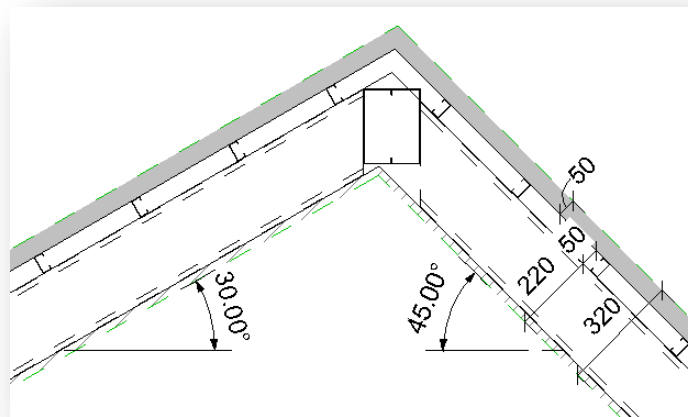
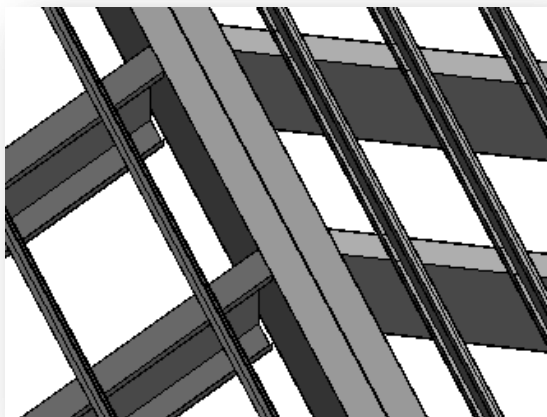


The background is a photograph of a large, empty parking garage with concrete pillars and beams. The floor is a light blue color. Overlaid on the right side of the image is a complex 3D geometric structure. It consists of several interconnected wireframe boxes and solid, translucent blue blocks. The structure is tilted and rotated, creating a sense of depth and complexity. The overall color scheme is dominated by shades of blue and teal.

METAL FRAMING RAFTER+ Roof Framing Method

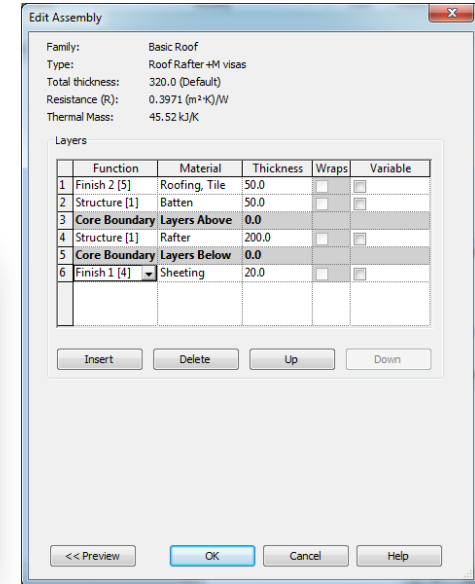
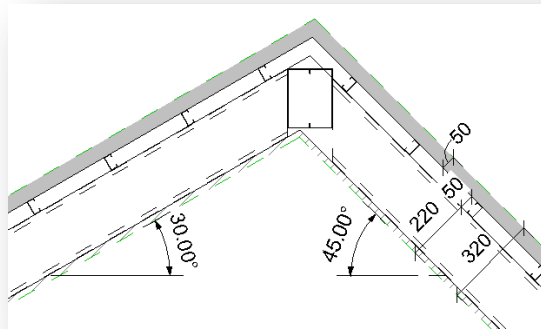
Modeling Background

- Rafter system modeling is based on Revit beam system objects;
- Revit creates beam systems with anchored beams of predefined type;
- Top faces of beams lie on the beam system work plane.

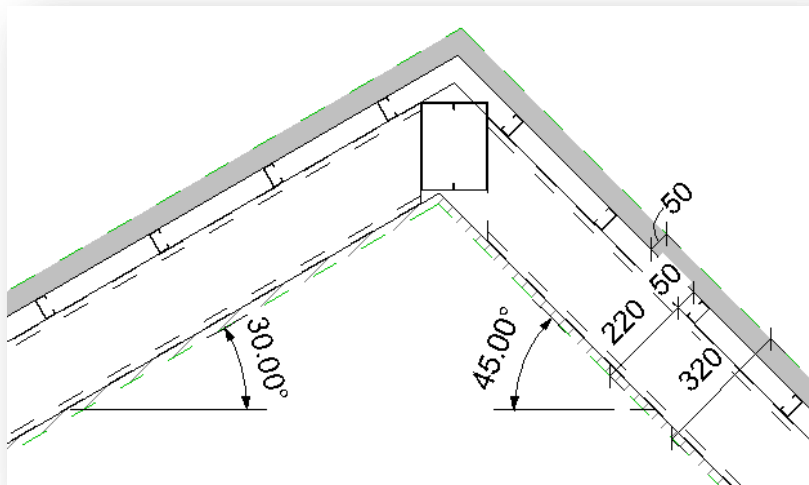
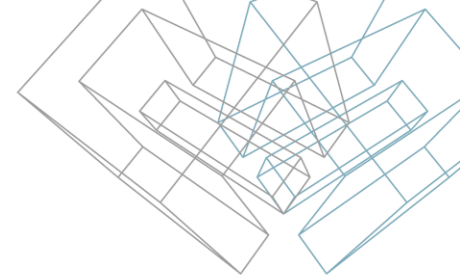


Roof Example

- 4 layers: interior sheeting (20mm), structure – steel rafters (200mm), layer for battens (50mm), roof covering (50mm);
- Left pitch – 30 degrees, right pitch – 45 degrees.



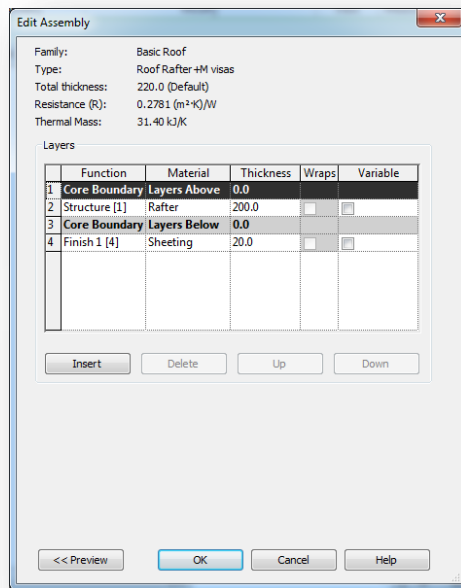
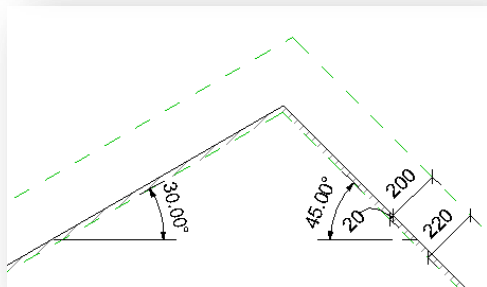
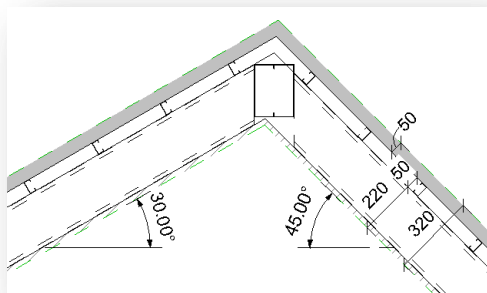
First Step - Reduce Roof Thickness



WHY?

- There is no reason to create rafter systems on top of the roof and move them down to a good position and layer;
- When roof slopes have different pitches, the ridge line of every layer moves to the side with a bigger pitch;
- Make Revit work for you! It calculates how much ridge lines must move in such and more complex roofs.

First Step - Reduce Roof Thickness



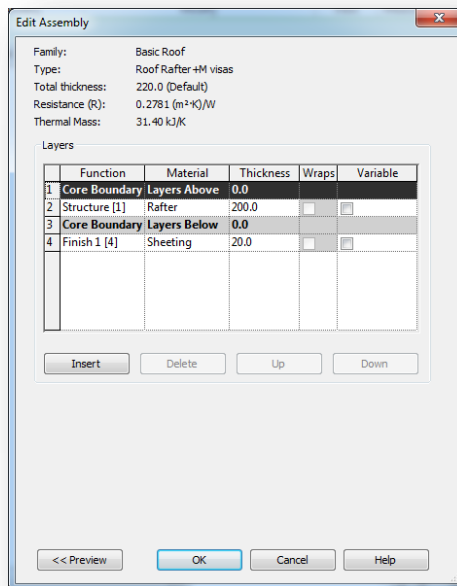
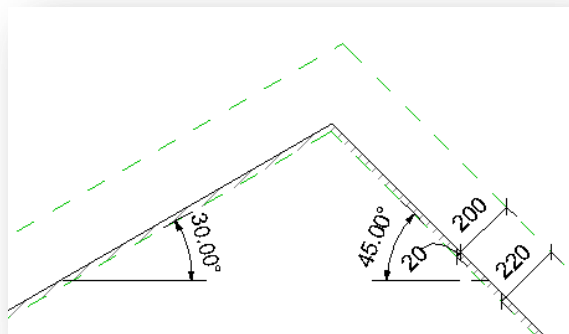
HOW?

- Two ways to reduce thickness of the roof are as follows:
- 1 - Delete a roof layer that lies on top of rafters;
- 2 - Reduce rafter layer thickness.

NOTE: Rafter systems remember ID of the roof. Don't change the type of the roof. Otherwise problems with automatic update of rafter systems will appear later on.

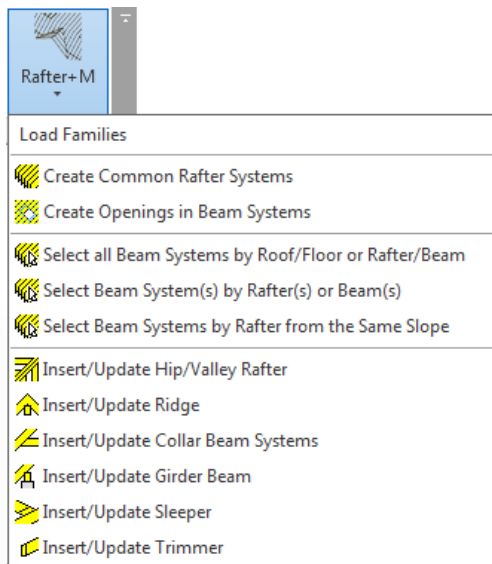
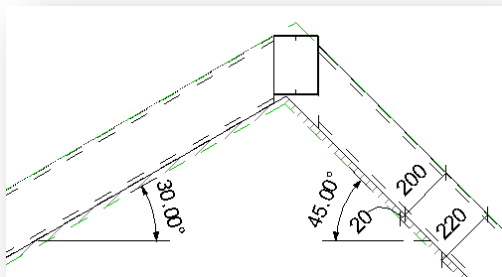
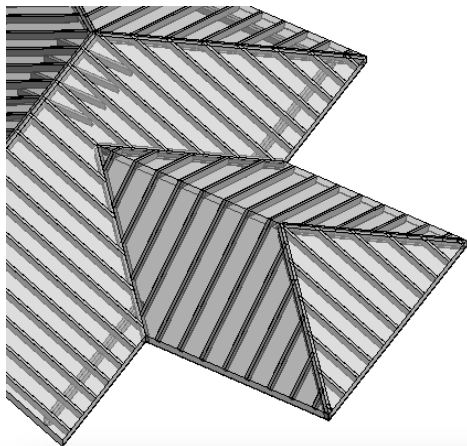
First Step - Reduce Roof Thickness

Result



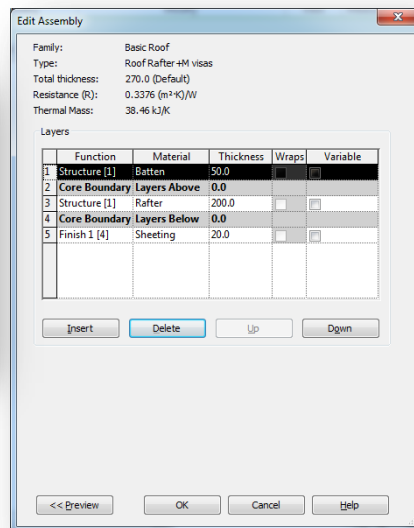
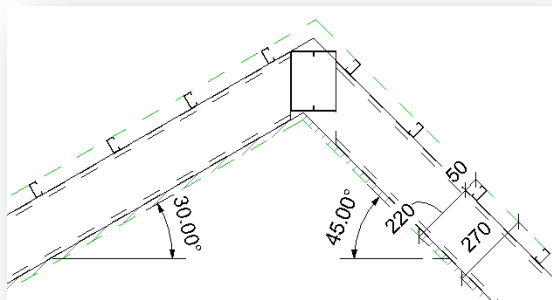
- Roof thickness can be reduced from 320mm to $20+200=220$ mm;
- We have deleted two top layers.

Next Step – Create Rafter Systems on All Roof Slopes



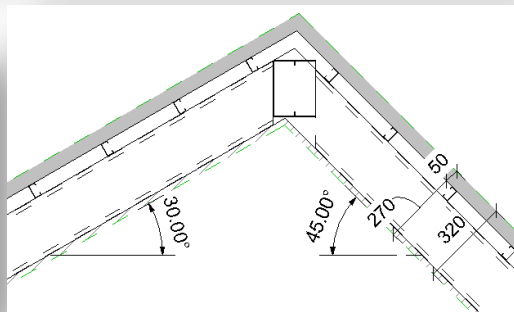
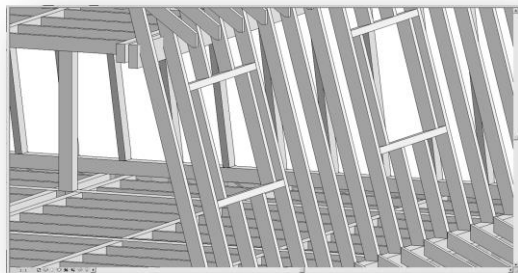
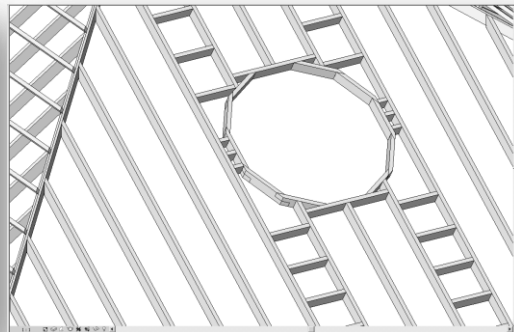
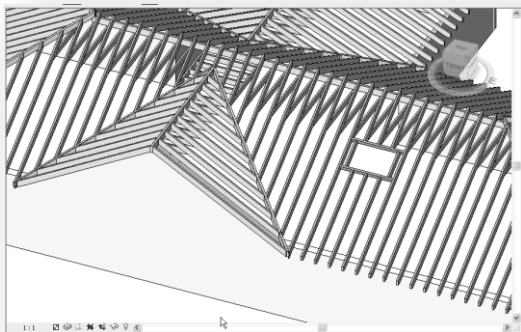
- Create/Update rafter systems on all roof slopes;
- Don't create roof openings now, because roof thickness does not meet the real dimensions/thickness;
- You can Insert/Update other roof framing members now or later;
- Don't split rafter systems before the roof got final framing.

Frame Next Roof Layer Now or Later If Necessary



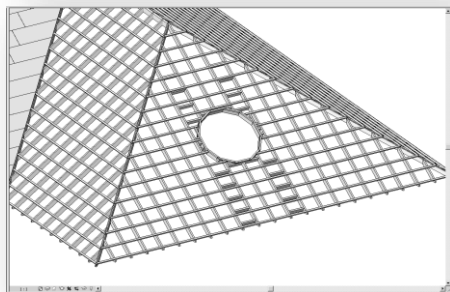
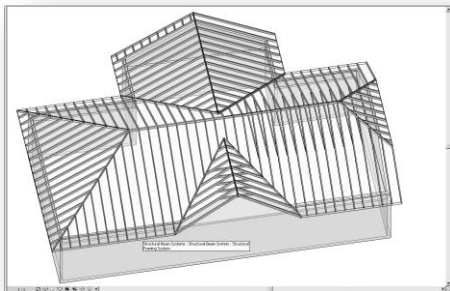
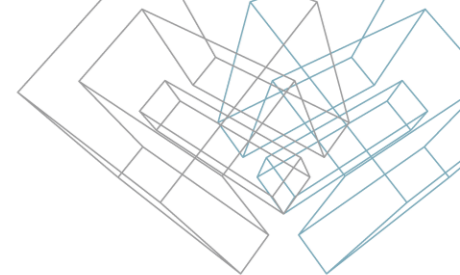
- Add the deleted roof layer for battens (50mm);
- Create/Update batten systems on all roof slopes;
- Don't split batten systems before the roof got final framing.

Finishing the Roof Framing

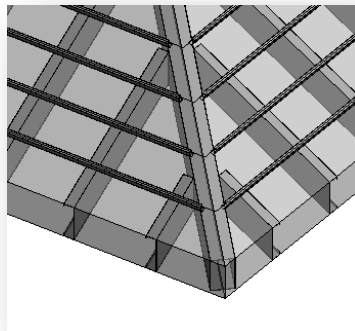


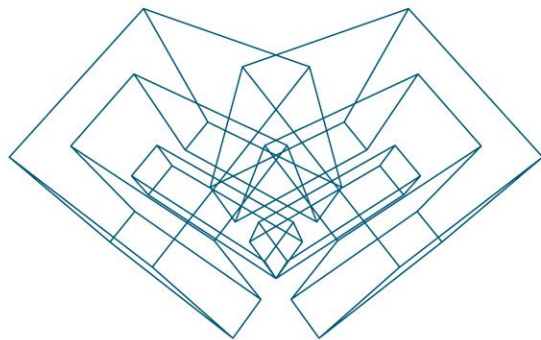
- Add the deleted top layer (50mm) of the roof;
- Insert/Update other roof framing members;
- Create openings in rafter and batten systems;
- Frame openings in rafter and batten systems.

Finishing the Roof Framing



- Split rafter systems (if necessary) to align rafters in neighbored slopes or align rafters with wall steel studs;
- Split batten systems (if necessary) to align the first/last batten with bottom/top end of the roof slope.





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