

SOLARSTONE

Solar Full Roof™ BIM

Quick Start Guide

Version: 1.1 (EN)
Release date: 20.03.2026

**Roof.
Design.
Power.**



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Introduction

Designing a solar roof shouldn't slow you down. The process should fit naturally into an architectural workflow – clear steps, predictable results, and tools that behave the way you expect.

This guide shows how to turn a standard Revit roof into a SOLARSTONE Solar Full Roof using the same setup we use our internal coordination models.

Rather than relying on manual grid sketches or repurposed curtain-panel tricks, you'll work with a purpose-built system designed for roofs, not workarounds. You focus on the geometry; the solar layout and data stay in sync automatically.

A complete Solar Full Roof includes:

- Predefined roof grids matched to SOLARSTONE Solar Full Roof Landscape Kit A/B/C models
- Advanced Filler panels designed to be cut and shaped for openings.
- Automatic calculations for area, effective area, and estimated power
- Lightweight BIM that still reads well in views and renderings

For more product information and support:

- Website: solarstone.com
- support@solarstone.com

Files to Download

Our BIM library is available from the SOLARSTONE Architect Toolbox under *Tools & Resources* on our [Website](https://solarstone.com).

You can download:

1. Revit Project Showcase Model (Recommended)

A ready-to-open Revit model containing:

- All families preloaded
- Demonstration roof assemblies with roof base types, mullions, fascia boards, gutters.

Always start with this model – especially the first time you use it – to explore fully coordinated Solar Full Roof workflow and copy ready-made solutions.

2. Individual Revit Family files

- a. Solarstone Solar Full Roof Landscape BIPV module
- b. Solarstone Solar Full Roof Landscape Filler module

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1. Project Setup in Revit

Always begin by opening the SOLARSTONE Showcase Model downloaded from the SOLARSTONE Architect Toolbox. After opening the Showcase Model:

→ **copy one demonstration roof into your own project (Paste Aligned).**

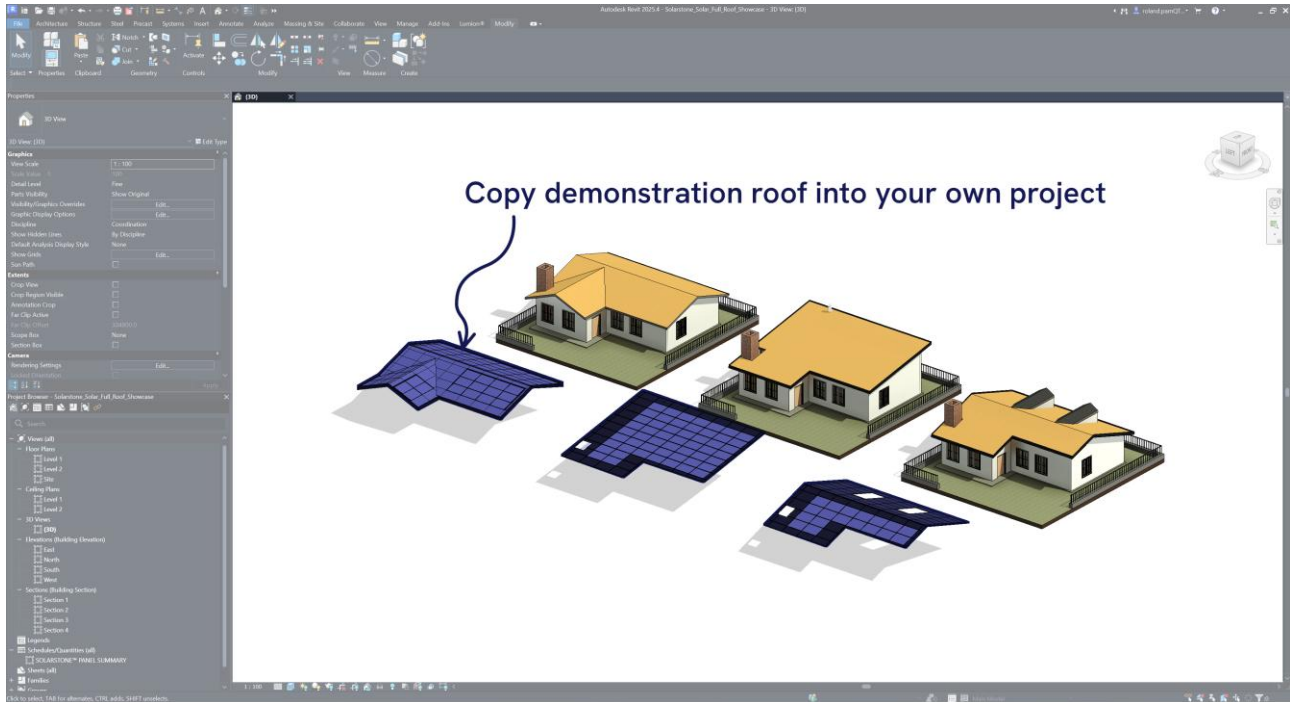


Figure 1 - Copying the demonstration roof from the Showcase Model into your project to load all SOLARSTONE families.

This action will load the families included in the system into your project.

1.1. Families Loaded

After copying the demo roof into your project, confirm the following items appear under Project Browser → Families:

Curtain Panels

- Empty System Panel
 - Empty
- Solarstone_Solar_Full_Roof_Landscape_BIPV_module
 - KIT-A
 - KIT-B
 - KIT-C
- Solarstone_Solar_Full_Roof_Landscape_Filler_module
 - KIT-A
 - KIT-B
 - KIT-C

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- System Panel
 - Solar_Roof_Finishing

Curtain Wall Mullions

- Rectangular Mullion
 - Solar_Roof_Ridge_Plate
 - Solarstone_Panel_Flashings

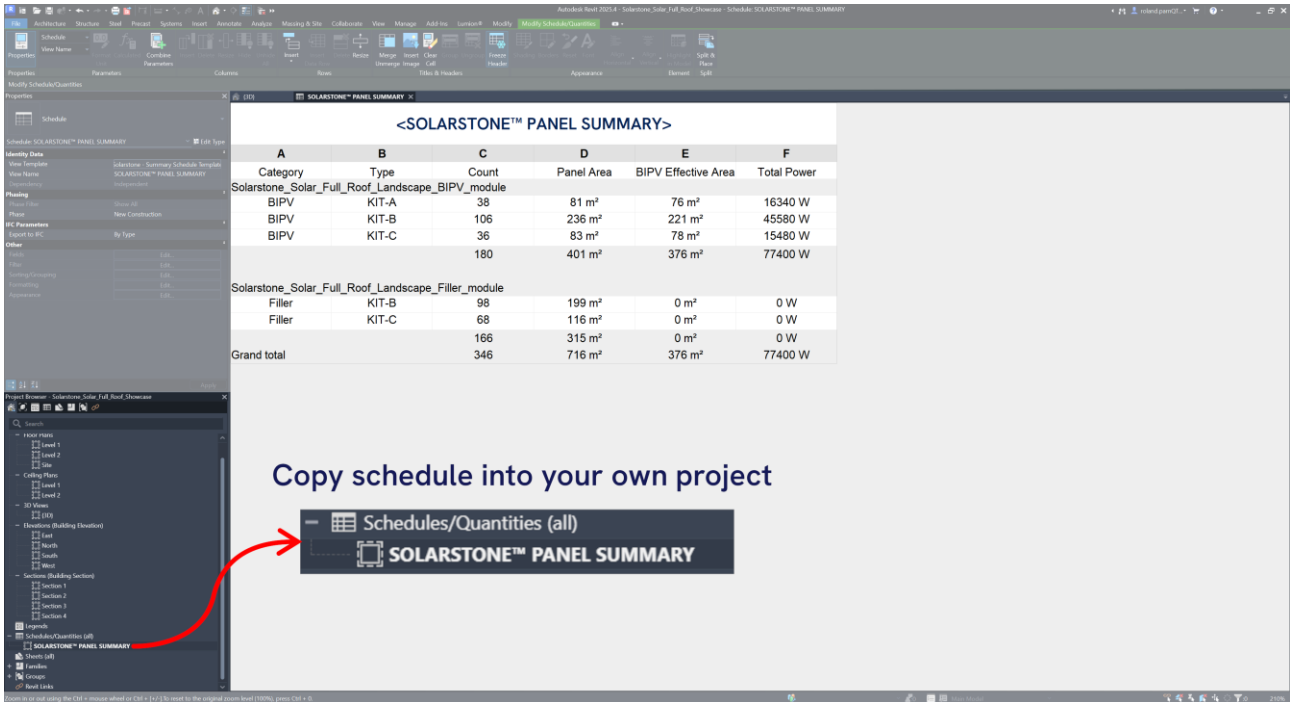
Roofs

- Fascia
 - Solarstone_Border_Plate
- Sloped Glazing
 - Solar_Full_Roof_Base_Landscape_KIT-A
 - Solar_Full_Roof_Base_Landscape_KIT-B
 - Solar_Full_Roof_Base_Landscape_KIT-C

1.2. Solar Roof Schedule

The Showcase Model includes a prebuilt schedule named:

SOLARSTONE™ PANEL SUMMARY



Copy schedule into your own project

Schedules/Quantities (all)
SOLARSTONE™ PANEL SUMMARY

Figure 2 – Copying SOLARSTONE PANEL SUMMARY Schedule into your project.

You may copy this schedule into any project. It will function correctly as long as you imported the demo roof first. The schedule auto-populates once BIPV and Filler modules are placed, showing:

- Panel Type & Count
- Panel Area
- Effective Active Area (BIPV modules only)
- Total Installed Power (BIPV modules only)

SOLARSTONE™ PANEL SUMMARY					
Category	Type	Count	Panel Area	BIPV Effective Area	Total Power
Solarstone_Solar_Full_Roof_Landscape_BIPV_module					
BIPV	KIT-A	54	116 m²	108 m²	23220 W
		54	116 m²	108 m²	23220 W
Solarstone_Solar_Full_Roof_Landscape_Filler_module					
Filler	KIT-A	58	103 m²	0 m²	0 W
		58	103 m²	0 m²	0 W
Grand total		112	218 m²	108 m²	23220 W

Table 1 - Example of outputs from the SOLARSTONE panel summary schedule.

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2. Preparing the Roof

The Solar Full Roof sits above the sub-roof, supported either by explicit batten layers or by a fixed geometric offset. This spacing is structurally required and also ensures the Solar Roof Base grid aligns correctly with the panel kits.

You can prepare the roof in two equivalent ways, depending on how detailed your architectural workflow needs to be.

2.1. Model the architectural roof

Start by modeling the project's roof up to structural layer where battens would normally begin, including:

- Structural deck / sheathing
- Membranes / insulation, if present
- Support layers up to the battens

This element will function as the sub-roof beneath the Solar Roof Base.

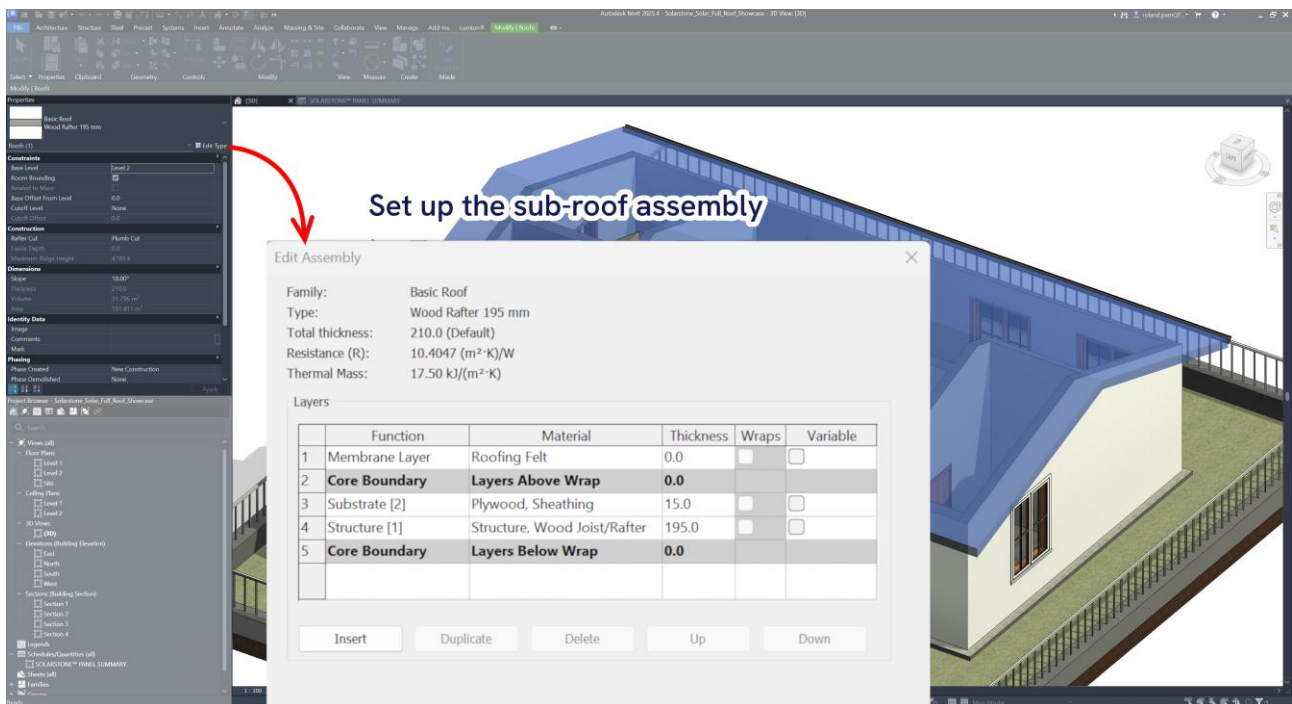


Figure 3 - Example of a sub-roof assembly up to the underlay layer before adding the Solar Roof Base.

2.2. Create the Elevation Gap for the Solar Roof Base

To position the Solar Roof Base correctly, the system requires a 90 mm vertical separation between the sub-roof and solar layer.

This 90 mm corresponds to:

- 45 mm ventilation batten (vertical)
- 45 mm counter batten (horizontal)

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The spacing is mandatory for correct installation height and to ensure proper ventilation beneath the solar roofing surface.

You can achieve this spacing using either workflow below:

Option A – Add batten layers directly into the roof assembly

For projects requiring construction-accurate build up, simply add 45 mm ventilation batten and 45 mm counter batten layer directly inside the roof structure.

In this method, you do not apply any manual offset. Solar Roof Base can be copied directly on top of the architectural roof. The assembly itself already includes the correct 90 mm elevation.

Best for: Construction-accurate models and detail-level drawings.

Option B – Duplicate the sub-roof upward by 90 mm

For a simpler BIM workflow:

1. Select the architectural roof
2. Copy it upward by 45 mm + 45 mm = 90 mm

This creates the correct installation height for the Solar Roof Base. This method produces the same functional spacing but without modeling batten layers inside the roof type.

Best for: Fast modeling, concept stages, simplified BIM.

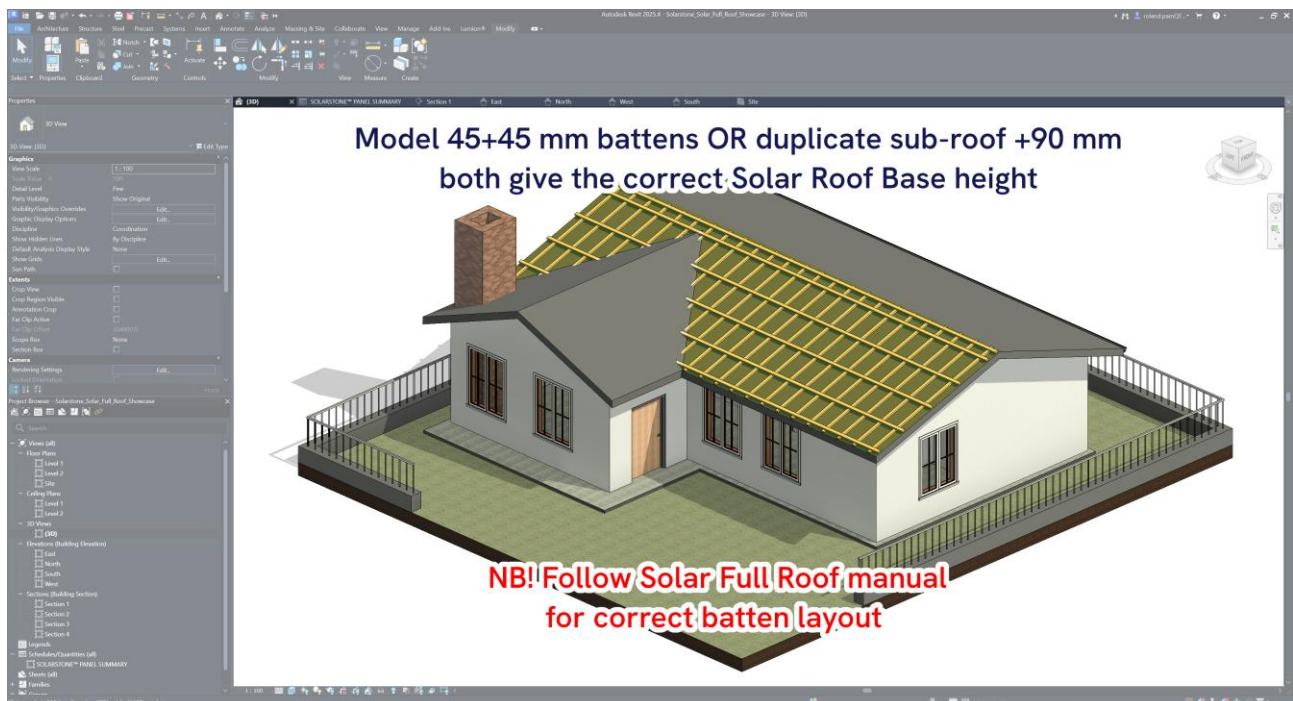


Figure 4 - Example of how to set the Solar Roof Base elevation using modeled battens or a +90 mm offset.

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3. Convert Roof to Solar Base

Select the duplicated upper roof and change its Type to one of the SOLARSTONE base types:

- Solar_Full_Roof_Base_Landscape_KIT-A
- Solar_Full_Roof_Base_Landscape_KIT-B
- Solar_Full_Roof_Base_Landscape_KIT-C

3.1. Kit Behaviour & Grid Logic

Each Landscape Kit comes with its own predefined grid configuration, so there is no need to modify the grid spacing or justification values manually.

However, you can adjust the alignment of the module rows and columns using the following parameters:

Editable Grid Controls

- Grid 1 → Justification (e.g., *Center, Beginning, End*)
- Grid 1 → Offset (shift rows left / right)
- Grid 2 → Justification (e.g., *Center, Beginning, End*)
- Grid 2 → Offset (shift rows up / down)

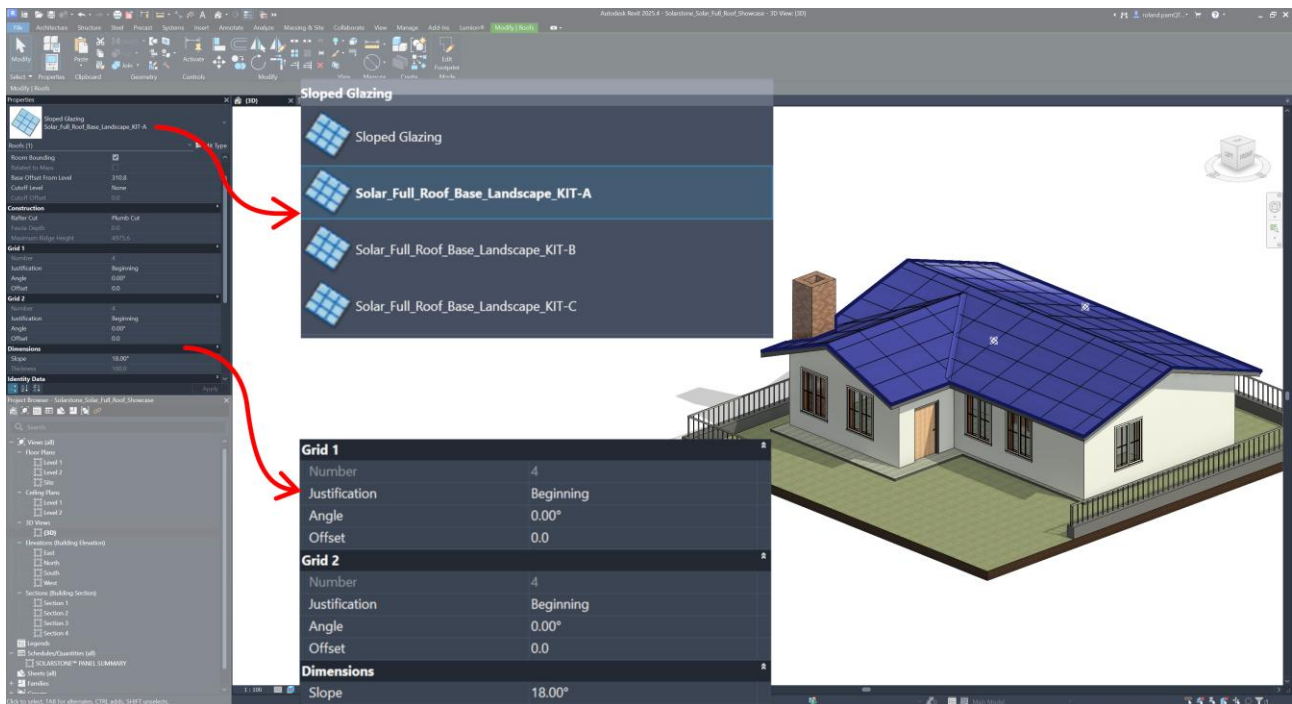


Figure 5 - Selecting the correct Solar_Full_Roof_Base KIT and adjusting Grid alignment as needed.

3.2. Kit Matching Requirement

Once you select the base type:

- Active modules must match the selected Base Kit type
- Filler modules must match the selected Base Kit type

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For example:

- If the roof base is KIT-A, then BIPV KIT-A and Filler KIT-A must be used
- Mixing A/B/C types will lead to broken alignment and incorrect scheduling

3.3. Roof Footprint Modifications

Before you start assigning panels, make sure the roof footprint has enough clearance around elements like:

- Chimneys / roof windows / dormers
- Internal corners
- Tight junctions where two edges meet

Revit's curtain panel system cannot reliably place panels in cells that are cut on two adjacent sides, so leaving a bit more room ensures the Solar Roof Base generates a clean grid and avoids missing panels.

4. Defining the Active Solar Area

4.1. Outline the BIPV Zone (Temporary Mullions)

Go to Architecture → Mullions and choose:

Solar_Stone_Panel_Flashing

Use Grid Line Segment to click around the perimeter of the intended solar-active area. These mullions act only as a temporary boundary to isolate which grid cells will become active modules.

Ensure the active area includes only full-size cells, as BIPV modules cannot be cut; any interrupted or partial cells must be handled with Filler panels.

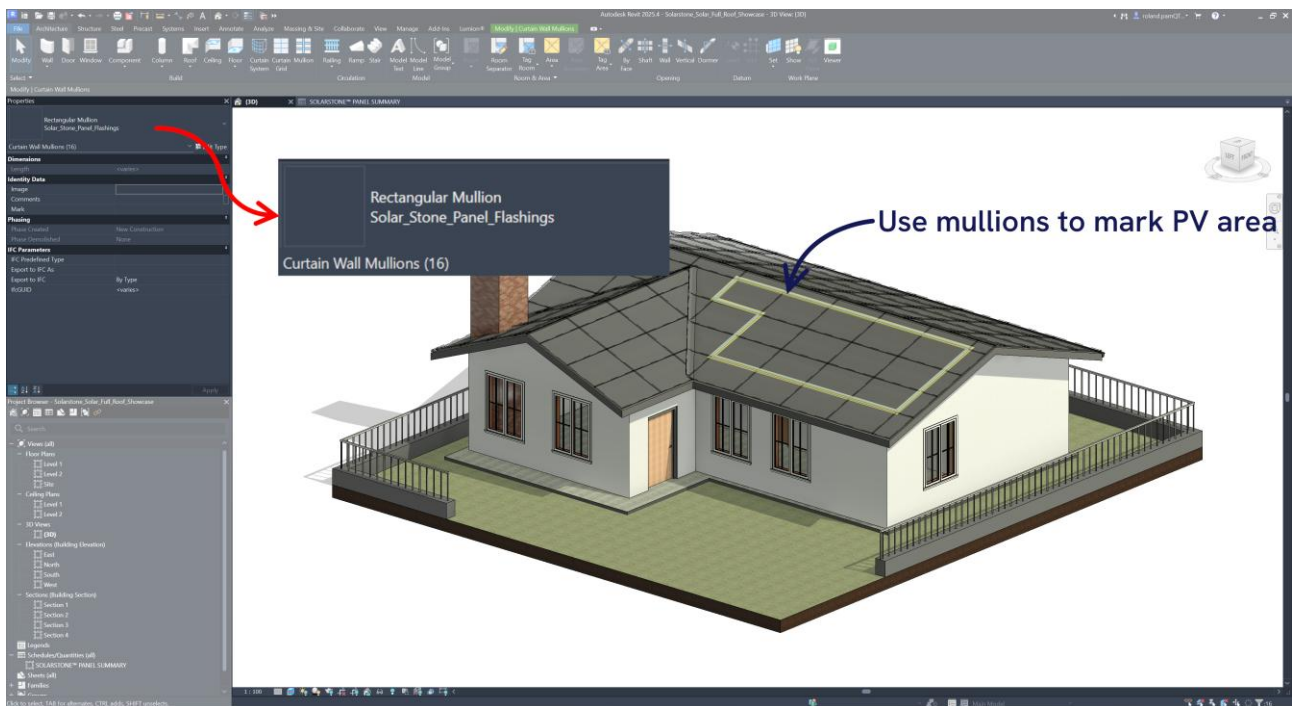


Figure 6 - Using mullions to outline and identify the active solar module area on the roof.

4.2. Select and Assign BIPV Modules

- Select grid modules inside the outlined boundary
- Deselect or ignore any modules outside the intended BIPV zone

This prepares only the correct cells to receive active modules.

From the Type Selector, choose:

Solarstone_Solar_Full_Roof_Landscape_BIPV_module → KIT-A / B / C
(must match the KIT selected in the Solar Roof Base.)

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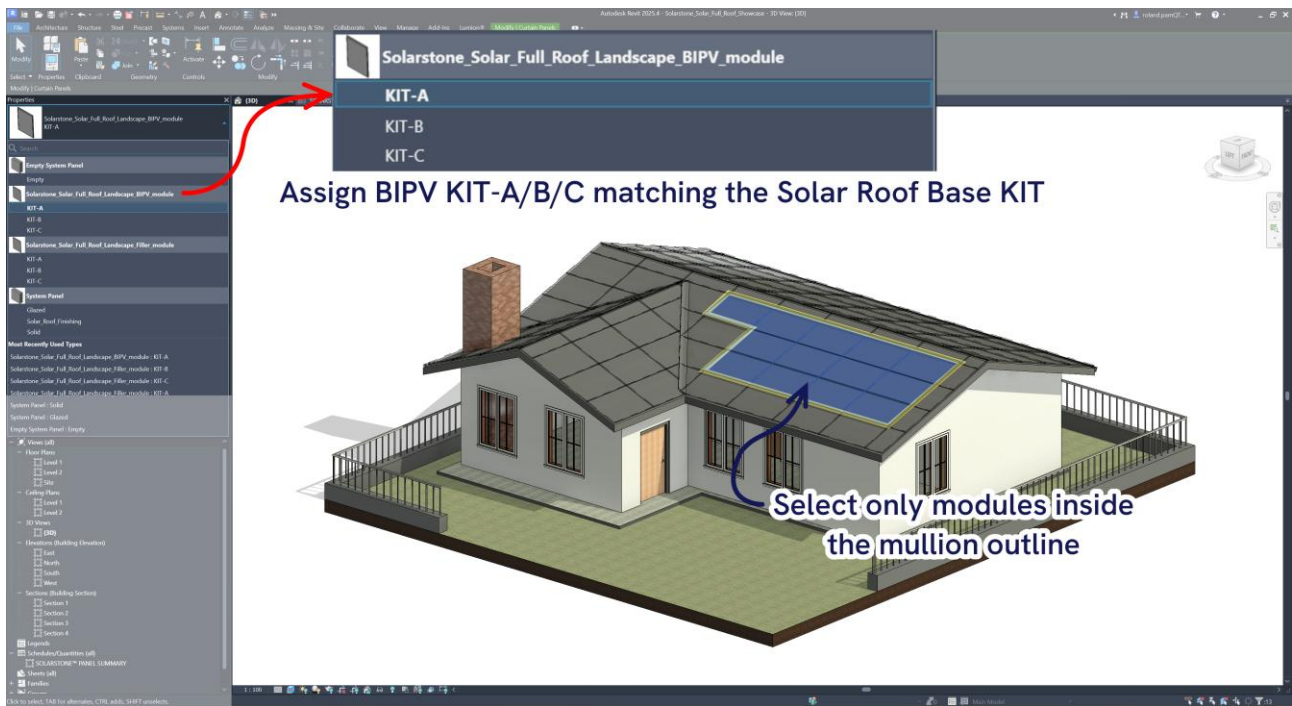


Figure 7 - Selecting modules inside the outlined area and applying BIPV modules that match the chosen Solar Roof Base KIT.

After assigning the modules:

- The selected modules become active BIPV modules
- You can now remove the temporary mullions

5. Filling the Remaining Areas

After the active BIPV area is defined, the remaining grid modules must be assigned the correct non-active types to complete the roof surface.

5.1. Empty Panels

Use Empty Panel for areas where no physical panel should be placed or transitions other roofing materials. For example, when part of the roof is finished with tiles, sheet metal, or any other covering that is modeled separately.

Empty Panels ensure the SOLARSTONE system does not place a physical module where one is not required.

5.2. Filler Modules

Select all remaining non-active grid cells that still require a physical surface and assign:

Solarstone_Solar_Full_Roof_Landscape_Filler_module → **KIT-A / B / C**
(must match the KIT selected in the Solar Roof Base.)

Fillers are used in locations where full size BIPV modules cannot be placed, such as:

- Roof edge (verge), eave and ridge
- Areas around chimneys and penetrations
- Tight or irregular grid cells
- Areas that remain in shade
- Locations restricted by local code

Note: These are typical cases, not strict rules – if the grid aligns perfectly, a full-size BIPV module may fit. However, fillers are most often required because they can be resized and cut, while BIPV modules must remain full-size.

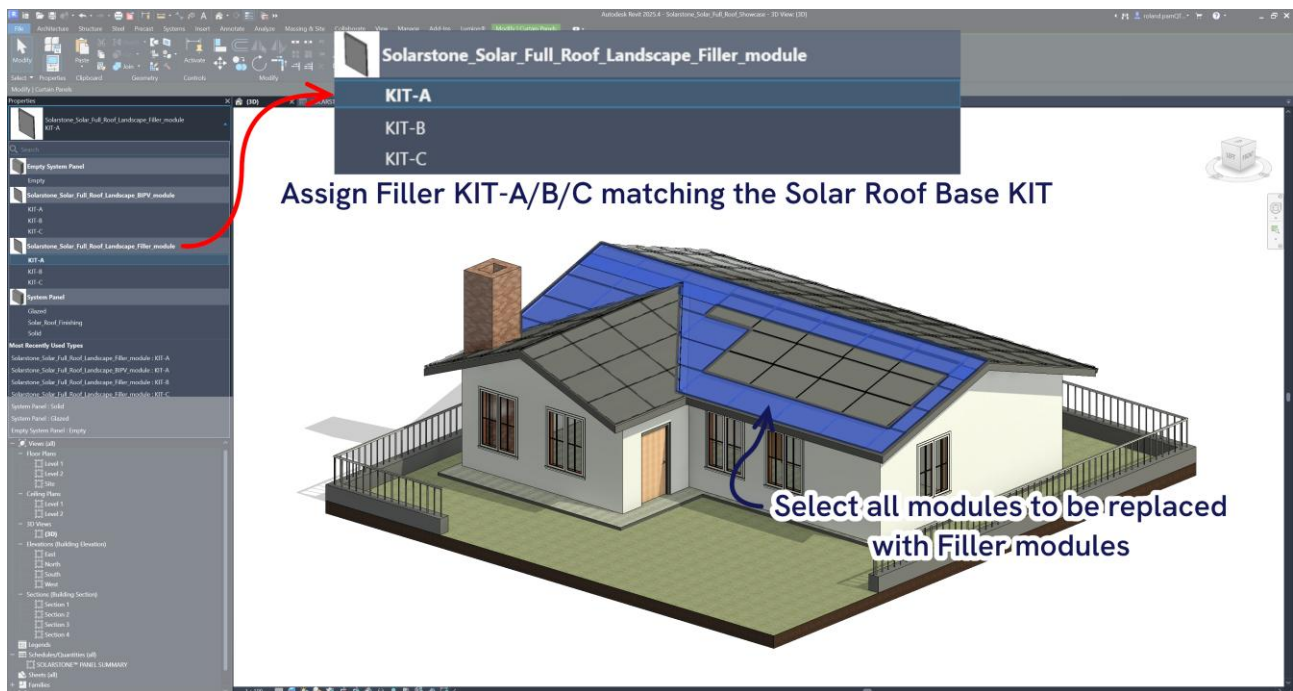


Figure 8 - Marking panels for Filler placement and applying the matching KIT-A/B/C.

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5.3. Adjusting Overlaps

The top and bottom rows of Filler modules must be adjusted manually to achieve the correct visual and installation alignment.

Selecting an Entire Row Efficiently →

To edit whole row at once:

1. Make one module in the row temporarily active
2. Right-click → Select Panels → Along Grid 2
This selects the entire horizontal row in one step.

Top Row – Setting the Correct Overlap →

For landscape modules, the required overlap at the top is 55 mm.

To apply it:

1. Look at the panel's **Height** value in Properties (e.g., 254,4 mm)
2. Set **Custom Height** = **Height** + 55 mm
 - a. Example: $254.4 + 55 = 309.4$ mm

This ensures the top filler achieves the correct overlap with previous row modules.

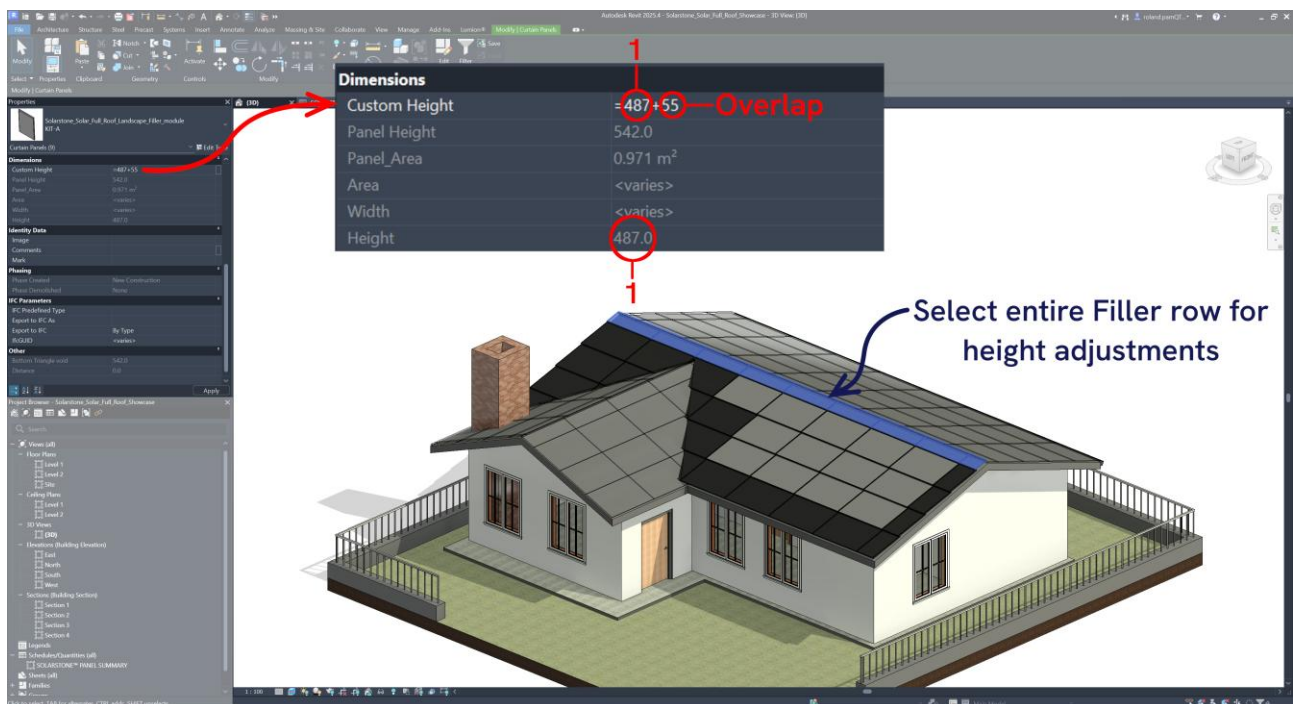


Figure 9 - Adjusting the Custom Height of the selected Filler modules to achieve correct overlaps.

Resetting to original size →

Set **Custom Height** = 0

→ The module returns to its original height.

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Bottom Row – Align to Eave →

For the bottom row:

- The visible front edge must align the gutter / eave detail
- The module must overlap the first counter-batten back edge by 160 mm (required for the first-row Full Roof clamp)

Use Custom Height to adjust the bottom row until both conditions are met.

6. Handling Complex Edges & Penetrations

All special openings and shape adjustments are handled inside the Filler module family.

This is how you handle chimneys, roof windows, skylights, hatch openings, ventilation pipes, inside corners, or irregular geometry the active BIPV modules cannot accommodate.

6.1. Rectangular Cuts

Use Rectangular Cut for elements with straight edges:

- Chimneys
- Roof windows / skylights
- Access hatches
- Inside corners or L-shaped areas
- Other rectangular intrusions

How it works:

1. Enable **Rectangular Cut**
2. Set **Rectangular Cut Width** and **Rectangular Cut Height**
3. Position the cut using **Rectangular Cut Offset X** and **Rectangular Cut Offset Y**
 - a. Offsets are measured from the bottom-left origin of the filler module

6.2. Round Openings

Use Round Cut for circular penetrations:

- Ventilation pipes
- Round Ducts
- Mechanical outlets

How it works:

1. Enable **Round Cut**
2. Set **Round Cut Diameter**
3. Position using **Round Cut Offset X** and **Round Cut Offset Y**
 - a. Again relative to the bottom-left origin of the module

6.3. Triangular Cuts

Triangular cuts are ideal for trimming corners:

- Near dormers or angled transitions
- Irregular shapes that only require a corner cut

How it works:

1. Enable the triangle cut for the specific corner you want to trim:
 - a. Triangle Bottom Left Cut
 - b. Triangle Bottom Right Cut
 - c. Triangle Top Left Cut
 - d. Triangle Top Right Cut
2. Set the **Triangle X** and **Triangle Y** values:
 - a. These two values represent the two perpendicular leg lengths of the triangle
 - b. The triangle is cut directly at that corner

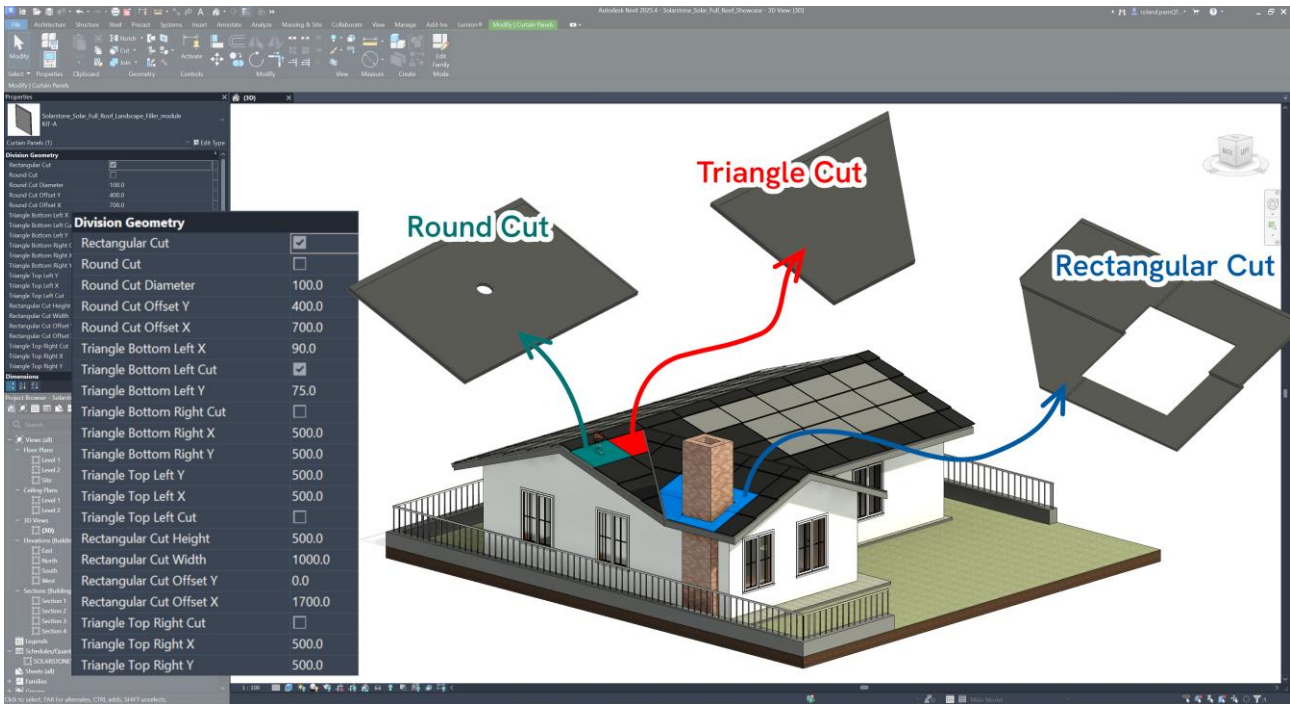


Figure 10 - Filler modules support Rectangular, Round, and Triangular cuts, allowing custom shaping around chimneys, roof windows, pipes, and other complex roof geometry.

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7. Fascia Boards & Gutters

Adding fascia boards and gutters helps finalize the roof visually and coordinate it with the architectural roof design.

7.1. Fascia Board

Apply the fascia from:

Architecture → Roof → Fascia → Solarstone_Border_Plate

Use this mainly for visualization of an edge finishing. Adjust the vertical offset so that the fascia plate covers the exposed sides of the modules for a clean appearance.

7.2. Gutters

Gutters are not provided as SOLARSTONE families and should be selected based on the project's architectural style, drainage design, and regulatory requirements.

Use any suitable gutter family and adjust the vertical offset so it aligns with modules in the bottom row and with the intended eave detail of the project.

Note: In real Solar Full Roof installations, the eaves, ridges, and verges are finished with specialized sheet metal flashings designed for the system. These components are not modeled in SOLARSTONE BIM model to keep project lightweight and easy to work with.

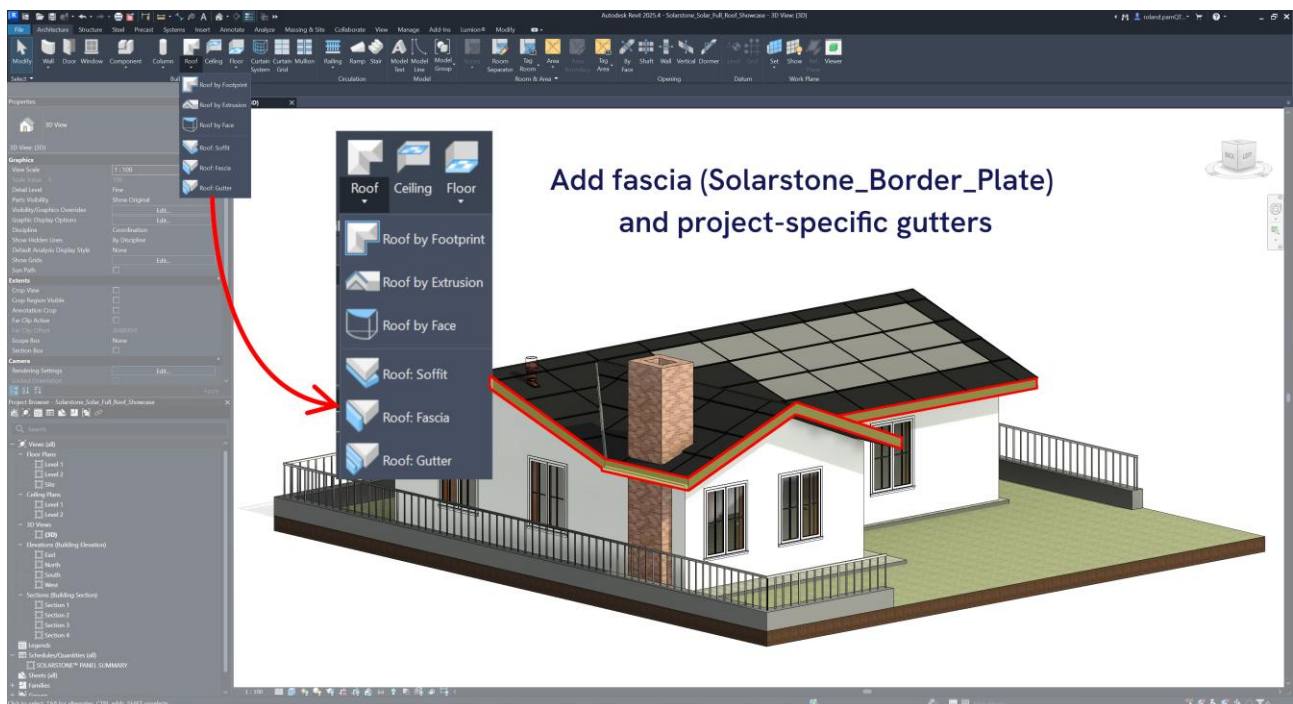


Figure 11 - Adding the Solarstone_Border_Plate fascia and project-specific gutters to complete the roof's architectural appearance.

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8. Final Check & Visualization Options

After completing the SOLARSTONE Solar Full Roof setup, you can review the outputs and prepare visual materials for clients or internal presentations.

8.1. Schedule Review

Open the **SOLARSTONE™ PANEL SUMMARY** schedule.

It will now display:

- Active BIPV modules
- Filler modules
- Total installed area
- Total effective area
- Total power output

All values update automatically whenever you modify the roof layout.

8.2. Visualization

You can export or live-sync the completed Solar Full Roof to any visualization platform used in your office.

For example:

- Lumion
- Enscape
- Twinmotion
- V-Ray
- Other rendering tools that support Revit models

This allows you to generate:

- Realistic exterior renderings
- Quick client-ready visuals
- Smooth concept-design iterations
- Consistent presentation views across the project



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Workflow Summary

1. Open the SOLARSTONE Showcase Model

Load all required families by copying a demonstration roof into your project.

2. Verify Families in Project Browser

Ensure BIPV, Filler, Empty, Base types, and Border plates are present.

3. Model the Architectural Roof (Sub-roof)

Up to battens or structural layers that will sit under the solar layer.

4. Create the Solar Roof Base elevation

Add 45 + 45 mm batten layers or duplicate the roof +90 mm upward.

5. Convert the Upper Roof to SOLAR_ROOF_BASE (KIT-A/B/C)

Choose the correct kit; spacing is predefined; adjust grid alignment if needed.

6. Adjust Roof Footprint around penetrations

Provide space near chimneys, corners, roof windows, etc., to avoid double-cut cells.

7. Define the active Solar area

Outline with mullions → select interior cells → unpin → assign Active KIT A/B/C.

8. Remove Mullions & Assign remaining modules

Use Empty where no panel is needed; use Fillers for edges, transitions, shaded or restricted areas.

9. Trim Filler Rows (top & bottom)

Adjust Custom Height for correct overlap (55 mm) and ensure bottom row align with the eave and gutter.

10. Apply cuts for complex geometry

Use Rectangular, Round, or Triangular Cuts in the Filler family as needed.

11. Add Fascia & Gutters (project specific)

Use Solarstone_Border_Plate for fascia; choose gutters based on project requirements.

12. Final Checks & Visualization options

Review the Solar Roof Schedule; export or sync to any visualization tool as needed.

Version

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