WOOD FRAMING RAFTER+
Roof Framing Method

Modeling Background

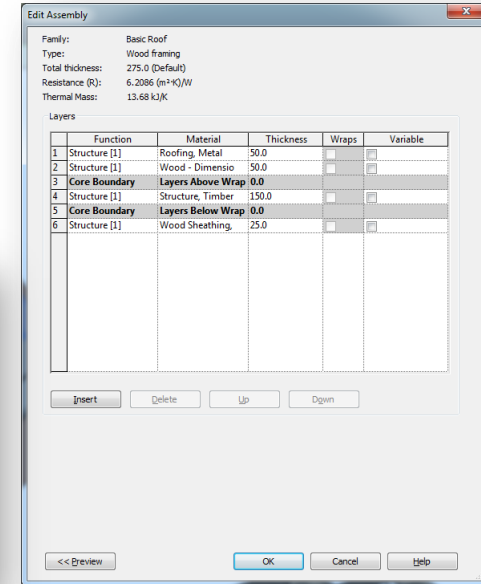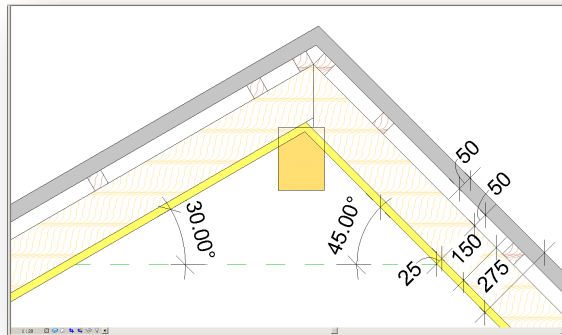- Rafter system modeling is based on Revit beam system objects;
- Revit creates beam systems with anchored beams of predefined type;
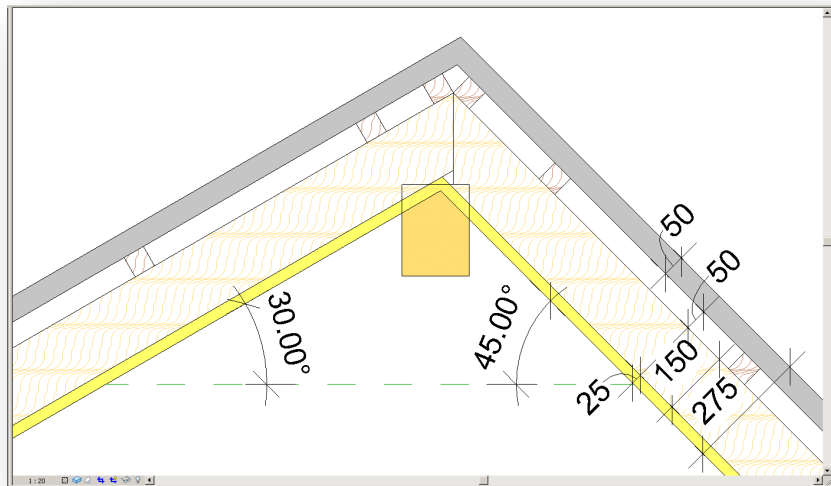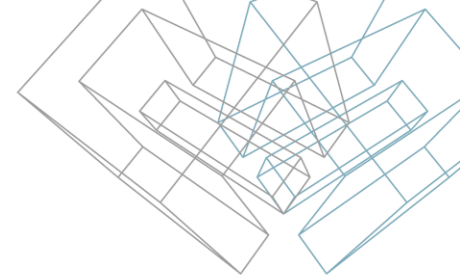- Top faces of beams lie on the beam system work plane.

Roof Example

- 4 layers: interior sheeting (25mm), structure – wood rafters (150mm), layer for battens (50mm), profiled steel covering (50mm);
- Left pitch – 30 degrees, right pitch – 45 degrees.
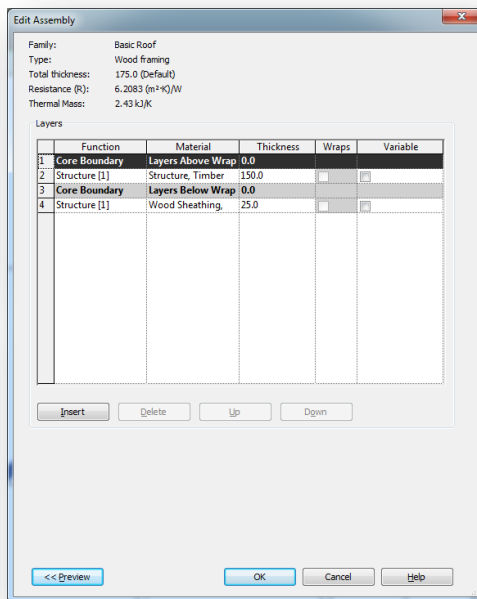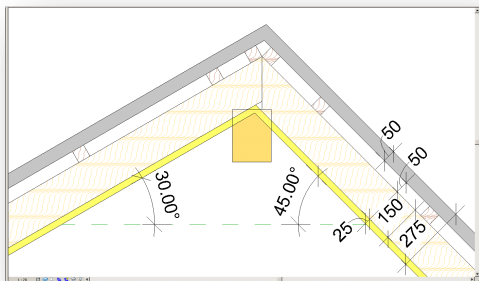
First Step - Reduce Roof Thickness

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.
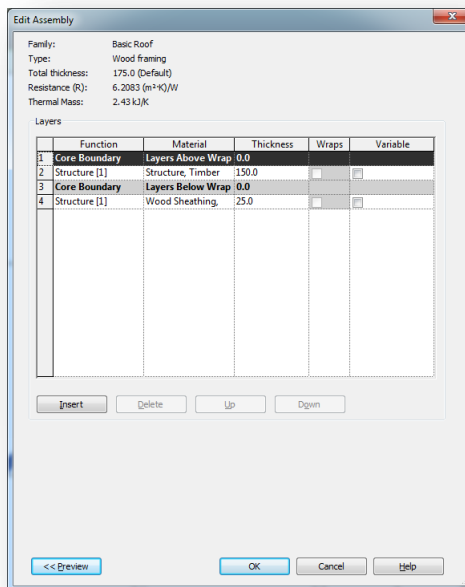
First Step - Reduce Roof Thickness

HOW?

- Two ways to reduce thickness of the roof are as follow:

- 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.
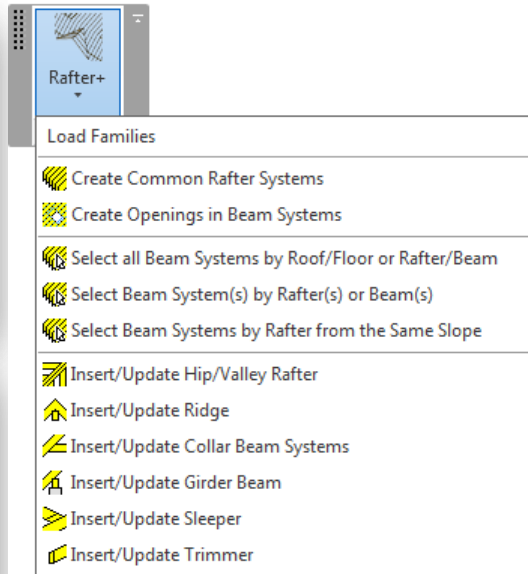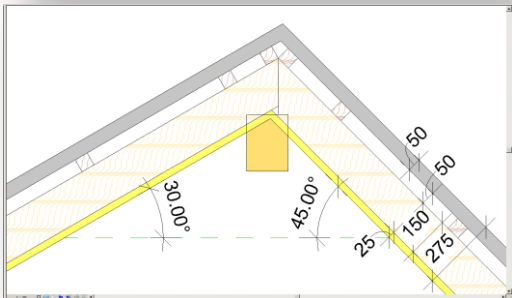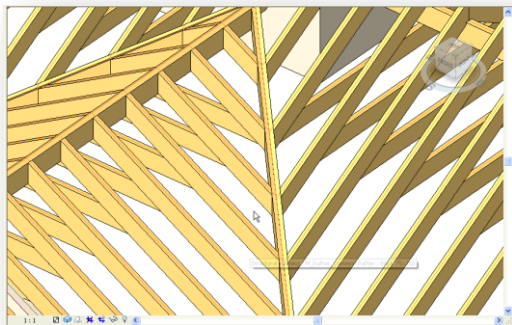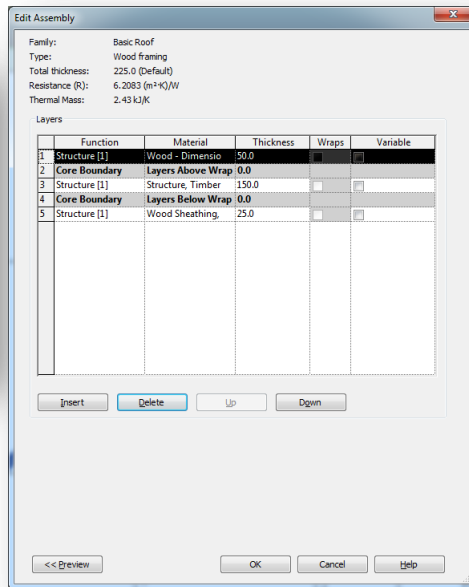
First Step - Reduce Roof Thickness

Result

- Roof thickness can be reduced from 275mm to 25+150=175mm;
- We have deleted two top layers.

Edit Assembly

Family:	Basic Roof
Type:	Wood framing
Total thickness:	175.0 (Default)
Resistance (R):	6.2083 (m²·K)/W
Thermal Mass:	2.43 kJ/K

Layers

	Function	Material	Thickness	Wraps	Variable
1	Core Boundary	Layers Above Wrap	0.0		
2	Structure [1]	Structure, Timber	150.0		
3	Core Boundary	Layers Below Wrap	0.0		
4	Structure [1]	Wood Sheathing,	25.0		

Insert   Delete   Up   Down

<< Preview   OK   Cancel   Help

BUILDING BIM TOGETHER | www.aga-cad.com

AGACAD
TOOLS 4 BIM

Next Step – Create Rafter Systems on All Roof Slopes

Load Families

- Create Common Rafter Systems
- Create Openings in Beam Systems

- Select all Beam Systems by Roof/Floor or Rafter/Beam
- Select Beam System(s) by Rafter(s) or Beam(s)
- Select Beam Systems by Rafter from the Same Slope

- Insert/Update Hip/Valley Rafter
- Insert/Update Ridge
- Insert/Update Collar Beam Systems
- Insert/Update Girder Beam
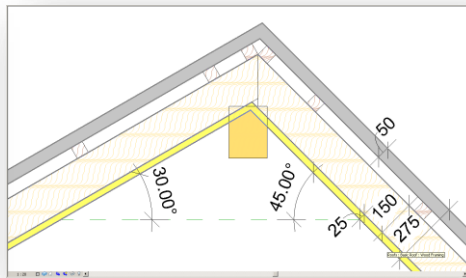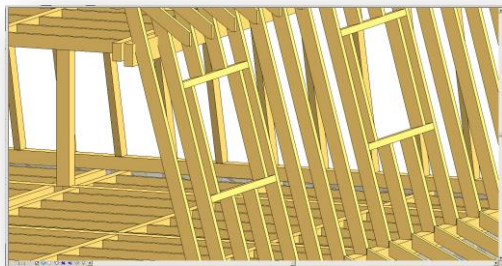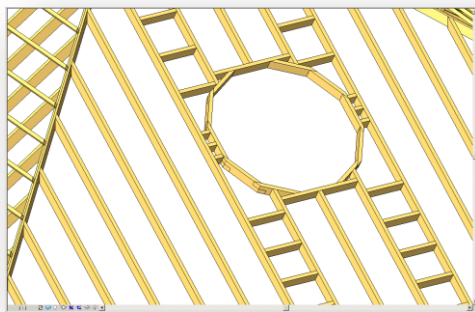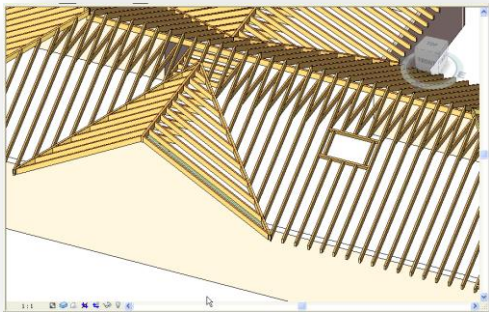- Insert/Update Sleeper
- Insert/Update Trimmer

- 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.

AGACAD
TOOLS 4 BIM

BUILDING BIM TOGETHER | www.aga-cad.com

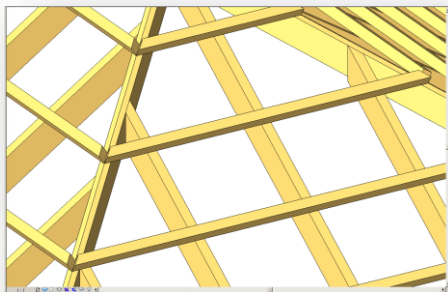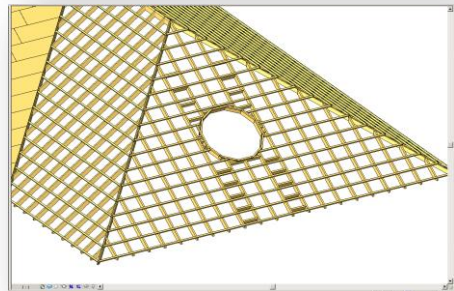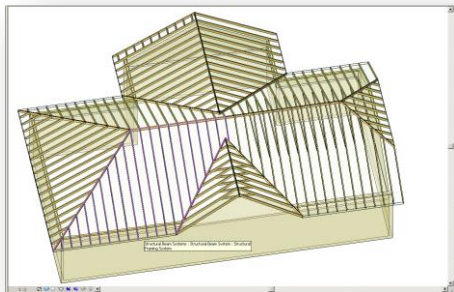# Frame Next Roof Layer Now or Later If Necessary

- 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.
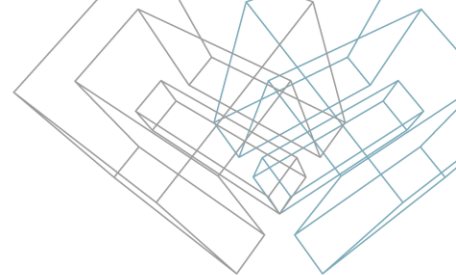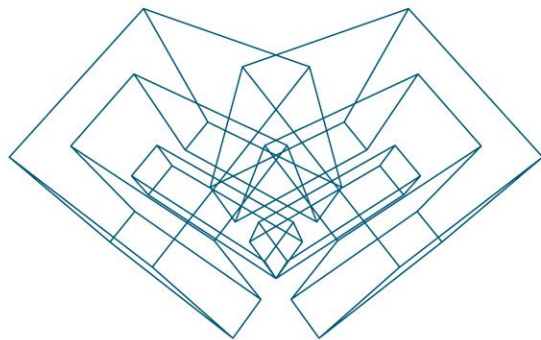
Finishing the Roof Framing

- 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.

AGACAD
TOOLS 4 BIM

Finishing the Roof Framing

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

AGACAD
TOOLS 4 BIM

BUILDING BIM TOGETHER | www.aga-cad.com