



April 2006



REVIT 8.1 - Varying Roof Plate Heights

This tutorial is accompanied with a Video CADCLIP which can be downloaded for free at www.dgcad.com > Roof with Varying Plate Heights.

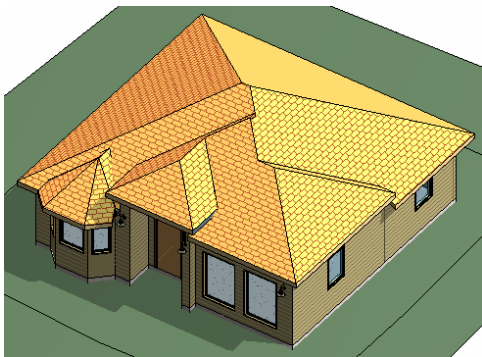


Diagram A

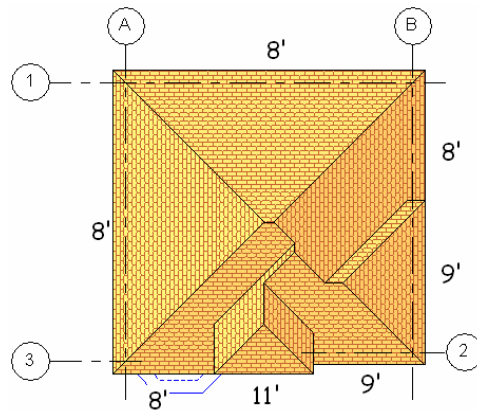


Diagram B

Tutorial Objective: To create a roof in REVIT that complies with varying wall heights at the exterior wall plates. In this example there are 8', 9' and 11' high walls at the roof perimeter.

1. The bad news is you need to draw the 2d roof plan linework geometry before hand to the best of your ability. This 2d drafting exercise can prove to be a test of your geometry skills in itself. The main thing is to try to place as many edges, ridges and valleys as you can. You can always tweak it later.

- Use detail lines or reference planes / lines to place the 2d roof linework as shown in Diagram C below.

- I drafted the 2d linework using AutoCAD and saved it as a dwg file and then used REVIT 'import' to link the AutoCAD file into the REVIT Level 2 view. Note that I only linked it to the view Level 2. (this link can be retained or it can be deleted later.)

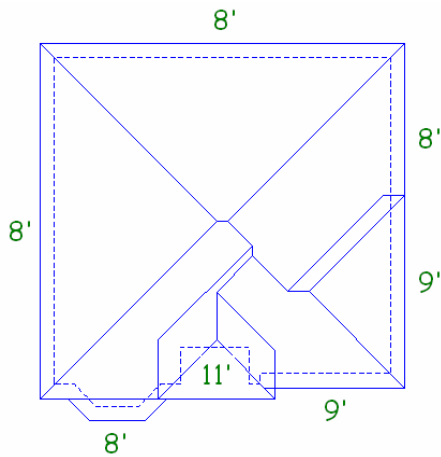


Diagram C

2D roof plan drawn in REVIT or drawn in AutoCAD and imported into REVIT.

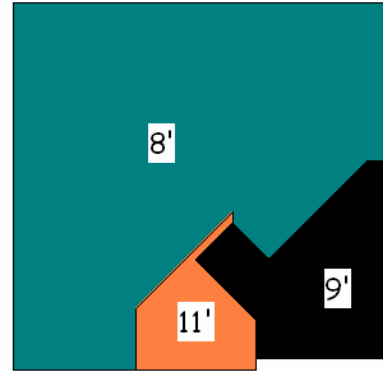


Diagram D

Color code diagram of the 3 major roof footprints to be traced. Can you see it?

Note in Diagram D that there are 3 main roofs. a) the big roof (blue) at 8' b) the medium roof (black) at 9' c) the small roof (orange) at 11'.

Don't worry about the roof fascia line overlaps you can pull those lines around later. The interior valleys and ridges will get created automatically.

2. After drawing or importing the 2d geometry in REVIT create each of the 3 main roofs one at a time using Roof by Footprint (Diagram E) and the 'Lines' tool. Sketch around the perimeter of the 2d geometry with roof sketching lines. Do not use 'Pick Walls'. You can however use the 'Pick Lines' (Diagram G) option of the sketching lines.

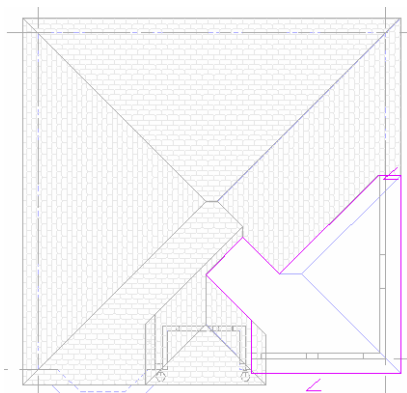


Diagram E

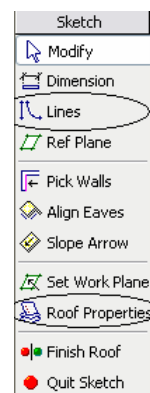


Diagram F

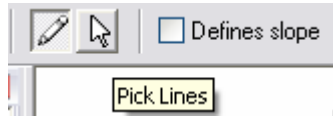


Diagram G



Diagram H

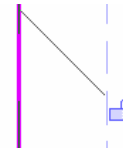


Diagram I

Add slope lines. Slope lines go at the bottom fascia edges. Diagram H.

You can also lock the roof edges to the 2d linework or the linked AutoCAD file. See Diagram I.

3. Click Finish the sketch.

4. Repeat step 2 and 3 for the other 2 main roofs components.

5. Check the vertical positioning of each roof by checking the properties of the roof and set / verify the Base Level and Base Offset from Level. (see diagram J). My Level 2 is currently set to 8'-0" above Level 1. Therefore the 8' roof is set to Level 2 with a 0'-0" offset. The 9' roof is set to Level 2 with offset of 1'-0". The 11' roof is set to Level 2 with offset of 3'-0".

You can check the properties of the roof after completing the roof sketch by clicking the regular 'Properties' button or during sketching with the Roof Properties button. Diagram F.

6. You are done. Delete the linked AutoCAD file or the roof plan linework as required.

7. You can then fine tune the roof overlapping edges by going back into editing mode and moving the sketch lines.

Additional Information

Each overall Roof BASE plate height can be set in the roof properties with an optional Offset. Base Level and Base Offset from Level

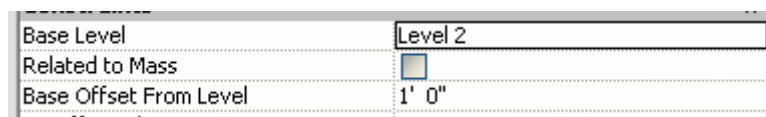


Diagram J

Further to the paragraph above you can also set individual edge vertical offsets while in roof sketch mode by clicking a sketch line and then clicking on the properties button. See diagram K. 'Offset from Roof Base' This further appends the vertical height of the line after the overall roof Base Level and Base offset from Level conditions are met.

We do not need to do this for this exercise but it is something to be aware of.

Constraints	
Defines Roof Slope	<input checked="" type="checkbox"/>
Offset From Roof Base	0' 0"
Dimensions	
Rise/12"	7"
Length	17' 8"

Diagram K

Please also note that when sketching a roof by footprint and using the 'Lines' tool rather than using the 'Pick Walls' tool that the resultant roof plate height will be different in relation to it's associated Level. See the DGCAD Video CADCLIP > Must know rules about Roof Alignment.

This tutorial is accompanied with a Video Tutorial which can be downloaded for free at www.dgcad.com > CADCLIP-REV-VARYING-ROOF-PLATES.wmv

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