

Roof Panels Installation Manual



IRON Click PRIME Click

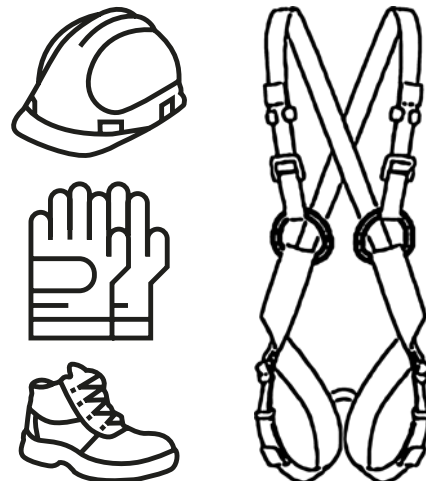
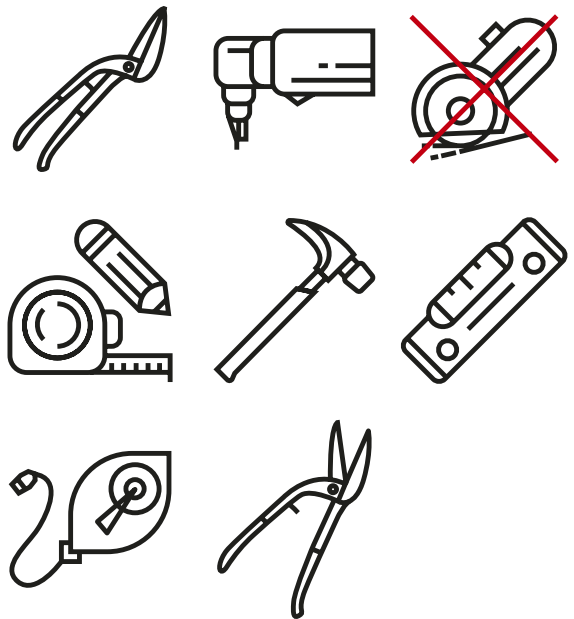
The use of standing seam panels should be in accordance with the technical design of the building, the applicable technical standards and building regulations and the recommendations included in assembly instruction.

The products mentioned are approved for use in construction industry in accordance with the provisions of PN-EN 14782:2008

Follow all applicable health and safety regulations.
Always wear protective clothing and gloves when working.
Avoid contact with sharp sheet edges,
corners of sheets and flashings.
Take maximum care when moving around and working on the roof.
Use a safety rope and soft-soled shoes during installation.

General rules of handling sheet metal

- To cut a metal sheet the hand shears for metal, electric metal shears or nibblers should be used. It is forbidden to cut metal sheet with an angle grinder as it heats up the metal sheet and as a result damages the zinc layer and coating. Metal swarf (also known as shavings or turnings) and chipping arised during such cutting result in enhanced and faster corrosion processes taking place on the cut piece and other parts around it.
- After each cutting and drilling operation on metal sheet the residues such as swarf and sheet offcuts must be removed. If left, they will cause corrosion at the contact points with with the sheet metal.
- Dirt generated during installation work should be removed on an ongoing basis.
- Use soft footwear when walking on the roof that does not cause the damage to the decorative finish of a sheet. When walking, place your feet in the lowest placed points of sheets that are supported by a batten from underneath to avoid any bends of material.
- Use protective gloves.
- If the paint surface is damaged, the damage must be repainted, using a spot repair paint matching the original colour of metal sheet.
- Always follow the guidelines of health and safety regulations when carrying out works.
- The material-compatible sealants and tapes should be used.
- The screws must be screwed in using a drill equipped with adjustable torque/clutch power. Otherwise the wood structure may be damaged, the clamping force of the screw may be weakened and the mounting cups may be deformed. Such deformation of mounting cups will cause the locking of panel thermal movement caused by thermal expansion of the steel.



TRANSPORT AND UNLOADING

- The panels should be transported in their original packaging (Fig. 1).
- A vehicle carrying metal sheets should be adapted to such procedures and allow free loading, unloading and adequate transport safety.
- Before unloading, check whether the delivery specification matches the delivered goods. The delivered goods should be carefully checked and in the event of visible damage or shortages, they should be described in detail in the protocol or packing list and confirmed with the carrier's signature.
- Unloading of panels using a crane or forklift can only be carried out with originally-packed pallet.
- It is recommended to use lifting slings when unloading with crane or when using a forklift - appropriately secured and spread out forks.
- When unloading with crane, the packages should be lifted by use of reusable slings of appropriate lifting capacity.
- The slings must not squeeze or touch the panels. For this purpose, you can use a traverse beam and wooden sleepers.
- During manual unloading, the appropriate number of people should be involved, depending on the length of the sheets. The panel should be gripped at least every 2 metres. (Fig. 2)
- Avoid sliding the sheets against each other and on the ground.
- The panels should be carried in a vertical position, relatively to the short edge of the panel (Fig. 3).

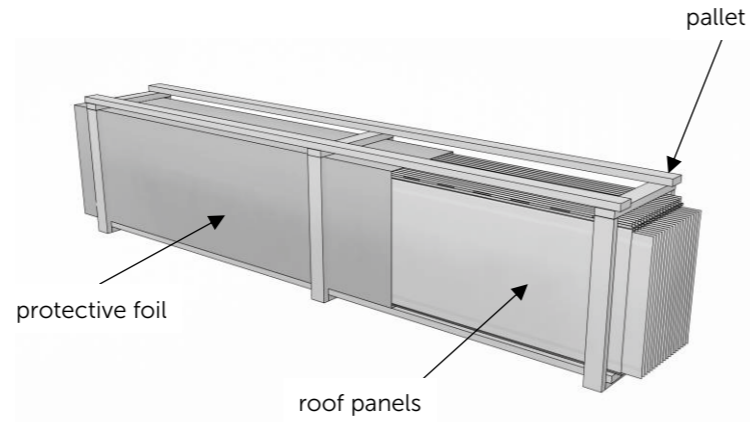


Fig. 1

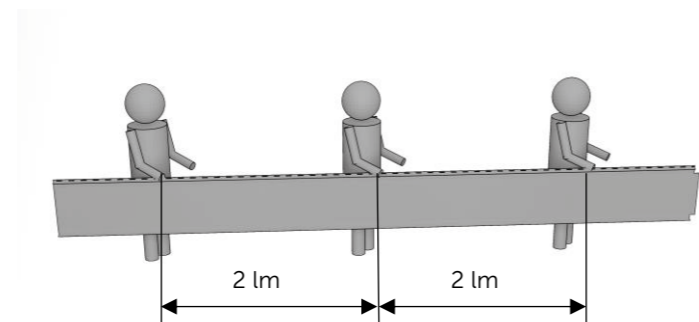
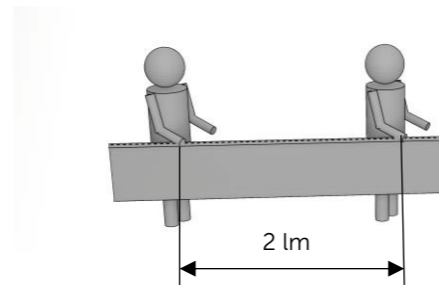


Fig. 2

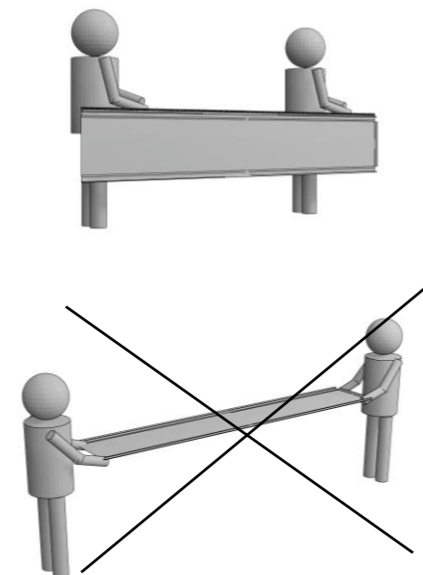


Fig. 3

ROOF PANELS STORAGE

- The panels should be stored on a pallet provided by the manufacturer.
- If storage on the manufacturer's pallet is not possible, the panels should be stacked:
 - on a flat platform (Fig. 4) placed on sleepers with a minimum height of 20 cm (Fig. 5),
 - the panels should be laid in pairs with standing seams facing each other and in a vertical position relatively to the the shorter edge (Fig. 6).
- When storing the panels for a short period of time - up to 2 weeks before installation, they need to be covered and secured from precipitation and provided adequate air circulation. It is also vital to check the state of moisture.
- If sheets are stored for more than 2 weeks, the foil packaging should be removed and free air circulation between the sheets ensured by using spacers.
- Stored sheets must not be stored directly on the ground.
- Sheets and other products should be stored under a roof in dry and airy rooms.
- Sheets must not be stored in rooms with high humidity and temperature variations, as this can cause condensation which may cause damage to the decorative coating, reverse side of sheet and corrosion on the cut edges.
- If sheets become wet, immediately separate and dry them out.
- The maximum storage time for sheets should not be longer than 3 months from the date of manufacture.
- It is not recommended to expose products with a protective film to direct sunlight and moisture, as they may become damaged. The protective film must be removed at the latest shortly before installation or within no later than 2 weeks after manufacture.

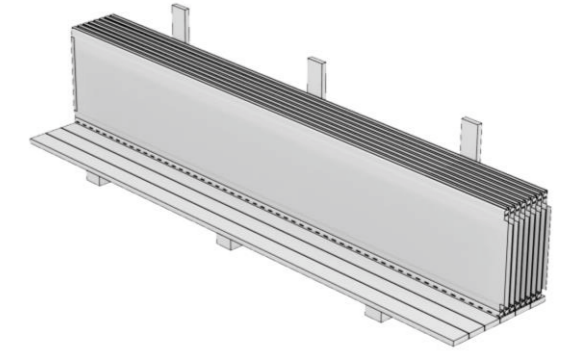


Fig. 4

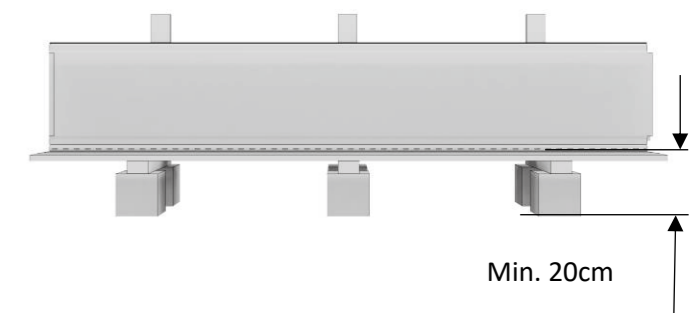


Fig. 5

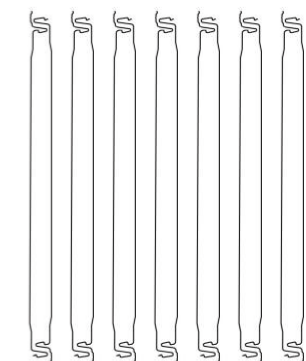


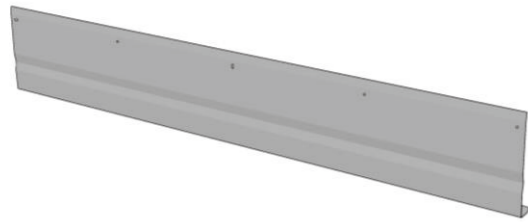
Fig. 6

MOD SYSTEM OF MODULAR FLASHINGS

The flashings shown are offered in sheet metal of the same grade, colour and coating type as the standing seam panels.

The flashings can also be made from flat sheets.

Detailed installation instructions for all the flashings shown can be found on our websites www.budmat.com/en or www.systemmod.eu/en/videos/ and on our Youtube channel - www.youtube.com/@BudmatModularRoofs

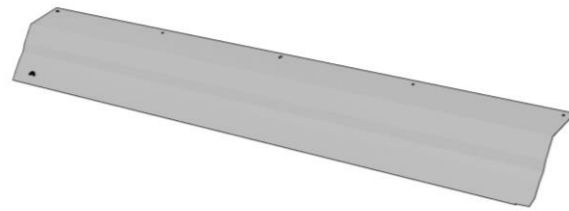


Eaves trim PP150, PP180, PP220

Length: 1200 mm

Height: 150 mm, 180 mm, 220 mm

Sheet thickness: 0,5 mm

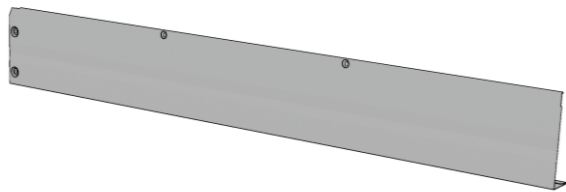


Eaves flashing PN80, PN120

Length: 1200 mm

Height: 80 mm, 120 mm

Sheet thickness: 0,5 mm

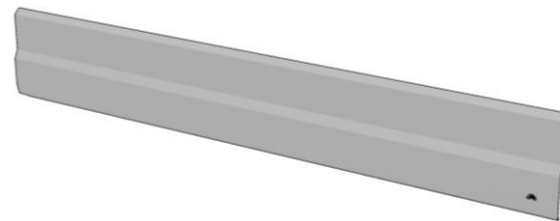


Lower barge flashing WD150 L/P, WD180 L/P

Length: 1200 mm

Height: 150 mm, 180 mm

Sheet thickness: 0,5 mm



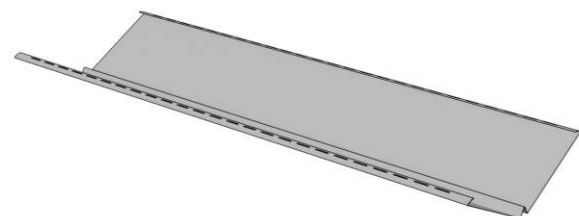
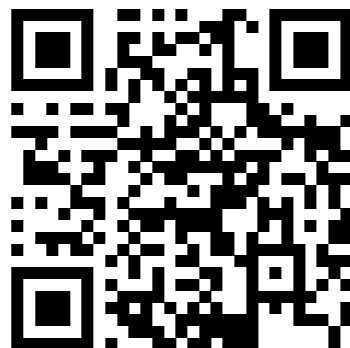
Wall flashing OP190 L/P

Length: 1200 mm

Height: 190 mm

Sheet thickness: 0,5 mm

NOTE: Scan the QR code and you will be redirected to the video installation manual.



Valley gutter RKS25

Length: 1200 mm

Sheet thickness: 0,5 mm

SUBSTRUCTURE - FULL DECKING/BOARDING

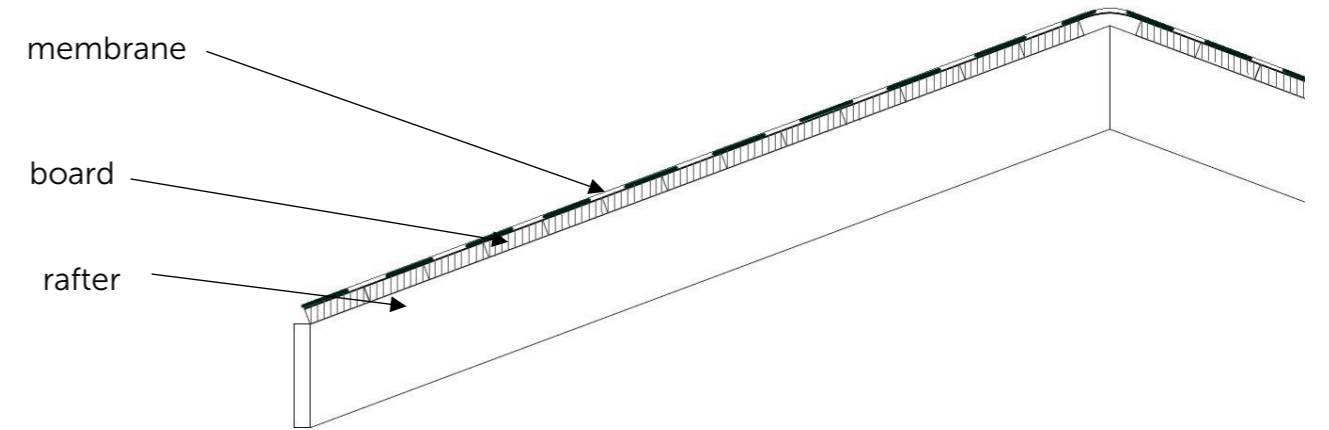


Fig. 7

- Full boarding is the recommended substrate for standing seam panels' installation.
- The timber used for the substructure should be dried and seasoned. The moisture content of the boards should not be bigger than 21%.
- Suitably impregnated timber of minimum class II, should be used.
- The boarding should be made with planed and chamfered boards.
- Each board should be nailed with two nails to each rafter it is in contact with.
- Recommended board width is 10cm.
- Maximum board width should be 15cm.
- For boarding the tongue and groove jointed boards are recommended. Gaps between the boards should not exceed 2mm.
- MPF or OSB boards can be used instead of boards.
- In the case of fully-boarded roof, the membrane should be replaced by a structural mat. Such mat provides the ventilation gap between the panels and the boards.
- The evenness of the boarding surface should be such that the gap between the boarding surface and a 3m-long control batten is no more than 5mm perpendicularly to the gradient, and not more than 10 mm parallelly to the gradient.
- The diagonals of the rectangular slopes should be equal.
- The inclination of the slope planes should be minimum 8°.

SUBSTRUCTURE - TRUSS OF COUNTER-BATTENS AND BATTENS/BOARDS

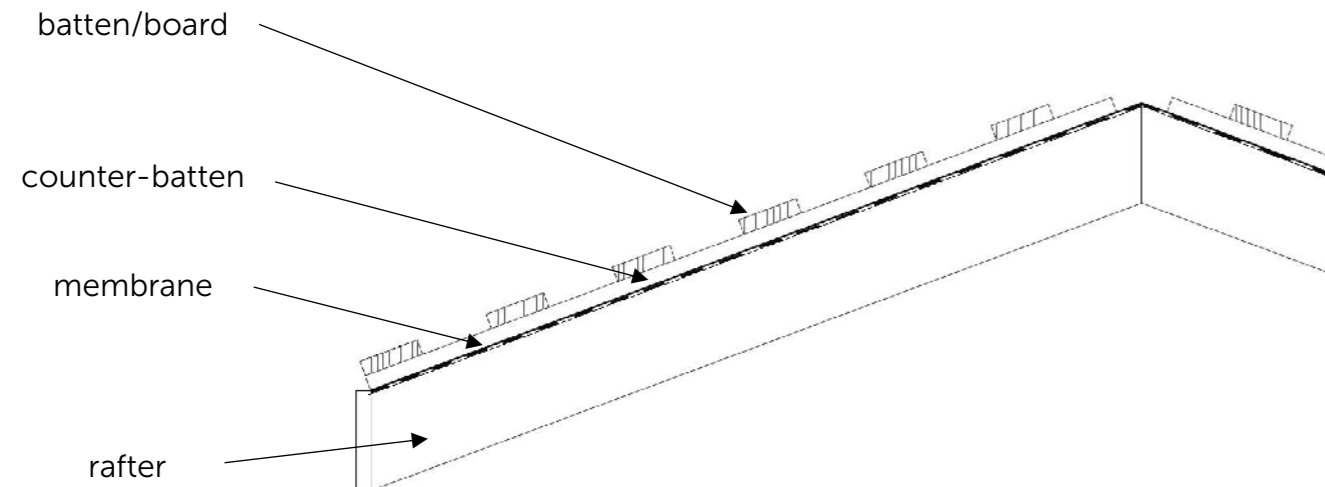


Fig. 8

- The panels can also be mounted on a truss of counter-battens and battens/boards.
- The recommended dimensions of the counter-battens are 25mm x 40mm.
- The recommended dimensions of the battens are 40mm x 50mm.
- The recommended dimensions of the boards are 25x100 mm.
- Maximum width of board is 15cm.
- Each board should be nailed with two nails to each counter-batten which it is in contact with.
- The timber used for the substructure should be dried and seasoned. The moisture content of the boards should not be bigger than 21%.
- Suitably impregnated timber of minimum class II, should be used.
- The maximum centre-to-centre spacing of the battens/boards should be 25 cm.
- During the installation of battens or boards it is important to pay special attention to the leveling of the slope's plane. The gap between the plane of battens/boards and a 3m-long control batten should not be more than 5mm perpendicularly to the gradient, and not more than 10 mm parallelly to the gradient.
- Where a truss substructure is made with counter-battens and battens/boards, a roofing membrane must be used.
- Minimum roof pitch should be 8° (14%).

NOTE: The substructure must be built according to the rules of the roofing craftsmanship/trade. Any mistakes or inaccuracies in the construction of the substructure may affect the aesthetics of the roof and the correctness of the installation.

EAVES

Preparation of the eaves for the installation of panels on a truss of counter-battens and battens/boards (Fig. 9)

- Install PN 120 Eaves Flashing on rafters.
- Apply the foil to the eaves flashing and stick it. If the foil is not provided with an adhesive strip, use an adhesive tape of appropriate parameters.
- Install counter-battens - they should coincide/align with the rafters.
- Install battens.
- Apply starting strip

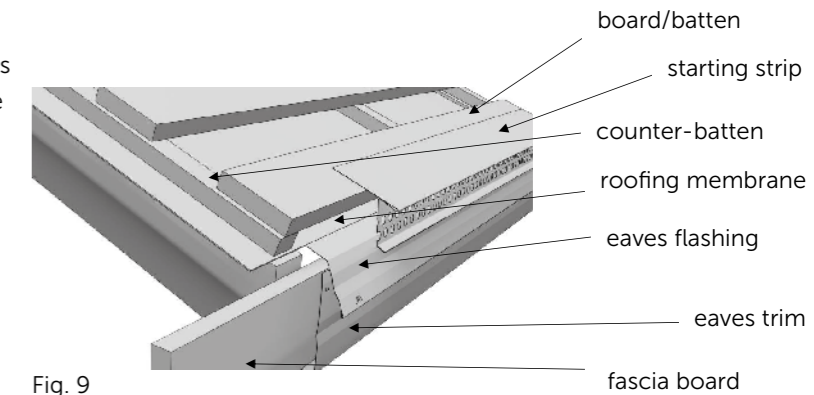


Fig. 9

Preparation of the eaves for the installation of panels on fully-decked/boarded roof (Fig. 10)

- Place boards of minimum size 25x100mm on rafters.
- On the first board from eaves side install eaves flashing, in this case it is starting strip.
- Apply structural mat - in order to provide appropriate ventilation, instead of roofing membrane a structural mat should be used. Such mat ensures a gap between panels and boards.
- The edge part of structural mat should be glued/stuck to eaves flashing.

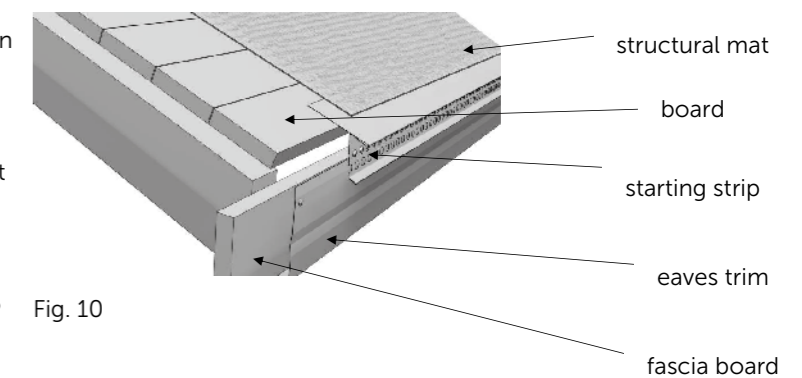


Fig. 10

BARGE

BARGE

Fixing the edge sheets

- Install the barge board.
- Mount the installation strip using 4.8x35 screws (Fig. 13a).

- Install the next strip in the way it comes into contact with the one already installed (Fig. 13b).

- Mount the previously prepared edge panel.
- Bend the installation strip plates (Fig. 13c).

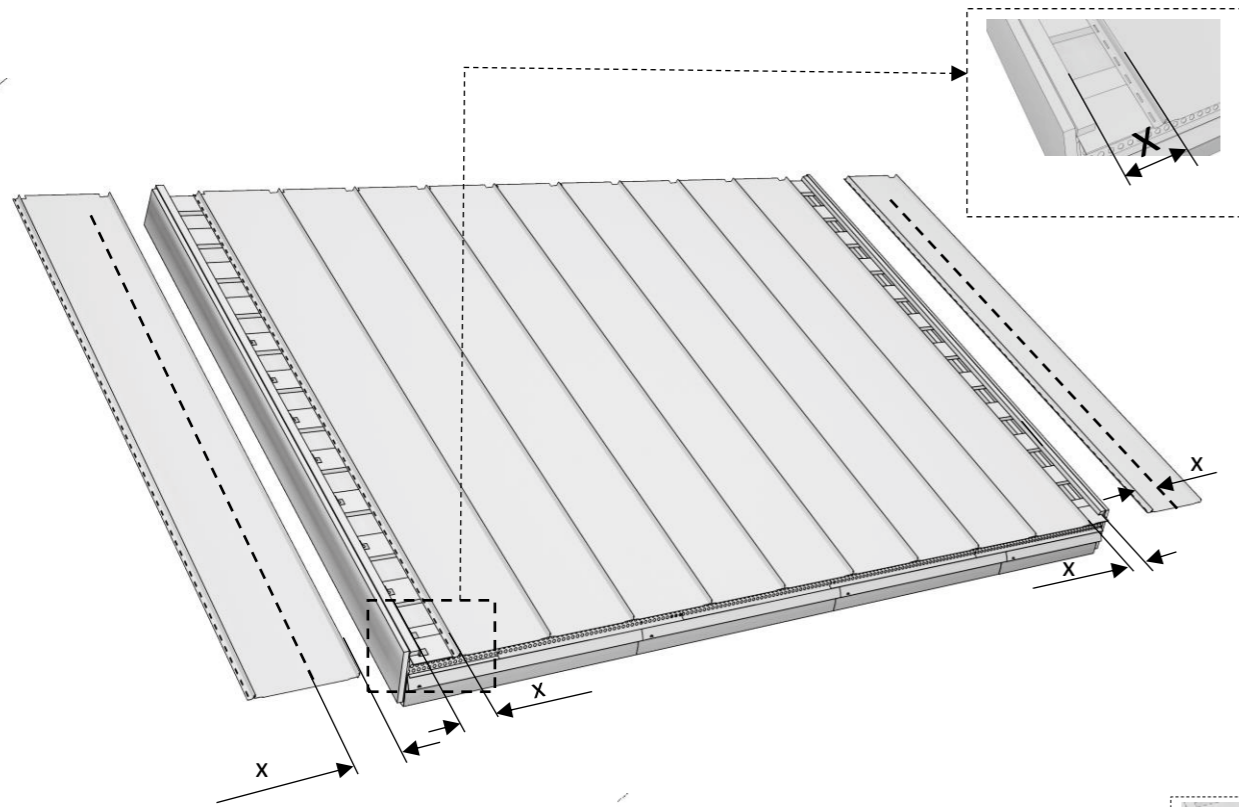


Fig. 11a

- Where the slope has a different width than the exact multiplication of panels' width, a decision whether the edge panels are to be symmetrical has to be made. In this case, we divide the width of the incomplete panel into two edge panels and prepare them for installation by cutting (Fig. 11a).
- An equally common finishing of the slope is to cut only the last panel from the barge side (Fig. 11b).

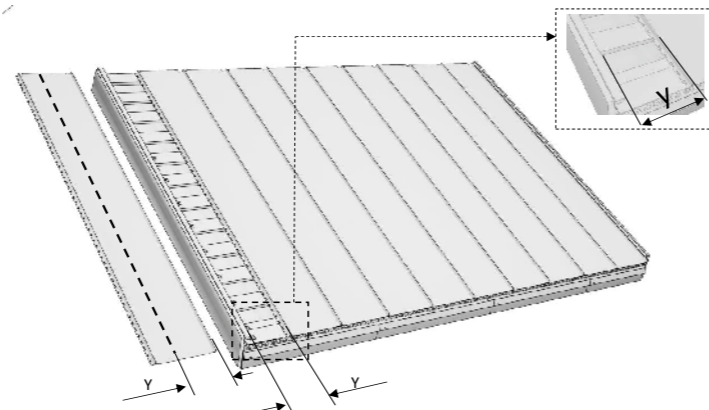


Fig. 11b

Cutting the edge panels

- Measure the distance between the standing seam of the last panel and the edge of roof truss/boarding.
- To above-mentioned result add 25mm.
- Measure the value obtained on the panel and draw a line across the length of the panel.
- Cut the panel along the line.
- Measure 25 mm from the cut edge of the sheet and fold upwards at an angle of 90° (Fig. 12).

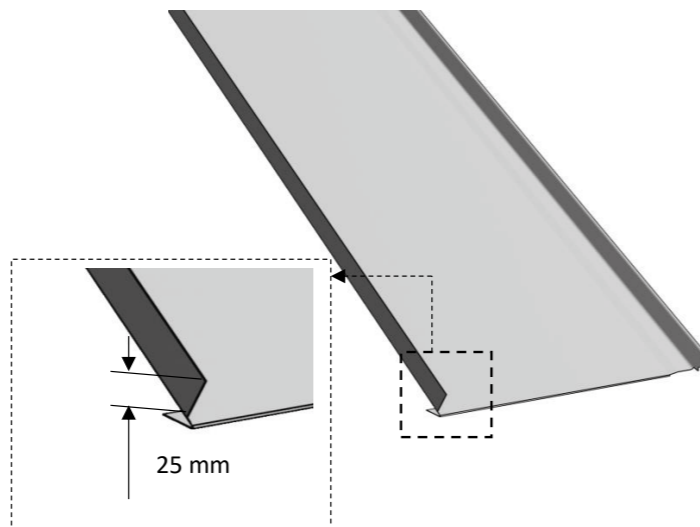


Fig. 12

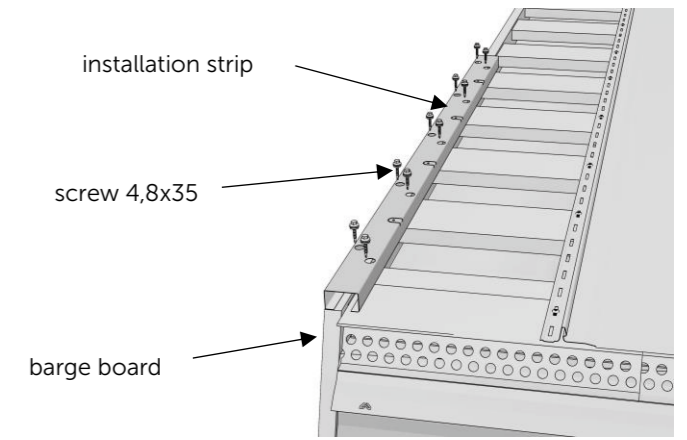


Fig. 13a

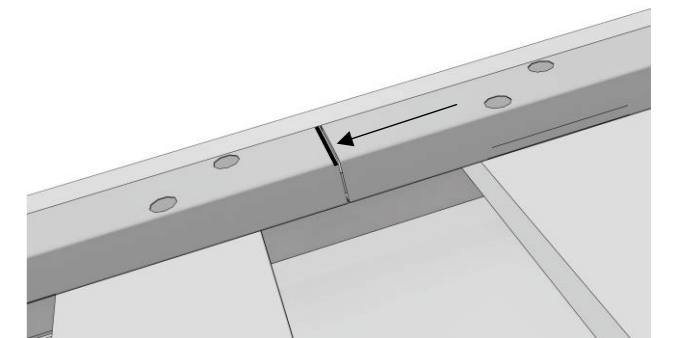


Fig. 13b

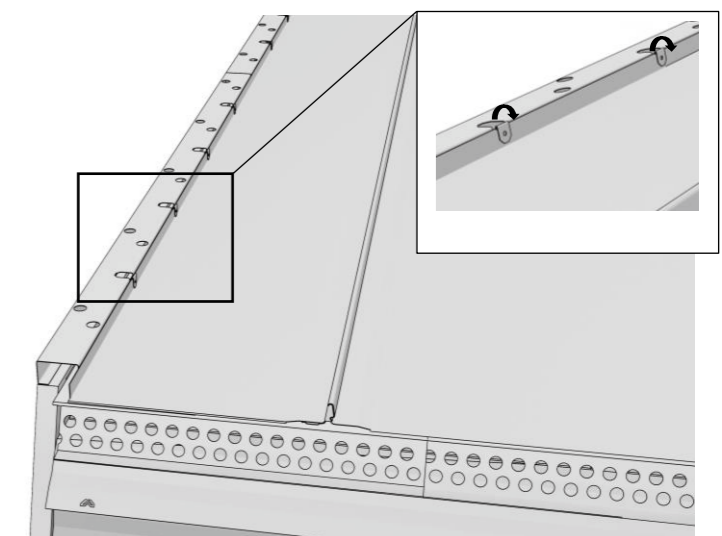


Fig. 13c

BARGE

- Install lower barge flashing WD 150 L/P, WD 180 L/P

Screw the first lower barge flashing in with an additional screw 4.8x35 (Fig. 14).

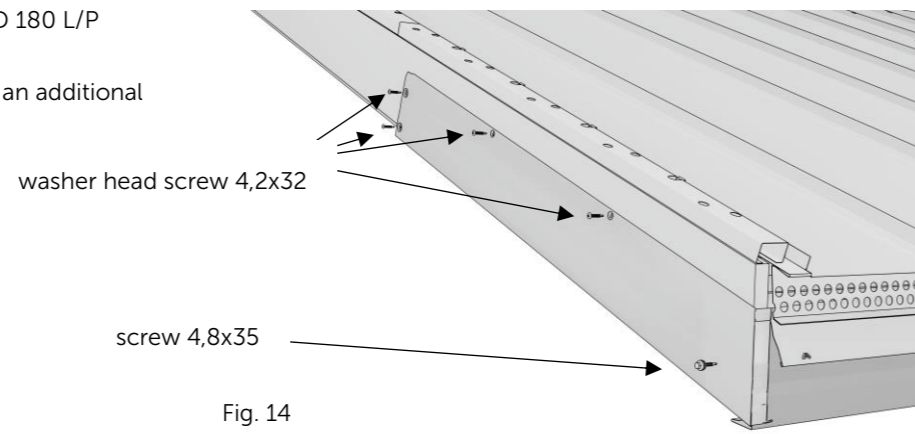


Fig. 14

- Connect the lower barge flashings by slipping the one being mounted on the one already-mounted (Fig. 15a).

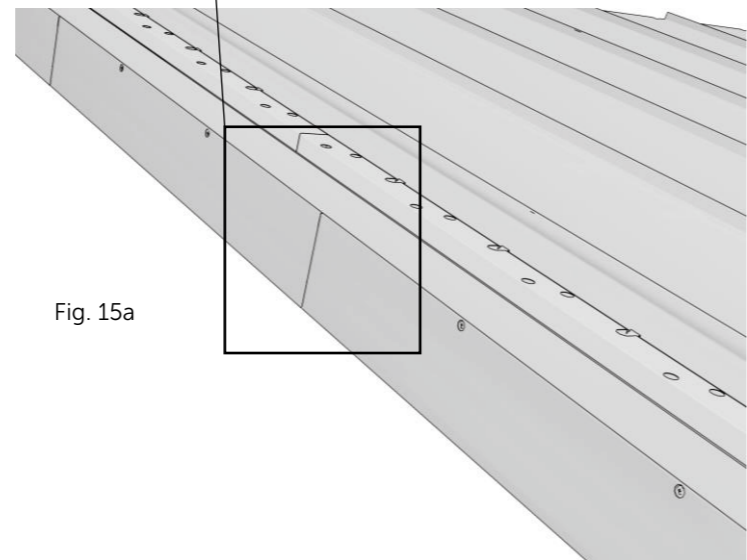
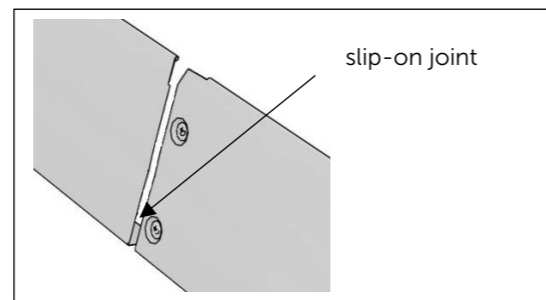


Fig. 15a

- If the last lower barge flashing is cut, screw it on with an additional 4.8x35 screw (Fig. 15b).

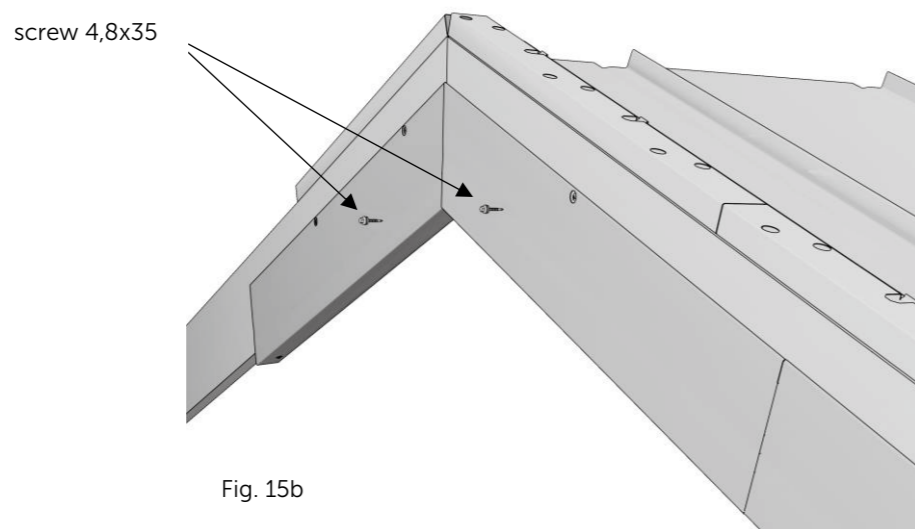


Fig. 15b

BARGE

- Install outer/overlay barge flashing (i.e. Optimus)
- Screw the first outer/overlay barge flashing in with an additional screw 4.8x35 (Fig. 16a).

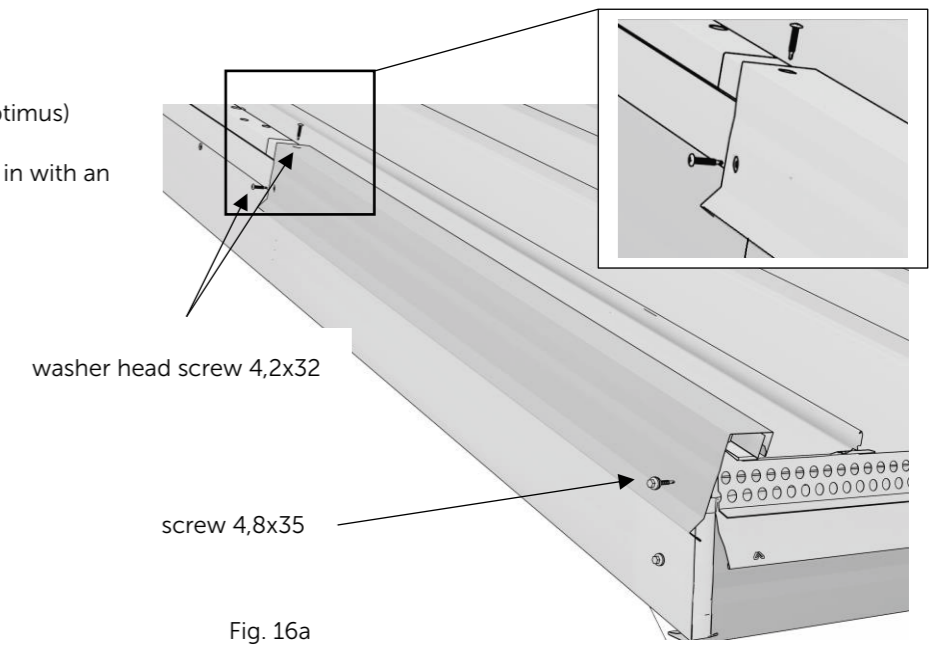


Fig. 16a

- Connect the outer/overlay barge flashings by slipping the one being mounted on the one already-mounted (Fig. 16b).

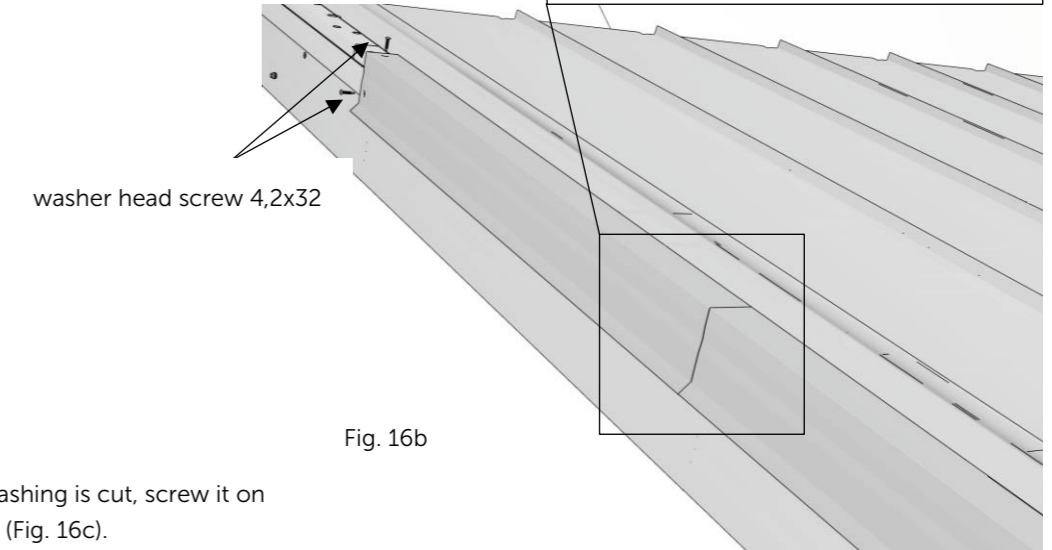
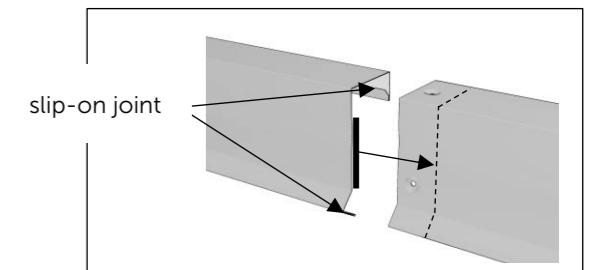


Fig. 16b

- If the last outer/overlay barge flashing is cut, screw it on with an additional 4.8x35 screw (Fig. 16c).

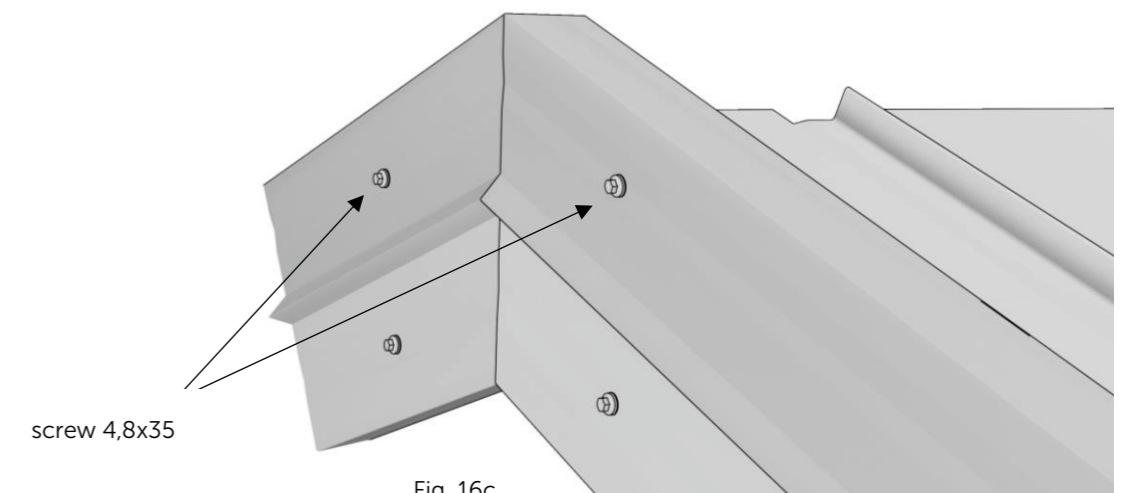


Fig. 16c

VALLEY

Detailed installation instructions for the flashing shown can be found on our websites www.budmat.com/en or www.systemmod.eu/en/videos/ and on our Youtube channel - www.youtube.com/@BudmatModularRoofs

- Valley gutter flashings are installed from the eaves towards the ridge.
- Cut and adjust the flashing on the eaves side (Fig. 17).
- Use clips to install the flashings (Fig. 17). This solution eliminates the need for the holes being drilled in the drainage plane.
- For the installation of the clips, use self-drilling screws for wood 4.2x32mm.
- Use a 10 cm overlap at the joints (Fig. 18).

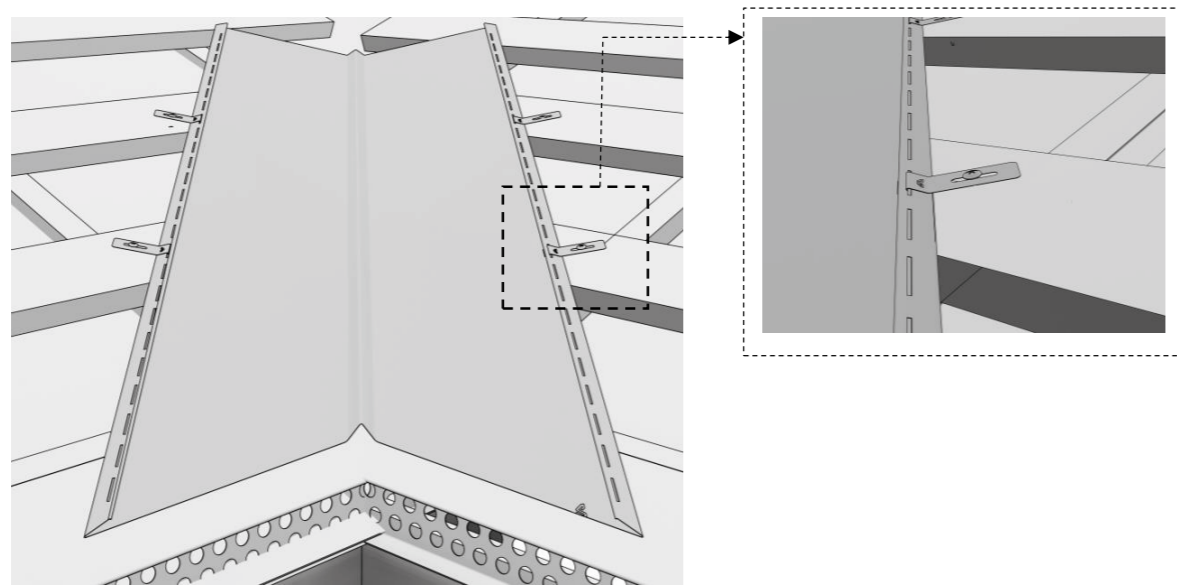


Fig. 17

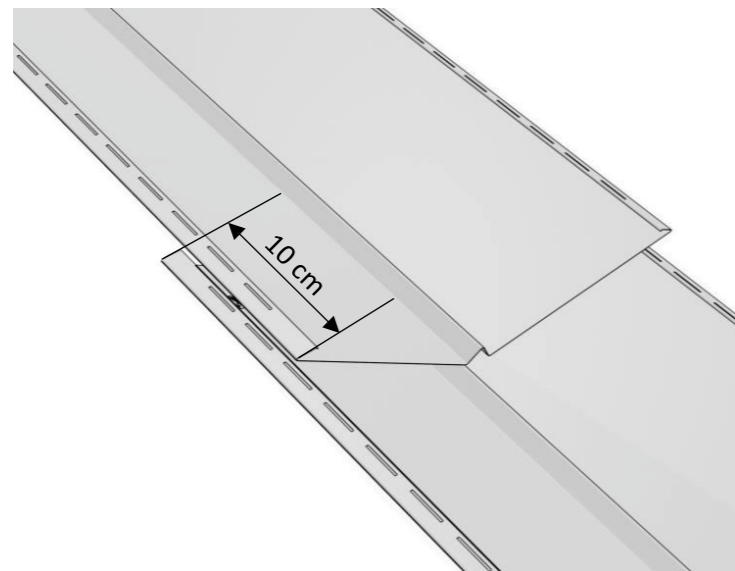


Fig. 18

VALLEY

- The installation of Iron Click panels in the roof valley should start from the right side.
- The installation of Prime Click L panels in the roof valley should start from the left side.
- The installation of Prime Click S panels in the roof valley should start from the right side.
- Install the panels perpendicularly to the ridge (Fig. 19).

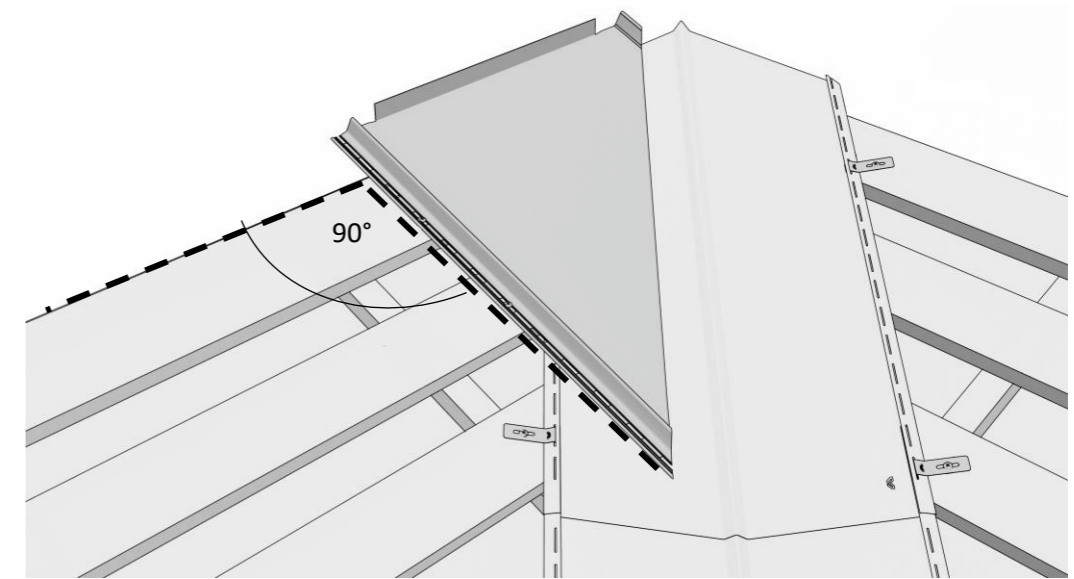


Fig. 19

- Between the valley gutter flashing and the sheeting the expansion seals must be used (Fig. 20).

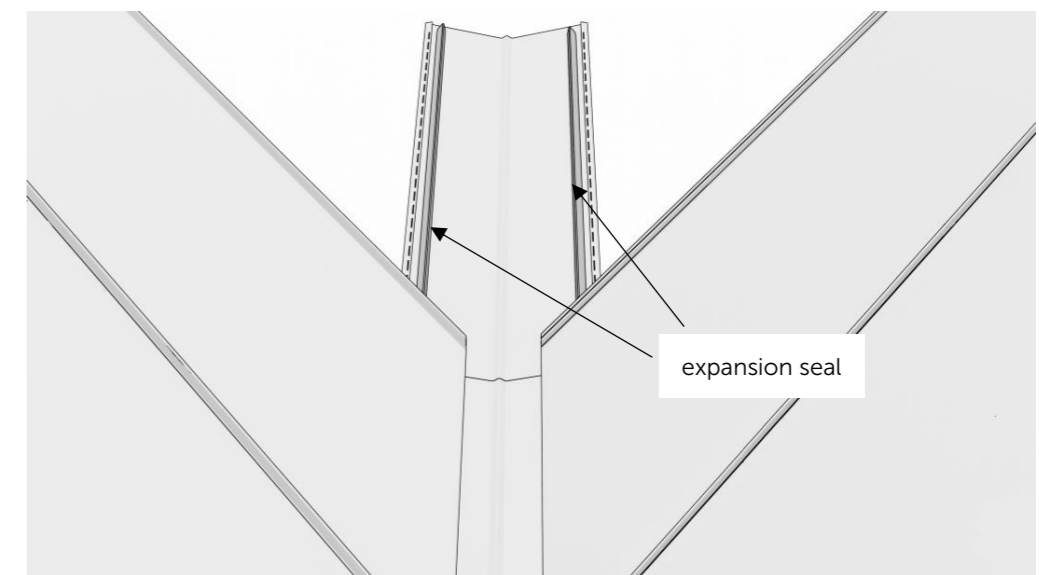


Fig. 20

RIDGE

- If the panels have extensions on the ridge side - fold them upwards (Fig. 21).
- The ends of the panels should extend beyond the last battens/boards.

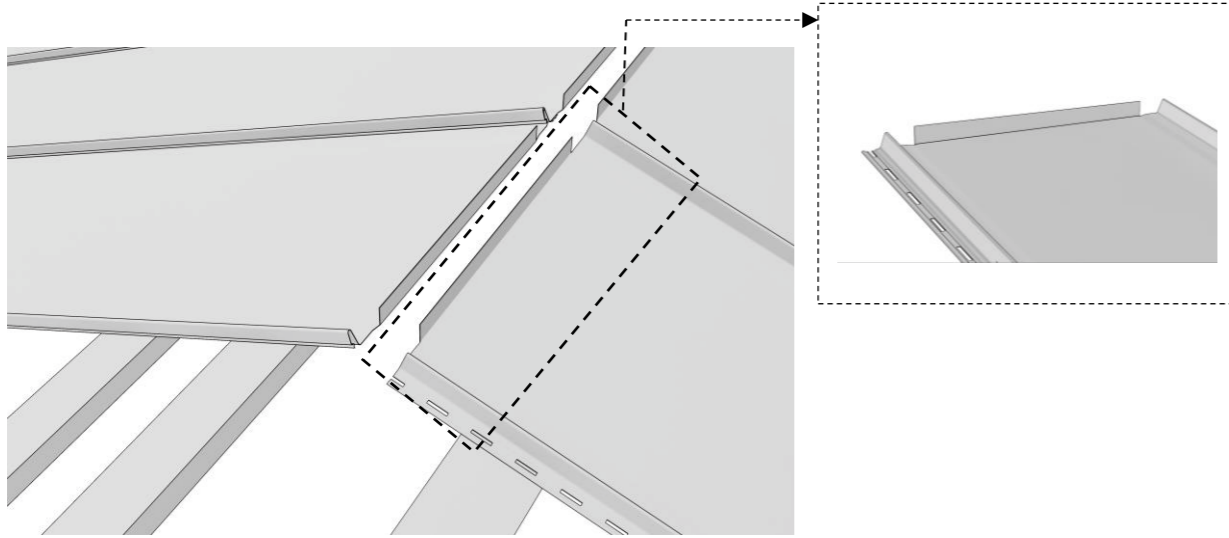


Fig. 21

- Before installation cut the ridge vent profile at the designated slots. The gap spacing matches the width of panels on the ridge side (Fig. 22a).

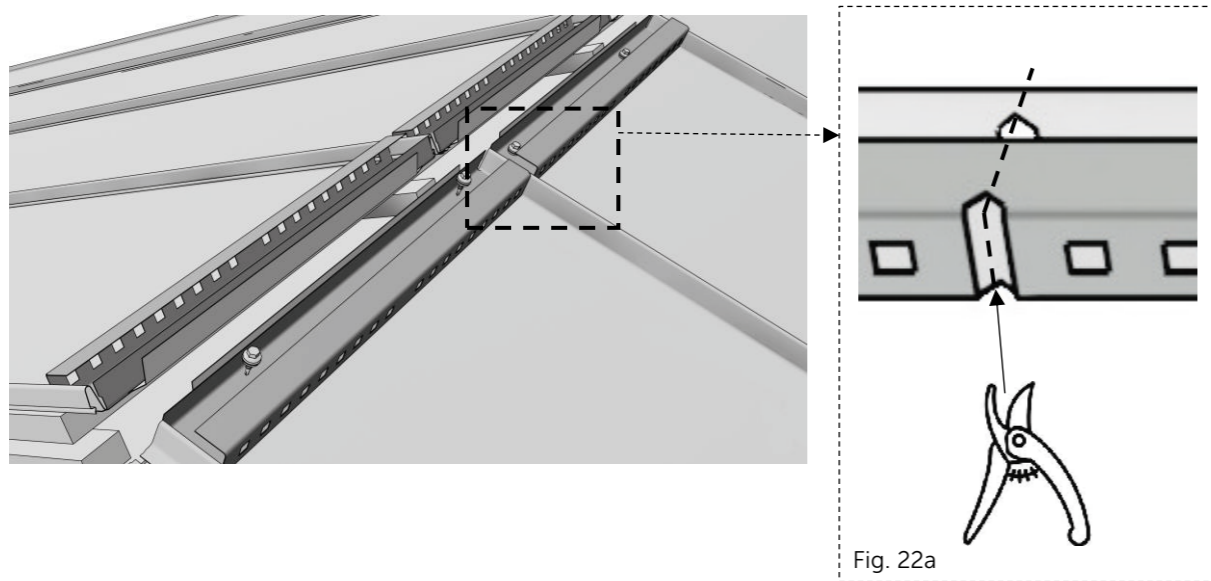


Fig. 22

RIDGE

- Position the vent profiles, so that the edges of the ridge cap protrude approx. 1cm beyond the edges of the vent profiles (Fig. 23).
- Screw the vent profile to the panels using 4.8x20 Farmer or Torx self-drilling screws.
- The vent profile should be screwed to the panel in a place not supported by a batten/board. Screwing into the batten/board will block panel thermal movement caused by thermal expansion of the steel.
- Each vent profile must be screwed with two screws.

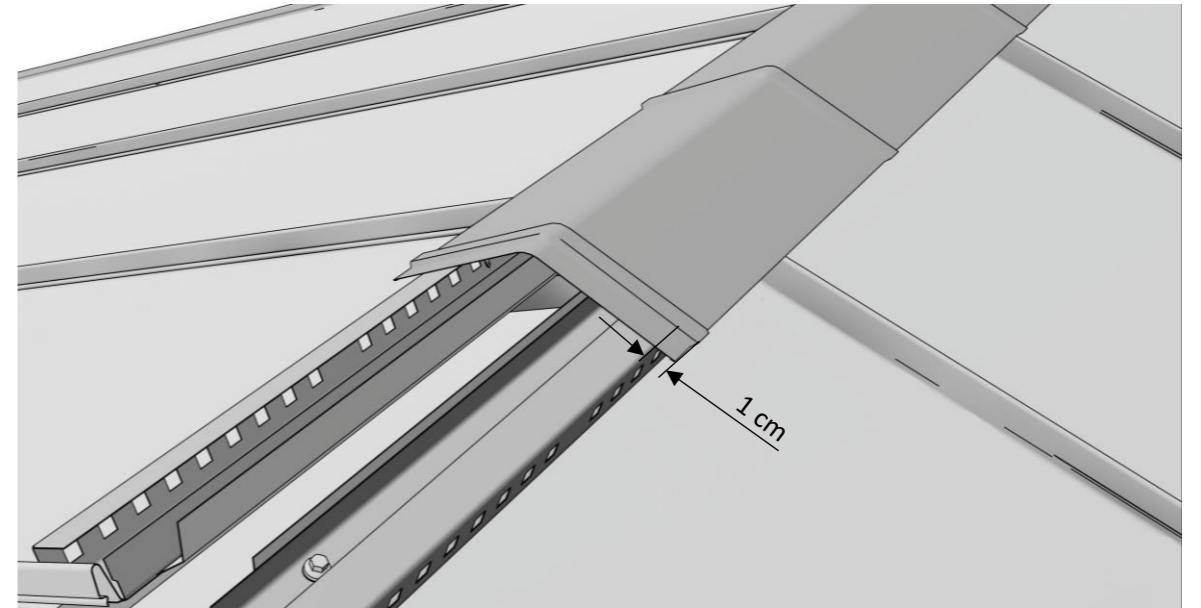


Fig. 23

- Screw the ridge cap using self-drilling screws 4.2x20 Farmer or Torx type.

The ridge cap must be screwed to each vent profile with two screws (Fig. 24).

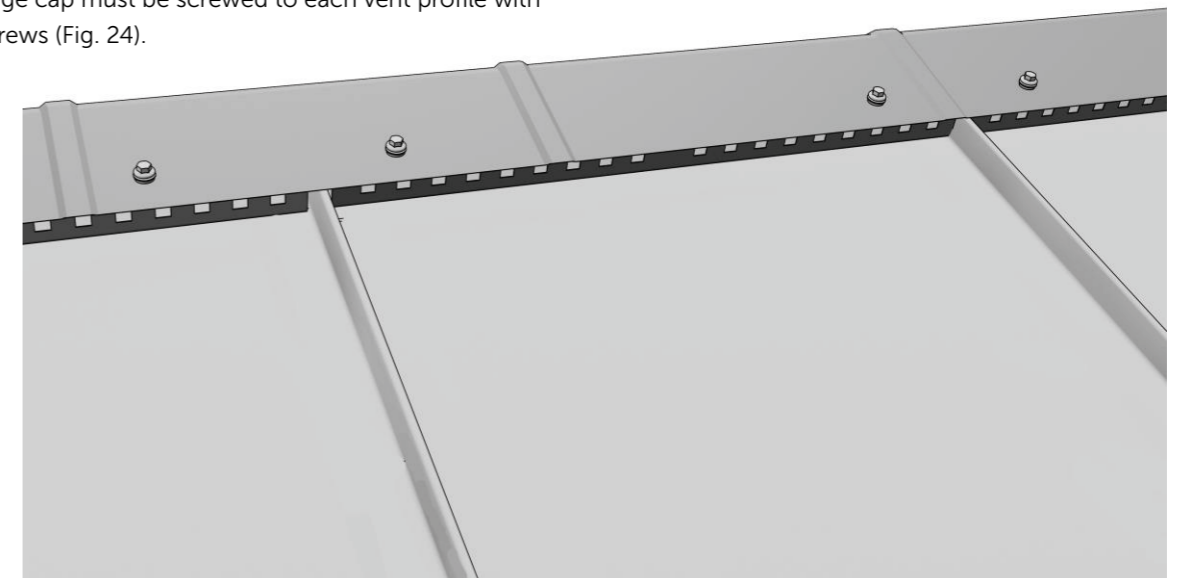


Fig. 24

ROOF PANELS INSTALLATION

Installation of the first panel

- The installation of Iron Click panels should start from the right-hand side of the roof slope.
- The installation of Prime Click L panels should start from the left-hand side of the roof slope.
- The installation of Prime Click S panels should start from the right-hand side of the roof slope.
- Install the first panel
 - panel with fold-up: hook the panel fold-up on the starter strip. Leave an expansion/dilatation gap of approx. 1cm between the edge of the starter strip and the edge of the panel. This will prevent the panel from lifting the starter trim up in cold weather (Fig. 25a).
 - panel without fold-up/extension: set the edge of the panel 2cm from the edge of the starter strip (Fig. 25b).
- Screw the panel with a 4.2x32 washer head screw to the first batten/board on the eaves side. Screw the screw into the centre of the expansion hole in the panel (Fig. 26).

The panels have specially prepared mounting cups for screws (Fig. 26b) and longitudinal mounting holes (Fig. 26a), that allow for thermal movement of the panel caused by the thermal expansion of the steel.

- Set the correct drill torque!!! It is important that the screw presses on the mounting cup but does not crush it, as crushing it will block the thermal movement of the panel and will cause damage to the panel i.e. „oil canning“.

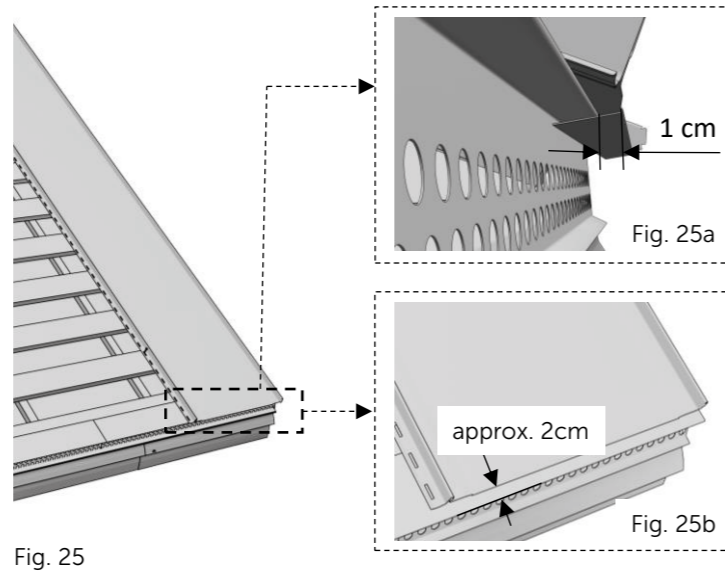


Fig. 25

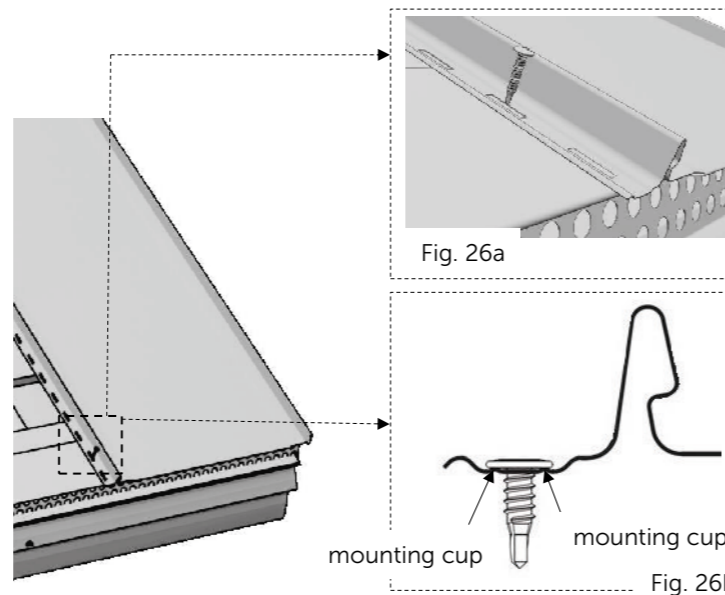


Fig. 26

ROOF PANELS INSTALLATION

- Position the panel exactly at right angle to the eaves:
 - One of the ways to make it easier to align the sheet is to determine a right-angled triangle with the dimensions A=3lm, B=4lm, C=5lm, between the eaves and the panel,
 - Dimension A is to be determined at the eaves flashing
 - in this case the starter strip. Dimension B is to be determined on the sheet/panel. The distance between the spaced ends of A and B should be 5 m. This distance should be achieved by moving the unattached edge of the sheet/panel (Fig. 27).
- Screw the panel to the boards/battens using washer head screws 4.2x32 mm. Remember to apply the correct torque!

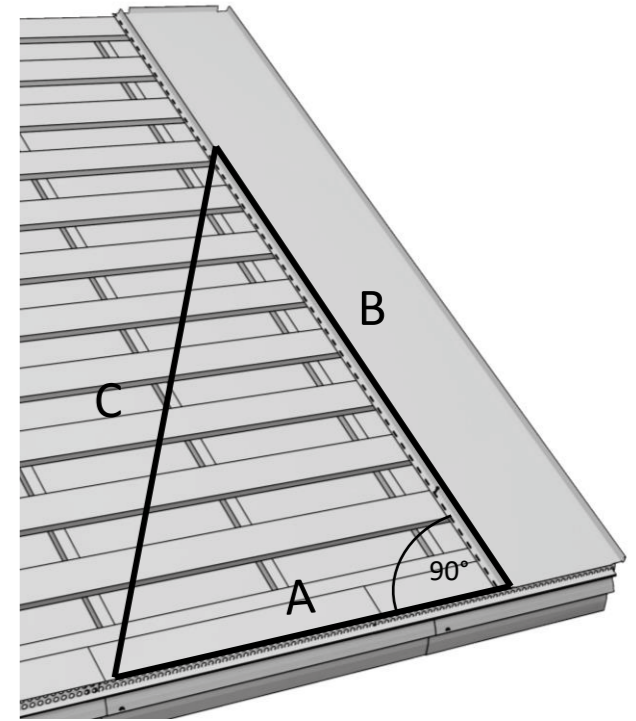


Fig. 27

Fastening the sheets/panels

- In the edge zones of the slope the panels are to be fixed to each board/batten.
- In the central part of the slope the panels are to be fixed to every second board/batten.

A size of the zones depends on the length of rafters

If the rafters of a given slope are less than 10 lm long, the edge zone is 1 metre from all outer edges of the slope.

If the rafters are longer than 10 lm, calculate the width of the zone by multiplying the length of the rafters by the coefficient 0.1.

i.e.: $L = 12 \text{ lm (rafters)} \times 0.1, b = 1.2 \text{ lm}$ - zone size measured from the outer edges of the slope.

The maximum width of the edge zone is 2 lm.

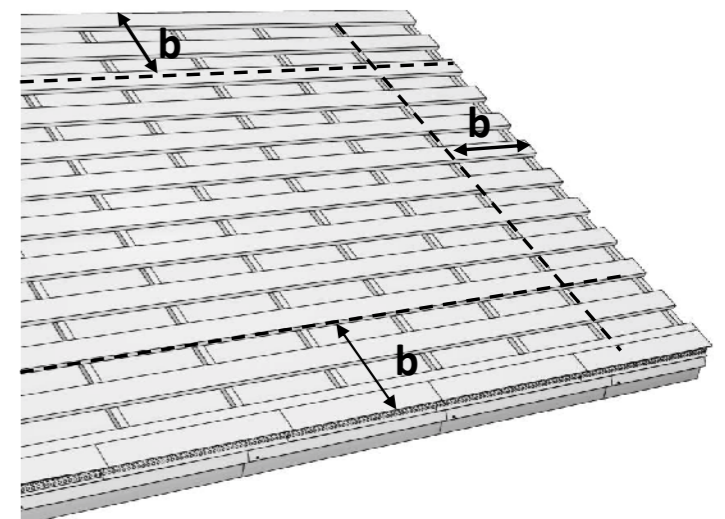


Fig. 28

ROOF PANELS INSTALLATION

- Tighten the panel fold-up by keeping the 1cm expansion gap mentioned before (Fig. 29)

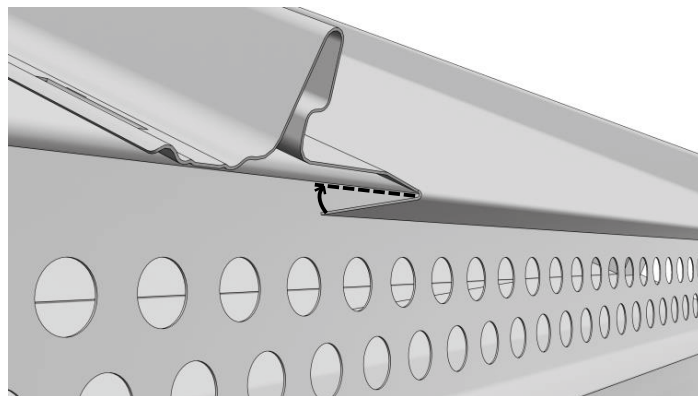


Fig. 29

- Fold/close the lock cover (Fig. 30).

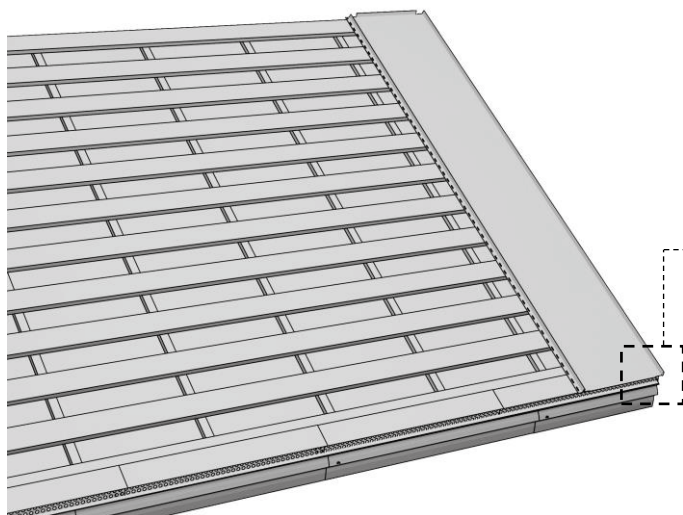
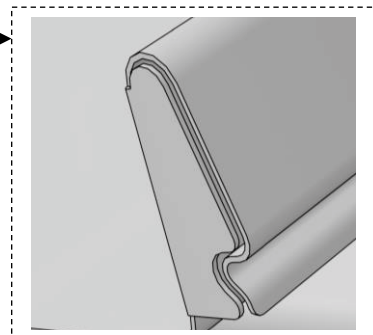
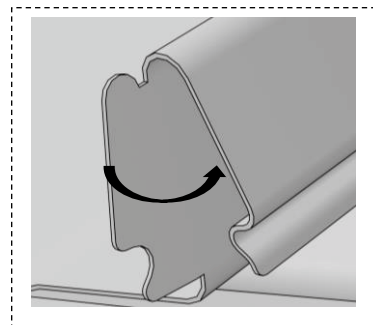


Fig. 30



Installation of next panels

- Hook the panel fold-up on the starter strip and align the edge of the fitted panel with the edge of the preceding panel already installed.
- Once the overlapping panel is properly positioned, press on the lock of the overlapping panel to close the lock. If a hammer is to be used to finish-up the pressing, then the hammering should only be carried out on a piece of timber batten placed longitudinally on already-pressed lock. Locations of pressing and further finishing-up are marked with arrows in the drawing (Fig. 31).
- This should be done starting from the eaves and moving towards the ridge.
- Screw the panel to the battens/boards taking into account the edge and centre zones of the slope as well as the panel fastening rules.
- Fold/close the lock cover.
- Continue an installation of the panels according to the guidelines mentioned above.

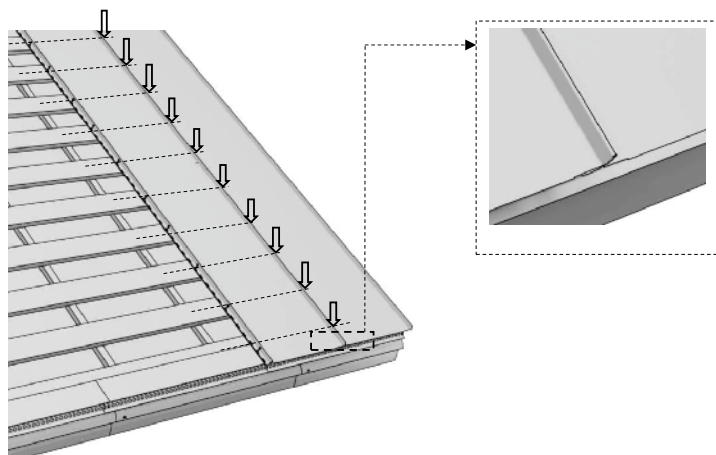


Fig. 31