

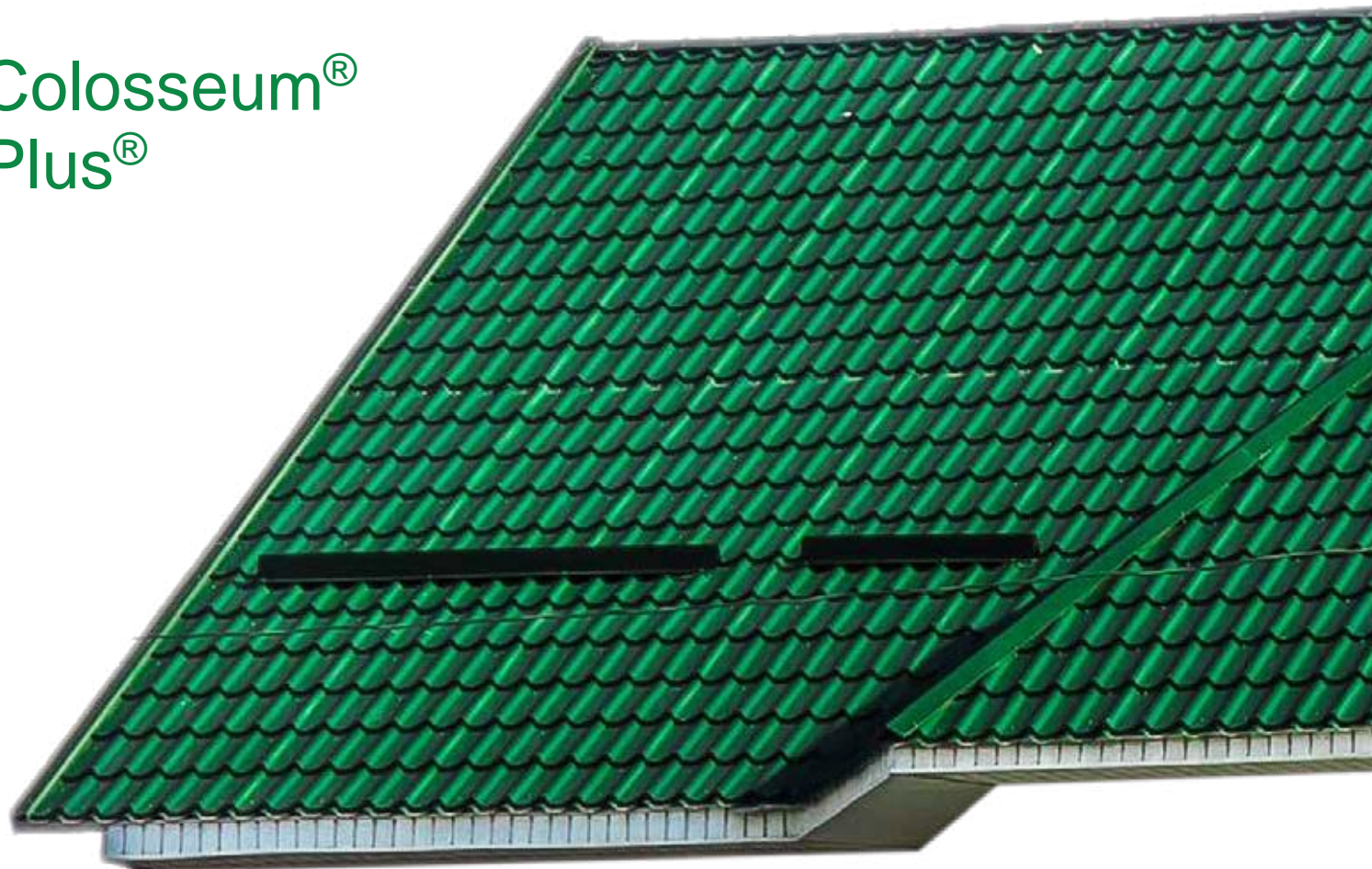


Installation Guide

COLOSSEUM / PLUS

INSTALLATION INSTRUCTIONS FOR

Colosseum® Plus®



Wetterbest is one of the main manufacturers of metallic covering systems in Romania, the products being present on the market under the Wetterbest® brand. The Wetterbest® roofing tile of metal is obtained by cold plastic deformation of the galvanised steel and coated with paint in a multilayer system.

The roof, by definition, means the top of a building, which covers it and protects it against atmospheric phenomena. The roof is no longer a simple protection against atmospheric phenomena.

At Wetterbest®, we mean by roof more than that, a roof is a system made up of several components that together fulfil the functional and aesthetic role of the construction over a long period of time.

WETTERBEST METALLIC COVERING SYSTEMS



The Wetterbest® covering system manages to respond to current technologies in terms of construction solutions and takes into account the configuration and functionality of the living space.

All components of the Wetterbest® covering system are designed to be compatible with the Wetterbest® roofing tile panels, thus giving the covering a unique aesthetic appearance, safe to use and durable.

The Wetterbest covering systems can be used for both new constructions and renovation projects such as:

- single family homes
- holiday homes
- residential complexes
- apartment blocks
- public buildings
- commercial buildings
- guesthouses/ hotels

Wetterbest sheet metal profiles are made of quality raw materials, from the largest manufacturers of pre-painted steel in Europe. The components of the Wetterbest covering system are designed and produced in our production units in Romania, using the latest technologies in the field. Everything in a variety of shapes, colours and protections to respond promptly to a wide range of tastes and architectural styles. The advantages of using Wetterbest metallic covering systems are multiple:

- they are very resistant over time, due to the quality of the steel used and the multilayer protective layers applied to it
- they are easy to install
- they are easy to maintain
- they are lighter than ceramic roofing tile or concrete
- they do not require a robust structure to be mounted
- they can be used for new projects, but also for renovation projects
- they come together with complete solutions to meet the requirements of your project

All components of the Wetterbest covering system are certified and have applied the EC marking, as proof of compliance with the requirements of the European and Romanian rules in force.

In our view, a high-performance covering system must consist of the following **Wetterbest** components:

- profiled metal sheet
- drainage system (gutters, hooks, corners, caps, connections, spouts, elbow bends, clamps)
- sealing accessories (strips, sponges, sealing solutions)



- closing accessories (ridges, eaves, fascia boards, rain shadow sorts, dead wall connection, special fascia boards)
- ventilation accessories (ventilation and exhaust elements, field ventilations)
- fixing accessories (fixing and sewing screws, clamps)
- safety accessories (snow stoppers, reinforced snow guards)

The **Wetterbest Colosseum®** and **Plus®** metallic covering system, metallic roofing tile, was designed for roofs with a minimum inclination of **14 degrees/ 1:4 /25%**.

For roofs with inclinations lower than 14 degrees, do not hesitate to contact the sales department for support and solutions.



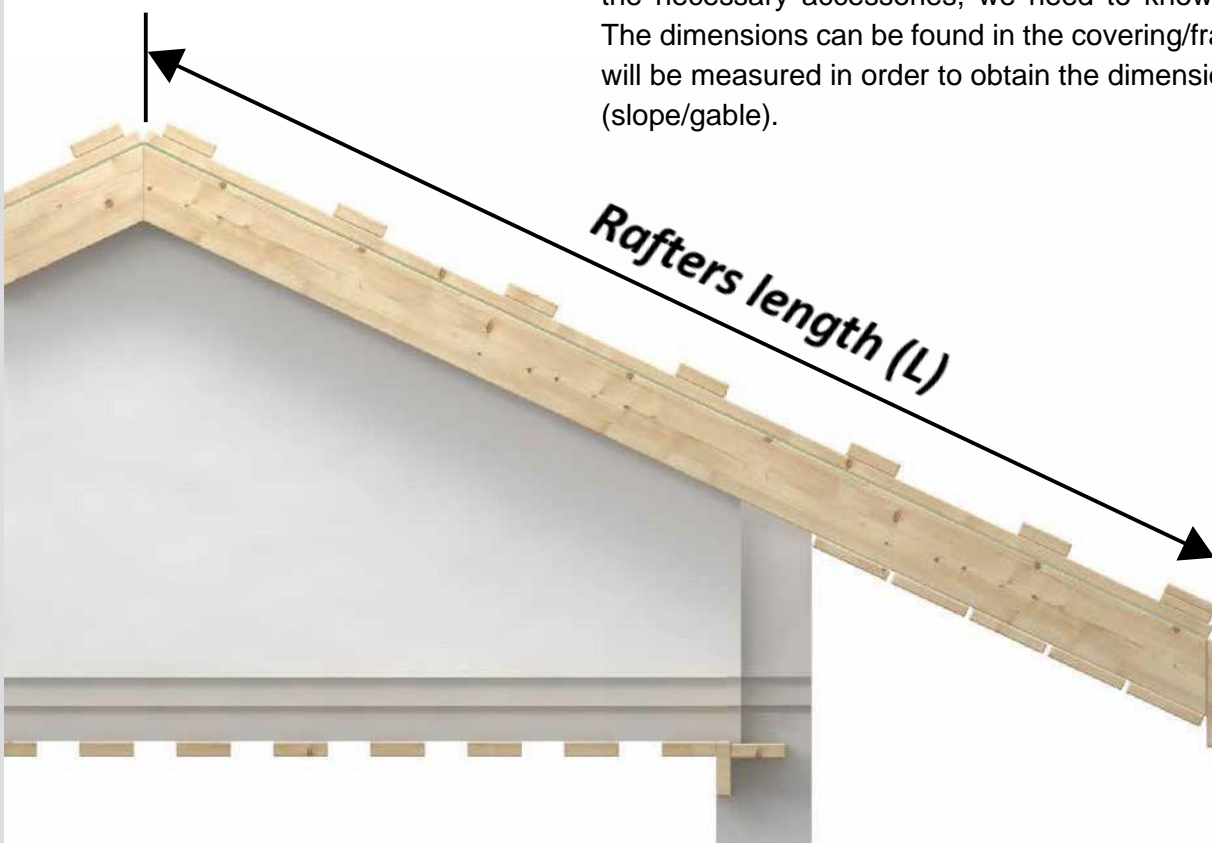
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1 Dimensioning the metal sheets

Pre-installation works

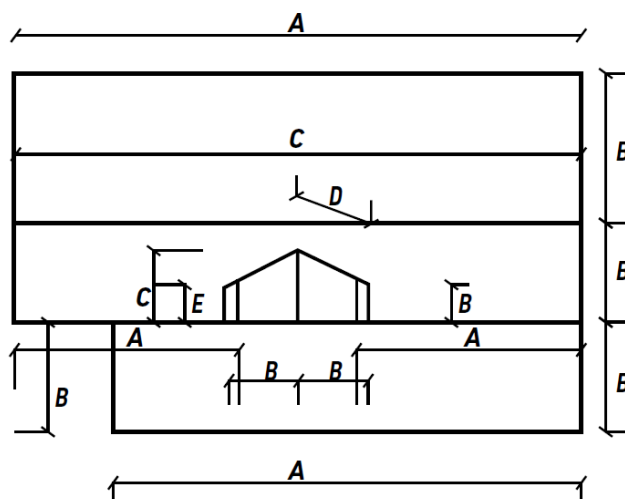
In order to be able to order the right amount of metal sheet and the necessary accessories, we need to know its dimensions. The dimensions can be found in the covering/framework plan or will be measured in order to obtain the dimensions of each plan (slope/gable).



The length of the covering must be measured from the rain shadow line to the top of the ridge/coping with a check in several places to determine the correct length of the metal sheet.

For simplification, a sketch of the covering is drawn in the plan, which will include its dimensions.

- A rain shadow length
- B fronton length
- C ridge length
- D eaves length
- E dead wall connection length



If the length of the slope/gable exceeds the maximum length, the dimensioning of the overlapping surface will be done in accordance with the chosen roofing tile.

In the case of the **Wetterbest Colosseum®** and **Plus®** roofing tile models, the module is calculated according to the formula below, where M is the number of modules per sheet:

$M * 350 \text{ mm} + 100 \text{ mm}$ for the Colosseum model

$M * 350 \text{ mm} + 80 \text{ mm}$ for the Plus model

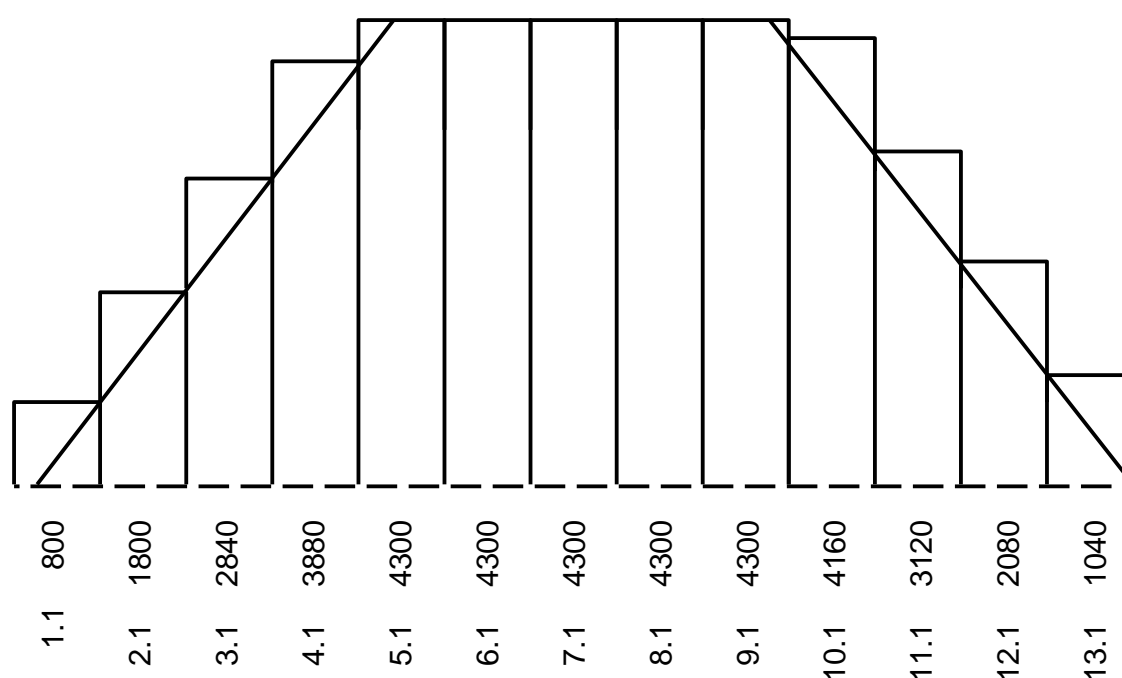
Hanging notebooks/graph paper or special extract programs can be used to determine the number and length of the metal sheet panels. Regardless of the solution chosen, the specific dimensions of the chosen metal sheet model must be taken into account (useful width/useful length and overlaps if necessary).

Note:

In the case of coverings where there are slope breaks, the length of the panels can be influenced by the height of the metal sheet profile.

2 Launching the covering order

All **closing accessories** are available in lengths of two meters, except for special profiles that may have other configurations than the standard ones, to meet the particular situations.



3 Labour protection

During the works, the observance of the labour protection measures must be taken into account. It is recommended to use work and protective equipment throughout the works.



Gloves, helmets and protective clothing must always be worn.

! Pay attention to the sharp edges and corners of the panels and metal sheet profiles.

Use belts, ropes and safety harnesses specific to working at height.

! The work equipment at height must be worn by those who are subject to the risk of accidental fall when working at height.



Move carefully on the rood and use shoes with soft soles and good grip.



Danger of slipping.

! Do not stand under panels that are high. Avoid handling panels and metal sheet profiles during periods with high winds.

Check the lifting straps, as well as their capacity to support the weight of the handled panels!

4 Technical equipment

In addition to tools in the field of construction, such as (saws, carpenter's hammer, reglet), specific tinsmithing tools are also needed: (right, left) cutting scissors, gutter hook bending device, folding clipper, screwing machine, magnetic head wrench for screw, marking and alignment thread, carpenter's hammer, folding prism.



**! It is forbidden to cut the panels with the angle grinder.
Using it automatically voids the product warranty.**

5 Acceptance of the products

For each delivery, make sure that the delivered products correspond to the order placed.

The delivered products will be verified based on the shipment slip.

Make sure that you have the accompanying and order documents at the time of receipt.

Verify the condition and quantity of the products, in case of differences, they will be recorded in writing and reported to Wetterbest or to the distributor within 48 hours from the date of receipt.

6 Unloading, handling and storage of products

The components of the Wetterbest metallic covering systems are delivered on pallets to avoid damage and to make the unloading process quick and safe. The metal sheet panels can be downloaded manually or mechanically. When handling the metal sheet panels, they will be lifted from the side and transported in turn.

Avoid lifting them from the ends so that they do not deform.




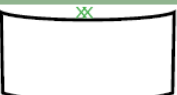




Avoid successive handling in large quantities in order to not scratch/damage.

When unloading or handling is mechanised, make sure that the package shows the original packaging before unloading. The storage of the metal sheet is done on an inclined plane, in the direction of water drainage. It is mandatory to store them in dry and ventilated areas, protected from the direct action of the sun, moisture and materials with aggressive potential (mortar, acids, soil, salts etc.). The indoor storage period will not exceed 3 months from the receipt of the metal sheet panels covered with a layer of paint. The outdoor storage period will not exceed two weeks for the metal sheet panels covered with a layer of paint.

7 Checking the framework before installation

Before actually starting the installation of the covering, it is recommended to perform additional measurements and checks on the framework:

	Verify whether any changes have been made to the framework compared to the measurement plan based on which the order was launched.
	Verify the length of the rain shadow, as well as the ridge, they are not always rectangular or square.
	For the rectangular/square slopes/gables, it can be verified if they have an angle of 90 degrees by measuring the diagonals.
	Verify the flatness of the roof, depending on the deviations found, they can be corrected by positioning the counter-slats.
	In the case of roofs with slopes of different geometric shapes, it is recommended to mark the positions of the panels before fixing. The metal sheet panels must be mounted perpendicular to the rain shadow.
	For frameworks where the surface of the slopes does not align with the line of the metal sheet panels and this is highlighted in the appearance of the roof, it is recommended to rectify the rain shadow, the line of the rain shadow.

8 Installing the roof membrane



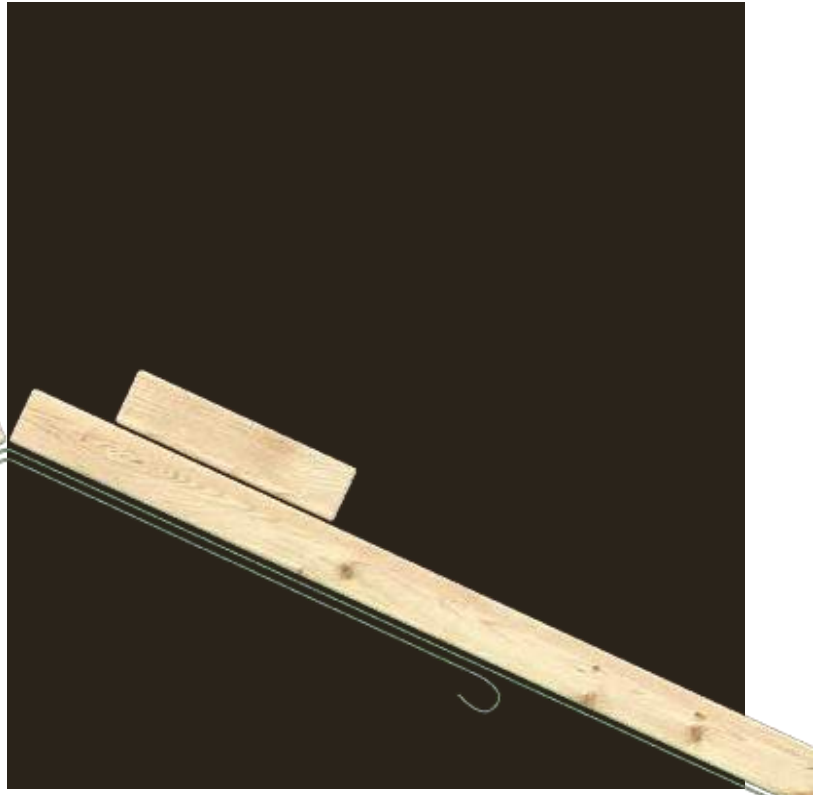
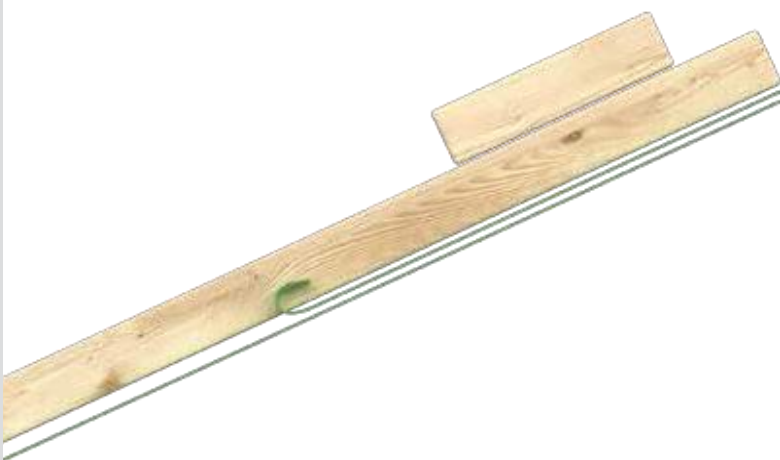
The roof membrane is used to seal the roofs with slope against infiltration and to reduce the condensation that forms under the covering. The most efficient way of installing the membrane is, starting from the rain shadow, in strips parallel with overlaps, overlaps whose size is conditioned by the angle of inclination of the roof. Follow the limits marked on the membrane.



In order to obtain correct joints along the eaves, before placing the membrane, it is necessary to apply an additional piece of membrane. The strips that will ensure the neighbouring slopes will be placed on it, with overlaps of at least 15 cm.

The membrane is mounted with the face marked on the outside, it must be slightly tensioned. The final fixation of the membrane is done with the help of counter-slats, well positioned on the membrane.

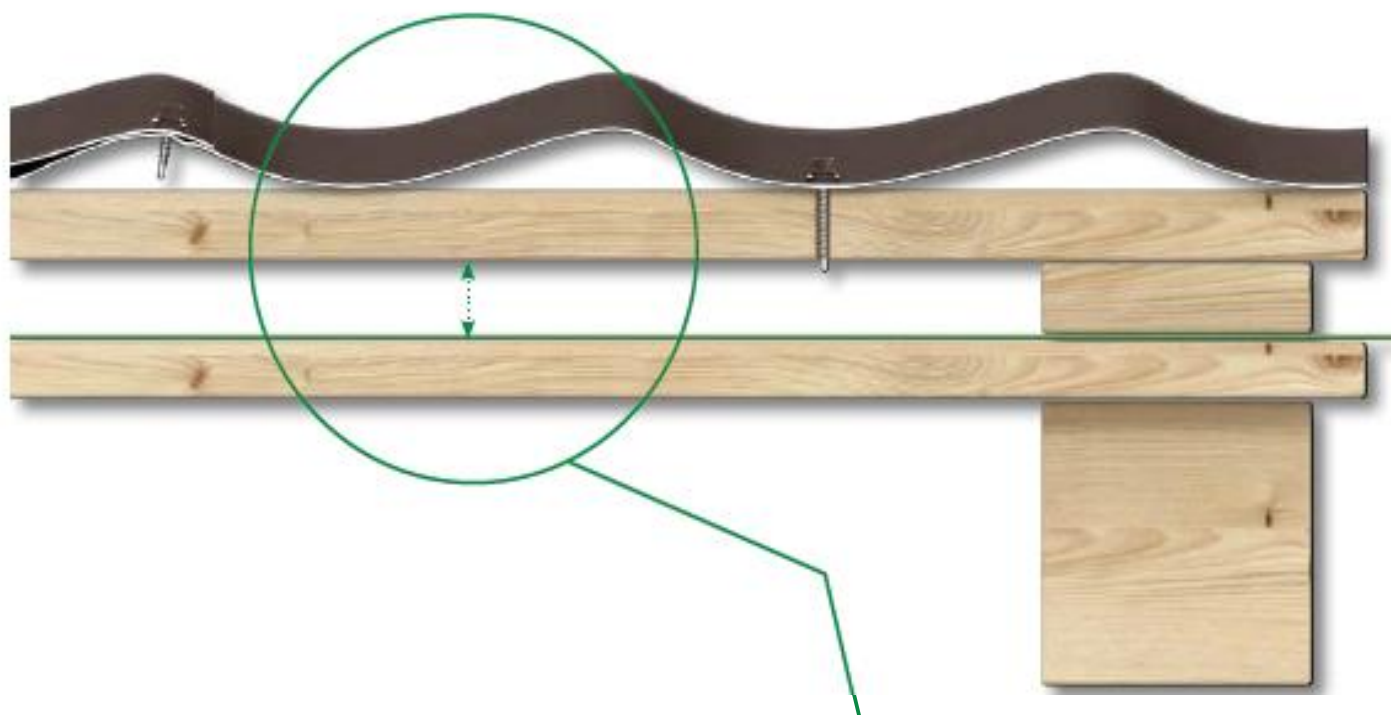
For the preliminary fixing of the membrane, nails with large ends are used or they are fixed with suitable clamps directly on the framework. The nails and clamps must be under the counter-slat. The permanent fixation is done with the help of counter-slats.



The last piece of membrane must be placed on the ridge covered with an overlap of min. 15 cm, so that the ridge is overlapped twice.

Also, at the corners of the roof, the membrane strips on the neighbouring surfaces must overlap 15-20 cm.

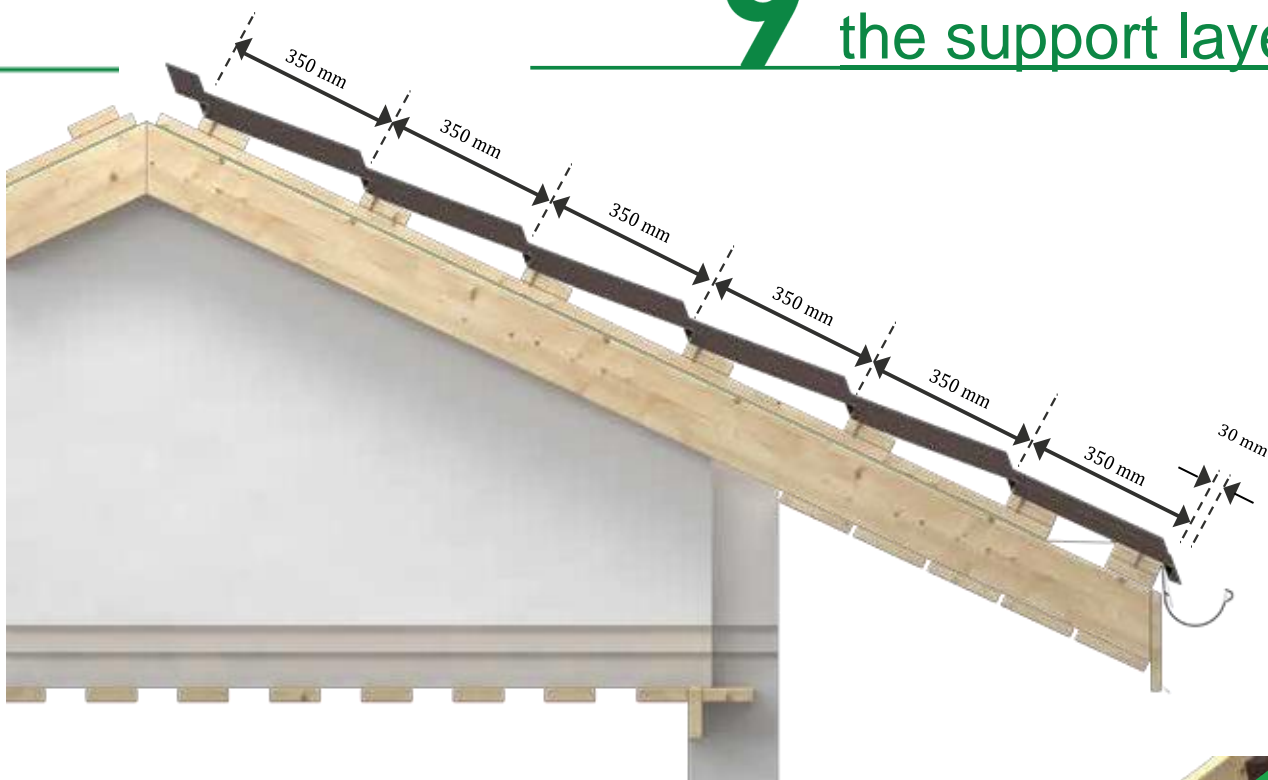
We recommend that membrane gutters be made above the skylights, chimneys, roof windows and exists, they allow the condensation water to drain and drain it to the rain shadow.



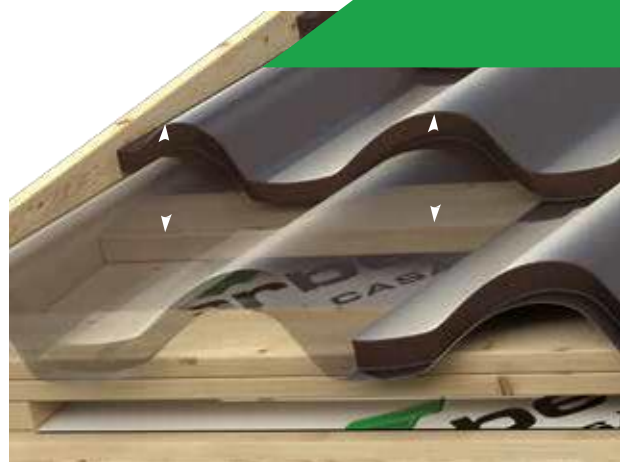
We recommend that the roof membrane not be exposed to weather conditions for a long time and that the metal sheet panels be installed as soon as possible.

Make sure that there is a ventilation space between the membrane and the metal sheet panels, and this will be protected so that it does not get stuck and the condensation water will be drained out of the framework.

9 Preparation of the support layer



The coverings made of profiled metal panels, roofing tile of metal type, are bearing profiles and can be mounted on a support made of wood or metal panel (slat/counter-slat). The bearing/contact surface will be at least 50mm. Start installing the counter-slats from the portion of the rain shadow from which you begin mounting the panels. It is recommended that the slats be fixed in the position of the rafters, using nails or bolts.

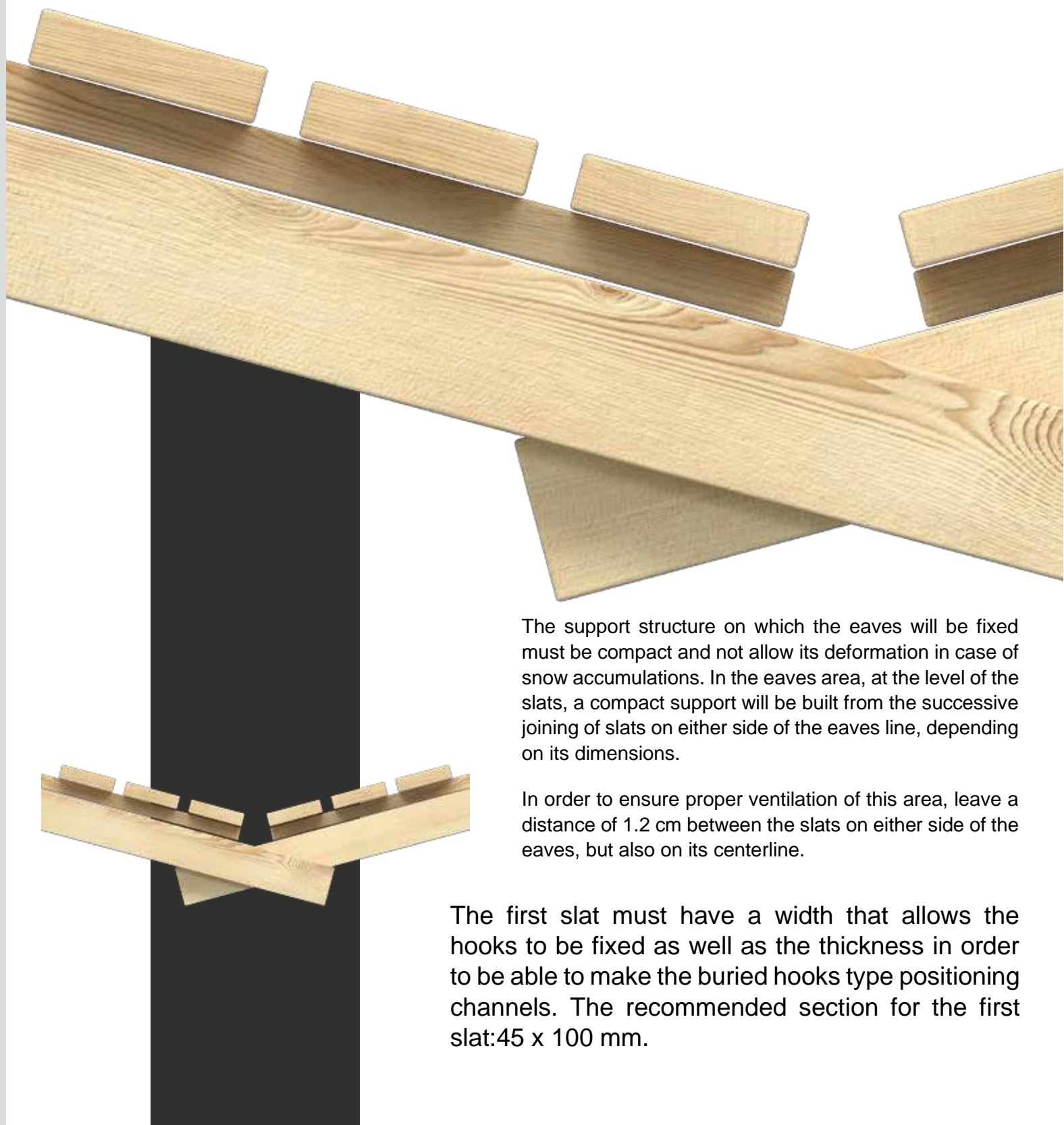


In the case of **Colosseum**[®] and **Plus**[®] tile models, the installation height of the first horizontal slat is 320 mm and will be measured from the fracture of the rain shadow sort. The distance between the following slats must be 350 mm.

The first slat must have a width that allows the hooks to be fixed as well as the thickness in order to be able to make the buried hooks type positioning channels. The recommended section for the first slat: 45 x 100mm.

The base of the tile panels is positioned over the rain shadow sort and will exceed its constructive fracture by about 30 mm.

10 Preparation of the support in the eaves area



The support structure on which the eaves will be fixed must be compact and not allow its deformation in case of snow accumulations. In the eaves area, at the level of the slats, a compact support will be built from the successive joining of slats on either side of the eaves line, depending on its dimensions.

In order to ensure proper ventilation of this area, leave a distance of 1.2 cm between the slats on either side of the eaves, but also on its centerline.

The first slat must have a width that allows the hooks to be fixed as well as the thickness in order to be able to make the buried hooks type positioning channels. The recommended section for the first slat: 45 x 100 mm.

11

Installing the rain shadow sort



The rain shadow sort, once installed, represents the reference line for the installation of the metal coverings. The metal sheet panels are positioned according to the eaves line. Make sure that the eaves profiles are aligned and that the metal sheet panels will be perpendicular to the direction of the rain shadow. After this step, secure the rain shadow sorts to the first slat with flat-head screws or galvanised nails.

If sealing sponges or other sealing elements are used, you must provide another ventilation area of the coverings between the rain shadow sort and the metal sheet panel.

The sealing sponges or anti-birds comb will be installed before starting to fix the metal sheet panels.

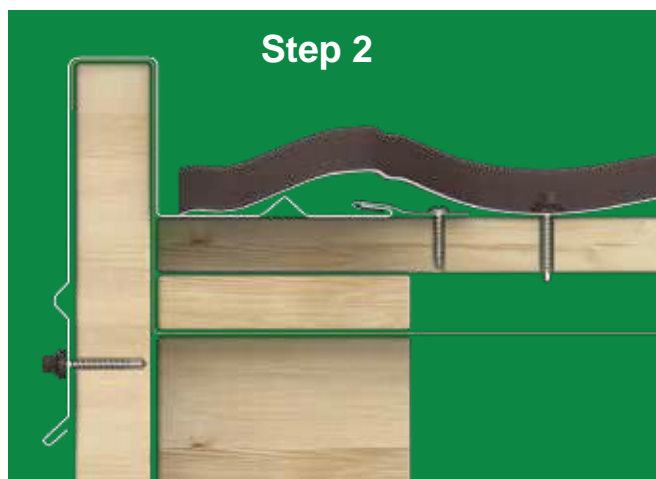
12 Installing the reinforced collector fascia board /collector fronton

Step 1

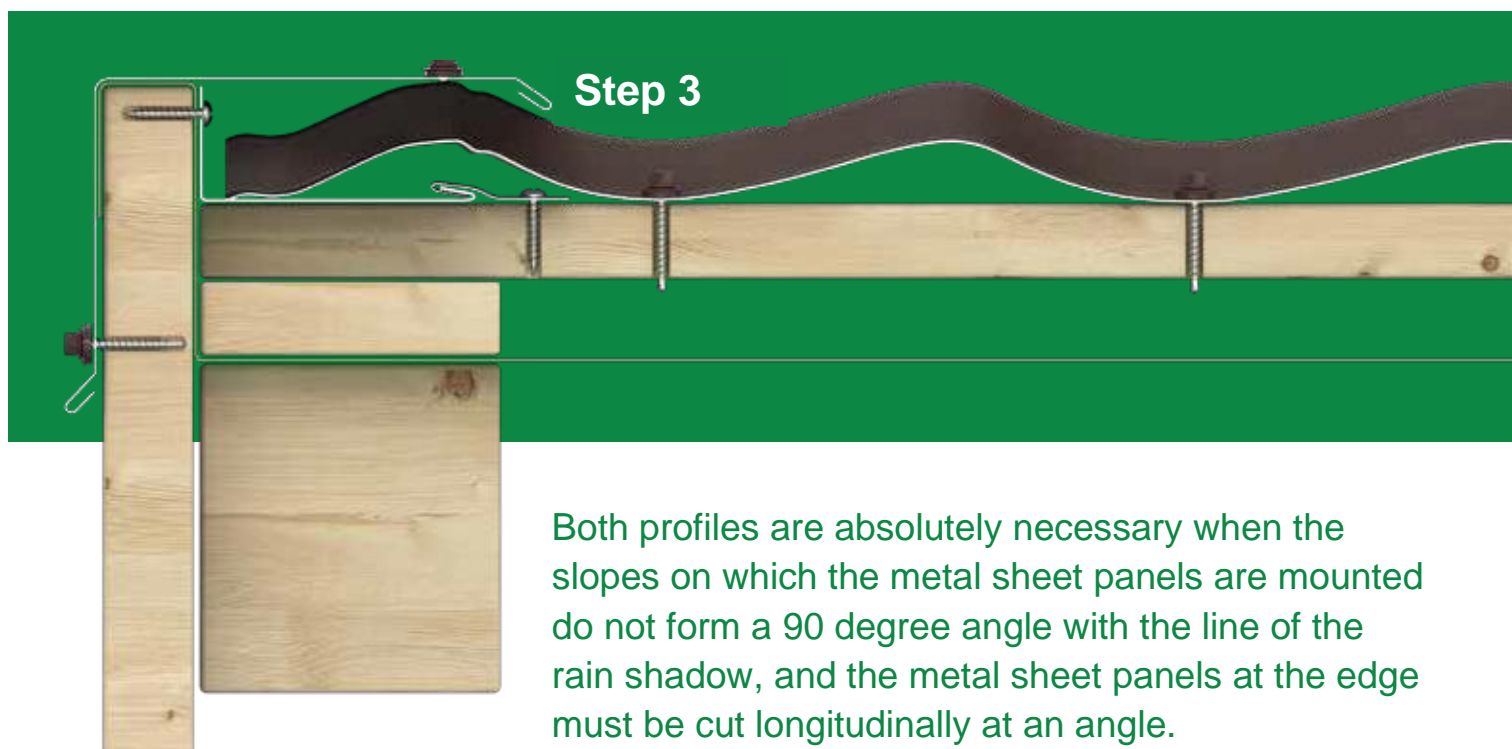


The reinforced collector fascia board (1) and collector fronton (2) closing profiles are hidden closing elements, which direct the drained water on the roofing tile panels in the edge area of the covering to the rain shadow. These profiles are fixed at the level of the metal sheet panels directly on the slat, by clamps and with a flat-head screw to the wooden fascia board, previously fixed as a support.

Step 2



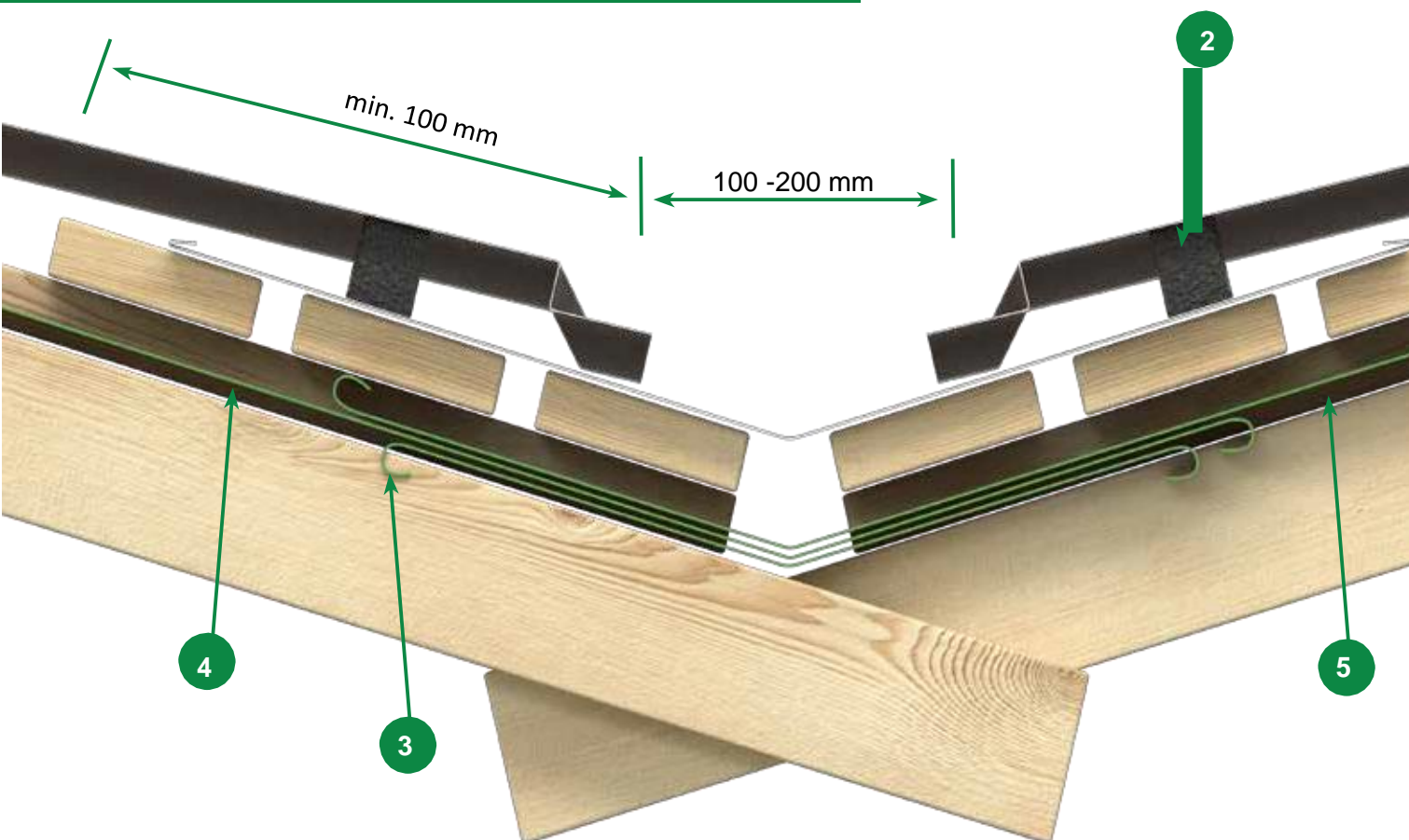
Step 3



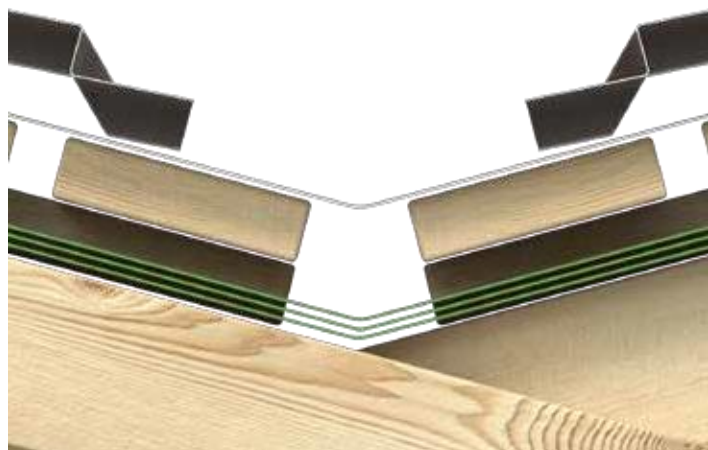
Both profiles are absolutely necessary when the slopes on which the metal sheet panels are mounted do not form a 90 degree angle with the line of the rain shadow, and the metal sheet panels at the edge must be cut longitudinally at an angle.

13

Installing the eaves



The eaves panel is fixed to the slat bed with clamps made of metal sheet on site. We do not recommend the perforation of this element with screws. We recommend that the minimum overlap length of the eaves be 200mm. The lower part of the eaves in the rain shadow area must be cut so that it extends beyond the 30mm rain shadow line and then bent down parallel to it.



The end of the metal sheet panels that converge in the eaves must be cut parallel to the line of the eaves so that the distance formed between two panels arranged on either side of the eaves must be approx. 150 - 200mm. We recommend that sealing sponges be used between the eaves profile and the roofing tile panels.

14 Moving on the roof



During and after installation, make sure that the scrapings or metal debris will be removed with a soft brush.

In order to maintain the aesthetic appearance, but especially for safety during work, use shoes with soft soles and good grip. When moving on the surface of the metal sheet panels, always step on the bottom of the profile and as close to the slat point as possible.

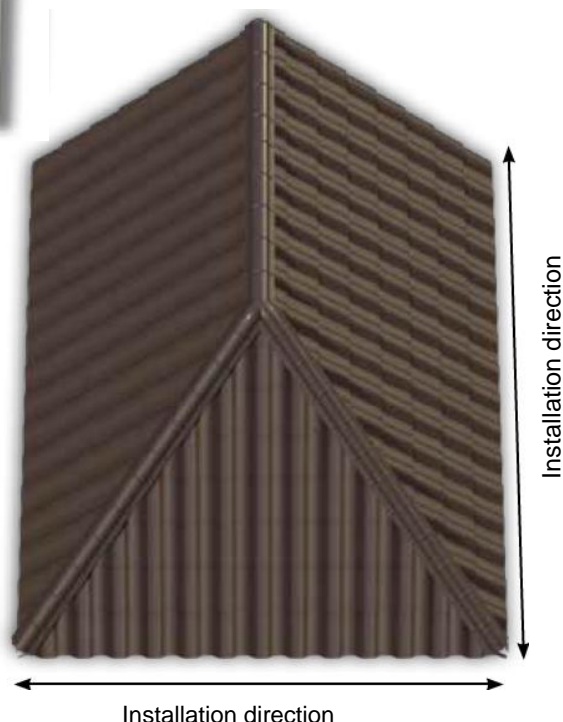
15 Installing the metal panels

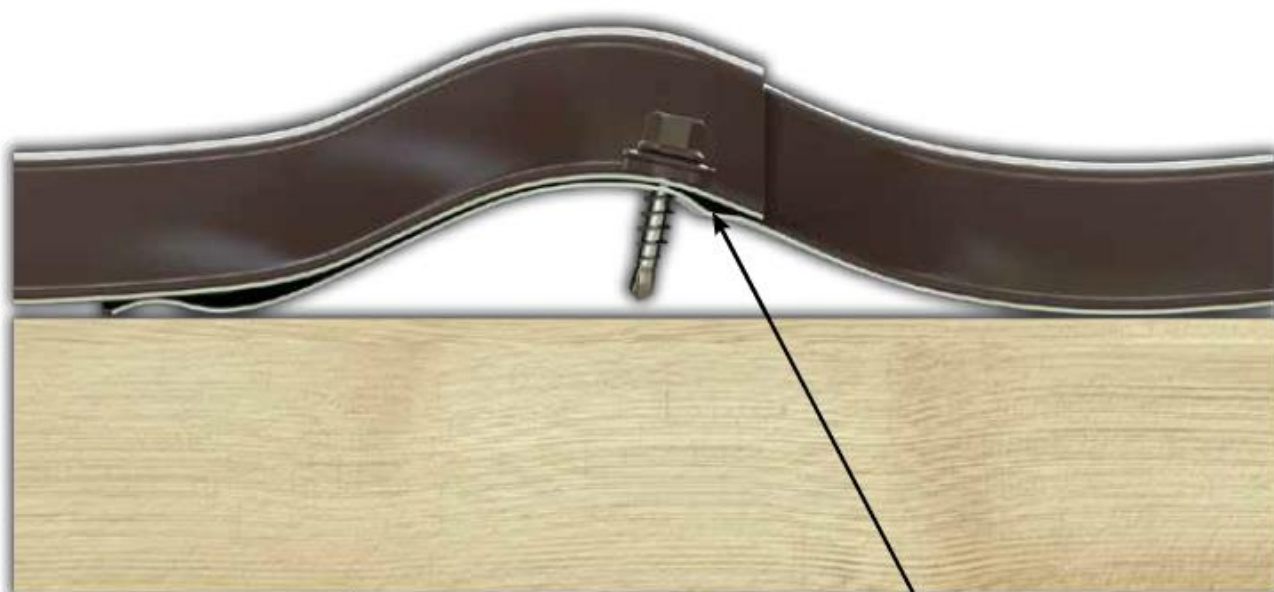


In order to avoid damaging the metal sheet panels during installation, we recommend that the panels be raised upright. In order to lift them on the roof, where the height regime allows, two slats can be used as a support to create a support plan.

The **Colosseum**® and **Plus**® roofing tile type metal sheet panels can be mounted, both from right to left and from left to right and from bottom to top. The metal sheet panels will be mounted perpendicular to the rain shadow.

The installation from left to right is indicated for frameworks that are inclined or with very long panels. Under the right edge of the already fixed panel, the next panel will be pushed under it, which will be supported by the first one. In the case of rectangular or square slopes, the panels are installed starting close to the fronton or fascia board. In the case of oblique frameworks (inclined ridge) it shall be started from the end edge of the ridge.



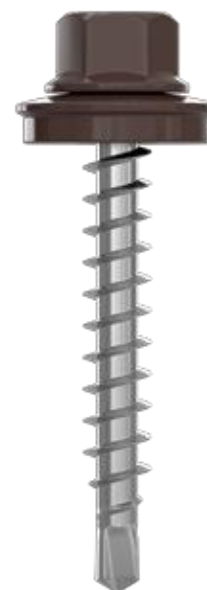


Capillary channel

In the case of mounting on a support made of wood, the metal sheet panels, as well as the closing elements, will be fixed to the support with 4.8 x 35mm drywall screws. The fastening of the panels between them in the longitudinal overlap area, as well as by the closing elements, will be done with sewing drywall screws 4.8 x 20 mm.



Sewing screws
(metal-metal)
4.8 x 20 mm



Fixing screw
4.8 x 35 mm



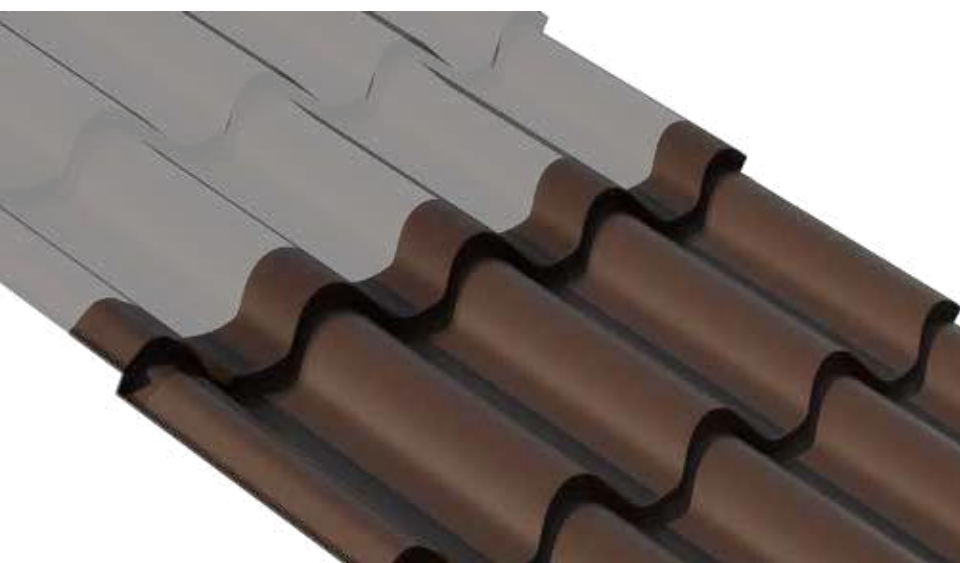
The part of the metal sheet panels with capillary channel will be mounted underneath, and the sewing screw will be applied above it.

16 Installation order



In the case of **Colosseum®** and **Plus®** roofing tile model, the presence of the capillary channel in the longitudinal overlap area determines the mounting order.

17 Overlapping the sheet panels

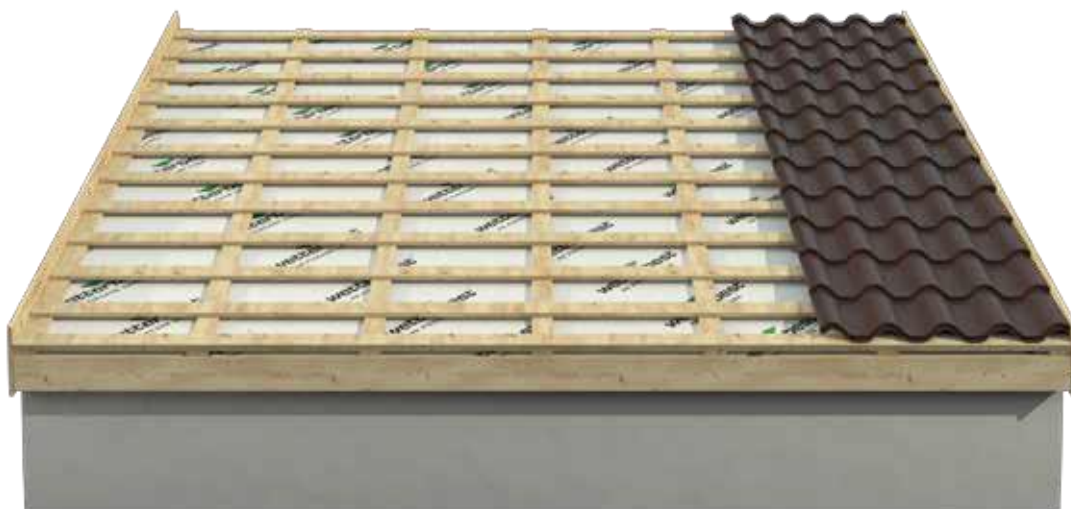


The minimum transverse overlap length is given by the chosen roofing tile model. The upper panel is fixed to the lower one with fixing screw (metal/wood) at the bottom of each second corrugation.

18

Positioning the sheet panels

The first metal sheet panel will align with the rain shadow so that it extend beyond the rain shadow with the top of the metal sheet panel. Secure the panel with one fixing screw in the rain shadow and another in the ridge area.

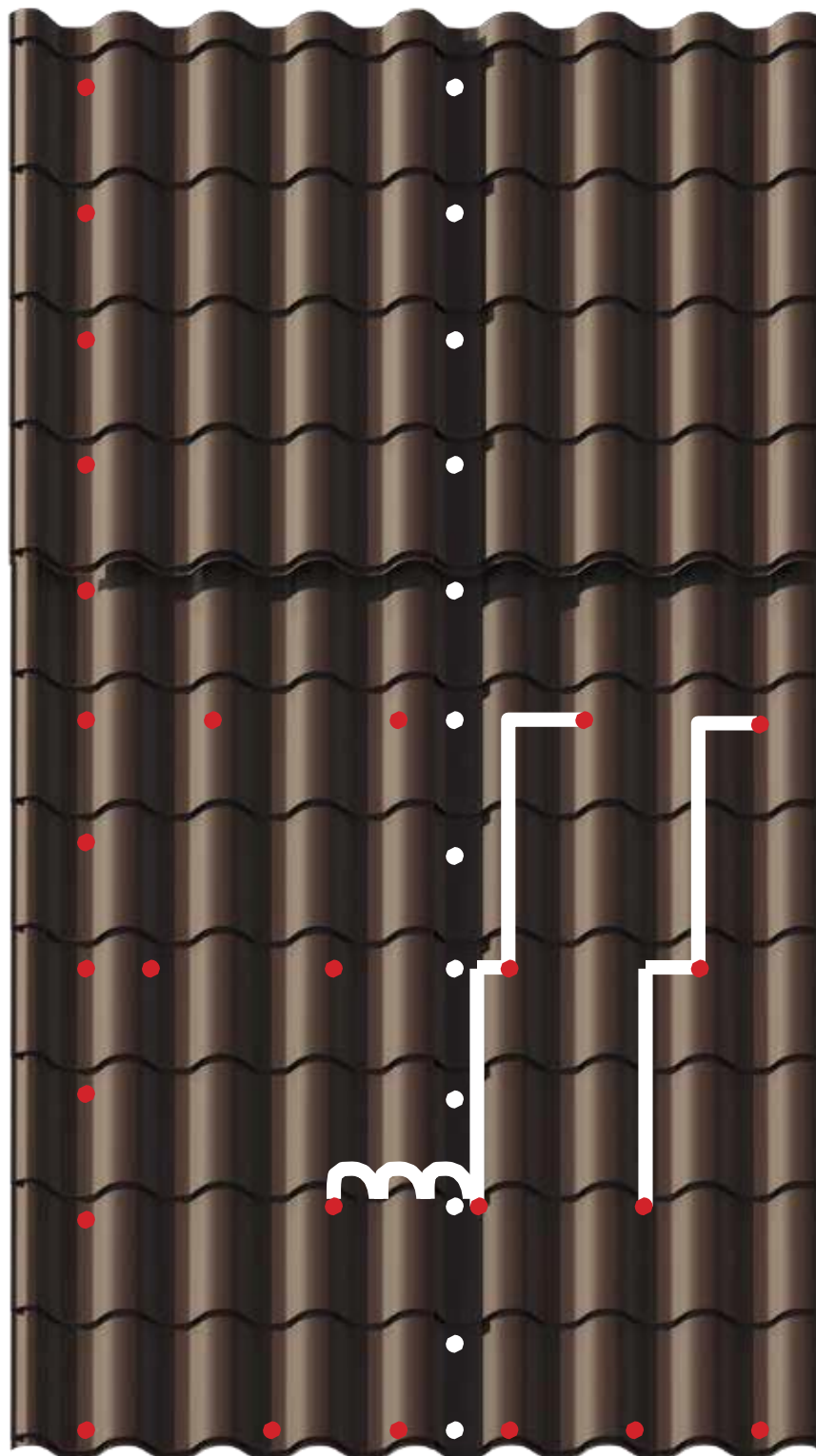


The second panel will align with the first one by pushing against the first panel. The two panels will be fixed to each other with sewing screws advancing from the rain shadow to the ridge.

Continue with a few other panels in the same way, if their position needs to be adjusted, you can loosen the fixing screw in the ridge or the rain shadow and reposition the panel assembly.



19 Fixing the sheet panels



Taking into account the forces acting on the coverings (wind and snow load), as well as the thermal movements of the panels in the hot/cold season, this must be fixed to the support to prevent detachment or infiltration. The metal sheet panels will be fixed to the support with fixing screws 4.8 x 35 mm in the rain shadow and ridge area at every two corrugations of the panels. In the fronton area, the panel will be fixed to each module with a fixing screw from the rain shadow to the ridge.

The sewing screws (metal-metal) indicated with white dots are positioned in the longitudinal overlap area of the metal sheet panels at each module before the capillary channel (detail chap. Installing the metal panels)

The positioning of the fixing screws in the field area of the metal sheet panels will start with a second module from the rain shadow and will continue upwards with two modules and one on the side. Continue on the same pattern over the entire surface.

The sewing screws (metal-metal) indicated with white dots are positioned in the longitudinal overlap area of the metal sheet panels at each module before the capillary channel (detail chap.

20 Fascia board

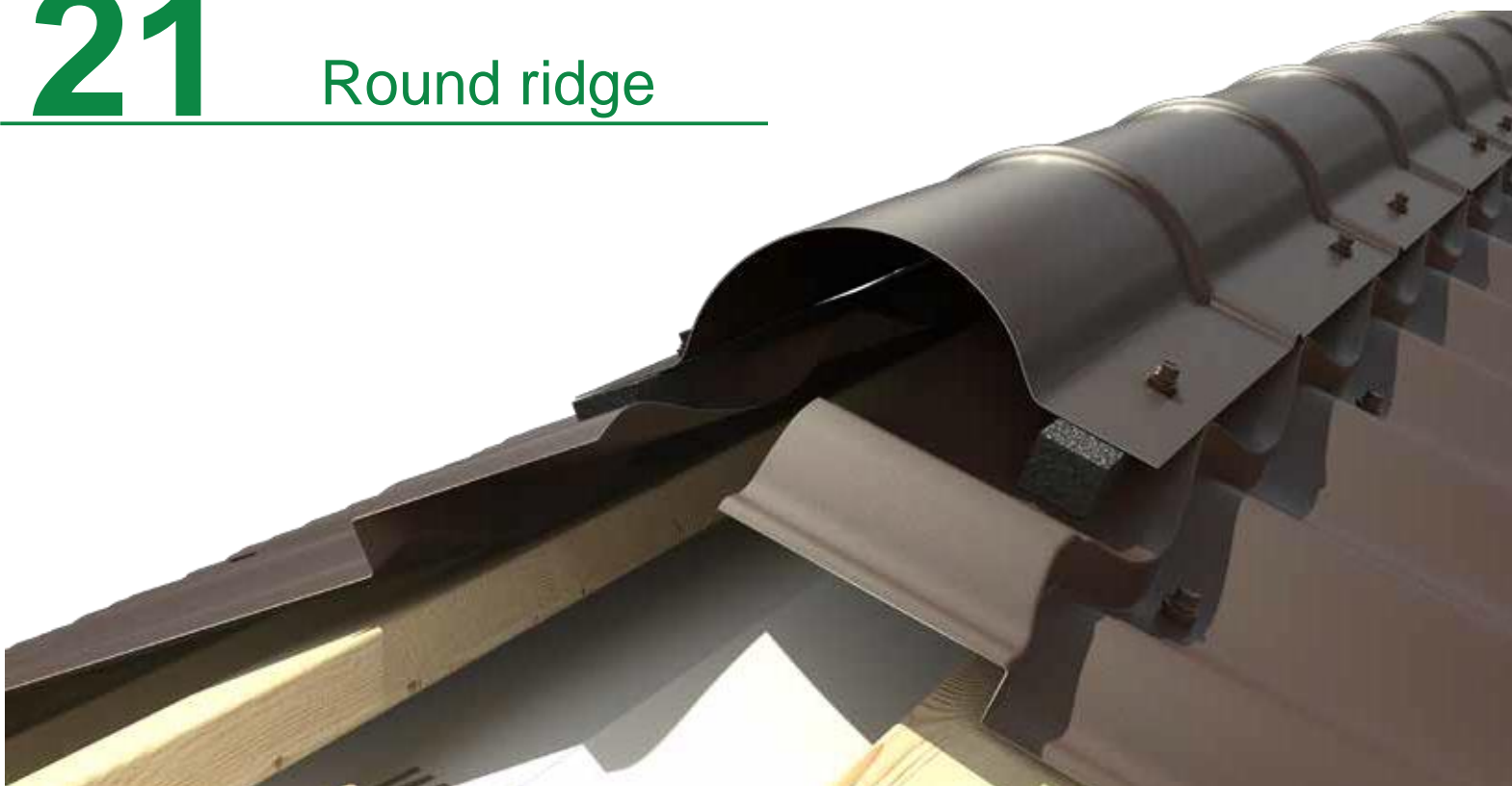


The fascia board profile is mounted starting from the rain shadow towards the ridge, draw and cut the excess. Fix the fascia board on the wooden fascia board side with fixing screws every one meter.

On the side of the metal sheet panels, the fascia board must cover at least one corrugation, the fronton collector will be mounted before fixing the metal sheet panels. Overlap the fascia boards at least 100 mm one above the other. The fascia board will be fixed to the metal sheet panels with sewing screws at each step.

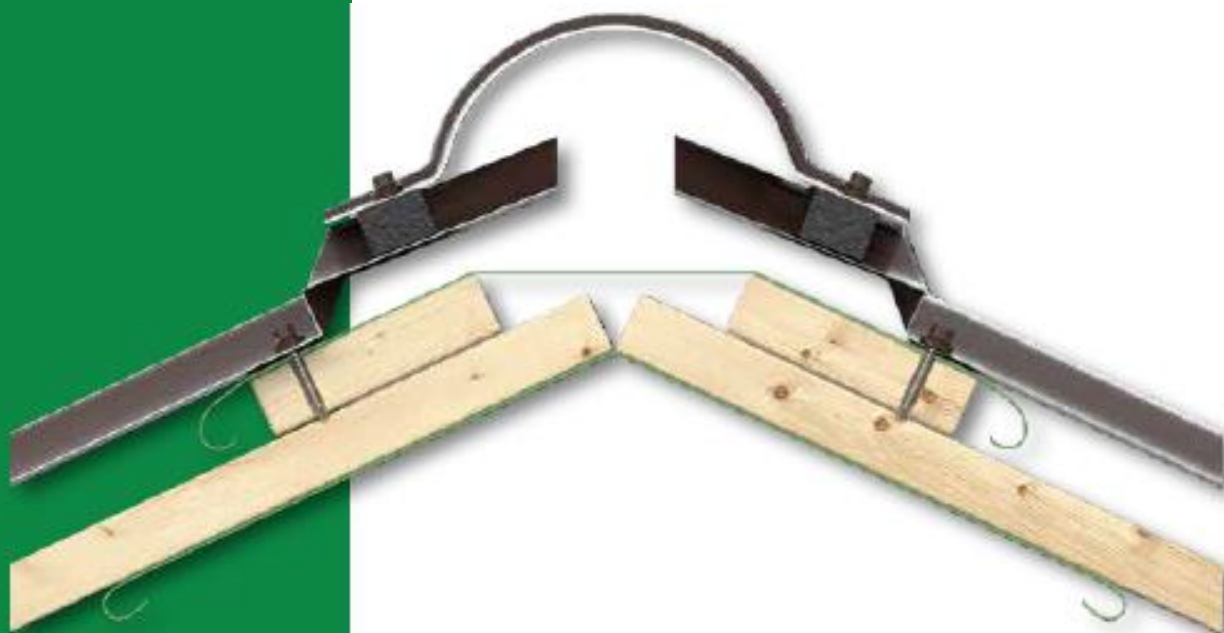
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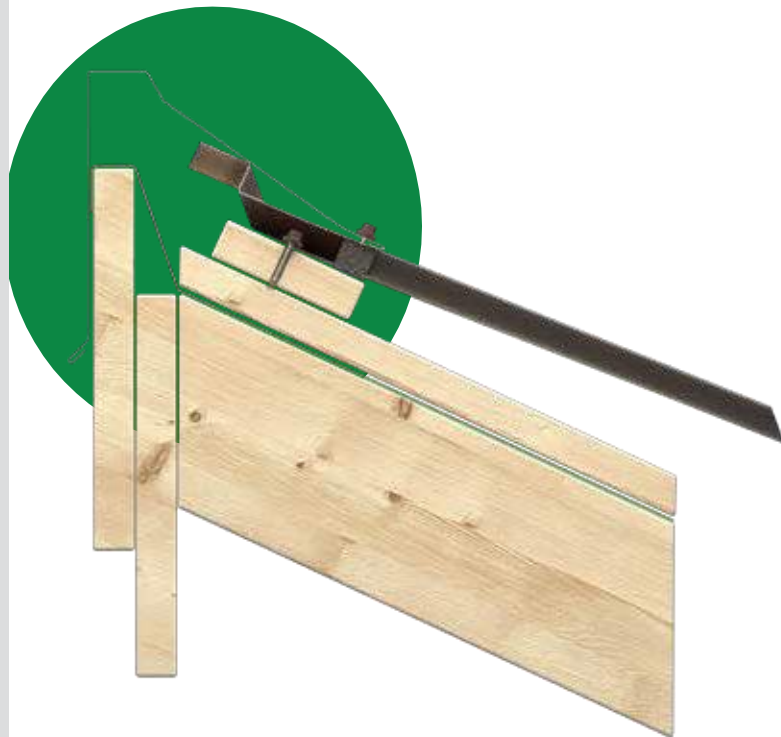
Round ridge



In order to fix the ridge to the metal sheet panels, 4.8 x 20mm sewing screws will be used next to each corrugation. Sealing sponges or ventilation strip will be used before securing the sealing ridge.

The ridge profiles will overlap at least 100mm, and the ridge cover will be fixed to the ridge with fixing screws. If sealing sponges are used, care must be taken to ensure a ventilation area by mounting ventilation elements on the ridge at intervals of 5 -6 ml of the ridge.





22 Semi-ridge

It is mounted on top of a covering with a single slope. The semi-ridge is fixed on the fascia board side with fixing screws every one meter. On the side of metal sheet panels, the semi-ridge is sealed with sealing sponges or ventilation strips.

The ridge profiles will overlap at least 100mm, and the ridge cover will be fixed to the ridge with fixing screws. If sealing sponges are used, care must be taken to ensure a ventilation area by mounting ventilation elements on the ridge at intervals of 5-6 ml of the ridge.

23 Dead wall Connection

The connection of the covering with a dead wall is made by means of closing profiles called:

Lateral dead wall connection



Front dead wall connection



For the coverings where we encounter 'dead wall connection' on the side, we recommend the use of the collector profile that will be mounted at the level of the grid (slat) and under the metal sheet panel.

The sealing of the dead wall profile with the masonry element till be done with a sealing solution (mastic/butyl). Attaching the support collector profile will be done by metal sheet clamps without drilling the profile.

In the case of the front dead wall connection, it is fixed to the metal sheet panel with sewing screws and also the sealing with the masonry element will be done with a cord of sealing solution. Sealing sponges or ventilated sealing strips will be used for sealing between the profile and the metal sheet panel. If sealing sponges are used, care must be taken to ensure a ventilation area by mounting ventilation elements on the roof plane.

24

Installing the slope breaking sort



The slope breaking profile is mounted at the intersection of two successive slopes with different inclinations. The slope breaking profile can be convex or concave, it ensure the transition from one slope to another.

The installation is done after the metal sheet panels have been mounted on the lower slope and is fixed to the metal sheet panels with fixing screws. Beforehand, the sealing sponge will be positioned under the slope breaking profile, which will be fixed with the application of the sewing screws. In the case of sealing slope breaks, both types of sponges (rain shadow/ridge) will be used. At the top, the 'slope breaking' profile will be fixed to the slat with nails, flat head screws or clamps.

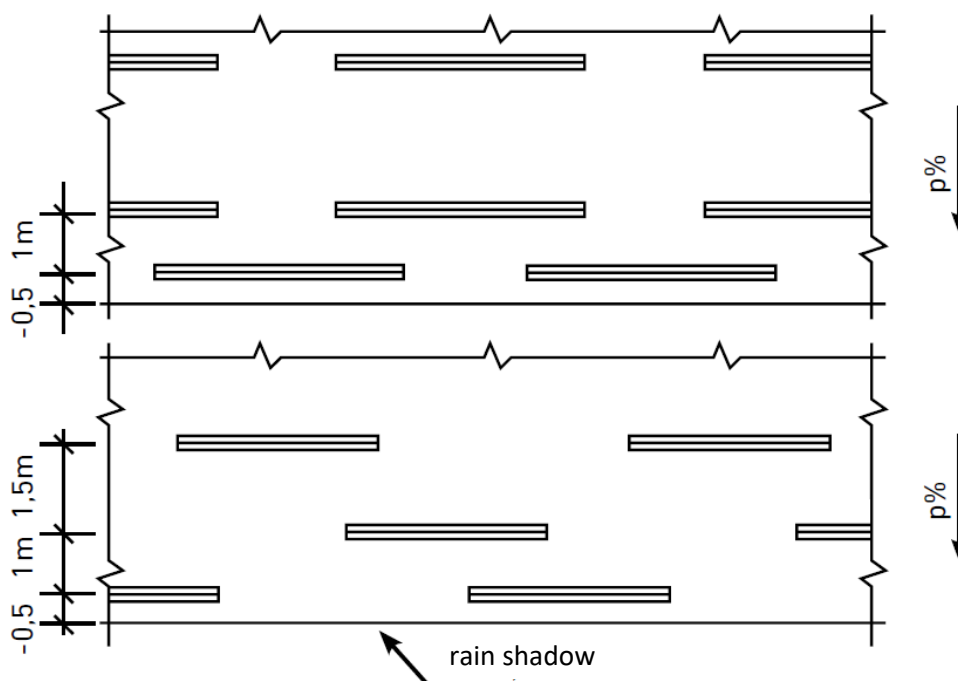


25 Snow stoppers / snow guard



The snow stoppers, namely the snow guards, are considered safety elements against snow falling from the covering. The designer will determine the installation of the snow guards, their number and type, depending on the slope of the covering and the level of precipitation.

The snow guard systems are positioned at a distance of approx. 40 - 50 cm from the edge of the rain shadow, they can be mounted staggered with spaces between them. 4.8 x 70 mm wood metal sheet drywall screws are used to fix them. Before fixing, we must make sure that there is a clamping support (slat) in the area where the screws are applied.



26

Installing the roof ventilation/penetration elements

Wetterbest® company has a wide range of ventilation and piercing systems (sleeves) for metal covering systems. In order to benefit from a functional roof for as long as possible, it must be considered to ensure an efficient ventilation of the space between the profiled metal sheet and the support (revetment/support structure).

In order to keep this area dry and to quickly remove condensation water upon the installation of the covering, you must provide spaces for air to flow in the rain shadow/ridge direction and ensure free drainage of the chimney. For increased efficiency, we recommend the use of the ventilation elements that allow a higher air flow.

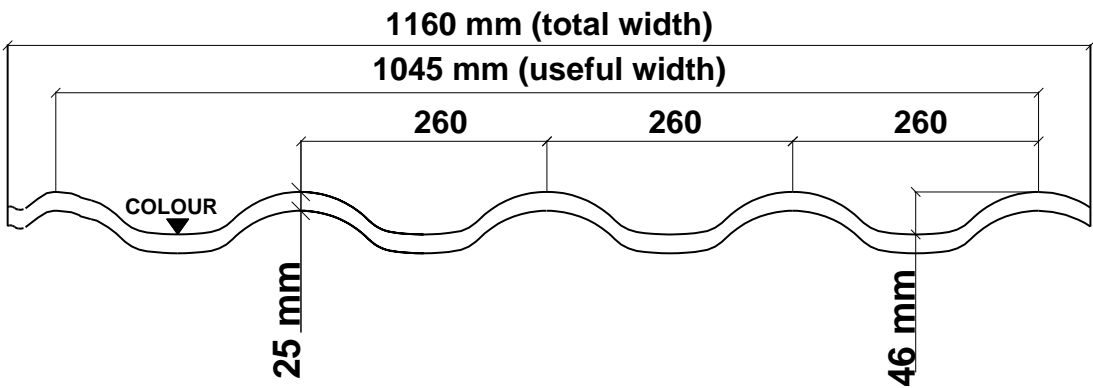
These elements are dedicated and copy the shape of Wetterbest® roofing tile panels to ensure a secure seal between it and the roofing tile profile. The ventilation-specific installation instructions are available with the product depending on the model chosen.



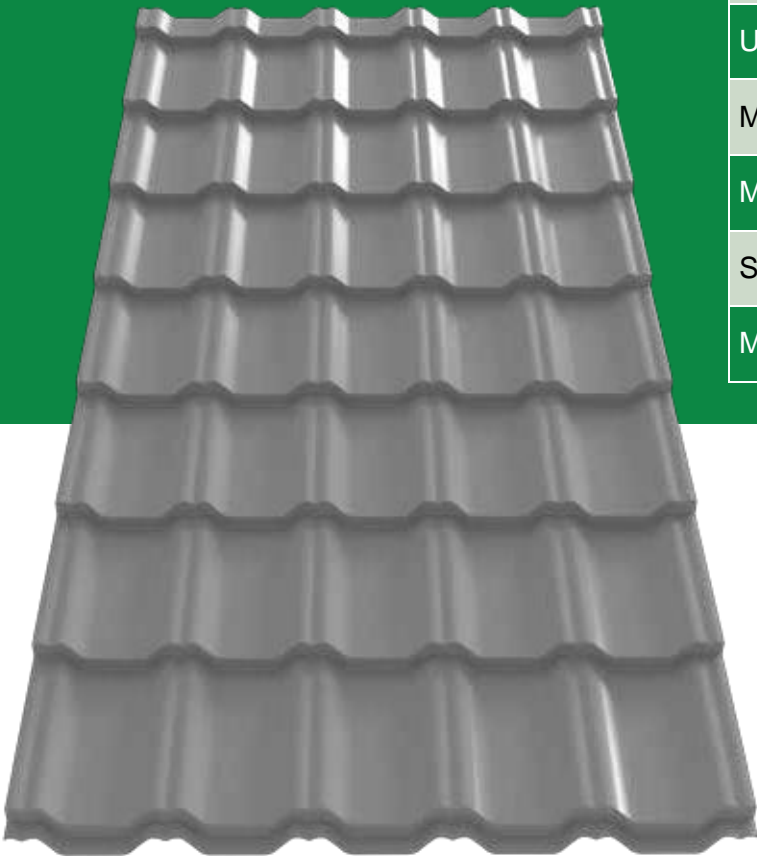
Wetterbest Colosseum® Technical Sheet



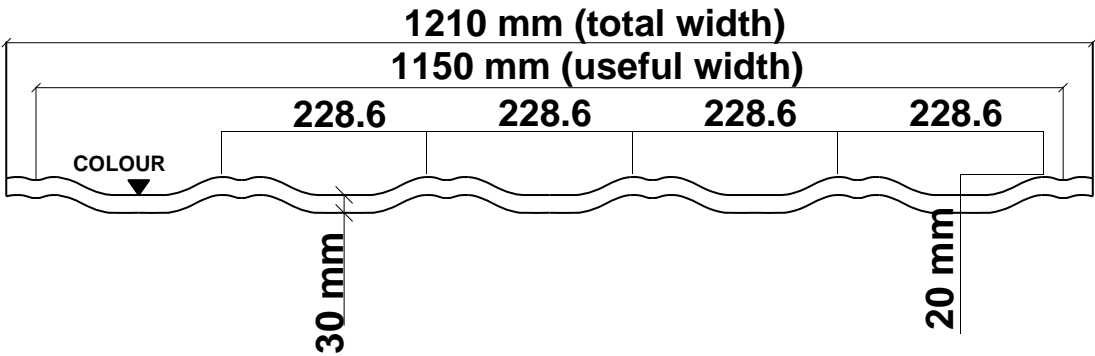
Wave height:	46 mm
Useful width	1045 mm
Minimum length	450 mm
Maximum length	6000 mm
Slat distance	350 mm
Minimum roof slope	14°



Wetterbest Plus® Technical Sheet



Wave height:	20 mm
Useful width	1150 mm
Minimum length	430 mm
Maximum length	3230 mm
Slat distance	350 mm
Minimum roof slope	14°



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