



INSTALLATION MANUAL

LAMBDA 2.0 ROOF PANEL

LAMBDA 2.0

THE POWER OF ROOFS



Contents

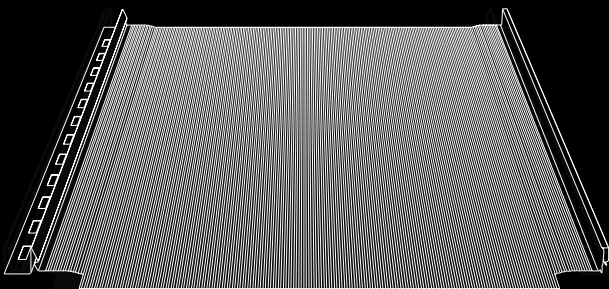
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**THIS MANUAL IS AN ILLUSTRATIVE MATERIAL AND DOES NOT RELEASE
THE CONTRACTORS FROM THE OBLIGATION TO OBSERVE THE PRINCIPLES
OF BEST ROOFING PRACTICES.**

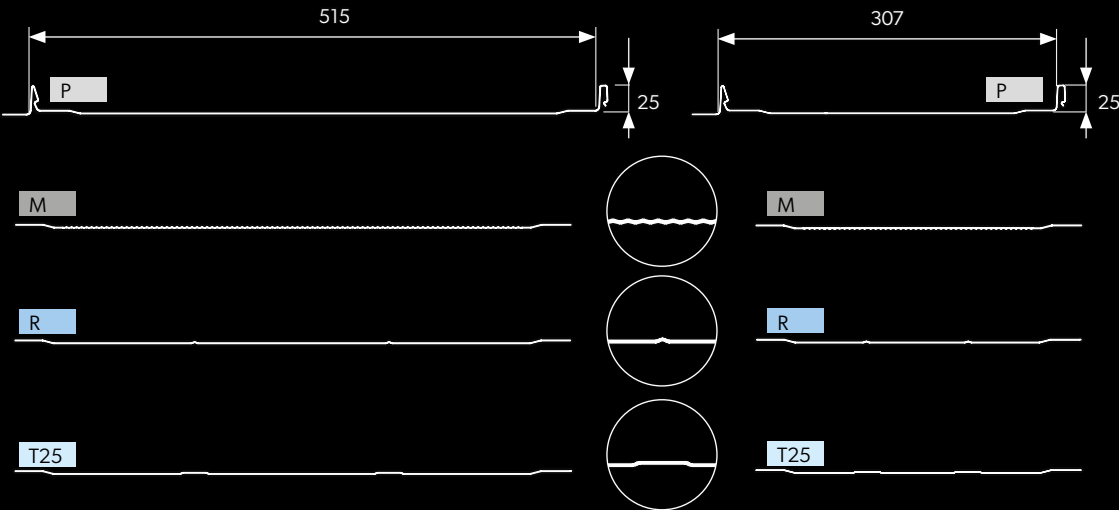
1. Technical specification of LAMBDA 2.0 roof panels

LAMBDA 2.0 is an improved version of lightweight and universal roof panels. The new offer gives more configuration options and the latest technological solutions, and it is also perfectly refined in terms of aesthetics. MICRO-RIB longitudinal profiling on the entire surface of the panel minimizes the risk of a sheet waving effect, and the COVER-CAP finish ensures durability and impeccable appearance of the roof. Roof panels are modernist forms

whose beauty lies in minimalism and functionality. Therefore, why they are perfect for both modern and traditional architecture. LAMBDA 2.0 is available in two panel widths (515 mm and 307 mm - effective widths) and four types of profiling, which allows for a perfect fit to the needs of a specific building.



LAMBDA 2.0 - technical parameters (mm)		
Naming	L. 2.0.515	L. 2.0.307
The height of the seam	25	25
Effective width	515	307
Total width	~547	~339
Sheet thickness	0,5	0,5
Sheet length	max. 10 000	



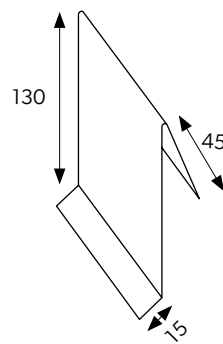
	Optional rib
P	Without rib
M	Longitudinal microprofiling
R	Semicircular rib
T25	Trapezoidal rib

2. LAMBDA 2.0 flashing system

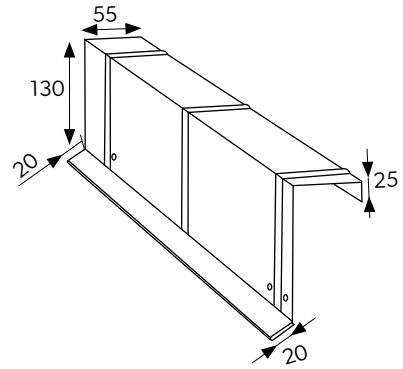
The flashings are made from sheets available in the same range of coatings and colours as the steel roof tiles, trapezoidal sheets and roof panels we produce.



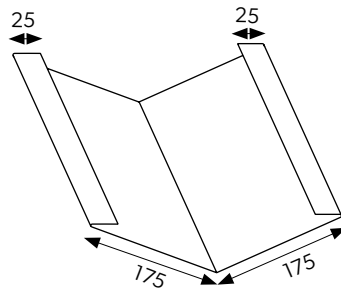
Standard flashing of the following dimensions:
2 m long and 0.5 mm thick. Non-standard flashing of length up to 8 m and thickness of 2 mm.



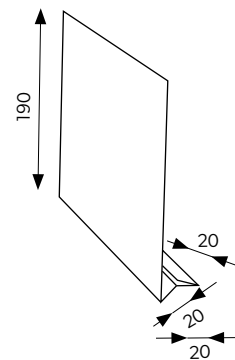
WIND BRACE II



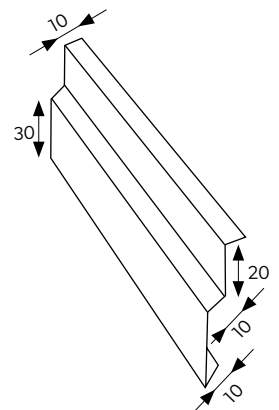
WIND BRACE III



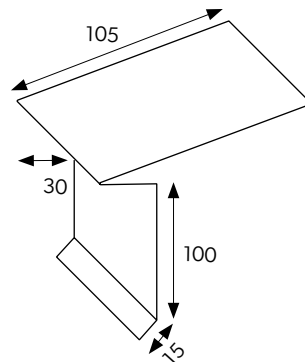
VALLEY GUTTER



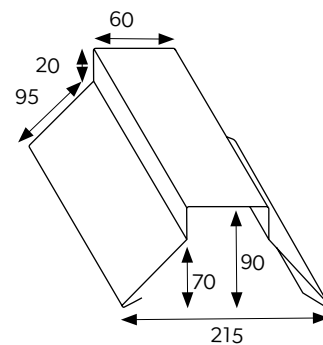
UNIVERSAL VERGE TRIM/
WIND BRACE EXTENSION



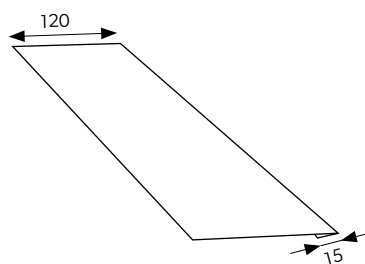
EXPANSION STRIP



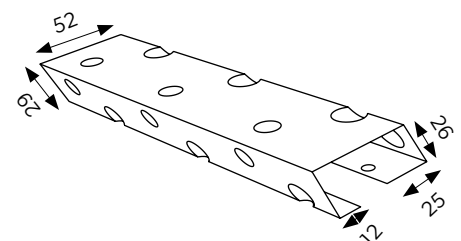
STARTING GUTTER
FLASHING LAMBDA 2.0



TRAPEZOIDAL RIDGE TILE



LAMBDA 2.0 PANEL CONNECTOR
FLAT STRIP



UNIVERSAL VENTILATION FLASHING

3. General recommendations

Transport

Cars used for transport should have a crate adapted to the length of the sheets. Damage to the base varnish is not subject to complaint. When moving the sheets during manual unloading, the number of people should be selected in such a way as to prevent the sheets from moving one over the other.

Rules for handling sheets

The manufacturer is not responsible for the differences in the colour of the shade, the appearance of the coating and dimensional deviations (within the tolerances that are allowed by the standards appropriate for a given product) between individual orders. There may be a slight undulation of the surface of the sheets (especially in the standard polyester coating), which is a normal phenomenon. Aluzinc and coated sheets cannot be stored in original packaging for more than 2 weeks from the production date. After this time, cut the packaging, tear off the protective foil (if any) from the sheets and put thin spacers between the sheets. Galvanized sheets may only be stored in dry and ventilated rooms. If there is moisture in transport, immediately separate the sheets and dry them - otherwise white corrosion will occur. Total storage time cannot exceed 5 months since the production date.

Sheets without organic coatings with metallic coatings with a thickness of Z200, AZ150 and ZA255 can be used inside buildings in environments with corrosivity categories C1 and C2 according to PN-EN ISO 12944-2: 2001.

Cutting the steel sheet

It is not allowed to cut the sheets with tools that cause thermal effect (sudden increase of temperature), e.g. angle grinder. This causes damage to the organic and zinc coating and thus leads to corrosion accelerated by hot filings melting into the sheet surface. To cut the sheets, use a nibbler or manual scissors if the sections are short.



Attention - one of the guarantee conditions is to protect of open cut edges of coated sheet with lacquer.

Maintenance

In case of coating damage caused during transport, installation or treatment, carefully clean the damaged surface of dirt and grease and coat the damaged area with lacquer. The edges of the roof which are not protected with lacquer may delaminate. This is a natural phenomenon and shall not constitute grounds for guarantee claims. It is recommended to control the roof every year in order to perform maintenance works.

Depending on the angle of the roof and the height of the eaves, the suction forces under the roofing vary as follows:

Tilt angle	Eaves height (meters)	Wind suction(N/m ²)		
		Corners	Edges	Intermediate surfaces
0 - 25°	0 - 8	1600	900	300
	8 - 20	2560	1440	480
	20 - 100	3520	1980	660
25° - 35°	0 - 8	900	550	300
	8 - 20	1440	880	480
	20 - 100	1980	1210	660

Depending on the eave height, the maximum wind load on the wall cladding changes as follows:

Eaves height (meters)	Wind suction (N/m ²)		
	Corners	Edges	Intermediate surfaces
0 - 8	1250	750	500
8 - 20	20200	1200	800
20 - 100	27500	1650	1100

4. Types of substrate for the installation of the roof panel

FIG. 1-A: The recommended substrate for **LAMBDA 2.0** roof panels is full boarding made of planed boards or 22 mm thick OSB. A spacer membrane should be used on the prepared substrate.

FIG. 1-B: If the substructure uses openwork boarding, a highly vapour-permeable roof membrane should be used. The spacing between the boards should be in the range of 5-100 mm. This solution may cause a slight but noticeable noise of the sheet steel. It is recommended to use a soundproofing tape min. 10 cm wide, glued in the centre of each panel.

Alternatively, strips of the roofing membrane should be made of three parts and attached to the boards with a tackler.

The soundproofing will additionally raise the panel in its centre, thus minimizing the possibility of its undulations.

FIG. 1-C: Installation on battens involves the use of 40x50 mm battens with a spacing not exceeding 200 mm. In the case of installation on battens, it is recommended to use **LAMBDA 2.0** roof panels with a **SOUNDCONTROL** sound-absorbing coating.



ASSEMBLY TIP

Full boarding is recommended



The substrate should be made in accordance with the principles of roofing practice.

The battens must be perfectly level.

FIG.1 - A

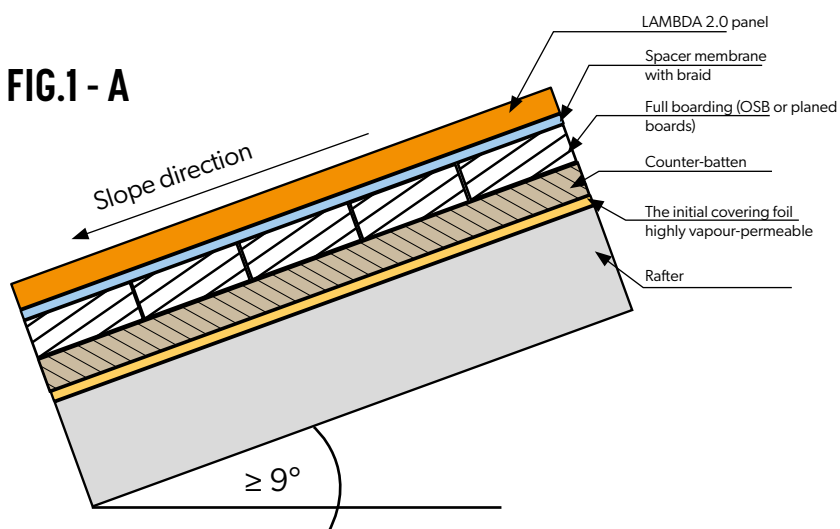


FIG.1 - b

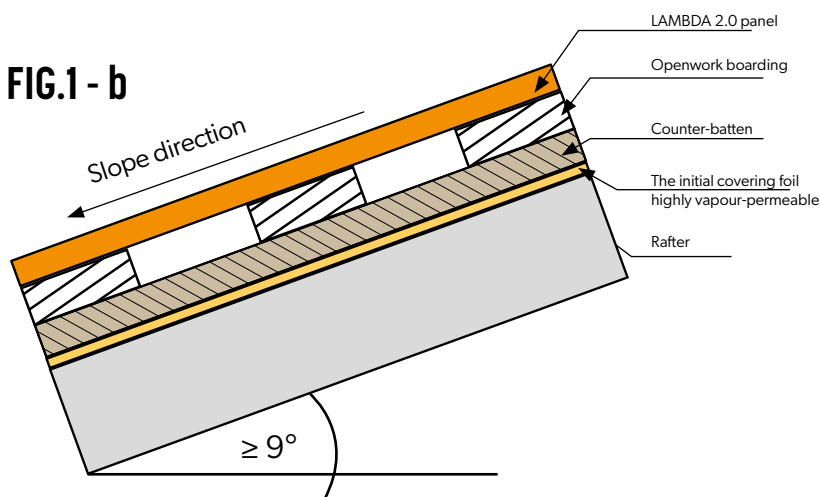
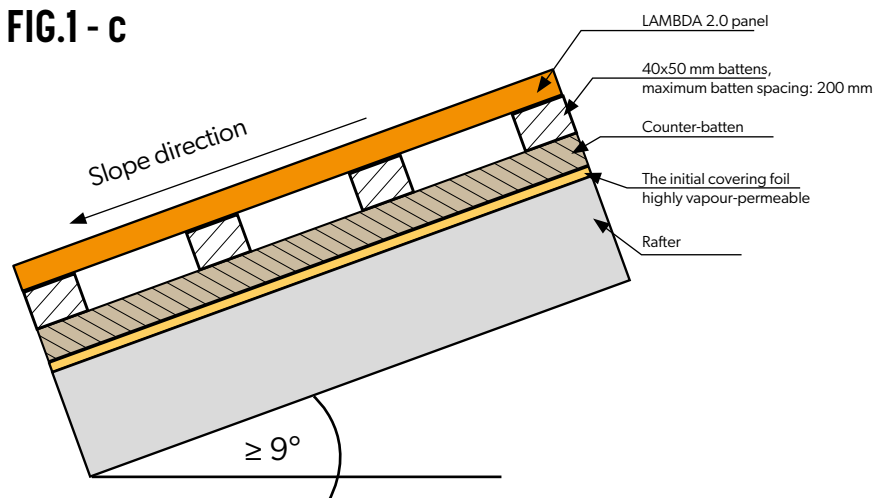


FIG.1 - c



Failure to comply with the recommendations of mounting on battens may result in increased phenomenon of sheet waviness and increased noise caused by weather conditions, e.g. (wind, rain).

5. Roof construction

Before installation, check the correctness of the construction, including: diagonals, flatness. The distance between the boarding and the eaves should be determined taking into account the assembly of the **LAMBDA 2.0** starting gutter flashing.

LAMBDA 2.0 roof panel can be used for roofs with a slope of at least 9 degrees. Installation on surfaces with smaller angles of inclination requires prior consultation with the manufacturer's technical advisor regarding the preparation of the roof base. Cutting sheets to size does not include bevels. The maximum length of a sheet in one section is 10 m.

LAMBDA 2.0 roof panels are recommended to be installed on a slope with full boarding. In order to lay the full boarding, install a highly vapour-permeable underlay foil on the rafters, then counter-battens and complete the full boarding. This way, the attic ventilation gap is provided. Install the spacer mat on the full boarding. Make sure that the roofing membrane is led out onto the starting flashing and glued to it with a system adhesive tape. This solution will also prepare the client's attic for thermal insulation.



Maintaining the appropriate diligence in the preparation of the roof structure is of key importance for the aesthetics of the covering. Errors made at this stage may result in visible waves and kinks on the surface of the panels.



NOTE!

Due to the construction of the roof panels, the so-called sheet "corrugation" on the covering is possible. It is a natural phenomenon for this type of product.

FIG.2 CHECKING THE DIAGONALS

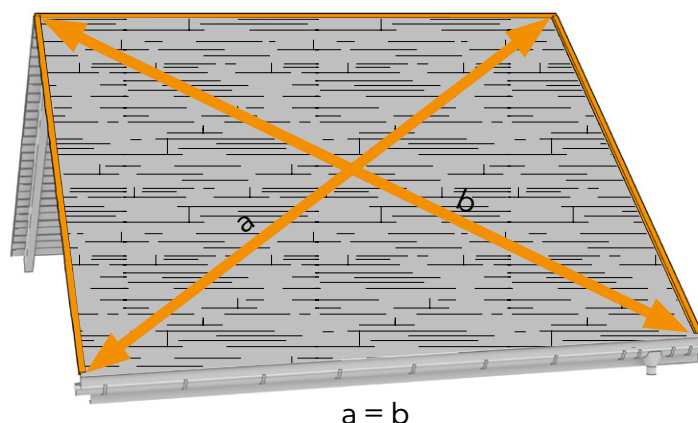


FIG.3 FULL BOARDING OF THE ROOF SLOPE AND A SYSTEM TAPE STUCK TO IT

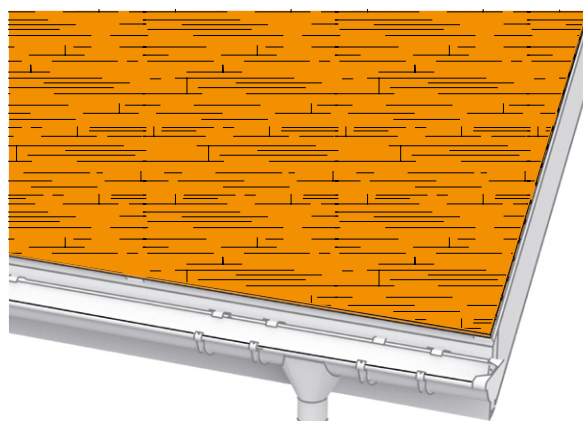
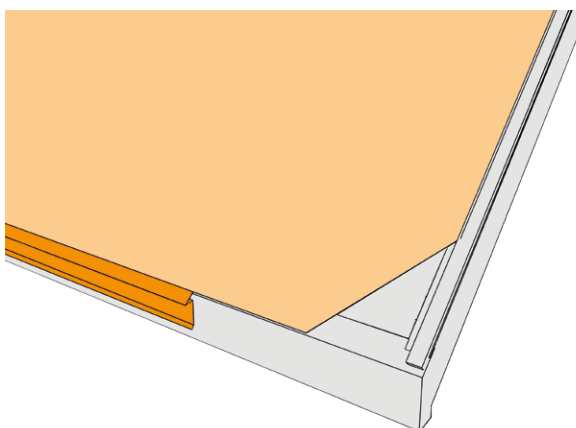


FIG.4 ATTACHING MEMBRANE ON GUTTER STARTING FLASHING



6. Installation of the LAMBDA 2.0 starting gutter flashing

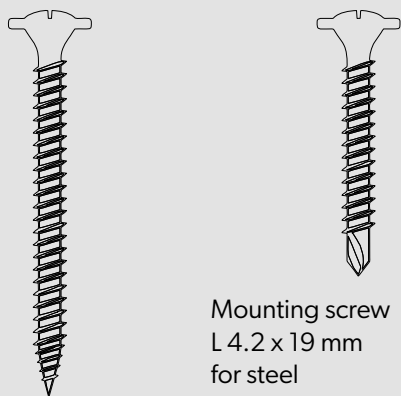
The starting gutter flashing is a flashing dedicated to **LAMBDA 2.0** roof panels. By equipping it with a protruding edge, it combines the functionality of the gutter flashing and the starting profile that allows you to aesthetically display the fronts of the roof panels from the eaves side.

The starting flashing should be installed after the other eaves flashing (gutter belt) and the gutter are installed. It precedes the installation of roof panels.

The starting gutter flashing is installed straight in the eaves line, attaching it to the first board (batten). Screws are recommended to fix **LAMBDA 2.0**. The levelling should be checked before the complete fixation of the flashing.

If it is necessary to connect the starting flashings, there should be overlays of min. 25 mm.

Mounting screws for **LAMBDA 2.0**.



Mounting screw
L 4.2 x 30 mm
for wood

FIG.5 LAMBDA 2.0 STARTING GUTTER FLASHING

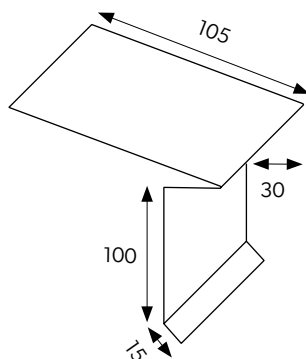
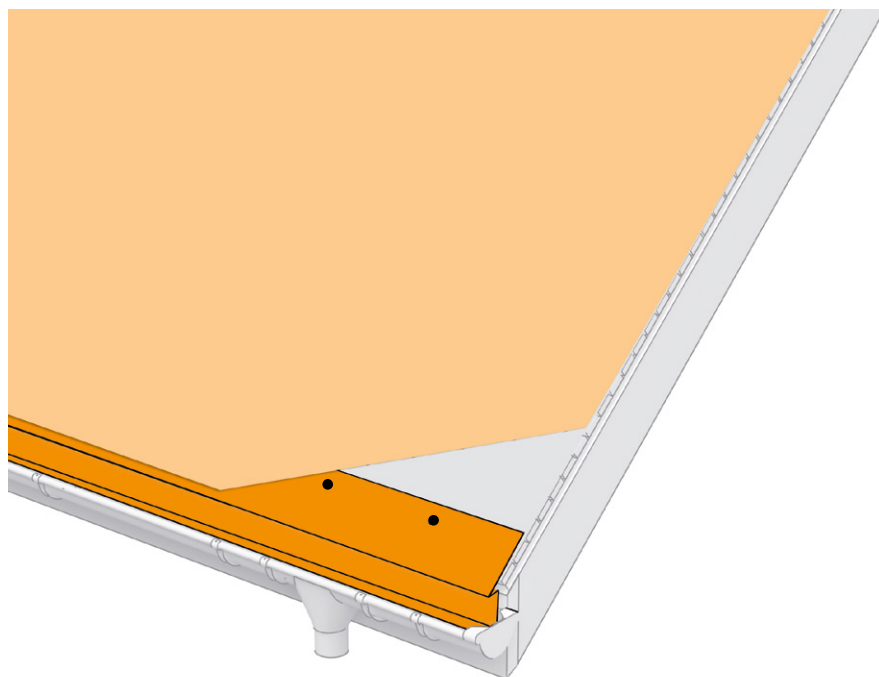


FIG.6 LAMBDA 2.0 STARTING FLASHING - ASSEMBLY

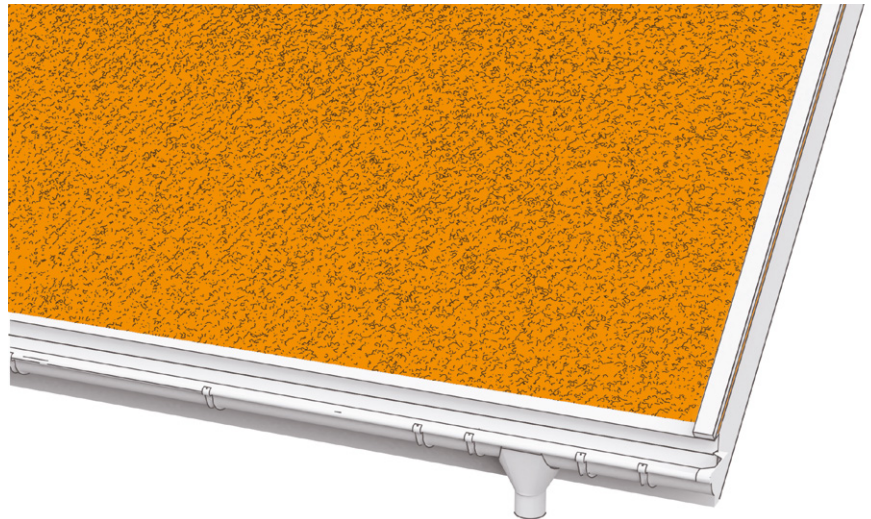


7. Spacer mat / braided membrane

To ensure adequate ventilation of the roof, it is recommended to use a braided membrane or a separate membrane with certificates for installation under a flat sheet.

If there is tar paper on the roof, install the braid only on its surface and start the installation of **LAMBDA 2.0** roof panels.

FIG.7 SPACER MAT / BRAIDED MEMBRANE



8. Wind brace strip

Along the edge of the roof, you can (as one of the solutions) install a batten, the so-called the batten of the wind brace. It is the support for the first roof panel and the wind brace.



Maintaining particular accuracy when assembling the edge board determines the even arrangement of subsequent panels.

FIG.8 A WIND BRACE STRIP - ONE OF POSSIBLE SOLUTIONS



9. First panel installation

LAMBDA 2.0 roof panel should be hooked on the starting gutter flashing. It is recommended to use the product version with a factory-prepared "**BEND-LOCK**" bend, which guarantees that its parameters (bend radius, length) are appropriate for the starting gutter flashing.

Taking into account the suction forces occurring under the roof covering, it is recommended that after measuring the roof slope, the extreme widths of the panels should be selected so that they do not appear in full widths. E.g. if the roof slope is 10 full panels, start and end the covering with panel halves. As a result you will thicken the edge fixing of the panels.



Before screwing the sheet to the structure, use a rubber hammer to gently bring the bent edge to the starting gutter flashing, leaving a 10-15 mm expansion gap.



Before starting roofing works, the roof surface should be planned. It is recommended to narrow the first and last panel in order to compact the edge and corner zones of the sheet fixing.

FIG.9

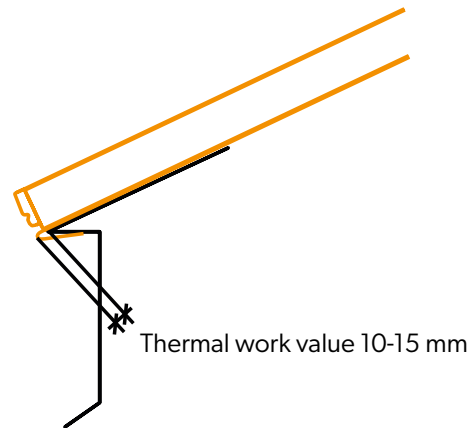


FIG.9.2 FIRST PANEL INSTALLATION

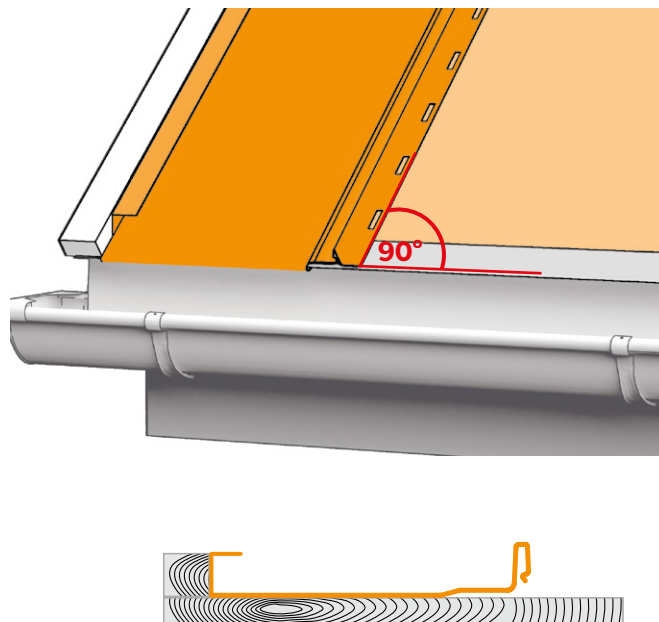


FIG.10 ROOF LAYOUT

1	2	2	2	2	2	2	1
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1. Edge (external) panel
2. Full panel

10. External panels installation

Start assembling the panels both on the right and left side.

In this case, you can attach a batten (counter batten) along the edge of the roof, cut the panel to the height of the batten + 20 mm for an angular hook (installation clip).

Keep in mind that the edge panels are of the same width, so it is important to check the geometry of the roof before starting the installation. On the edge panels, thicken the installation clips - every 300 mm.

The outermost panel should be fastened firmly enough to the batten of the wind brace with the use of hooks, which allow the panel to work along its length **(Fig. 12)**.

Make sure that you leave an expansion gap of 10-15 mm.

FIG.11 CUTTING THE PANEL TO THE EDGE BOARD

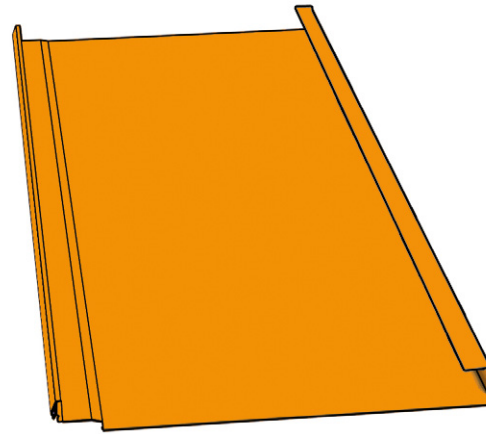
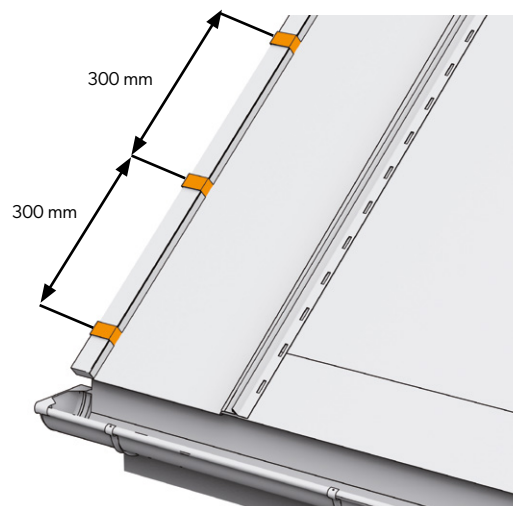
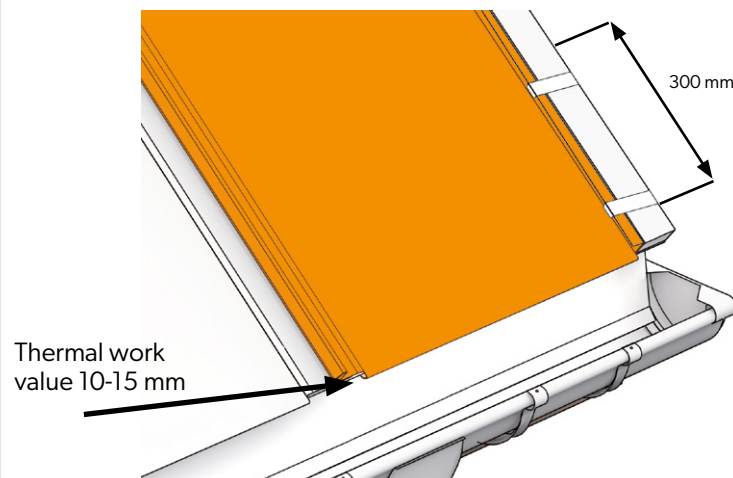


FIG.12 ASSEMBLY OF INSTALLATION CLIPS (ANGLE HOOKS)



11. Installation of panels from the eaves side

In order to fold the front edge on your own without the need to cut the locks, use the version of the panels with the factory "**BEND-LOCK**" tongue prepared for the fold; that is, the extension of the middle section of the sheet.

FIG.13 LAMBDA 2.0 ROOF PANEL - PREPARATION FOR FOLDING



FIG.14 FIXING PANELS THROUGH MOUNTING HOLES

For the assembly of **LAMBDA 2.0** roof panels, "L" (4.2 x 30 mm) mounting screws are screwed in using a tip with a length of min. 50 mm.

It is important to screw them into the centre of the mounting hole with a little play to compensate for thermal stresses.

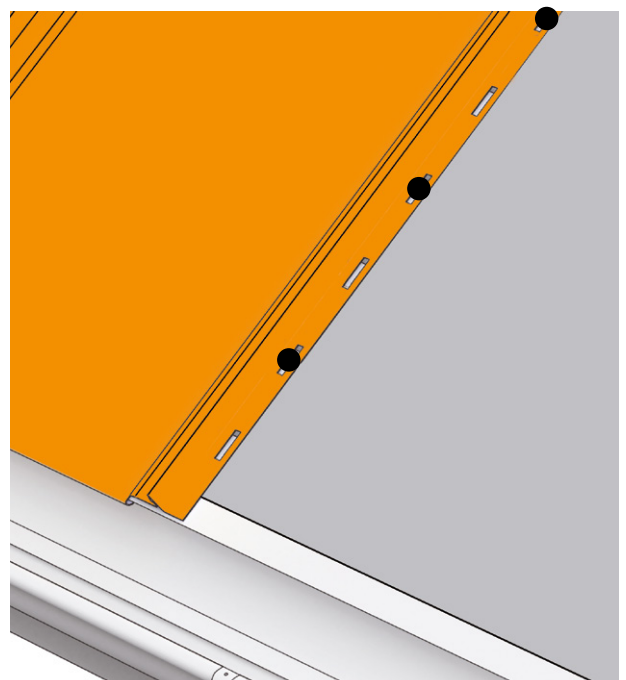
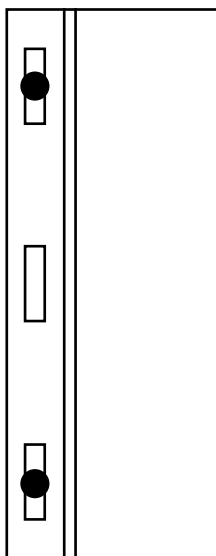


FIG.15 FASTENING THE SHEETS TO THE STARTING FLASHING AND JOINING THE PANELS "ZIPPER METHOD"

The next panels are installed first by fastening the **BEND-LOCK** fold with the gutter runway and then by snapping the lock along the entire length of the sheet. This is called "Zipper method" (start from the eaves and move towards the ridge).

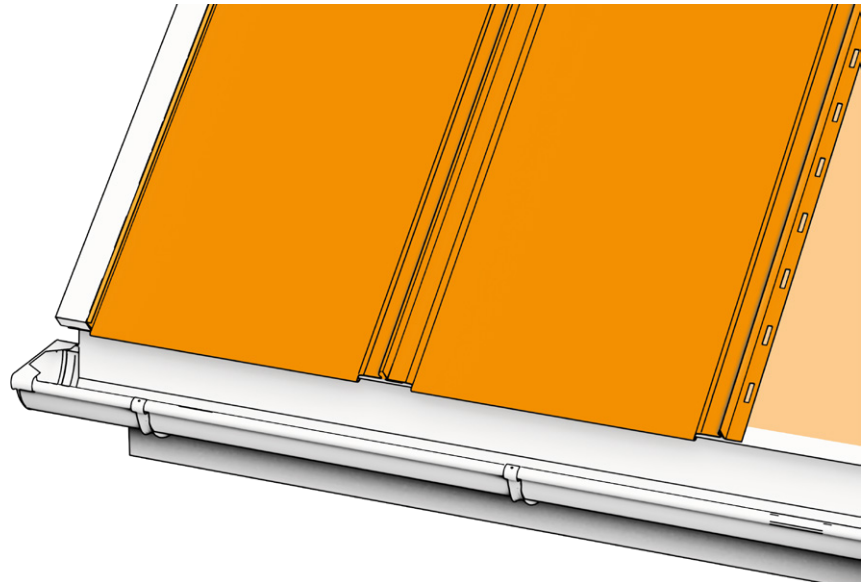
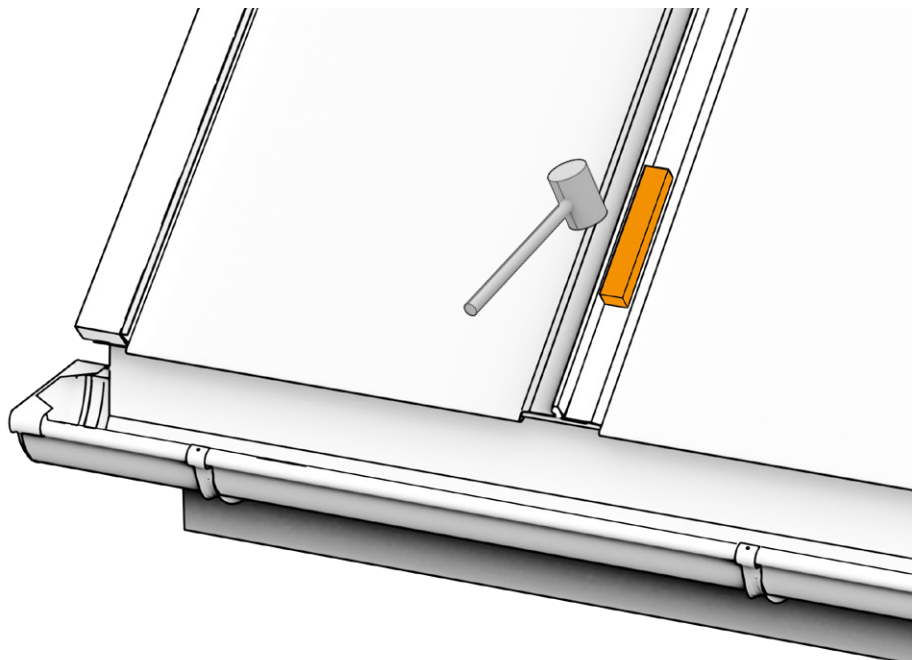


FIG.15.2

After snapping the lock, gently press the panel on the overlap with a wooden block and a tinsmith hammer (rubber or plastic).



12. COVER-CAP end cap

A solution that further enhances the aesthetics and functionality of the cover is the COVER-CAP element, i.e. double-sided plugs of the very seam of the panel.

FIG.16 COVER-CAP END CAP

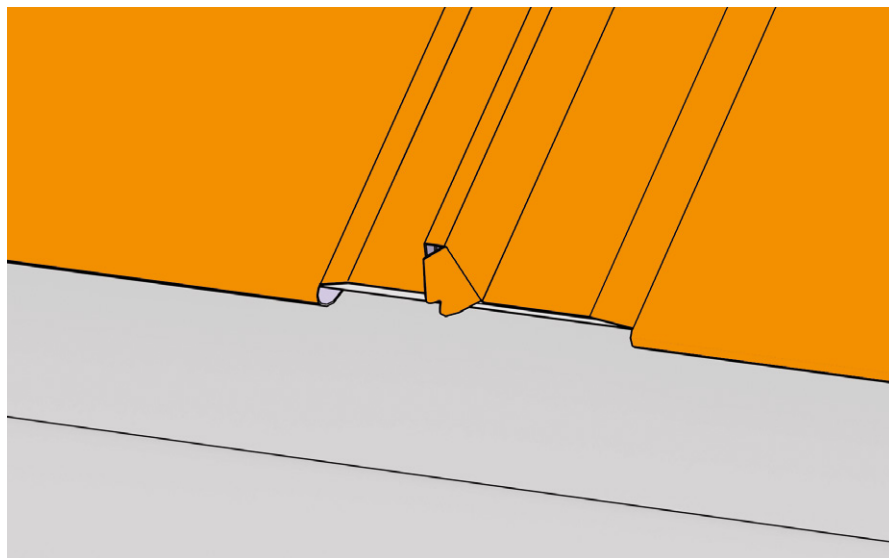
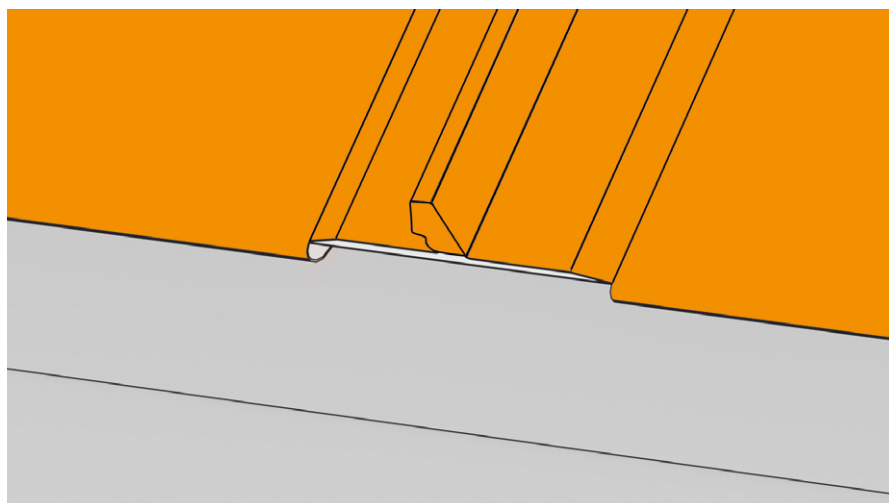


FIG.17 COVER-CAP END CAP

After clicking and screwing the panels, bend the COVER-CAP end cap, which will hide the joining of the sheets visible inside the lock.



13. Connecting panels along the length

If the roof length exceeds the maximum productive length of the panels, a lengthwise connection is recommended. The best method in terms of efficiency and aesthetics is the use of a dedicated flashing-panel connector.

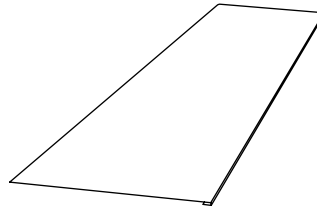


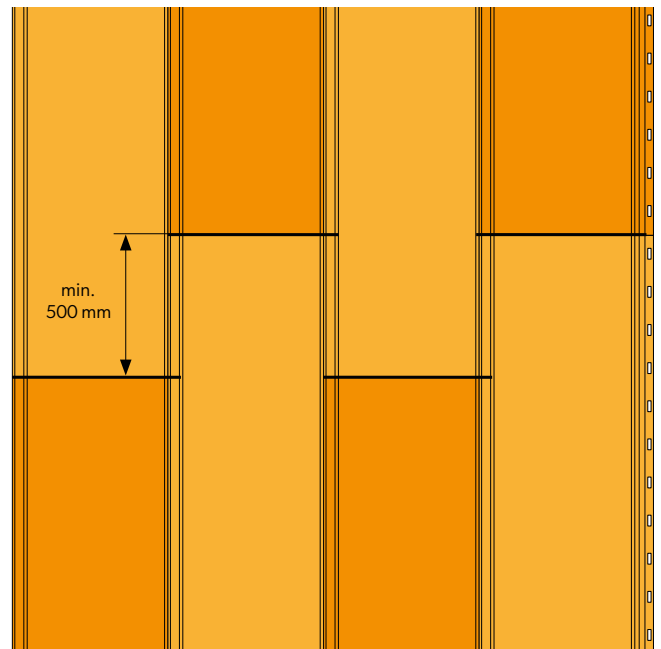
FIG.18 CONNECTOR FOR LAMBDA 2.0 PANELS

If the roof slope requires joining the panels along their length, the joining of adjacent panels should not be made in one line, but with an offset of min. 500 mm.



The overlap at the longitudinal joint should be 120 - 250 mm long, depending on the angle of the roof inclination.

FIG.19 JOINING THE LENGTH OF THE PANELS ON THE ROOF SLOPE





The overlap at the longitudinal joint should be 120 - 250 mm long, depending on the angle of the roof inclination.

In the upper part of the bottom sheet, cut the lock and the seam to the length of the overlap.

The panel connector should be attached to the bottom panel. The construction of the connector will allow it to be attached to its edge of the upper sheet, similarly to the starting flashing.

As we pierce the bottom panel with the screws, the surfaces between the sheets should be sealed. Use the sealing tape or roofing sealant for this purpose. Use the seal on the entire surface between the seams, even where there is no panel connector anymore. It is designed to maintain tightness and prevents capillary rising of rainwater.

FIG.20 CUT-OUT OF THE BOTTOM PANEL LOCKS

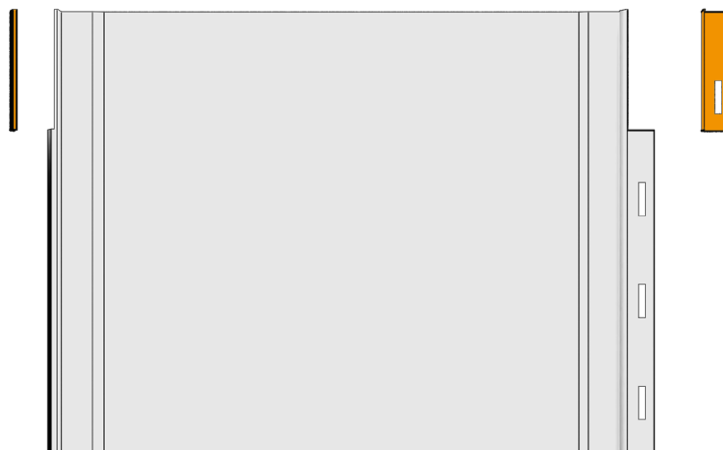


FIG.21 INSTALLATION OF THE LAMBDA 2.0 PANELS CONNECTOR

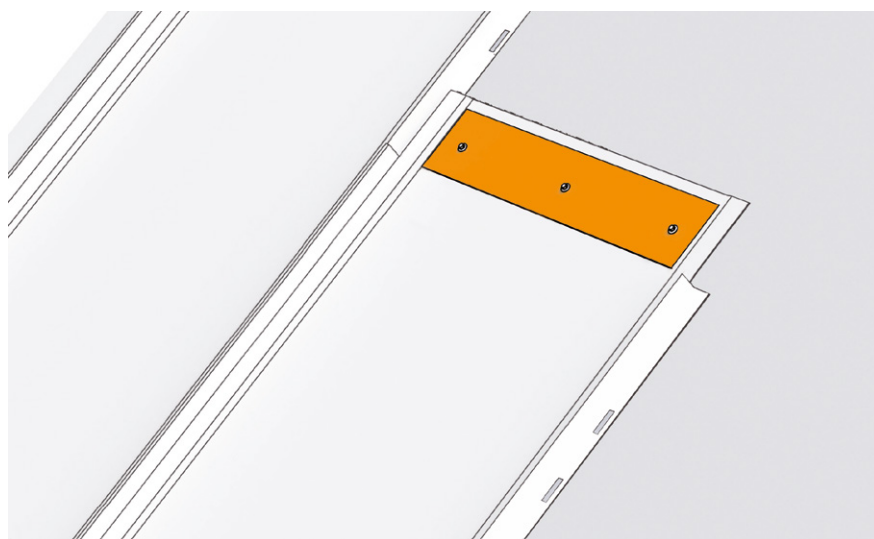
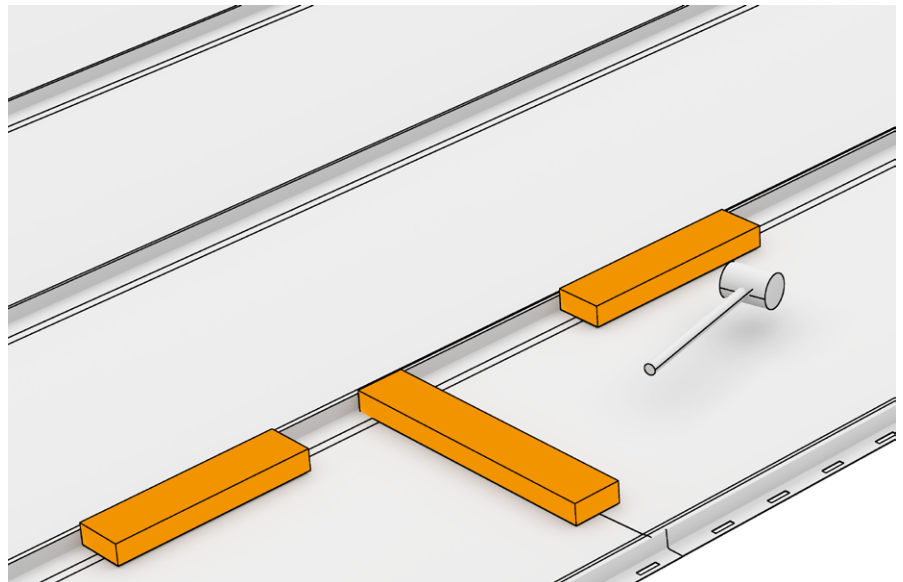


FIG.22 SETTING OVERLAPS

After fastening the top panel with the connector, set the overlaps and then, using a block and a tinsmith hammer, close (store) the lock.



14. Wind brace installation

The extreme part of the roof slope is the place where high suction forces occur, therefore it is necessary to use compacted fastening.

The outermost panel should be attached firmly enough to the batten of the wind brace with the use of installation clips that allow the panel to work along its length. Thickened fastening guarantees resistance to the suction forces occurring on the extreme part of the roof slope.

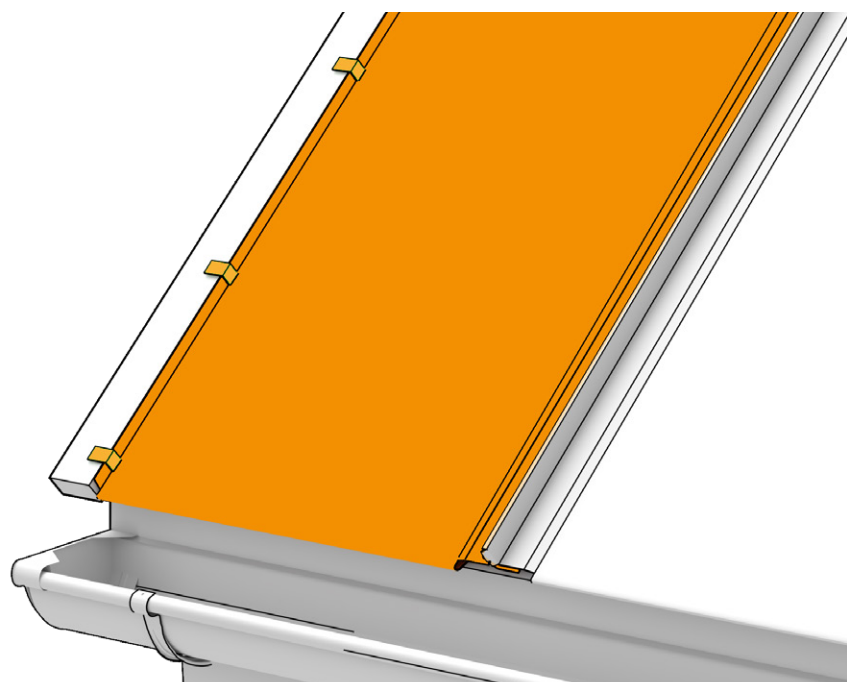
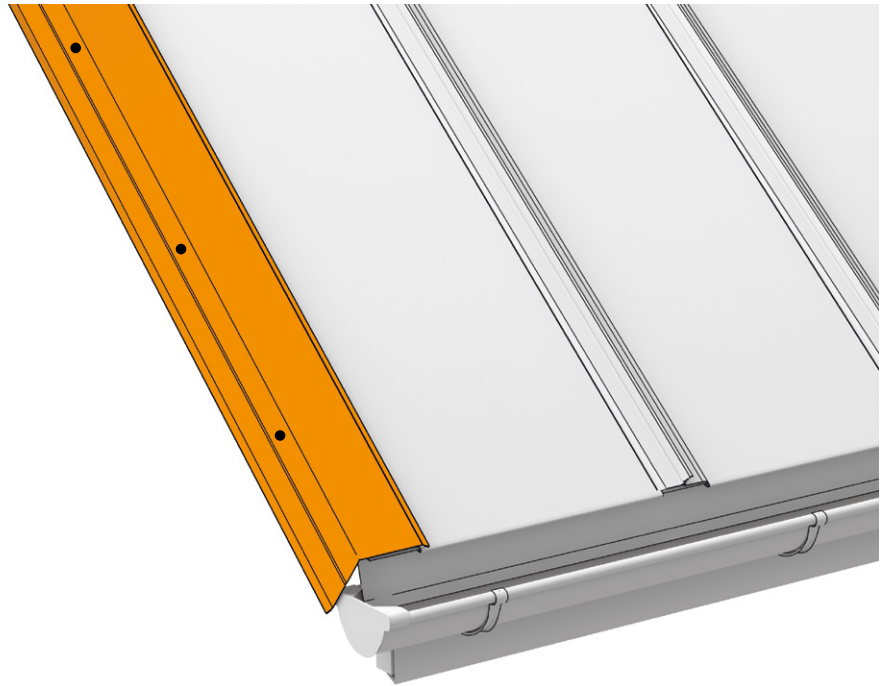
FIG.23 WIND BRACE INSTALLATION

FIG.24 WIND BRACE INSTALLATION

Farmer screws should be used to mount the wind brace. When connecting the wind braces, use an overlap of 15-30 mm.

For more skillful roofers, we recommend to installing the wind braces using custom-made starting flashings. As a result, you eliminate visible screws and significantly improve the aesthetics of the work. This aspect is discussed in the BP2 practical training.



15. Installation of universal ventilation and ridge tiles

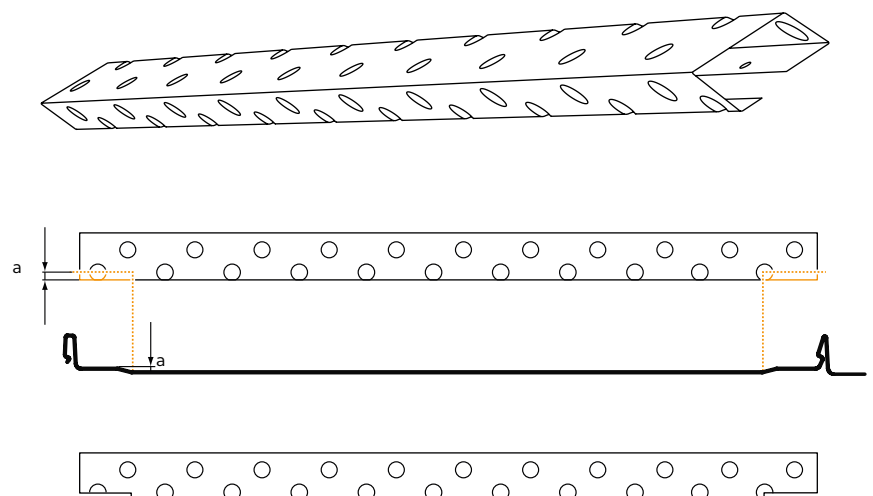
The universal ventilation treatment serves as a **LAMBDA 2.0** ridge treatment. Thanks to the perforations, it ensures proper ventilation of the covering.



ASSEMBLY TIP

Prior to installation, universal ventilation flashings should be cut to ensure full adhesion to the panels.

FIG.25 UNIVERSAL VENTILATION TREATMENT



UNIVERSAL VENTILATION TREATMENT AFTER CUTTING TO THE PANEL PROFILE

FIG.26 ASSEMBLY OF THE UNIVERSAL VENTILATION TREATMENT

Before installing the ridge tile, a universal ventilation flashing must be installed, for which farm screws 4.8 x 20 mm or "L" 4.2 x 30 mm mounting screws should be used (for one sheet of **LAMBDA 2.0** panel reaching the top, one ventilation treatment is required).

The universal ventilation flashing must be installed using installation holes in the bottom flashing edge. Insert the screws through the larger pilot hole in the top edge, as presented in the cross-section aside.

We recommend sealing the flashing assembly, similar to the assembly of the connector. This aspect is discussed in detail in the BP2 practical training.

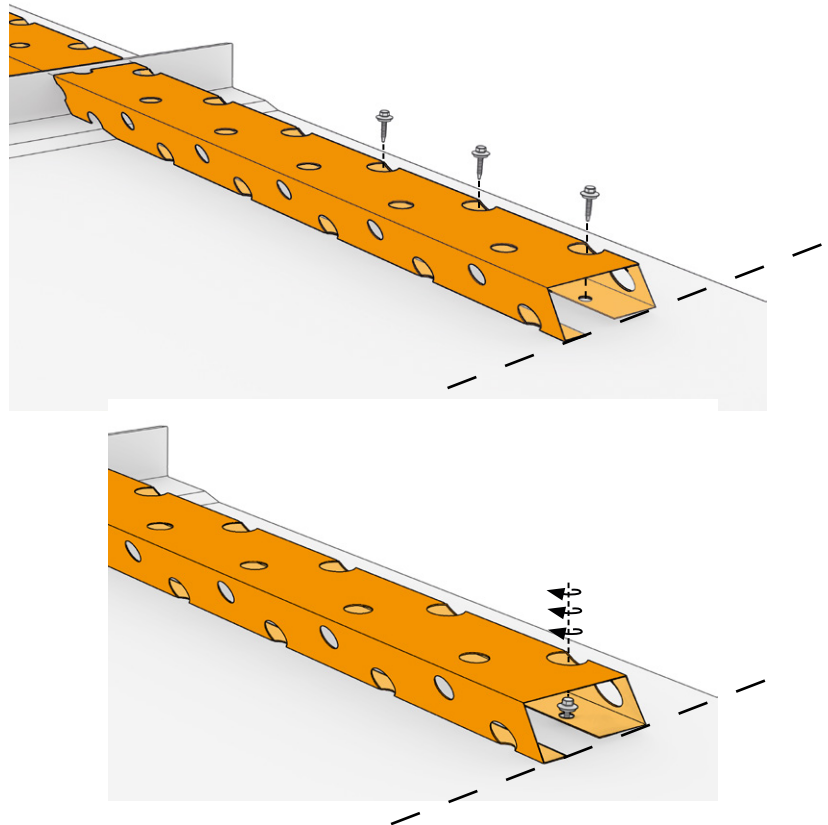
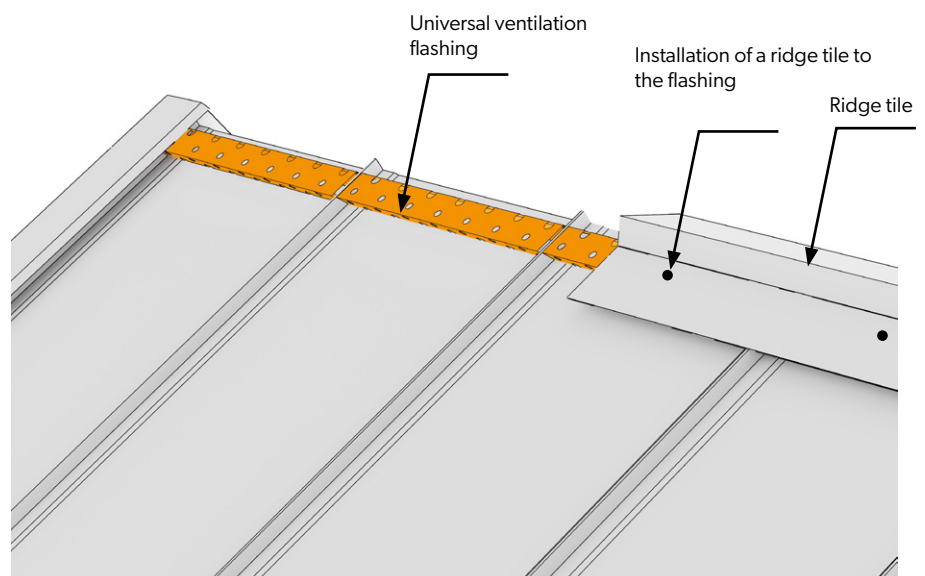


FIG.27 RIDGE TILE INSTALLATION

The ridge tile is screwed to the universal ventilation flashing with 4.8 x 20 mm farmer screws, at least every 300 mm, "sheet metal", previously adjusting its opening to the roof angle.



16. Valley gutter installation

The assembly of the valley gutter begins with adjusting it to the corner. When marking and cutting off the shape, a 30 mm overlap should be provided for making the bend to the starting flashing.

FIG.28 VALLEY GUTTER INSTALLATION

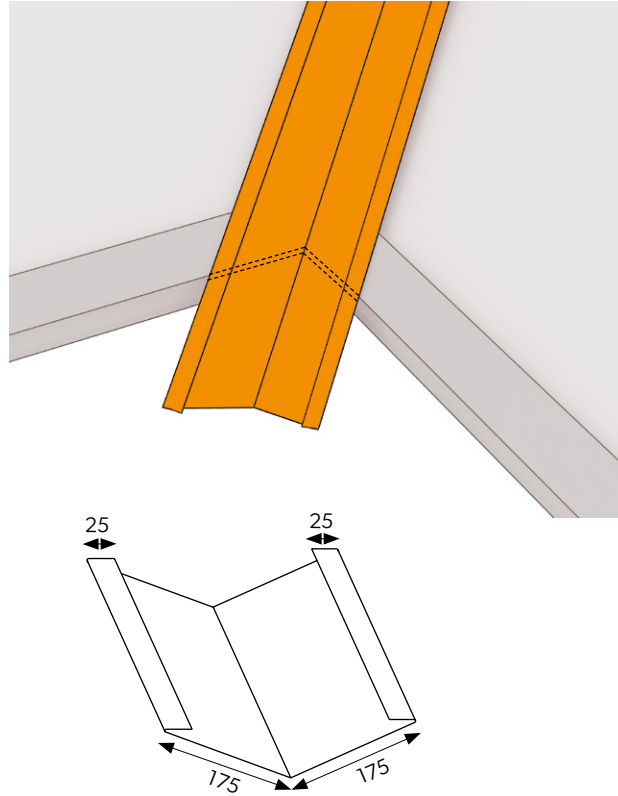
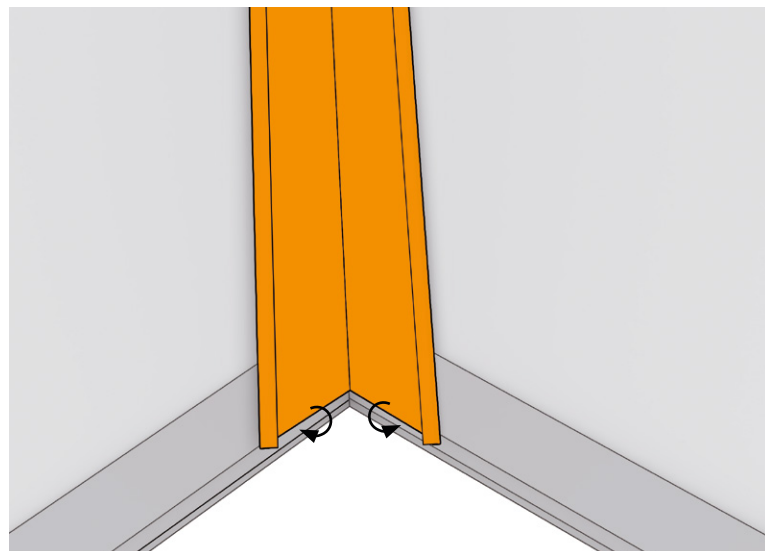


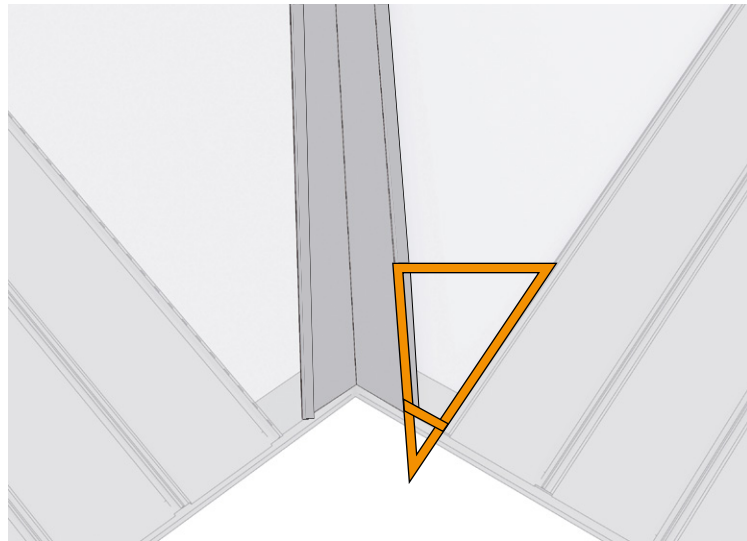
FIG.29 VALLEY GUTTER INSTALLATION

Using the folding made, we fasten the gutter to the starting flashing and attach it to the structure from the eaves to the ridge using installation clips, remembering to adjust the appropriate overlap to the angle of the roof slope.



Before cutting and assembling the panels adjacent to the valley gutter, the angle should be measured by making a template made of slats.

FIG.30 CUTTING PANELS TO THE VALLEY GUTTER



Then, using the template, cut the panel, leaving a 30 mm overlap for the folding to the gutter.

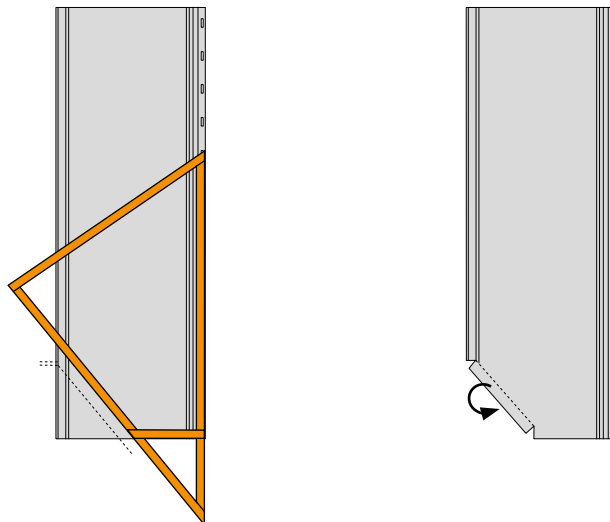
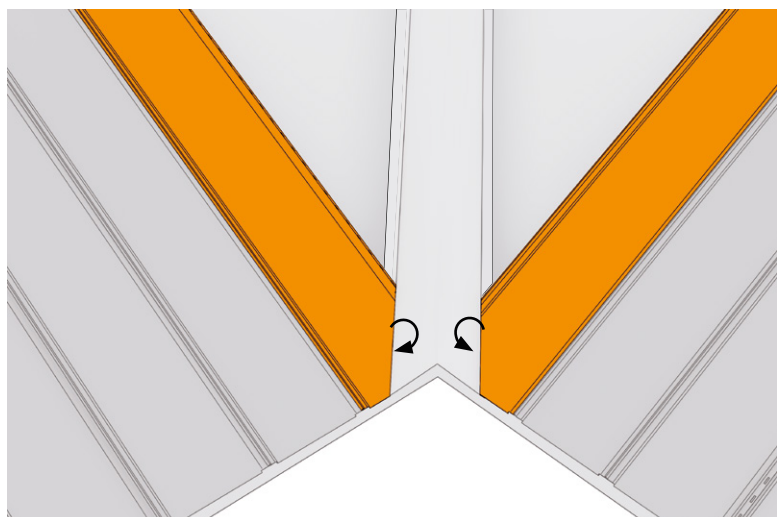


FIG.31 ASSEMBLY OF THE PANELS TO THE VALLEY GUTTER

Then, we hook the panel to the edge of the valley gutter.



17. Ventilation chimney installation

When installing a ventilation stack, the first step is to mark the area where the stack will pass through the structure and the roof covering. Try to lead the stack through the flat part of the panel. Do not cut the opening through the seam. Put the sheet through which the ventilation duct is to pass, but do not screw it to the roof.

Then, put the stack cover in the designated area on the sheet and draw the shape of the opening from the inside.

It is best to start cutting out a shape by drilling a technical hole inside the drawn shape, and then cut the entire hole with sheet metal shears, its diameter being approx. 5 mm smaller than the shape drawn.

Slightly bent the edges of the hole upwards with pliers or sheet metal tongs in order to protect the flange against damage by the sheet edges.

Then, after removing the panel, prepare an opening for the stack in the slope base. The size of the hole should be selected so that it allows the duct to pass through and the sealing collar to be installed.

FIG.32 ADJUSTING THE SHAPE OF THE OPENING TO THE CHIMNEY

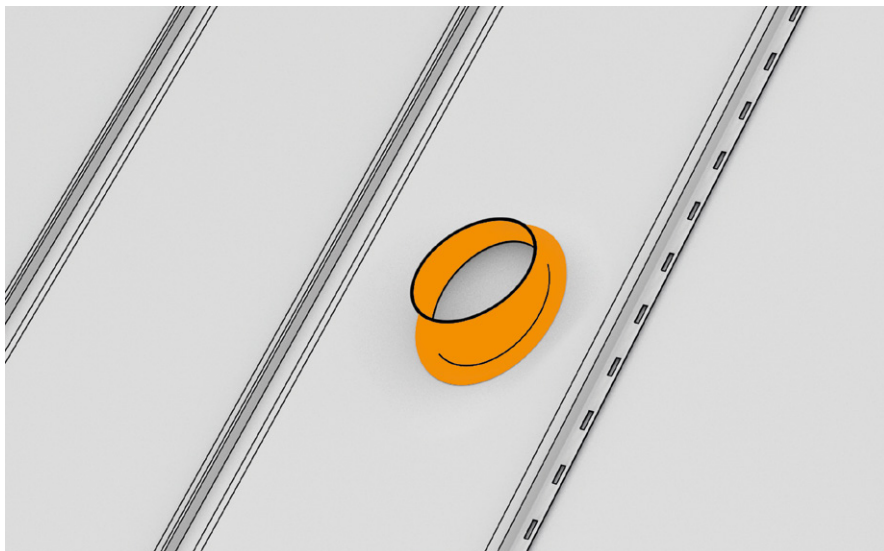
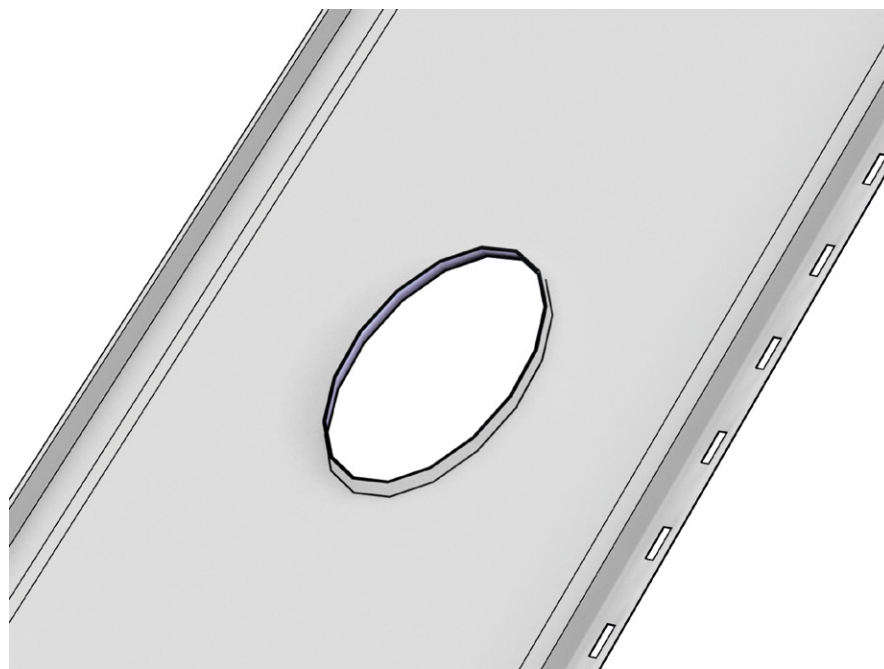


FIG.33 CUTTING THE HOLE



The flange should be installed with screws and sealed with a sealing compound or dedicated tape, depending on the substrate.

Next, put on and install the sheet with the cut hole, having previously led the stack base through the hole.

The next step is to install the stack cover so that it covers the opening and seal it with a dedicated compound or tape.

Next, pass the ventilation duct and connect it to the upper part of the stack.

Place the chimney in the previously installed cover, set the position and lock it with a screw.

FIG.34 CHIMNEY FLANGE INSTALLATION

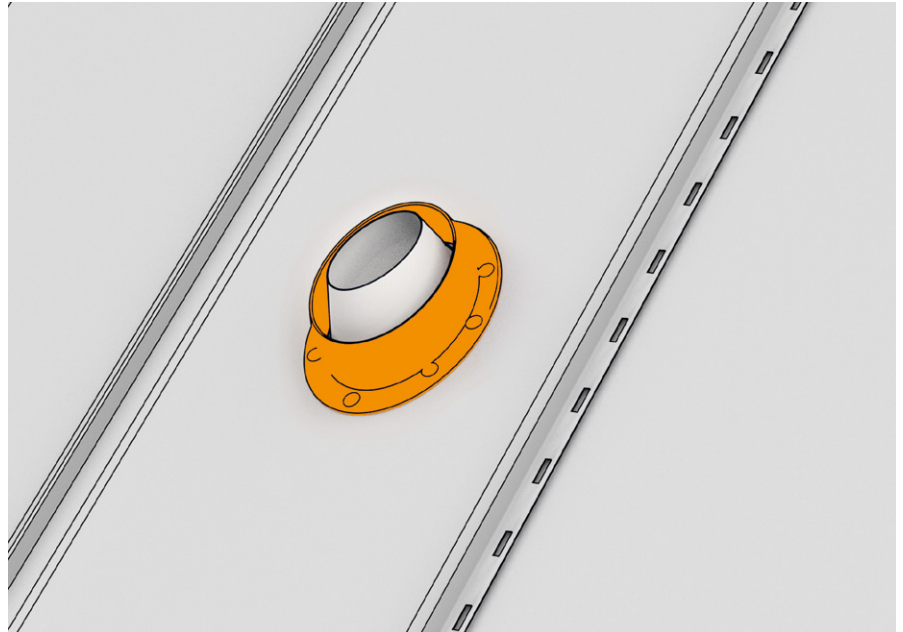
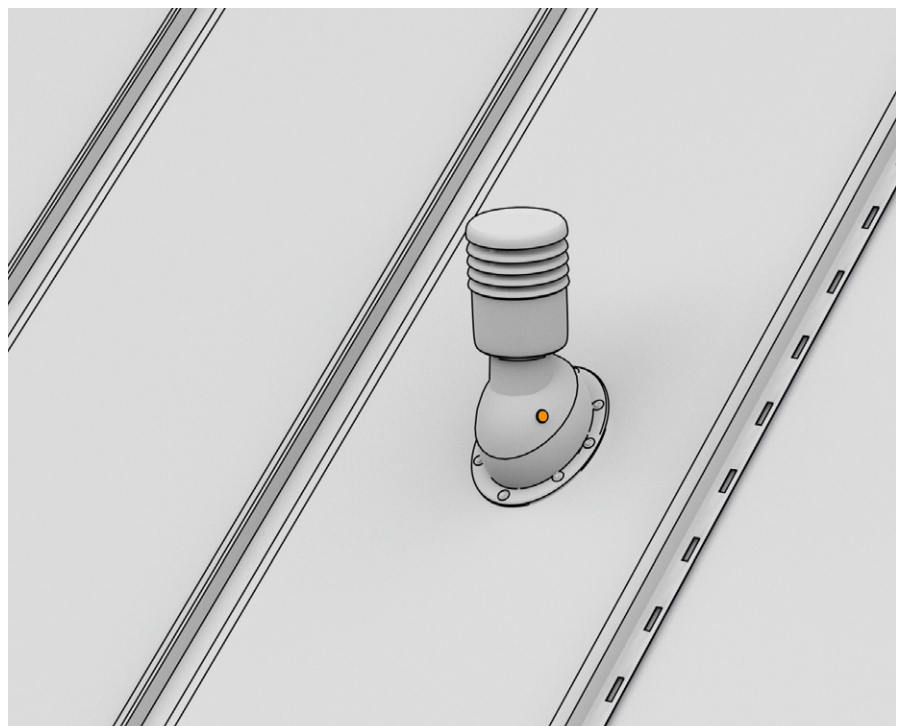


FIG.35 VENTILATION CHIMNEY INSTALLATION



18. Wall flashing installation

In this manual, we present one of the possible solutions.

The first step is to prepare and attach the grips to the roof that will be used to fix the edge panel. Such grips can be prepared from strips of steel sheet bent at right angles.

In the discussed solution, the wall flashing is the bending of the edge panel against the wall. This bending must be min. 200 mm; therefore, the section of the grip adjacent to the wall should be sufficiently longer than the bend of the edge of the panel to enable the connection to be made.

The flashing made of the edge panel should be at least 200 mm high. Moreover, its upper edge should be folded up, which will allow a secure connection with the previously prepared grips without the need for additional fastenings.

FIG.36 CUTTING THE PANEL TO THE WALL

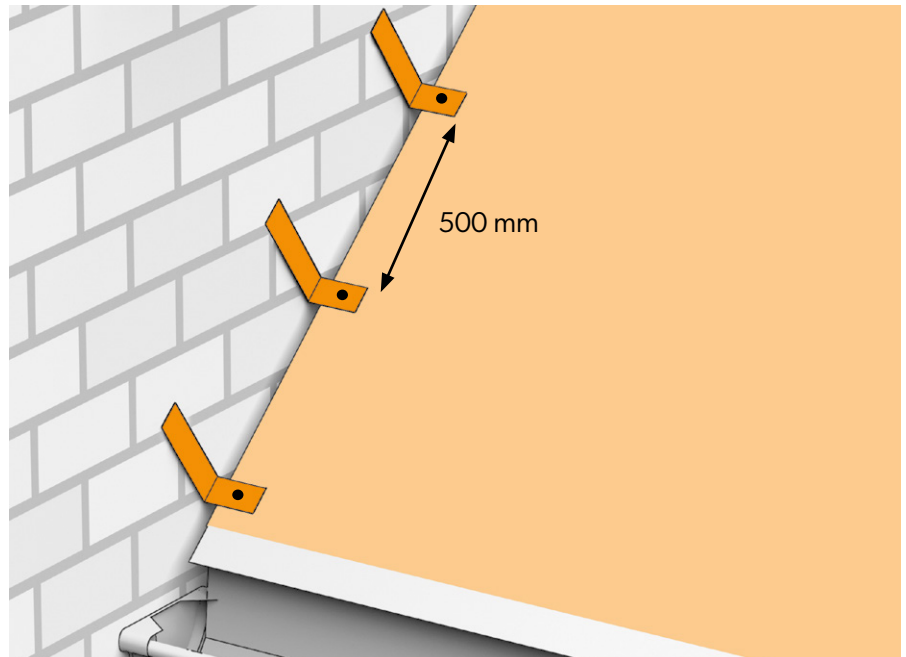
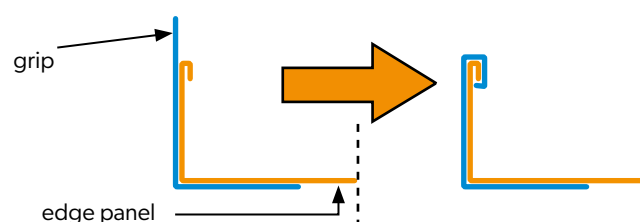


FIG.37 WALL FLASHING ASSEMBLY



The joint with the wall should be protected with an expansion strip and, if necessary, additionally sealed with roofing sealant.

The expansion strip must be attached to the wall.

FIG.38 EXPANSION STRIP INSTALLATION



19. Roof window installation

Before starting the work, remember to carefully measure the area the place where the window is to be mounted, so that the arrangement starts with panels of the appropriate width. It is important because we must remember that due to the specificity of this product and ensuring the highest possible tightness of the flashing, it is best to use a welt made of roof panels and flat steel sheet.

After determining the window installation location, cut the hole in the roof structure. For this purpose, outline the window frame, bearing in mind the structure and shape of the frame holders, so that after cutting an opening in the boarding, assembly to the structure is possible.

The next step is to protect against the effects of condensate. For this purpose, we use system flashings recommended by window manufacturers or we use a roofing membrane.

After securing the window with the roof membrane, proceed with the installation of the panels under the window.

Finishing the window from below can be done in two ways:

1. by making a window sill flashing, where the base of the flashing is a ventilation strip, 2. with the use of a custom-made starting flashing. This manual presents the second method as more universal.

Cut the panels to the size so that there is a space of about 10-15mm between the window and their edge after fastening them on the initial flashing of the eaves.

FIG.39 INSTALLATION AREA OF THE ROOF WINDOW

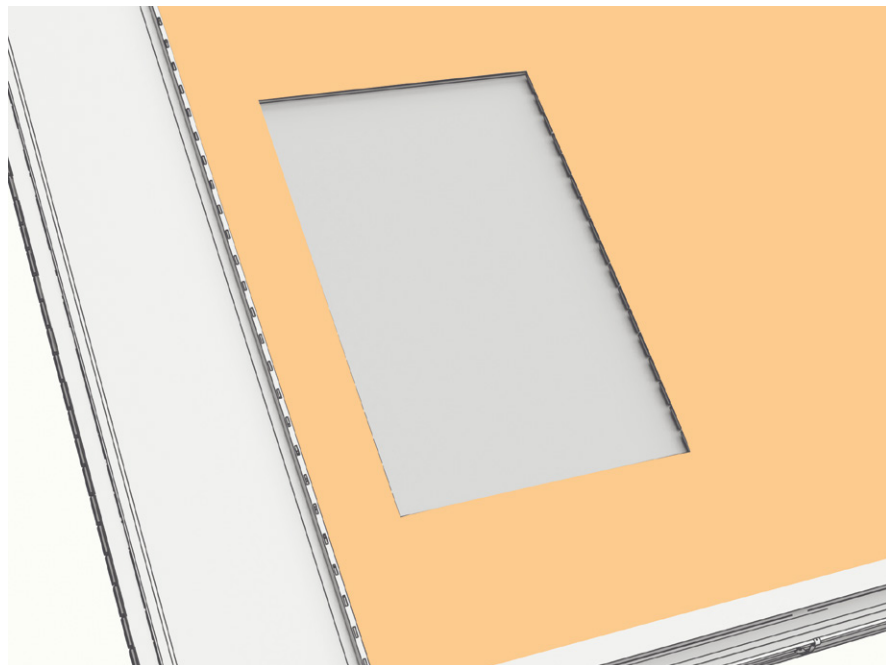
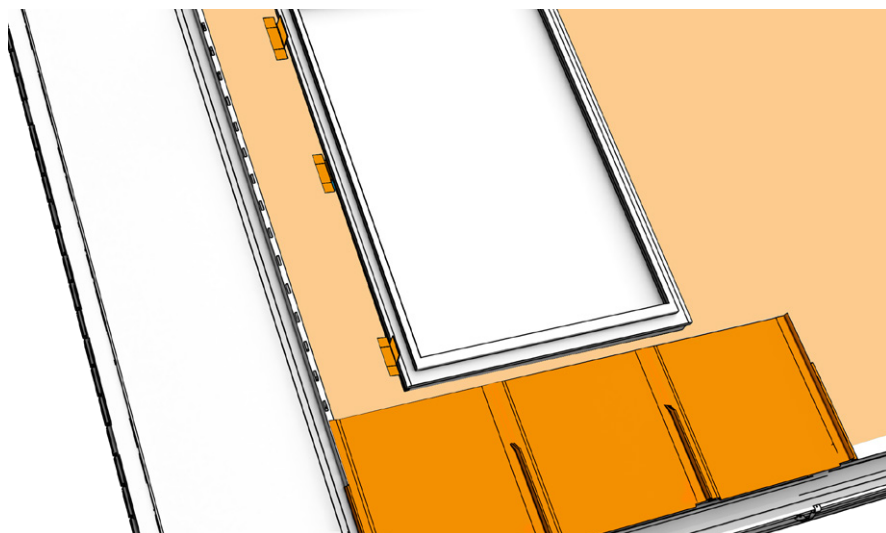


FIG.40 INSTALLATION OF PANELS UNDER THE WINDOW AND TAPPING OF THE SEAMS



The next step is to prepare the seams for the transverse connection of the panels. For this purpose, cut the outer parts of the seams on both sides of the window to the length of the overlap to enable the execution of longitudinal joining with the subsequent roof panels.

On the other hand, the seams falling directly under the window should be tapped flat to allow the installation of a custom-made starting flashing.

It should be remembered that the seams are always seamed down.

FIG.41 INSTALLATION OF A CUSTOM-MADE STARTING FLASHING

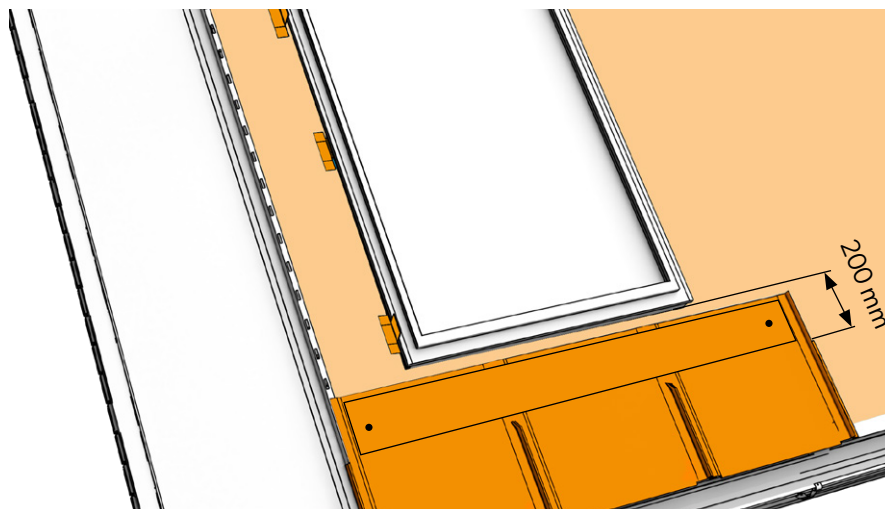
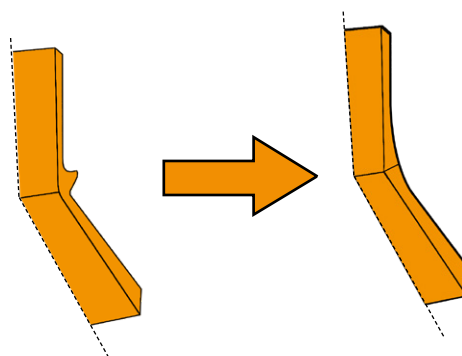
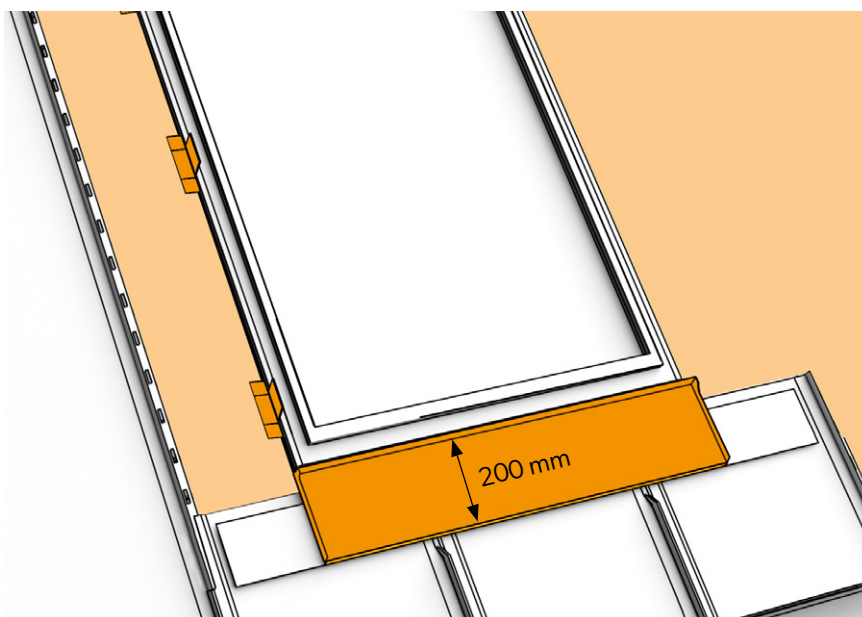


FIG.42 SILL FLASHING ASSEMBLY

Measure approx. 200 mm for the lower flashing and install the starting flashing. This strip will also serve as a start for the side flashing panels.

Measure the bottom flashing of the window, mark it, roll the side edges with a folding device, creating a transition from the roof plane to the vertical plane of the window frame. Clamp the fold and profile the edges into an arc. This will allow us to have an aesthetic and tight connection with side flashings.

Fasten the flashing with the previously installed starting flashing.



Make side flashings of the window from **LAMBDA 2.0** panels, cutting and bending them to the side surface of the window and to top and bottom flashings. Also, remember to cut out the outer parts of the locks on the upper part of the flashings in order to connect them later in length with the next panels above the window.

In the next step, join the side flashing with the bottom flashing using welt. Finally, install factory window flashings.

FIG.43 ASSEMBLY OF THE WINDOW SIDE FLASHINGS

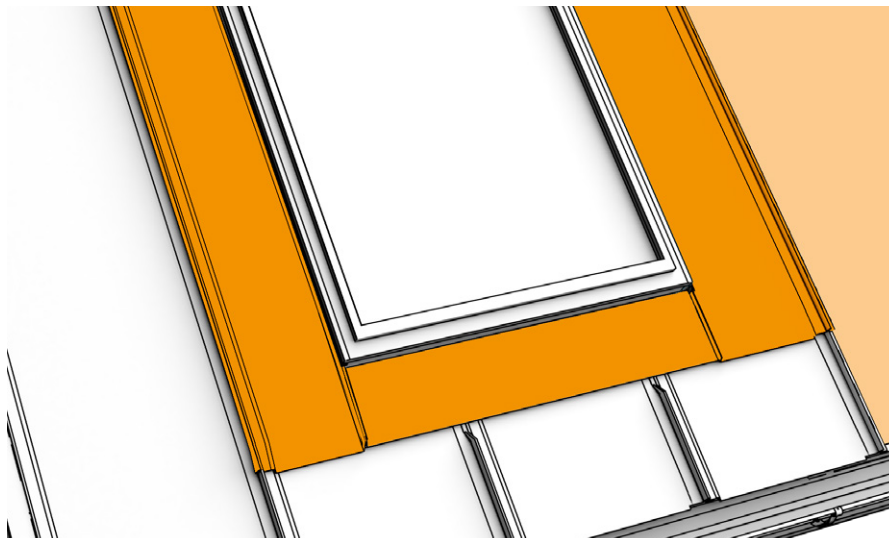


FIG.44 PREPARATION FOR MOUNTING THE UPPER WINDOW FLASHING

The upper part of the side flashing should be cut into an arc and a welt element should be made - the edge bent outwards about 10 mm, which will be used to slide the upper window flashing over. The upper flashing will be stamped on the side flashing prepared in this way.

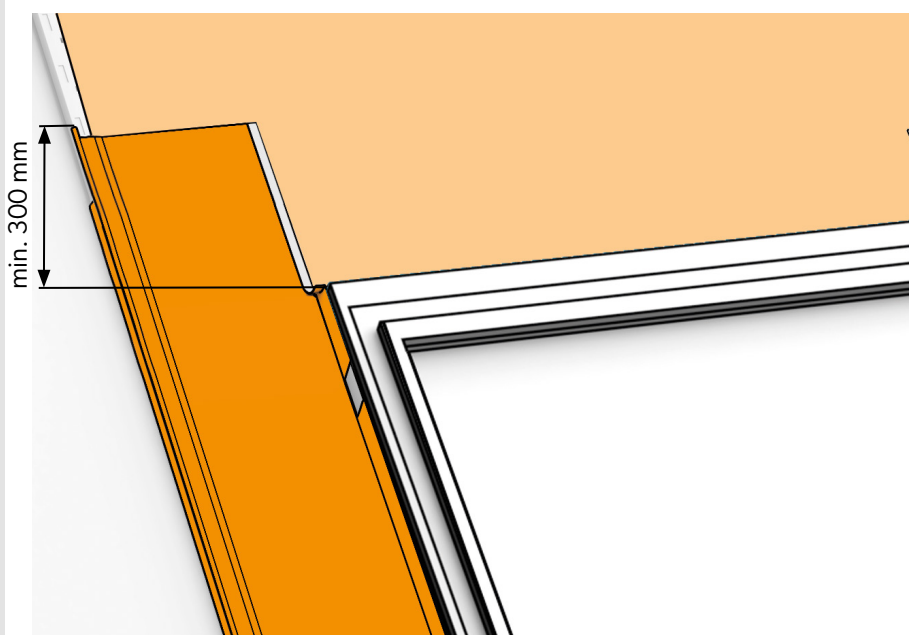


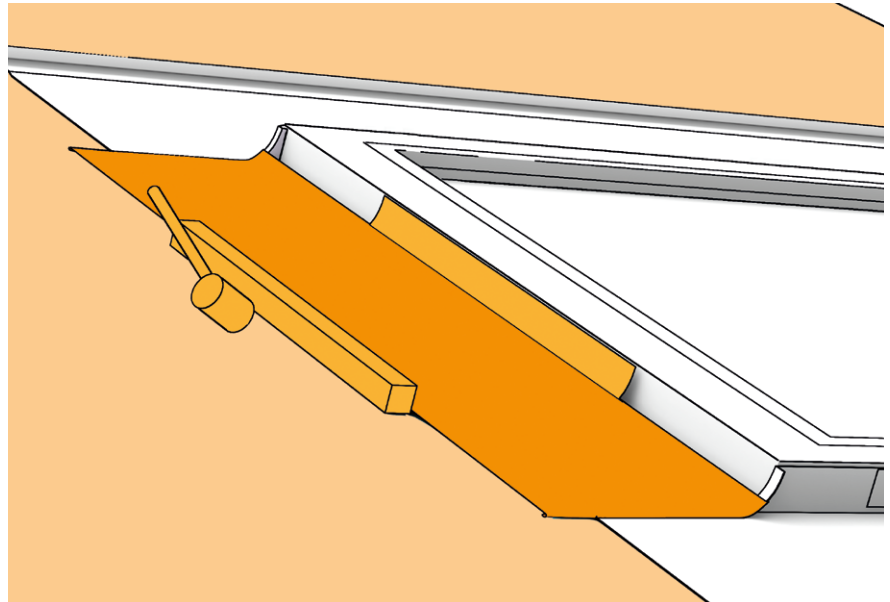
FIG.45 WINDOW FLASHING ASSEMBLY

The metal sheet for the upper flashing of the window should be bent approx. 10 mm at the side edges, leaving approx. 2 mm for its stamping.

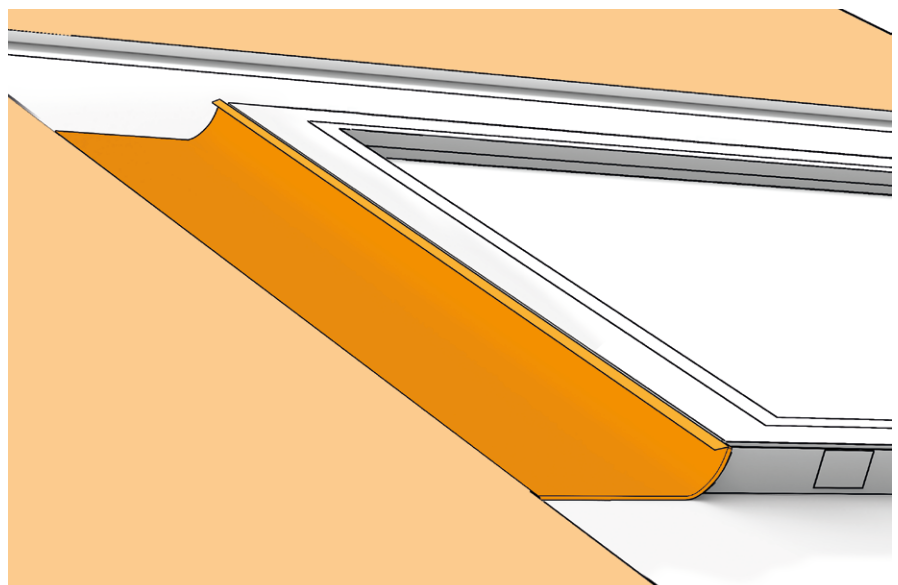
Then, use a batten to nail the back flashing to the height of the side flashing, remembering to form an approx. 20 mm waterproofing strip on the upper edge.

Placing a smaller sheet and using it as a guide makes it easier to slide the upper flashing.

Cross-section of the upper roof window flashing

**FIG.46 BEND OF THE WATERPROOFING STRIP**

After inserting the upper flashing, bend the waterproofing strip downwards, tap the top of the welt on the window frame, and then install the factory closing flashing.



Install the starting flashing on the side of side flashings and window flashings.

Remember to tap the joints and horizontal welts with a batten.

FIG.47 MOUNTING THE STARTING STRIP ABOVE THE WINDOW

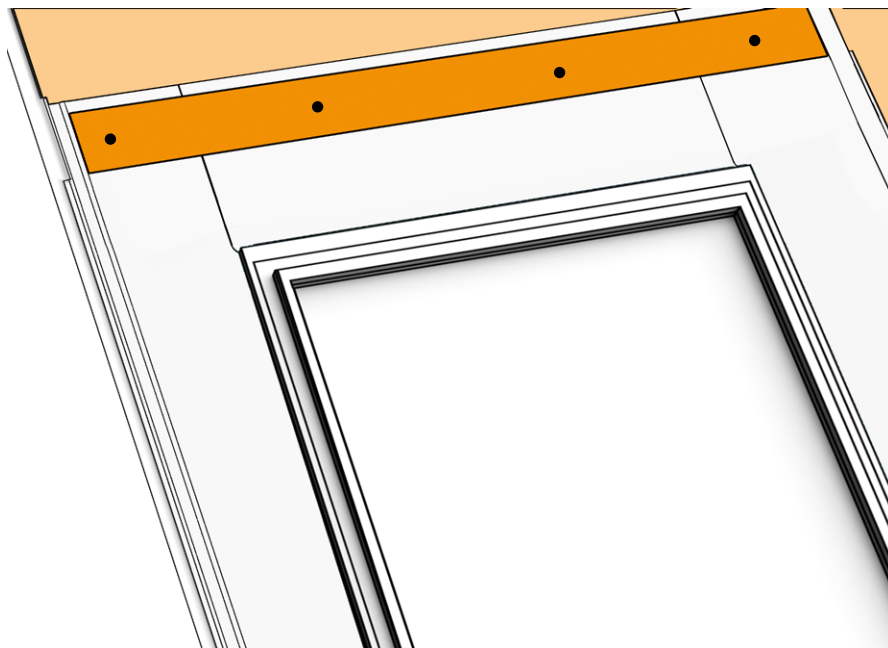
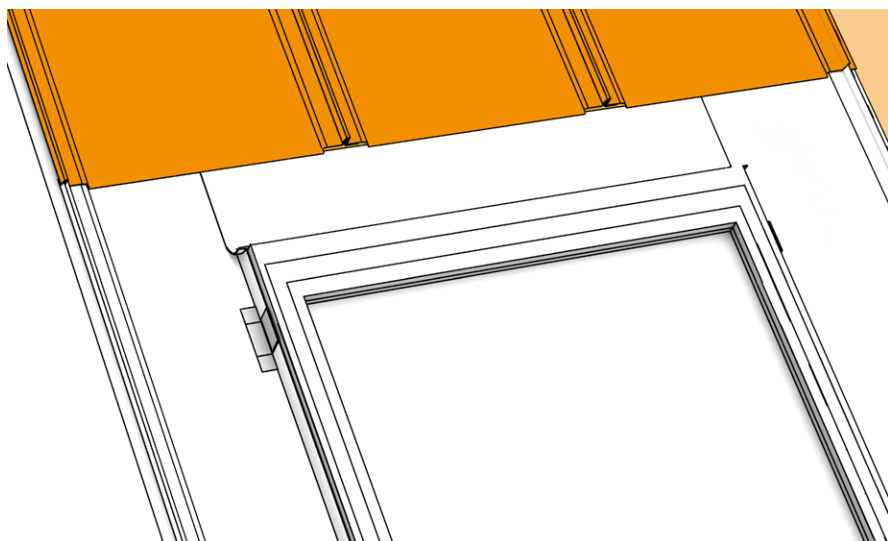


FIG.48 INSTALLATION OF PANELS ABOVE THE WINDOW

Install the panels above the window by hooking the starting flashing and joining the seams with the previously cut panel seams below.



20. Stack flashings installation

If it is possible, when planning the arrangement of **LAMBDA 2.0** panels on the roof slope the stack is located on, it is worth noting that the stack flashings will look most advantageous in terms of aesthetics if the panels are arranged symmetrically in relation to the stack.

The bottom panels should be installed right up to the stack, leaving 10-15 mm of play to allow the sheet to work freely.

As in the case of the roof window flashings, keep in mind to cut the external elements of the seam to the connecting distance.

To connect the panels or fasten the flashing, use the so-called custom-made starting flashing, remembering to seal between the sheets. It is of great importance for capillary rise of rainwater.

The stack flashing should begin with the preparation of the bottom flashing. The first step is to measure and mark the sheet from which the processing will be made. After cutting the steel sheet and tracing the cuts and fractures, make a transition from the roof plane to the stack plane using a folding device.

The panels are installed by connecting them along their length in accordance with the rules described in point. 13.

Connecting panels along the length.

After tightening the fold, the edge radius should be cut to the shape of an arc. It will allow for the seam and aesthetic finishing of the flashing.

When installing the stack flashing, remember to make a two-centimetre waterproofing strip on their upper edge.

FIG.49 INSTALLING A CUSTOM-MADE STARTING FLASHING

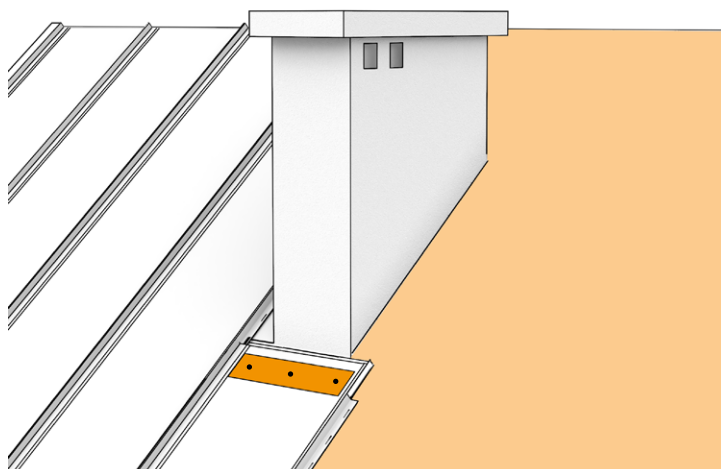


FIG.50 BOTTOM FLASHING OF THE STACK WITH A BENDING INTO A FOLD

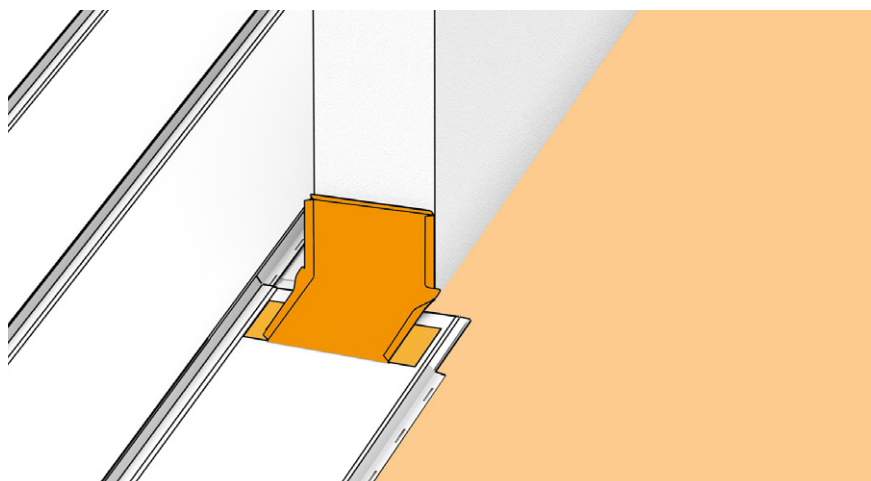


FIG.51 TRANSITION FROM THE STACK PLANE TO THE ROOF PLANE MADE WITH A FOLDING DEVICE

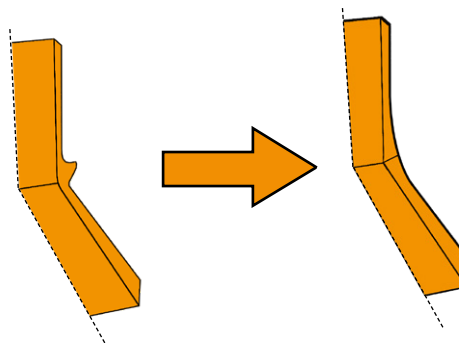


FIG.52 CLAMPING THE FOLD AND CUTTING THE RADIUS IN THE SHAPE OF AN ARC

The external side flashing must be positioned perfectly, otherwise it will not allow the panels to be fastened in a neat and even manner.

Side flashing should be cut approx. 10 mm higher than the lower flashing arc, enabling them to be joined together using a welt. Before starting the welting, the distances of the seam of the steel sheet above the stack should be checked.

After welting, in the upper part of the flashing, tap the seam flat, which will not allow the welt to open.

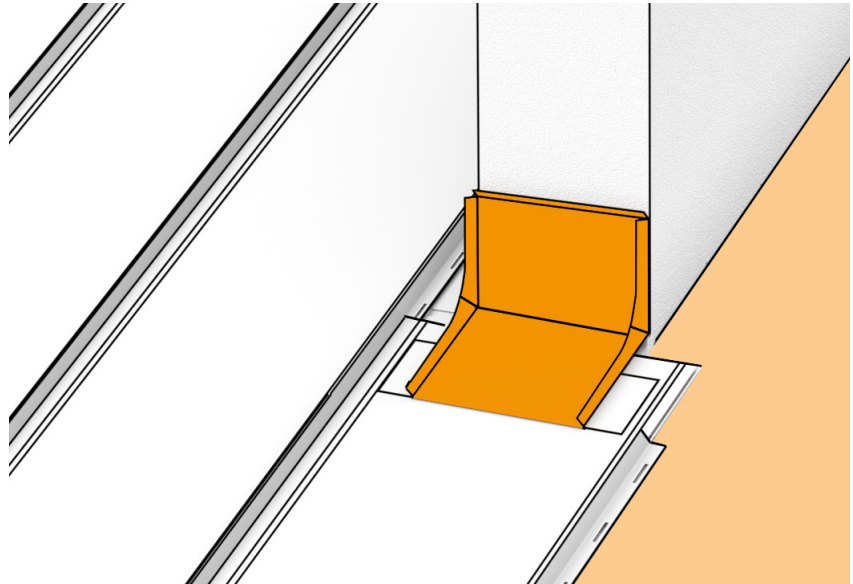


FIG.53 CONNECTING THE FLASHING TO THE REBATE

This operation should be started from the centre of the arc because the sheet will undergo additional stretching at this point.

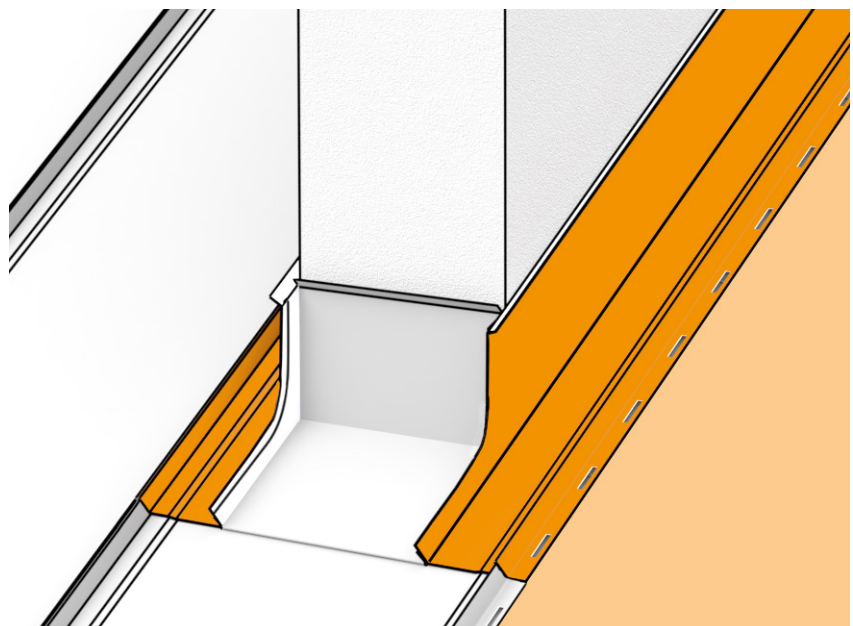
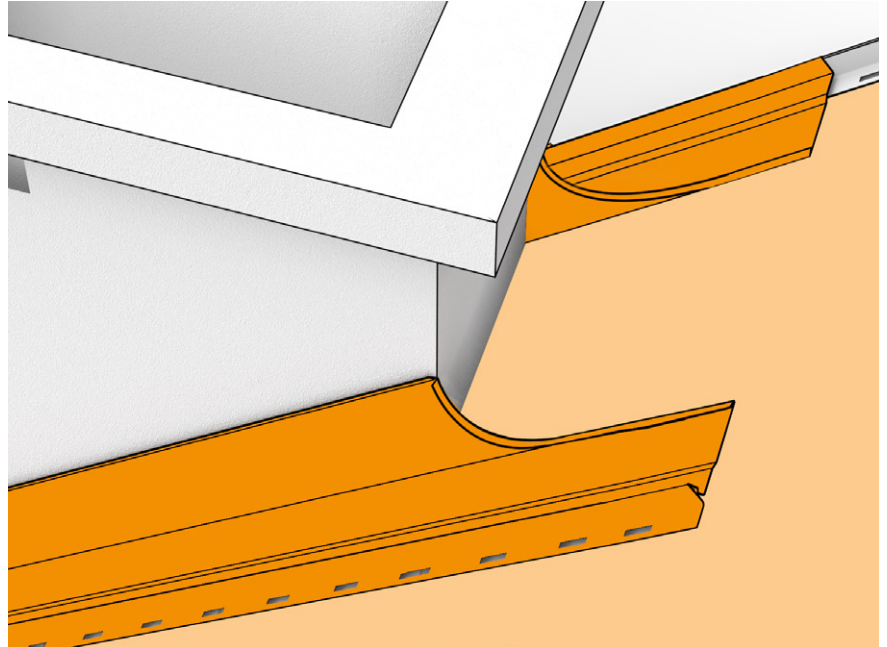


FIG.54 UPPER STACK FLASHING ASSEMBLY

The upper part of the side flashing should be cut into an arc and a welt element should be made - the edge bent outwards about 10 mm, which will be used to slide over the upper flashing of the stack.

**FIG.55 UPPER STACK FLASHING ASSEMBLY**

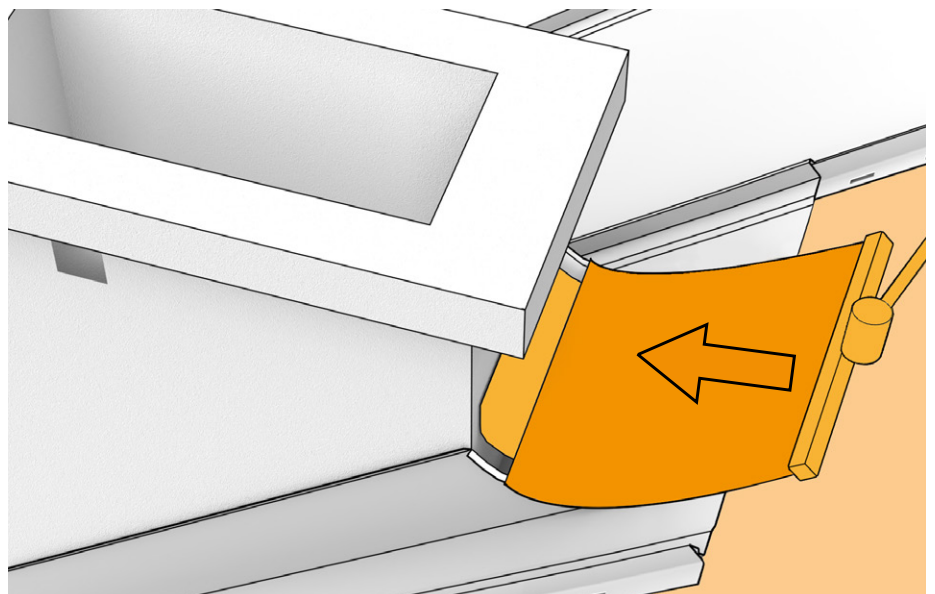
The steel sheet for the top flashing of the stack should be bent approx. 10 mm on the side edges, leaving approx. 2 mm for its tapping.

Then, use a batten to nail the back flashing to the height of the side flashing, remembering to form an approx. 20 mm waterproofing strip on the upper edge.

Placing a smaller sheet and using it as a guide makes it easier to slide the upper flashing.



Top flashing cross-section



After sliding over the upper flashing, fold the waterproofing strip down.

Remember to tap the places of the joints and seams with the batten.

After the upper stack has been processed, install the starting flashing for further assembly of the roof panels.

FIG.56 STARTING FLASHING ASSEMBLY

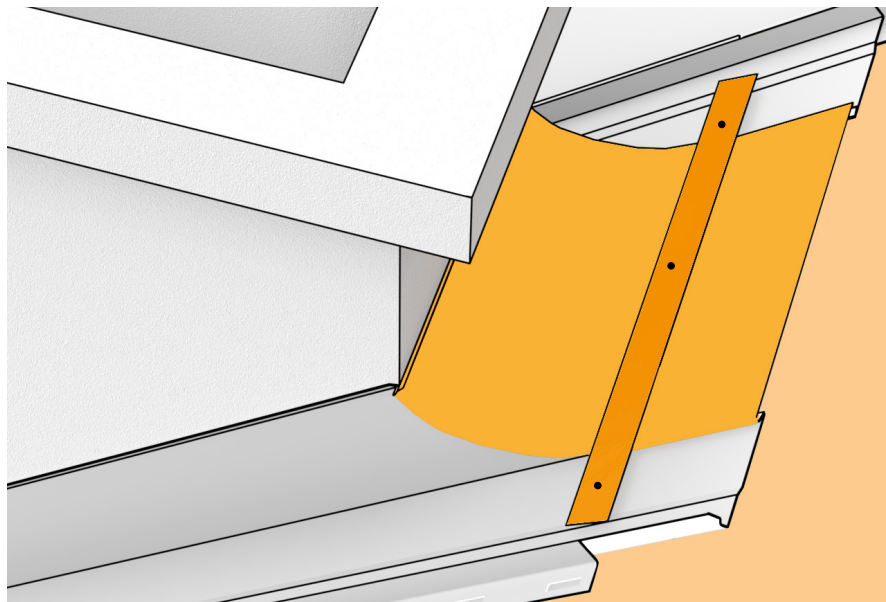
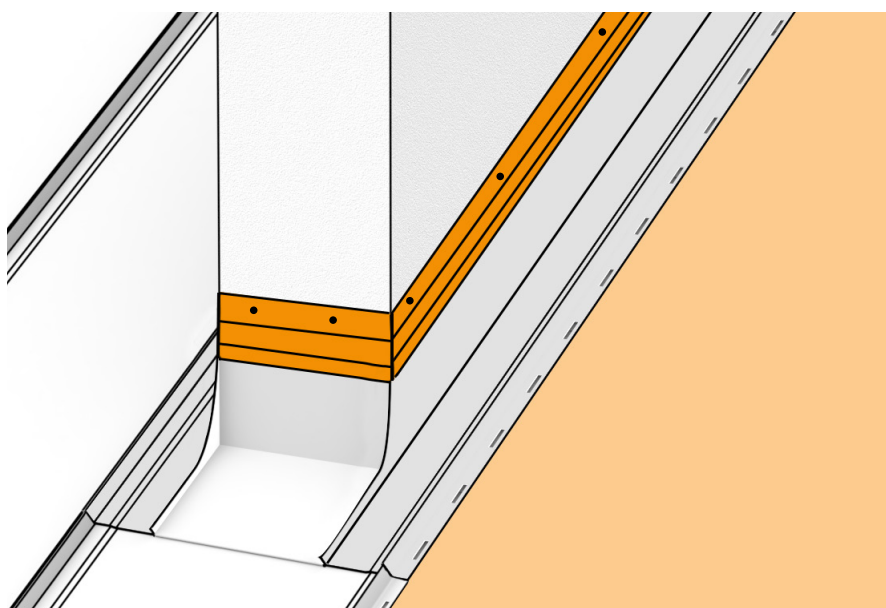


FIG.57 ASSEMBLY AND SEALING OF EXPANSION STRIPS

The last step is to install the expansion strip, which is mechanically attached to the stack wall. The main flashing of the stack must never be mechanically fastened to its wall.



21. The transition of the roof to the façade

We present one of the solutions on dense openwork boarding.

If the **LAMBDA 2.0** panels are also intended to be installed on the building façade, the same substructure should be used for the roof: the recommended substrate is a board or boarding and an expansion mat.

Mount the prepared „J” strip to the prepared substructure at the end of the upper part of the façade.

Then, install the **LAMBDA 2.0** panels by inserting them into the strip, but first fasten the panel to the prepared starting flashing at the bottom. The panels are screwed to the boards with screws. Remember to screw them in the central part of the mounting holes, leaving a little play because the panel will only work downwards. In this case, the panel in its upper part is fixed permanently. You should also remember to leave about 10-15 mm of play on the starting flashing.

FIG.58 PREPARATION OF THE “J” STRIP

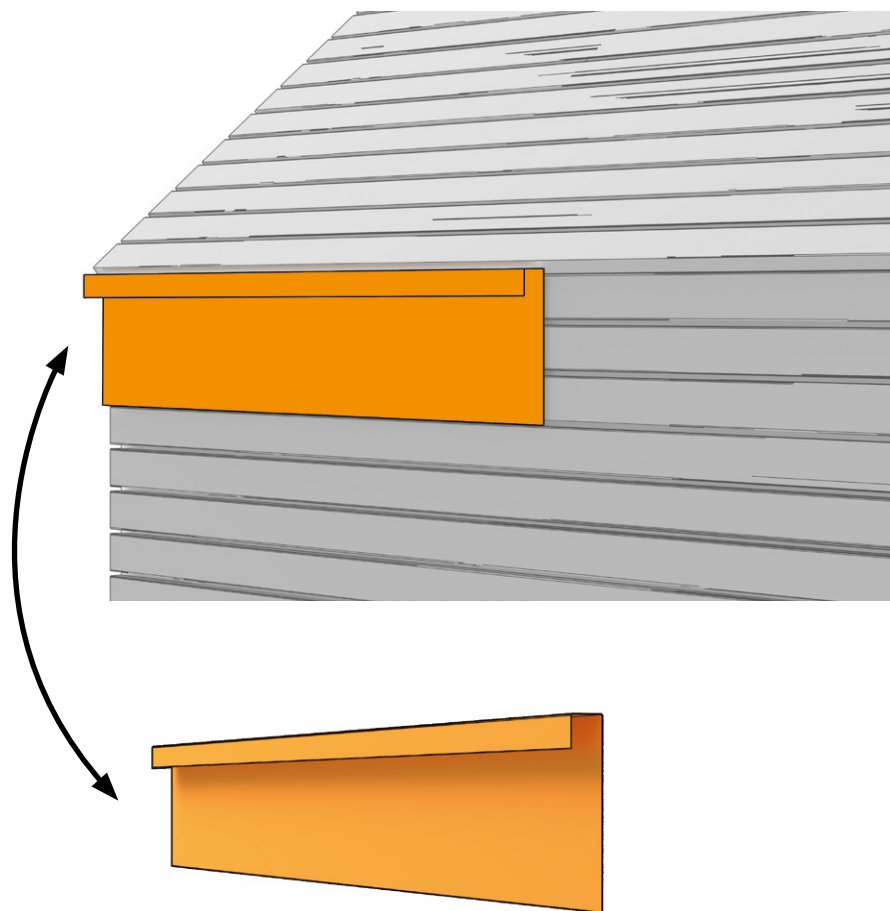
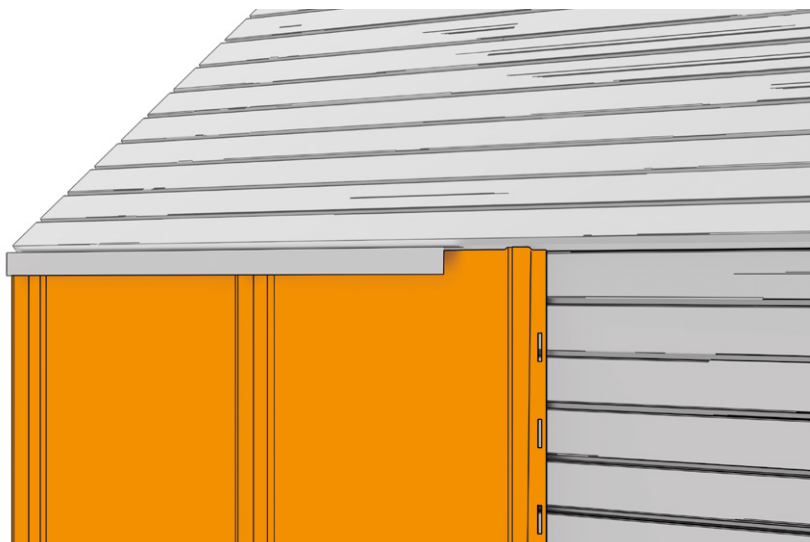


FIG.59 ASSEMBLY OF PANELS TO THE “J” STRIP



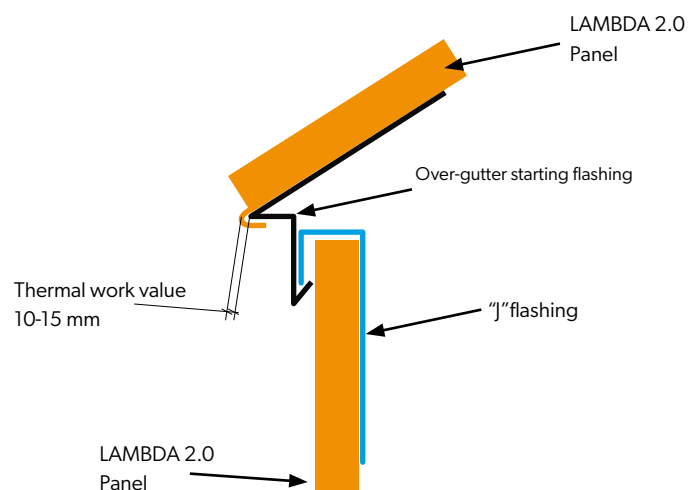
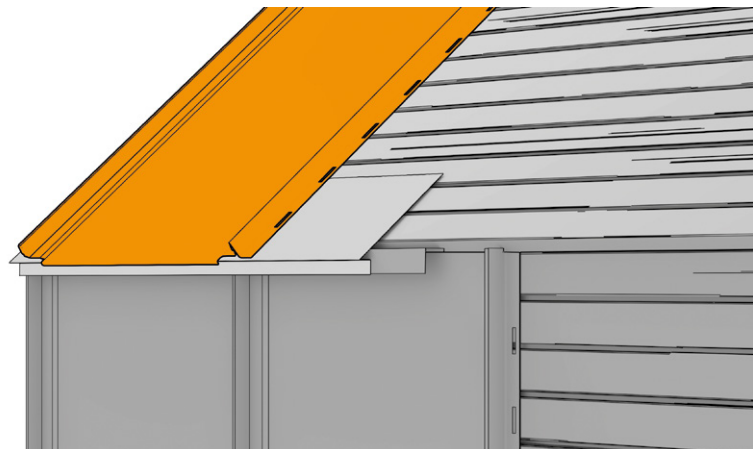
After the panels are installed on the façade, we proceed to the installation of the starting flashing. When attaching it, remember to fix it exactly with the prepared and installed "J" strip.

FIG.60 STARTING FLASHING INSTALLATION



FIG.61 INSTALLATION OF PANELS ON THE ROOF SLOPE

Then, proceed to assemble the panels on the roof slope.

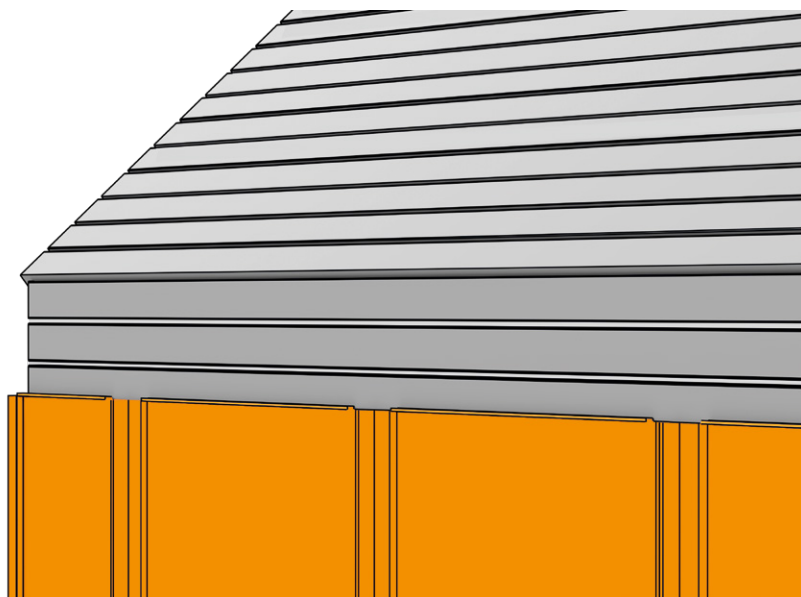


If the rainwater system is to be used, we recommend the solution using a verge trim. The flashing should be custom-made by the roofer.

Similarly to the previous solution, the recommended substrate comprises full boarding or an oriented standard board (OSB) as well as spacer membrane.

We begin to install **LAMBDA 2.0** panels on the elevation (see **Fig. 62**). First, it is necessary to hook the panels to the starting flashing at the very bottom. Keep in mind to leave about 10-15 mm play on the starting flashing.

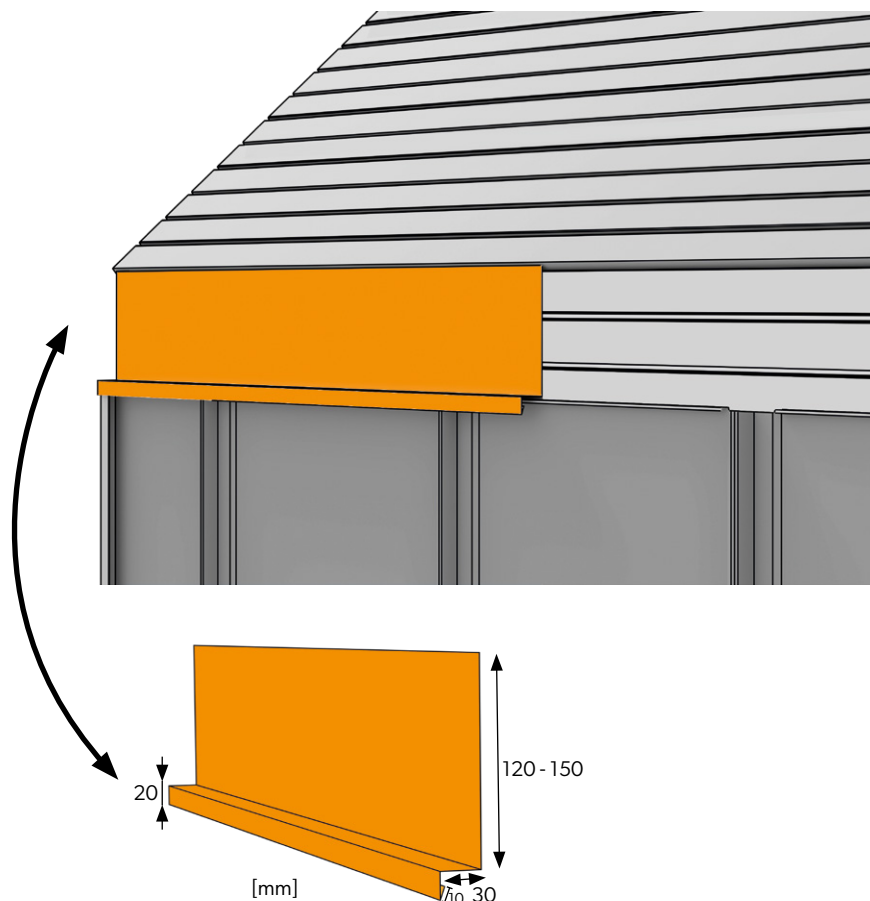
RYS.62 INSTALLATION OF THE PANELS TO THE ELEVATION



Next, use screws to fix the panels to the boarding. Remember to screw the panels in the central part of the mounting holes, thus leaving a little play as the downward movement of the panel might occur. In this case, the top part of the panel is fixed permanently.

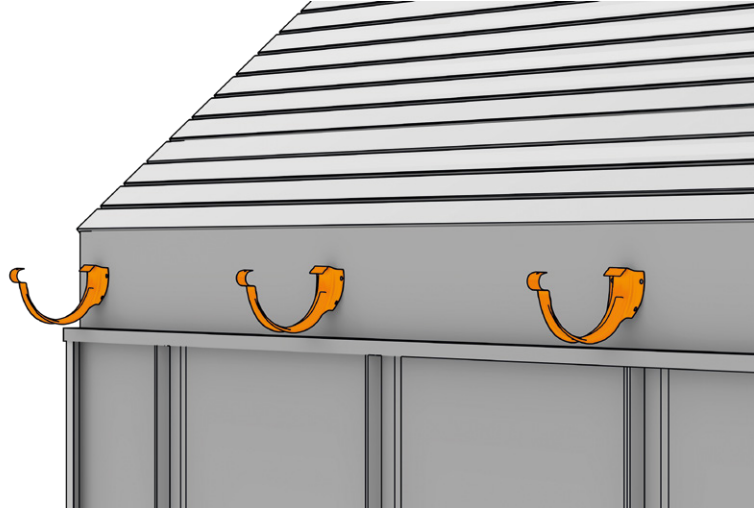
Then, it is required to make a verge trim and install it at the end of the top part of the facade. Recommended dimensions of the flashing are shown in **Fig. 63**.

RYS.63 PREPARATION AND INSTALLATION OF THE VERGE TRIM



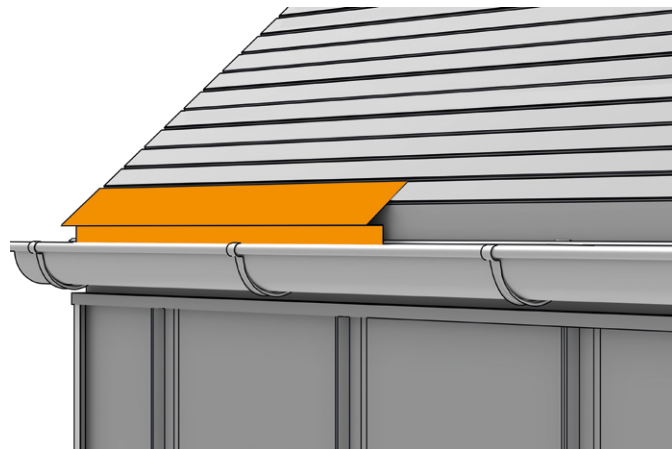
Gutter hooks shall be fixed to the verge trim.

RYS.64 GUTTER HOOKS INSTALLATION



Once you install the panels and verge trim and place the gutter, proceed to assemble the drip edge/starting gutter flashing.

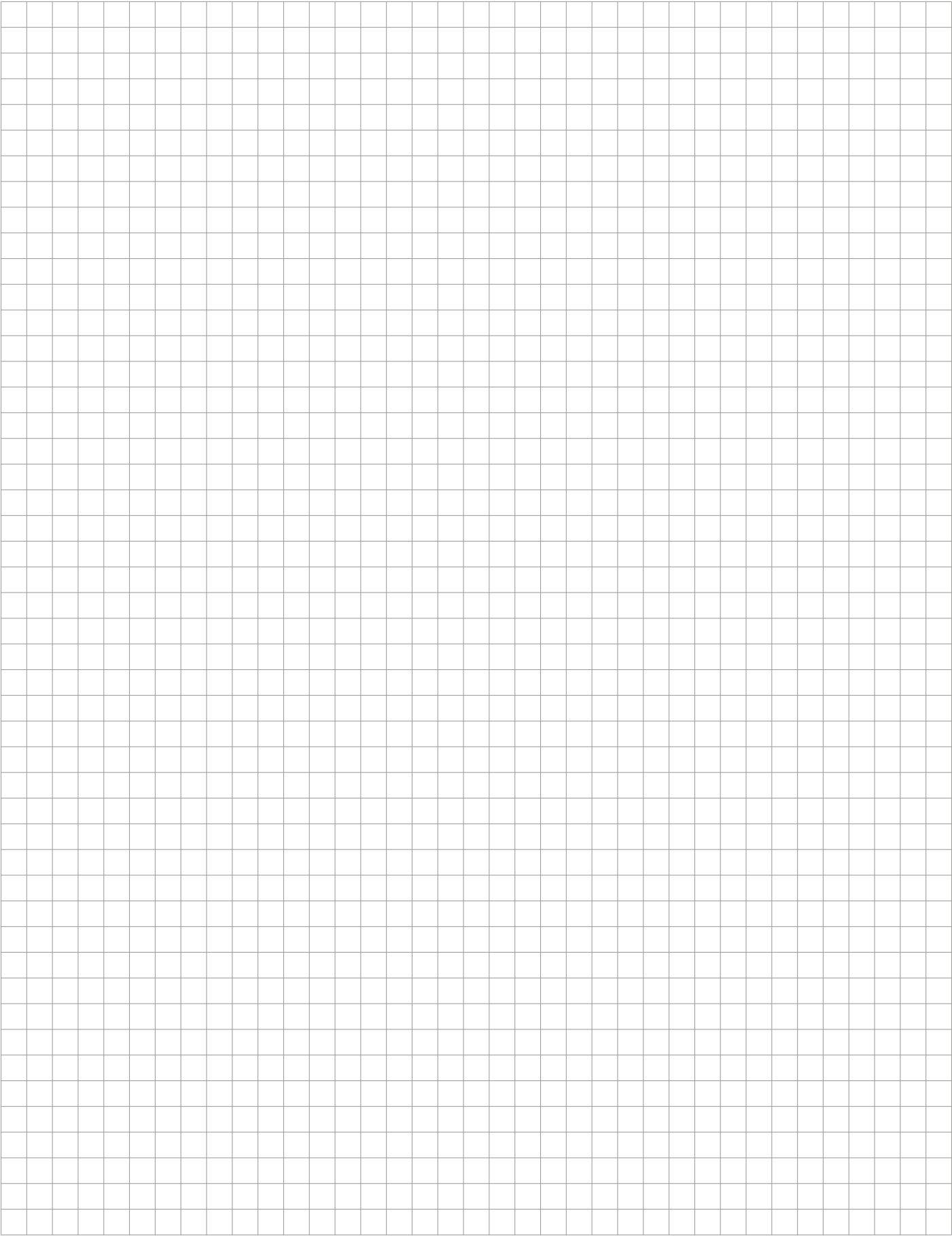
RYS.65 STARTING PROFILE INSTALLATION



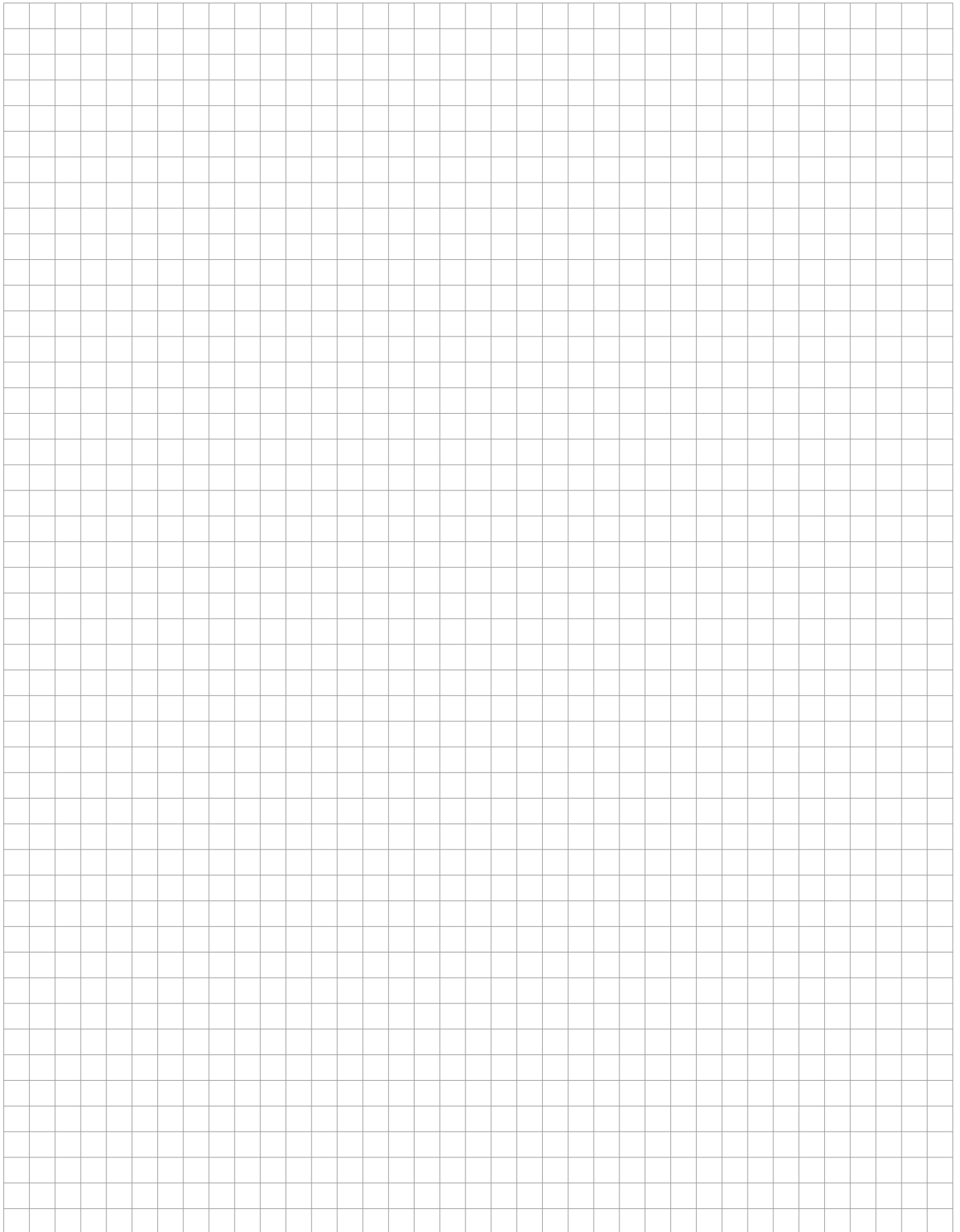
RYS.66 INSTALLATION OF THE PANELS ON THE ROOF SURFACE

Next, install the panel on the roof surface. When hooking them to the drip edge/starting gutter flashing, leave a 10-15mm play.





Notes





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