

Manual:

SOLARLAB BIM OBJECT

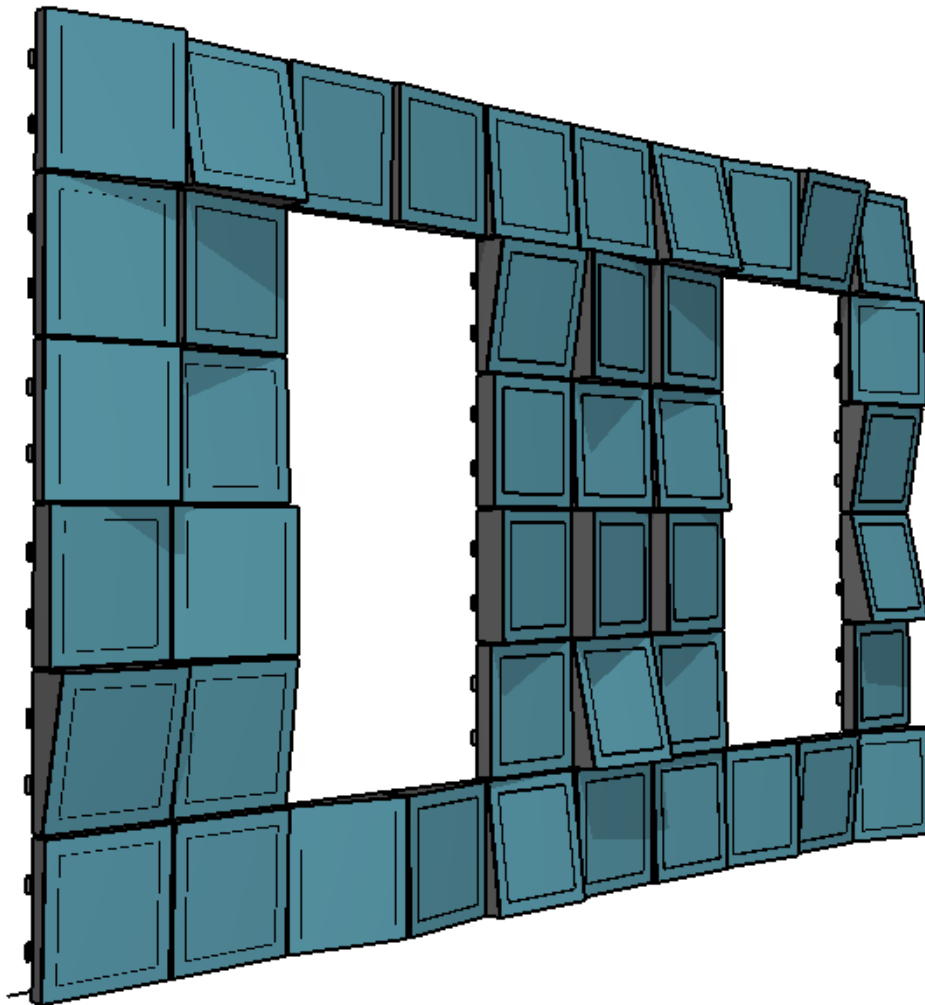
INTRODUCTION

Custom solar facades from SolarLab.dk are transformative building products that invisibly integrate PV rain-screens by replacing traditional cladding for retrofit and new builds.

SolarLab's custom solar solutions are also available for curtain-wall, unitized louvered projects, and are designed and produced in the EU using mostly recycled resources and sustainable energy.

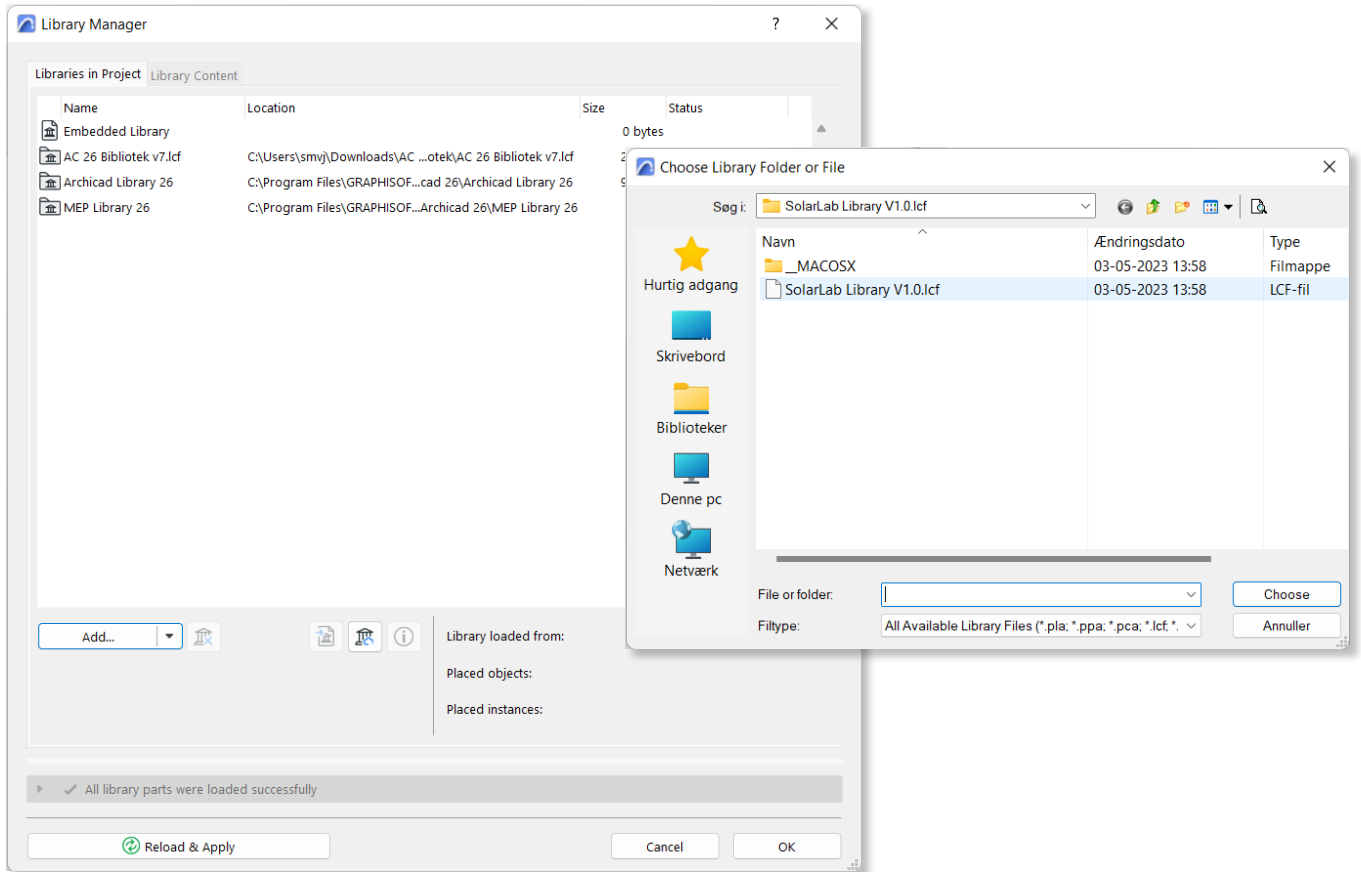
With unparalleled design freedom to match any design vision or existing architectural style we enable cost-effective net-zero & resilience without architectural compromise, with a cladding that is low-maintenance extremely durable and will recoup the environmental and financial investment many times over its 50 to 80 year operational life.

Reach out for free simulations and design support, to lower risk and ensure a predictable outcome with high architectural integrity.



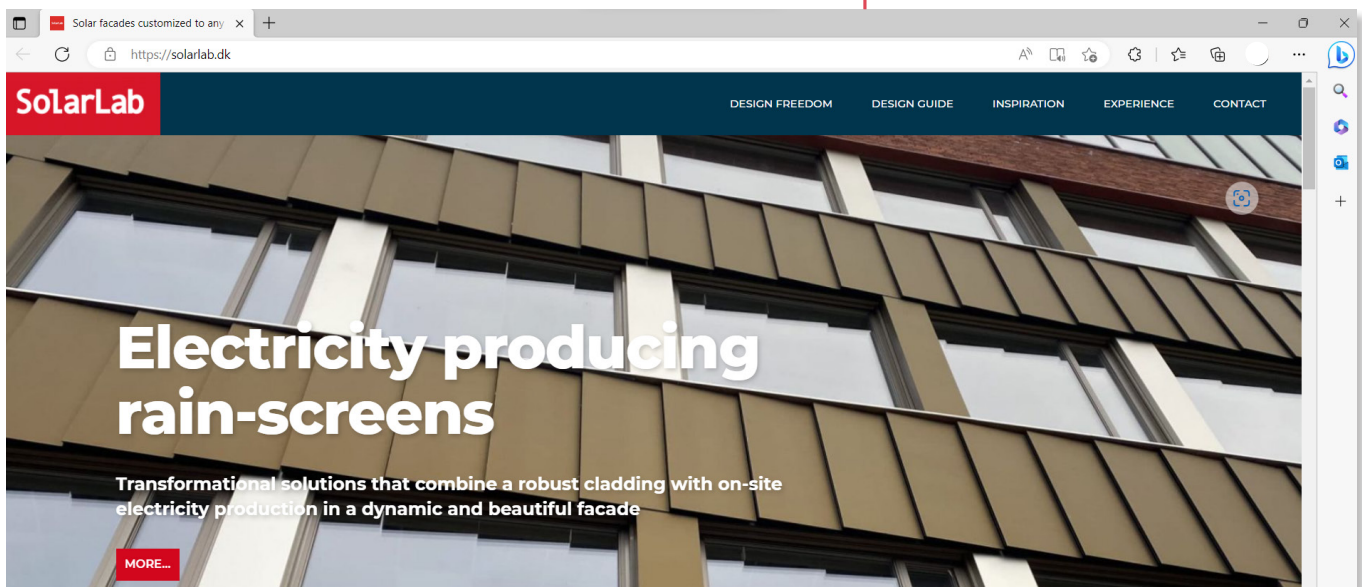
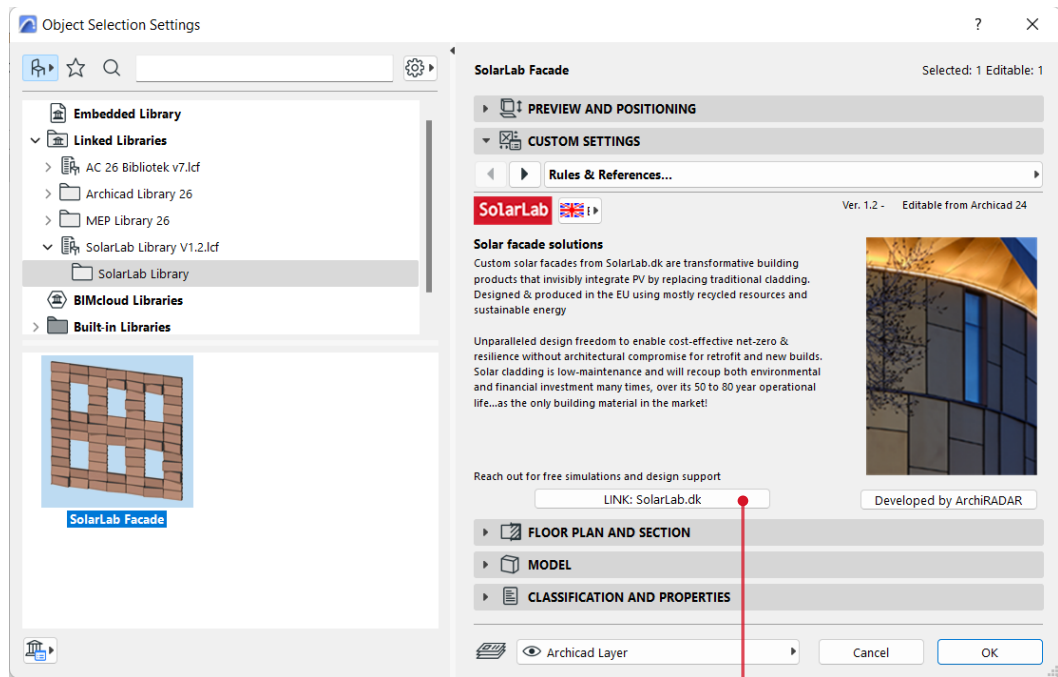
IMPORTING THE OBJECT

To import the SolarLab object you have to add the downloaded SolarLab library in Archicad's 'Library Manager'. When the library is added, the object is accessible in Archicad's 'Objects'.



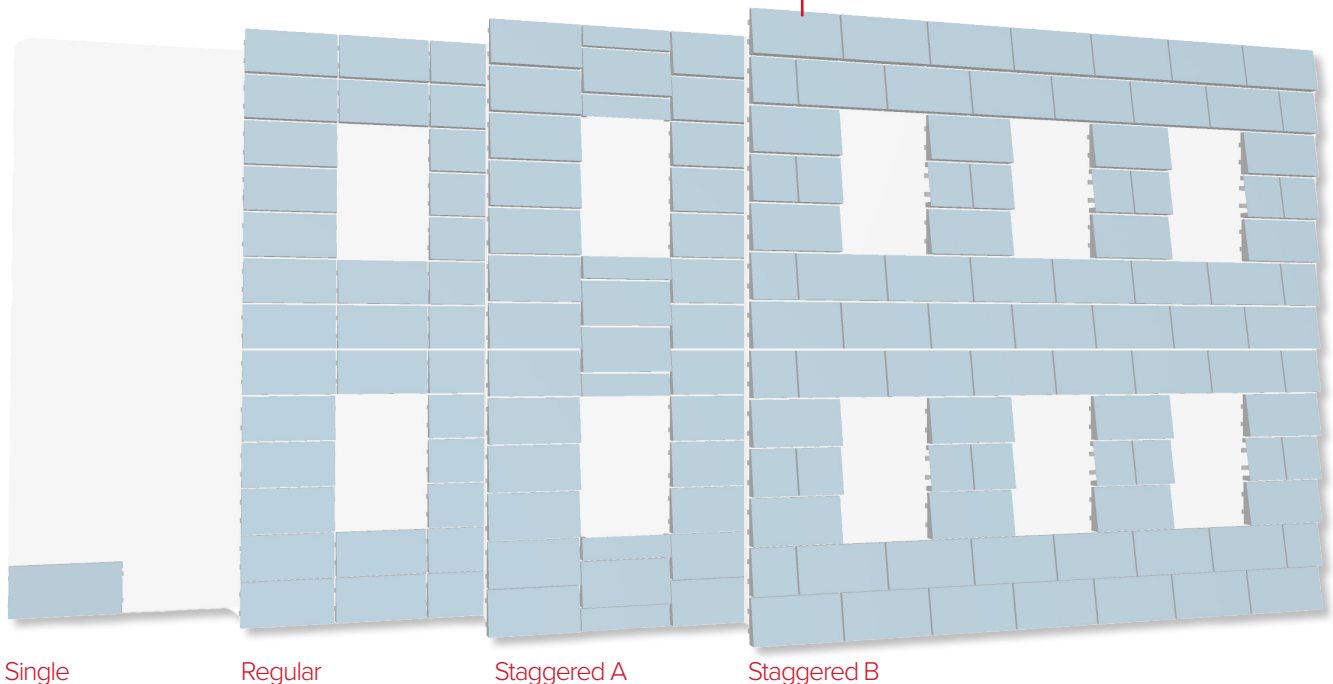
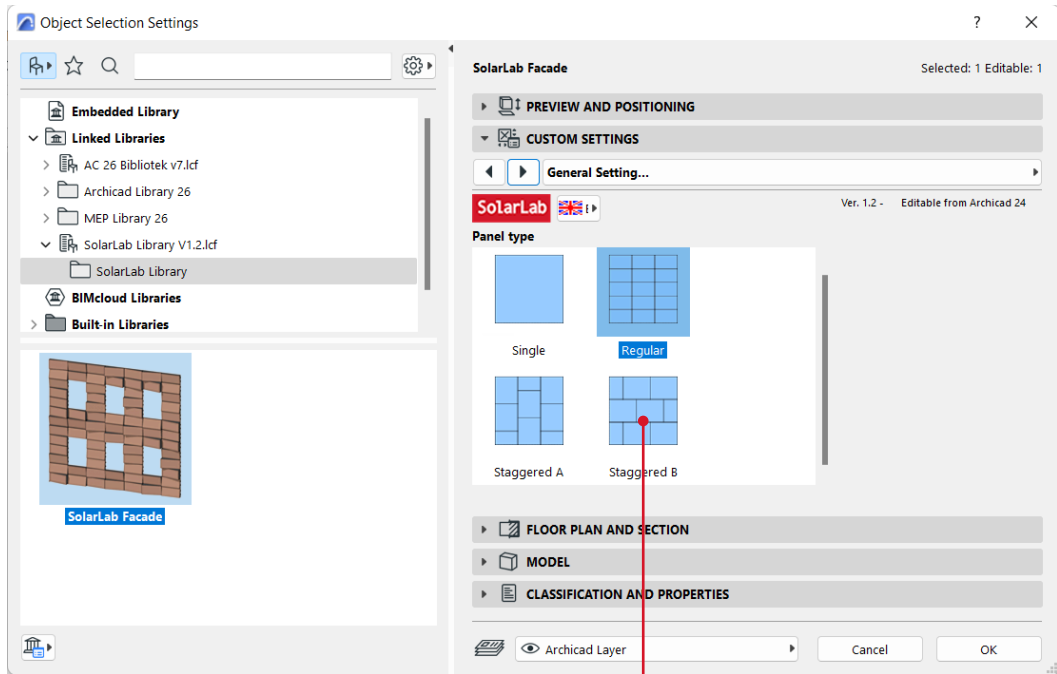
RULES & REFERENCES

The first tab in 'Custom Settings' enables you to change the language of all the settings for the object and shows a brief description of SolarLabs solar facade solutions with a reference to SolarLab.dk for further simulation and designsupport.



GENERAL SETTING

The first settings for the object are the grid distribution of the solar panels. You can choose to work with a single panel if you e.g., need to place individual panels above or beneath a window. However, if you pick one of the three other panel types, you can choose between an ordinary distribution or a vertically or horizontally staggered system, as illustrated below.



Single

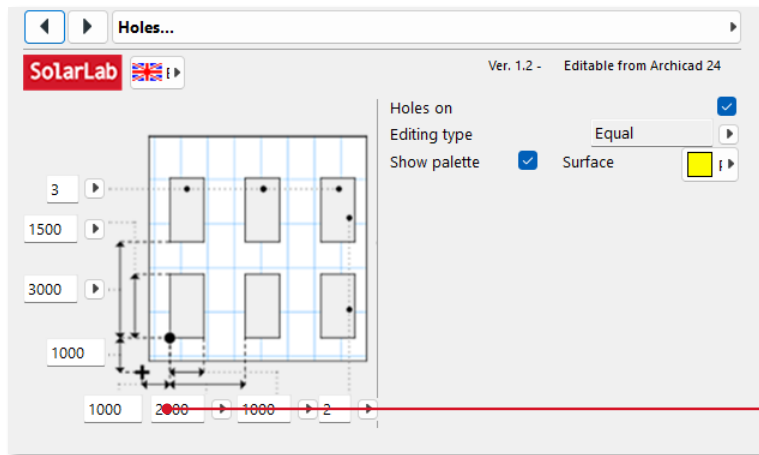
Regular

Staggered A

Staggered B

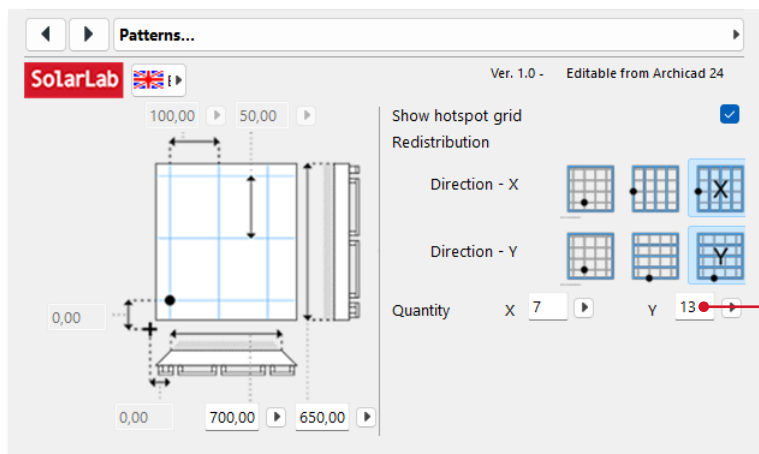
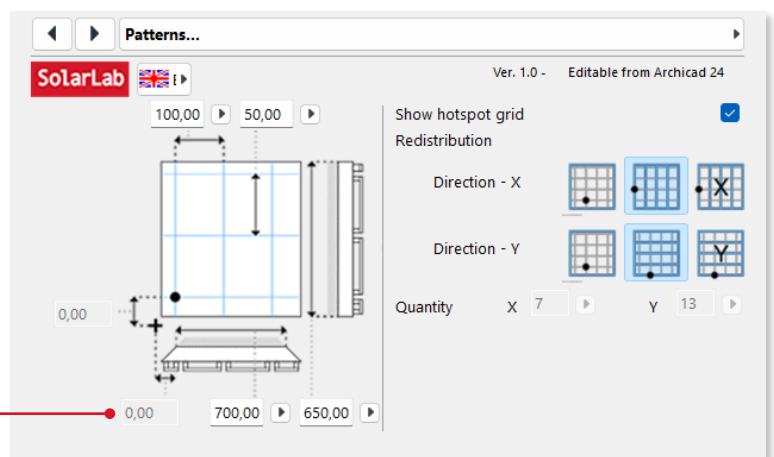
PATTERNS

The patterns in the the grid of the facadesystem can be adjusted in size via different parameters for the main hotspots within the grid. Depending on what dictates the distribution of panels in the system you can choose between three compositions. For all three options it must be taken into account that there are rules for the panel sizes which can be accessed in the settings (see page 8).



In the first composition, an indent can be set from the origo of the grid. This means that if you want a panel in a different size in either the x- or y-direction you can set it independently of the sizes of the remaining panels. This could be necessary in a situation where the panels have to be cut to size if the wall on which the system is hung up on has a different length or height than the panels.

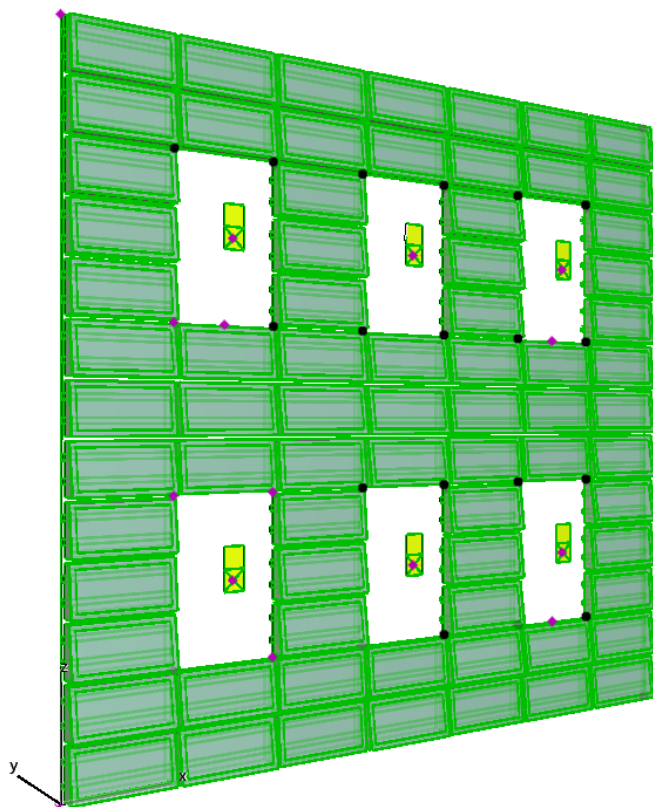
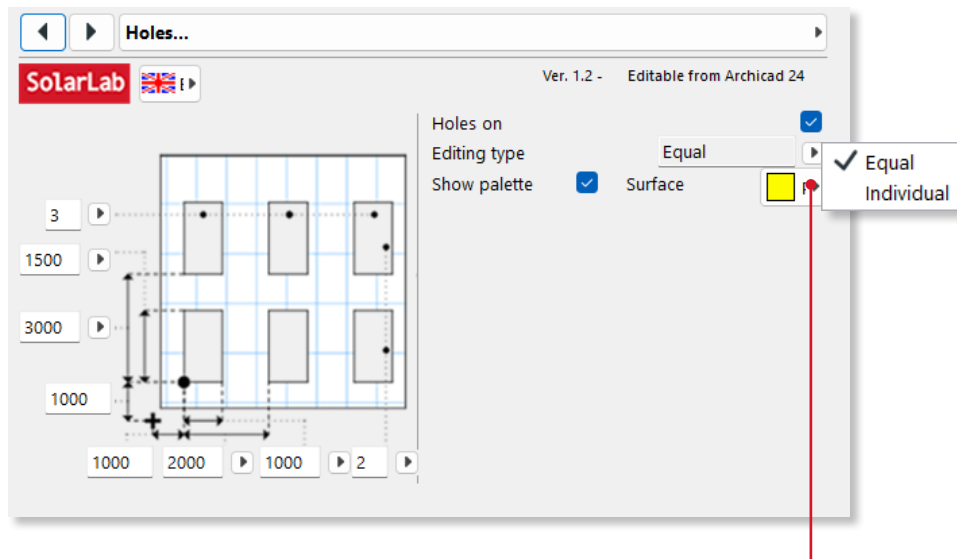
If you want a uniform panel size in both directions you can choose the two middle settings for the grid. Here it's only possible to set the size of the panels as well as the height and width of the entire facade system as before. There are no cut panels i.e., the main hotspots start at the origo of the system.



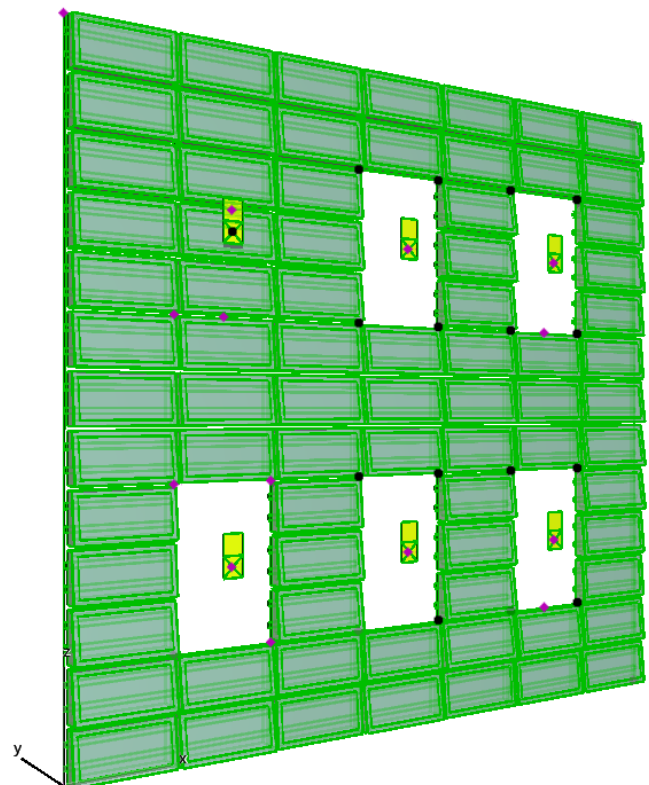
In the last pattern composition, the size of the panels are dictated by the number of panels in each direction and the size of the entire system. The number is defined as shown on the left.

HOLES

If you want holes in the facade object for e.g., windows and doors it can be set in this tab. For holes in the facade system, the quantity in the x- and y-direction can be edited. In addition the distance between the holes, their size and the distance from the systems origo to the hole can be adjusted. On the right you can choose to manage the holes as equals or as an individual hole where you adjust it in 3D- or plan view.

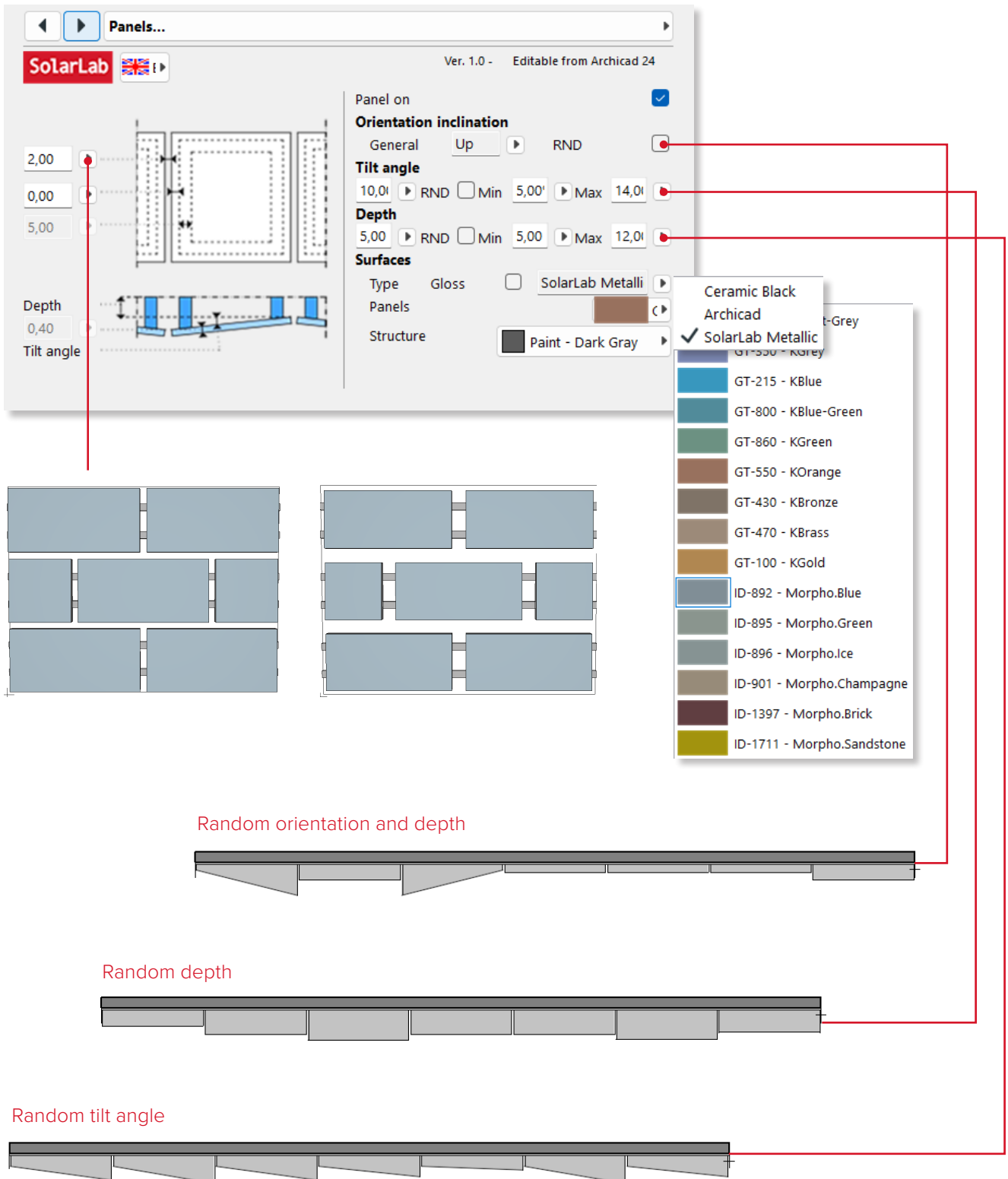


If 'Show palette' is checked, the centerpoint of each hole will be displayed in 3D. If you pick the centerpoint and drag it away from the center, the hole will be hidden in view. Then you simply need to drag the pink point back to the centerpoint in order to make it visible again.



PANELS

In the settings for the panels you can adjust the color, treatment, depth, tilt angle, orientation inclination and the distance between the panels. For the orientation inclination, depth and tilt angle there is a RND-function which randomizes the pattern based on the minimums and maximums defined by you. The depth and tilt angle can only be randomized individually, however the orientation inclination can be randomized in combination with the two. The color and the treatment of the panels have influence of the solar cells performance (see page 9).



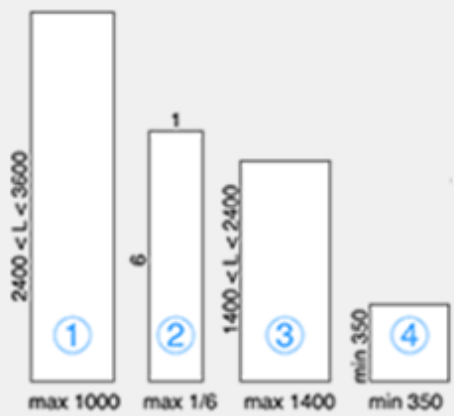
PANEL SIZE RULES

SolarLab has defined a ruleset for the sizes of the panels that dictates the minimums and maximums of the patterns you have defined during the setup of your system. The panels are produced from the same ruleset. Advantageously you can take these rules into account before modeling the system to ensure compliance with SolarLabs products. However, the previous settings are restricted by the same rules, so you won't be able to model anything out of bounds.




▶

Ver. 1.0 - Editable from Archicad 24

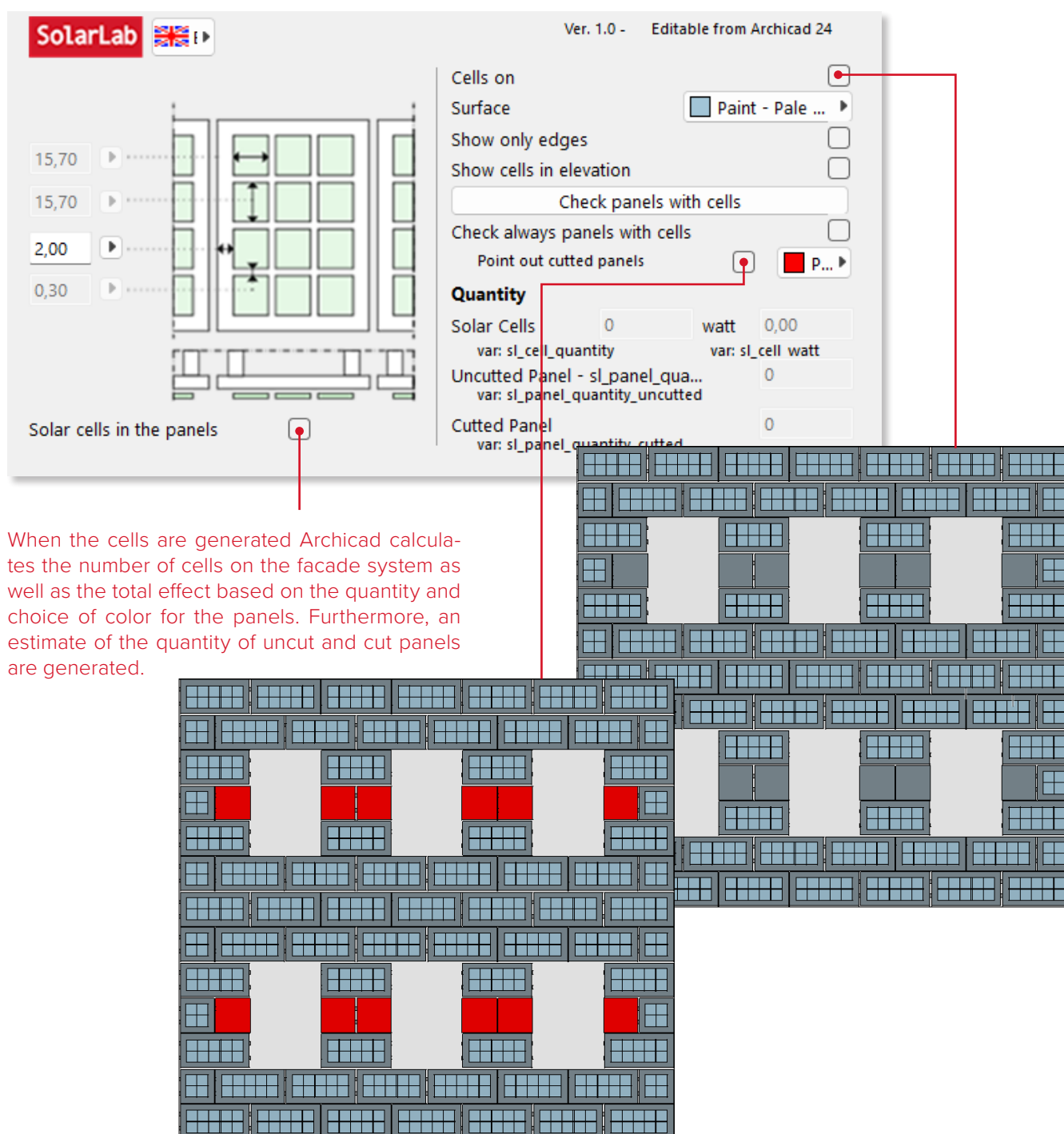


Panel size rules

- Lenght more than 2400 mm (max 3600 mm)
- have width no more 1000 mm
- The max length is 3600 mm
- The length to width ratio
- has to be less than 1:6
- Only one side can be more than 1400 mm
- Minimum size 350 mm

SOLAR CELLS

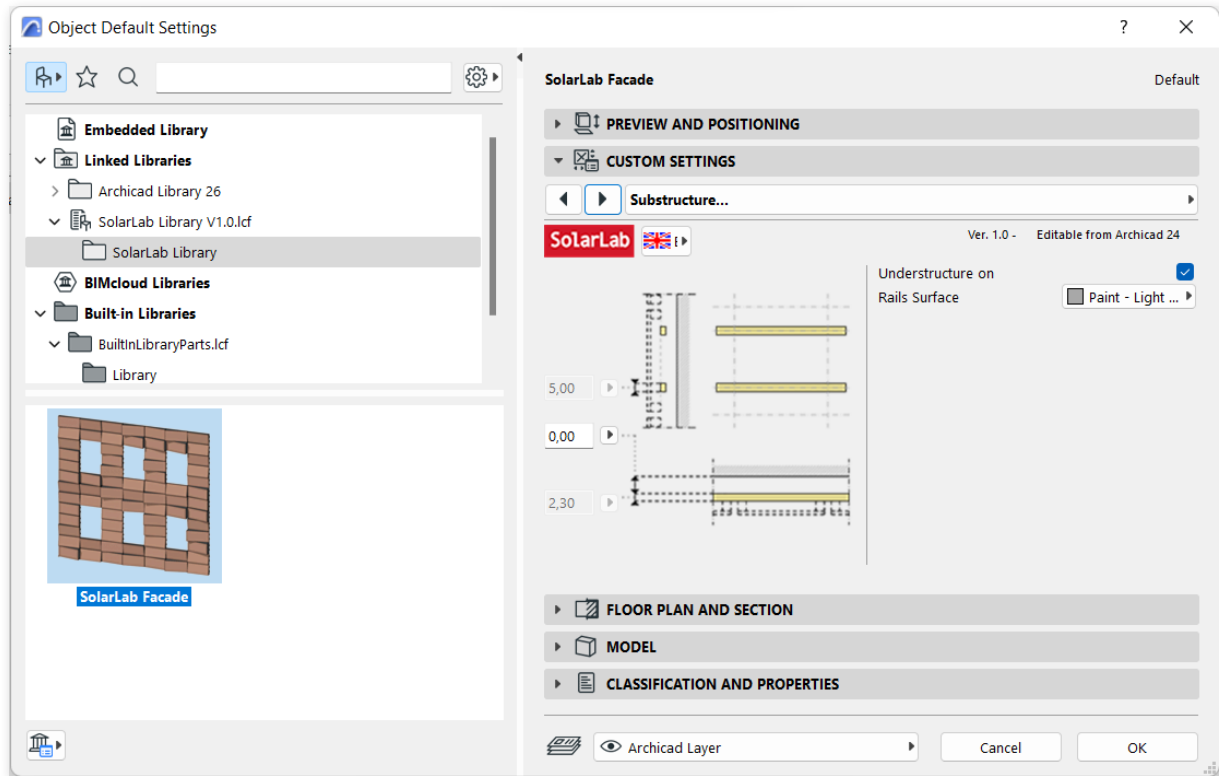
In the settings for the solar cells you can adjust the distance from the outer edge of the panel to the cells, and decide whether the solar cells should be placed inside or outside of the panel in the left side of the window. In the right side of the window you can choose whether the cells should be switched on in the model, what surface they should have and whether they should only be displayed as edges. If the cells are displayed in higher detail the model will become more heavy to work in. When you click 'Check panels with cells' the cells will be updated in relation to changes in the panels. If you don't press the button, the cells won't be generated. In addition the effect from the cells will be calculated at the bottom of the window. If you want the cells to update automatically as you edit the system, you can check the box 'Check always panels with cells', however this makes the model heavier during editing. If the panels are cut by holes and there are no space for cells you can check which ones by activating 'Point out cutted panels'. Although Archicad can't generate cells on cutted panels, in certain cases it's possible for SolarLab to produce such panels.



When the cells are generated Archicad calculates the number of cells on the facade system as well as the total effect based on the quantity and choice of color for the panels. Furthermore, an estimate of the quantity of uncut and cut panels are generated.

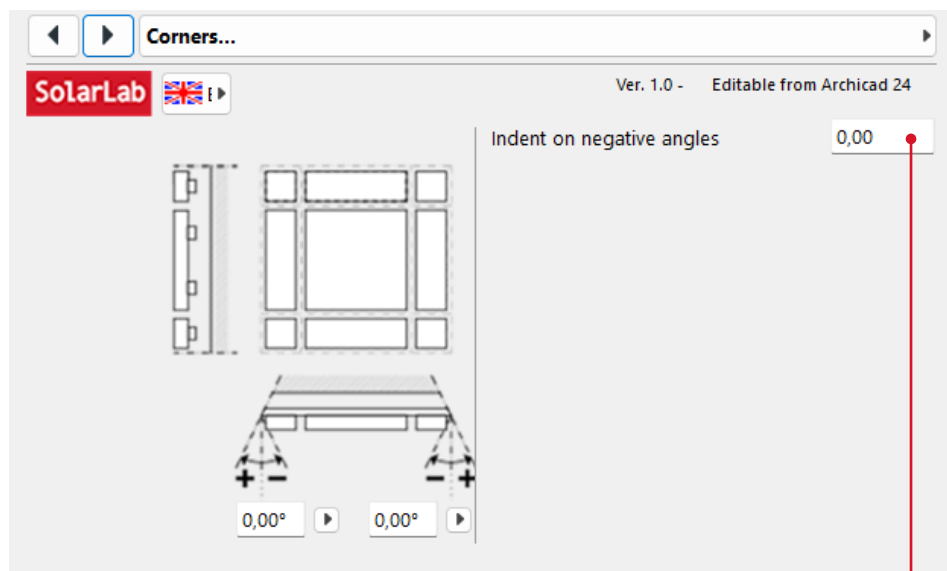
SUBSTRUCTURE

The substructure for the suspension of the panels is automatically adjusted according to the size and pattern of the panels. It's only possible to edit the distance between the facade and the substructure in this tab in order to make space for e.g., isolation. The structure can also be completely hidden in order to make the object lighter in the model.



CORNERS

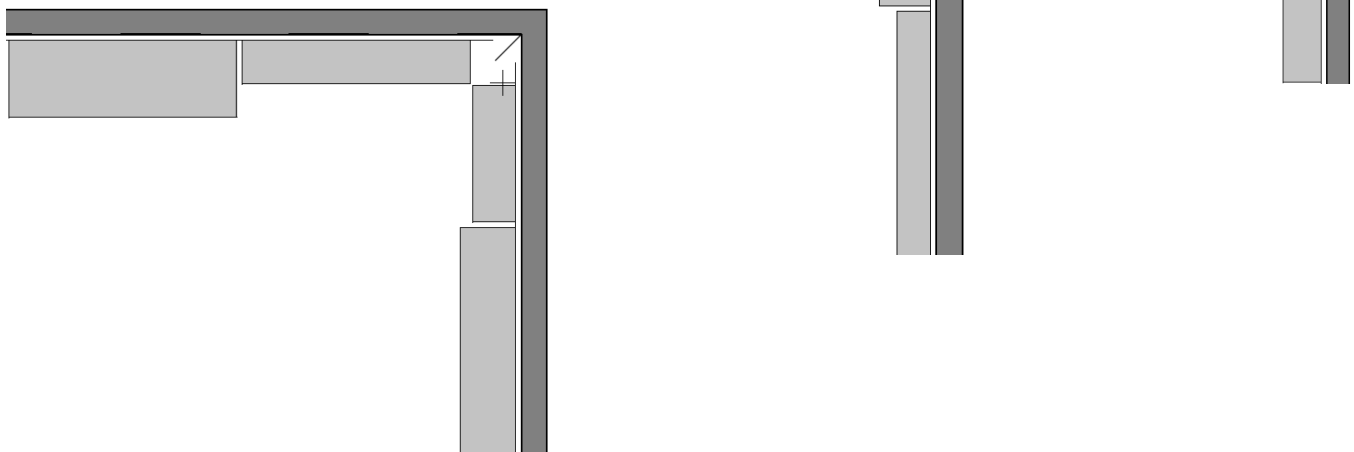
If you have facadesystems meeting in or around a corner of the building you can adapt the corners accordingly. On the left, the angle at the the meeting point between the systems can be adjusted in either a negative or positive angle depending on whether its around or in a corner. When modeling around a corner the angle will be positive, and when modeling in a corner the angle will be negative. At the negative angles an indentation typically is needed in order to avoid overlaps between the panels. The indentation can be adjusted in the right side of the panel.



Angle: 0 grader
Indent: 0 mm

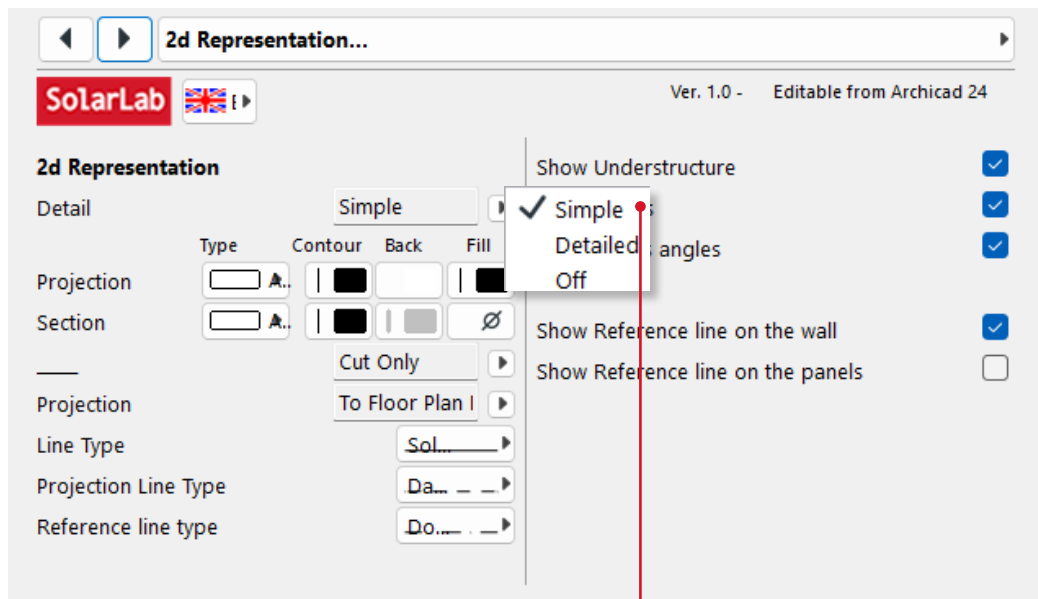
Angle: -45 grader
Indent: 0 mm

Angle: -45 grader
Indent: 120 mm



2D REPRESENTATION

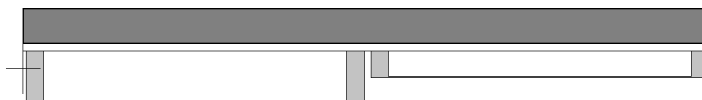
In the settings for 2D representation you can adjust the display of the system on plan, section and elevation views. On the right side of the window you can choose what elements of the object you want to be displayed. In addition you can choose to display a reference line on the wall or the panels. On the left side of the window you can adjust the detail-level of the display and edit the projection display and line types.



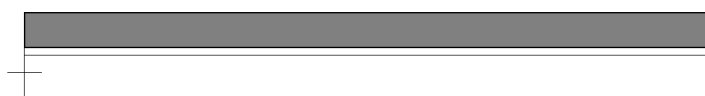
Simple



Detailed

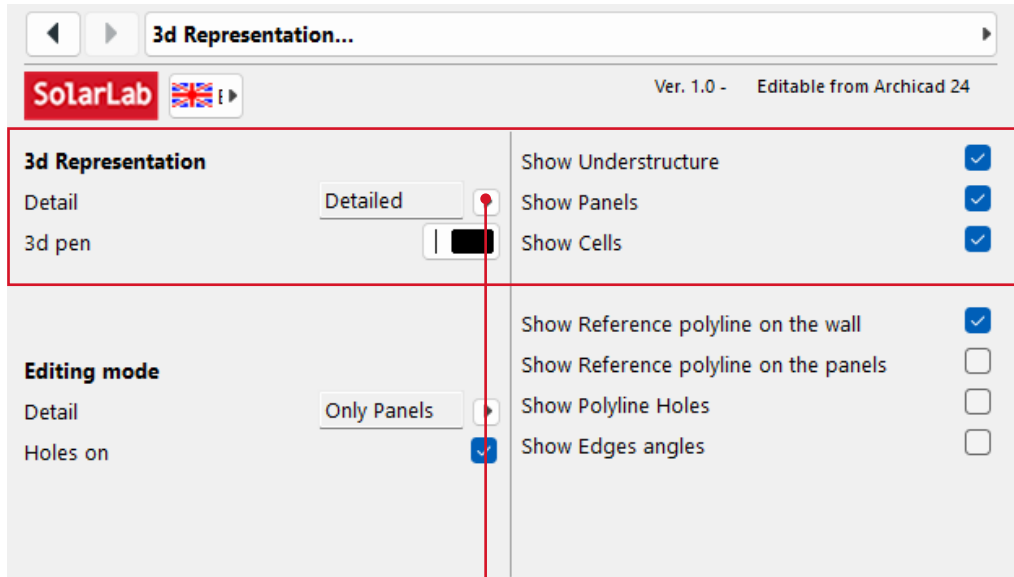


Off



3D REPRESENTATION

In the settings for the 3D display you can edit the representation in display mode and editing mode. On the right side of the window you can choose which elements you want to be visible in the model and on the left side of the window you can adjust the detail level of the object.

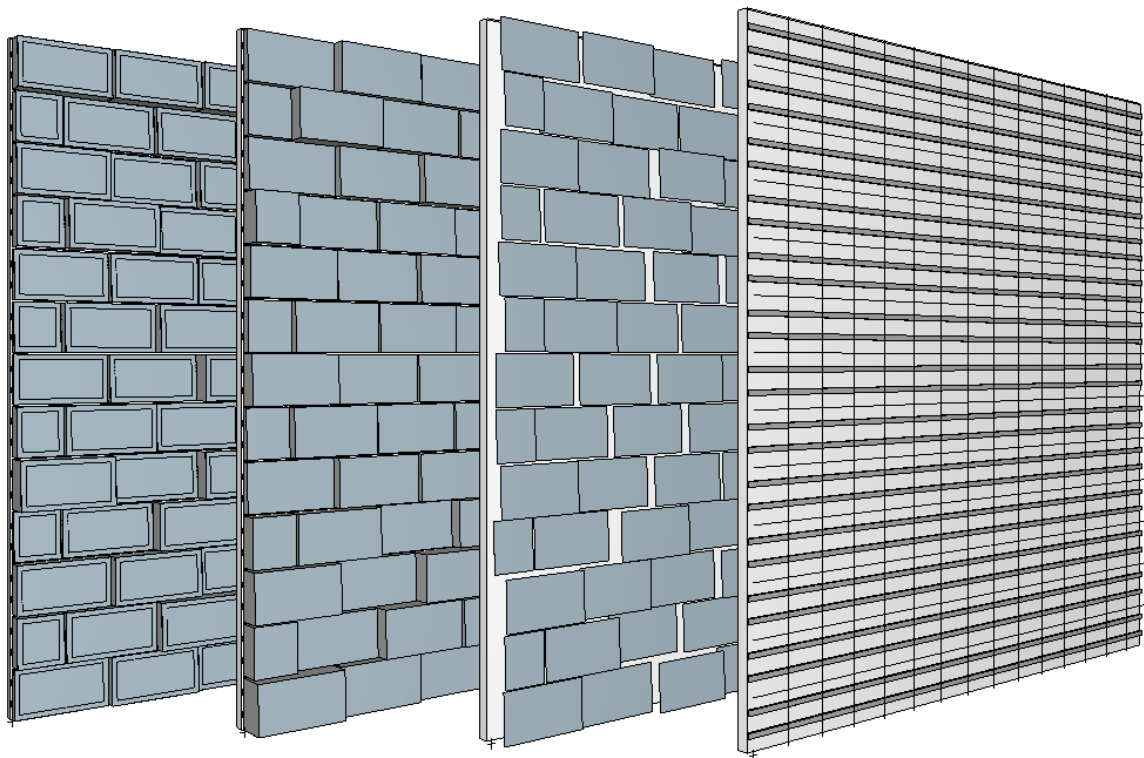


Detailed

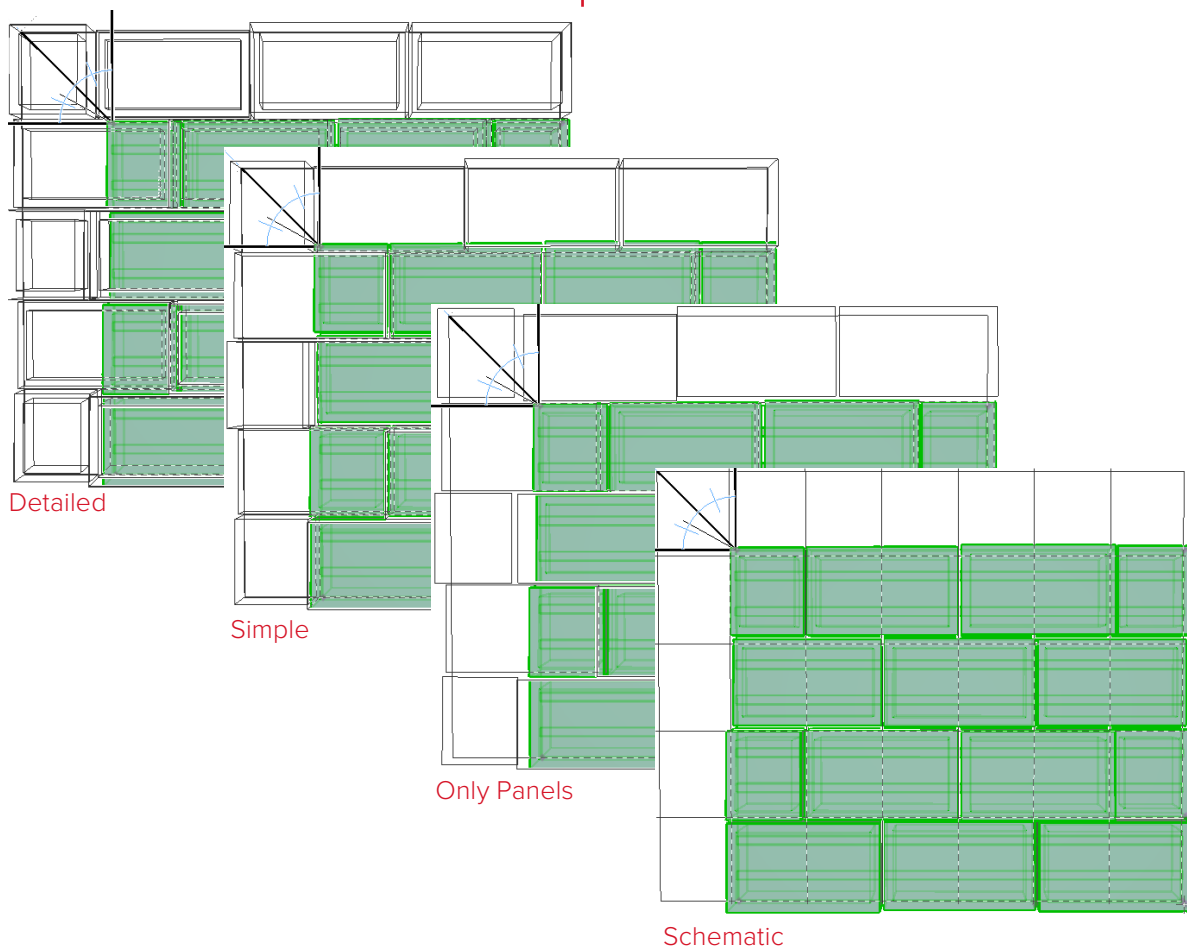
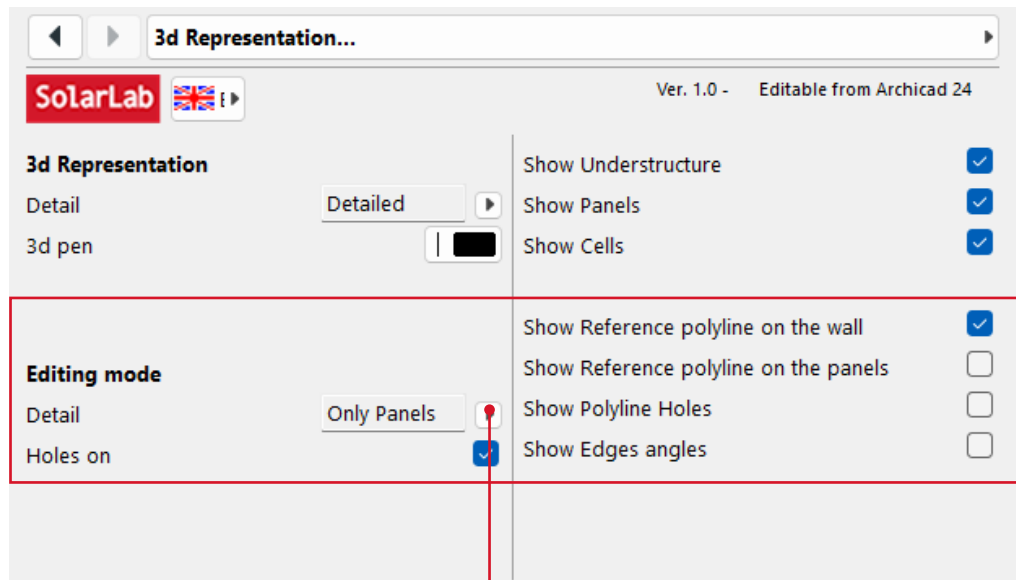
Simple

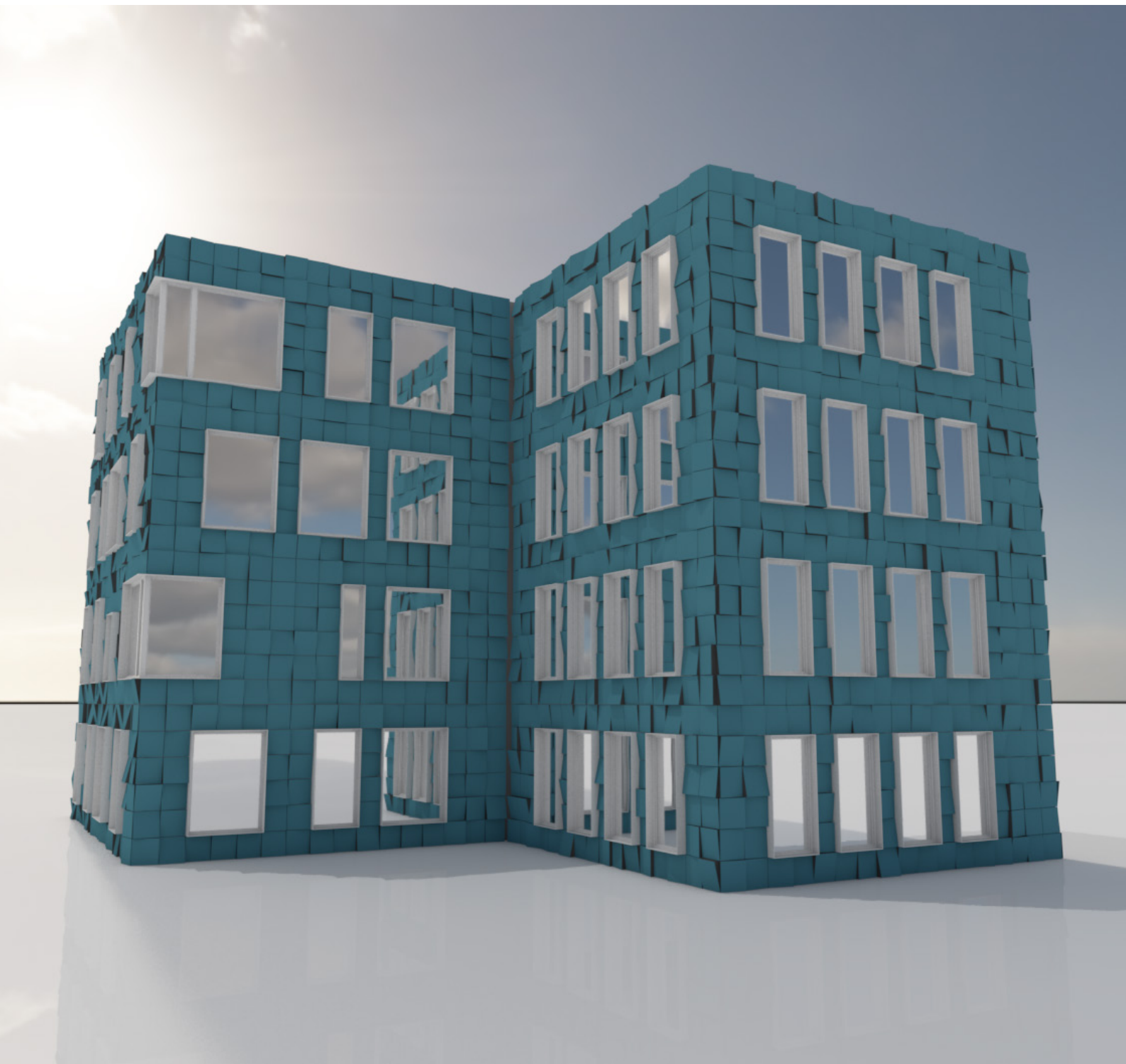
Only Panels

Schematic



Editing mode is the graphical display of the object that occurs while editing e.g., the size of the system in 3D view. In the same way as the 3D representation you can adjust the detail level of the visible parts that you have chosen in the right side of the window. The lower level of detail, the faster Archicad will be able to generate an estimate of the editing.





SOLARLAB DENMARK

Industrivej 8, 8260 Viby J
Aarhus - Denmark

+45 6017 8031
info@solarlab.dk
www.solarlab.dk

Manual og BIM-objekt er udviklet af GRAPHISOFT Center Danmark