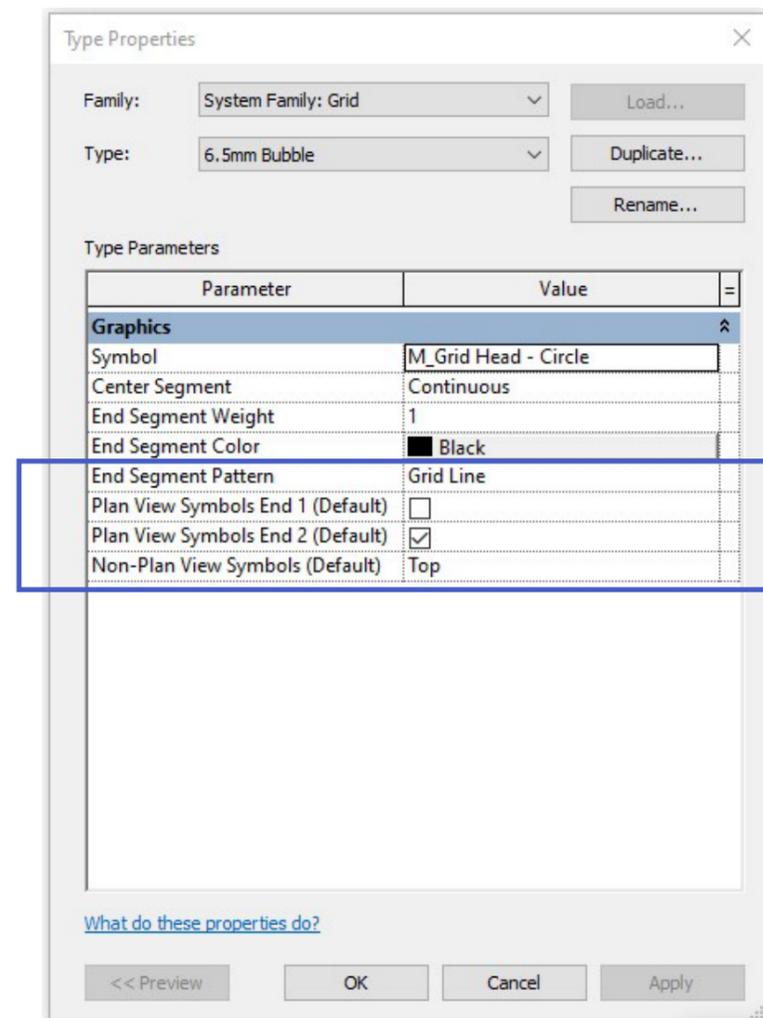
Grids

Modify Grids

You can control whether grid bubbles display at either end of a grid line. This can be controlled graphically for an individual grid line in a view, or for all grid lines of a particular type by changing type properties. To show or hide individual grid bubbles open a view that displays grid lines, select a grid line and clear the check box to hide the bubble, or select it to show the bubble.



To show or hide bubbles for all grid lines use the type properties. Revit updates all grid lines of the type in all views.

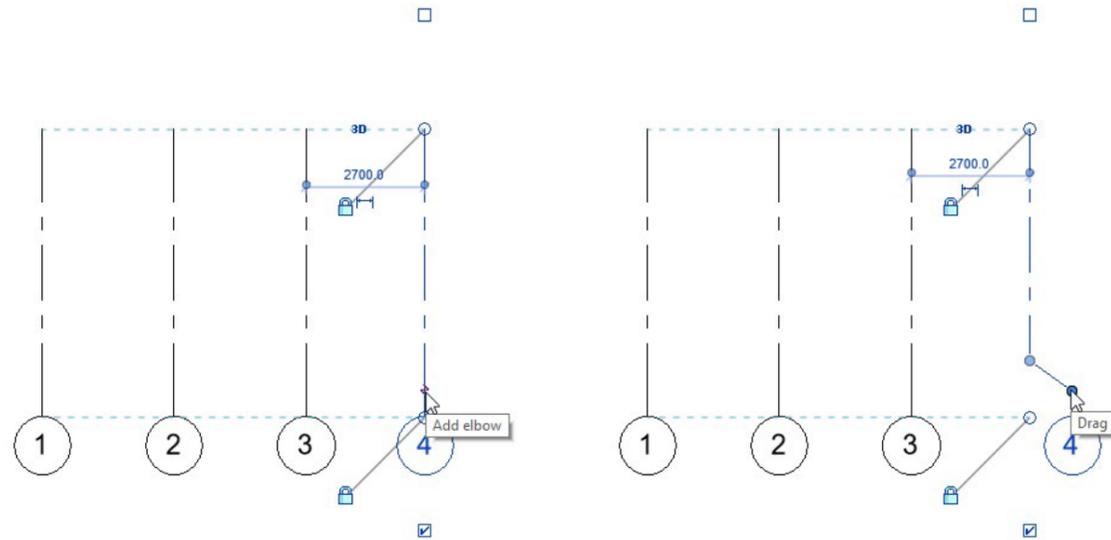




Grids

Modify Grids

If needed, you can offset the bubble from the rest of the grid line. To offset the bubble, sketch a grid line, or select an existing grid line and click on the Add Elbow drag control, then drag the control to the desired location to move the bubble away from the grid line



Next Steps

Exercise Files Levels and Grids

Revit Components - Walls, Doors and Windows

Revit Elements

Revit Views

Managing Documentation

Import/Link Files

Source:<https://knowledge.autodesk.com/>