

## IMPORTANT INFORMATION

The application and detail drawings in this manual are strictly for illustration purposes and may not be applicable to all building designs or product installations. All projects should conform to applicable building codes for that particular area. It is recommended to follow all building regulations and standard industry practices.

ecoMetals, Co. is not responsible for the performance of this roof system if it is not installed in accordance with the suggested instructions referenced in this manual.

Prior to ordering and installing materials, all dimensions should be verified by field measurements. ecoMetals, Co. reserves the right to modify, without notice, any details, recommendations or suggestions. Any questions you may have regarding proper installation of the ecoMetals Roofing Panels should be directed to ecoMetals, Co. Consult ecoMetals, Co. for any additional information not outlined in this manual. This manual is designed to be utilized as a guide when installing the ecoMetals Roofing Panels. It is the responsibility of the installer to ensure the safe installation of this product system.

### SAFETY

Study applicable OSHA and other safety requirements before following these instructions.

The installation of metal roof systems is a dangerous procedure and should be supervised by trained knowledgeable installers. Use extreme care while installing roof panels. It is not possible for ecoMetals, Co. to be aware of all the possible job site situations that could cause an unsafe condition to exist. The installer of the roof system is responsible for reading these instructions and determining the safest way to install the roof system.

These instructions are provided only as a guide to show a knowledgeable, trained installer the correct parts placement one to another. If following any of the installation steps would endanger a worker, the installer should stop work and decide upon a corrective action.

Do not use the roof panels as a walking platform. The roof panels will not withstand the weight of a person standing on the panel until the panels have been attached.

### HANDLING MATERIAL

#### RECEIVING MATERIAL

It is the responsibility of the installer to unload material from the delivery truck.

After receiving material, check the condition of the material, and review the shipment against the shipping list to ensure all materials are accounted for. If damages or shortages are discovered, it should be noted on the Bill of Lading at the time of delivery. A claim should be made against the carrier as soon as possible. ecoMetals, Co. is not responsible for any damages or shortages unless they are documented in writing and presented to EcoMetals, Co. immediately.

#### GENERAL HANDLING

##### CAUTION

Improper loading and unloading of bundles and crates may result in bodily harm and/or material damage. ecoMetals, Co. is not responsible for bodily injuries and/or material damages resulting from improper loading and unloading.

Each panel should be handled carefully to avoid being damaged. Care should be taken to prevent bending of the panel or abrasion to finish. To avoid damage please lift the panels at its center of gravity.

Some products may have a peel-off (strippable film) plastic coating over the painted surface. This coating was factory applied to prevent damage to the finish that may occur during manufacturing or shipping. If this coating is present, avoid exposure of the "strippable film" parts to sunlight and remove the "strippable film" prior to installation.

#### MECHANICAL HANDLING

**FORKLIFT** - A forklift may be used for panels up to 20'-0" long. Please make sure the forks are at their maximum separation. When transporting panels across rough terrain, or over a longer distance, some means of supporting the panel load must be used.

**CRANE** - A crane should be used when lifting panels with lengths greater than 20'-0". Please be sure to utilize a spreader bar to ensure the even distribution of the weight to the pick up points. As a rule, when lifting panels, no more than 1/3 of the length of the panel should be left unsupported. Never use wire rope as this will damage the panels.

**MANUAL HANDLING** - Installers should wear rubber sole shoes to keep from scuffing material while walking on the roof.

Handling of individual panels should be done carefully and properly to avoid bending or damaging. ecoMetals Roofing Panels should be carried by grasping the edge of the panel so that the panel is vertical to the ground. The panel should not be carried with the flat of the panel horizontal to the ground as this could cause the panel to buckle or bend in the center. The weight of a 20'-0" ecoMetals Roofing Panel is approximately 75 pounds.

### STORAGE

#### GENERAL

Please inspect panels for moisture accumulation. If moisture has formed, the panels should be un-bundled, wiped dry, and allowed to dry completely. Once dry, carefully restack the panels and loosely recover allowing for ample air circulation. Bundled panels should be stored high enough off of the ground to allow for air circulation and prevent contact with accumulating water. If possible, elevate one end of the bundle to allow any moisture to run off the panels. ecoMetals, Co. recommends covering the bundle with a tarpaulin. Do not use tight fitting plastic-type tarpaulins as panel bundle covers. While they may provide protection from heavy down-pours, they can also retard necessary ventilation and trap heat and moisture that may accelerate metal corrosion. If panels are to be stored in possible bad weather, we suggest they be stored inside. Extended (more than 90 days) storage of panels is not recommended. Under no circumstances should the panels be stored near or come in contact with salt water, corrosive chemicals, ash or fumes generated or released inside the building or nearby plants, foundries, plating works, kilns, fertilizer, and wet or green lumber.

#### FOOT TRAFFIC

Care of metal panels and flashings must be exercised throughout erection. Foot traffic can cause distortion of panel and damage to finish. Traffic over the installed system must be kept to an absolute minimum. Installers should wear rubber sole shoes to keep from scuffing material while walking on the roof.

##### CAUTION

Avoid walking on panels when wet.

### FIELD CUTTING AND TOUCH-UP

#### FIELD CUTTING

Tin snips or "nibbler" type electric tools are recommended for field cutting ecoMetals Roofing Panels. Cutting the steel

generates slivers or metal chips. These slivers and metal chips must be immediately removed from the panels because they will damage the finish and shorten the life of the product.

One method of preventing this problem is to flip the panels over when cutting. This allows the slivers and metal chips to be brushed from the back side and avoids damaging the paint on the top side of the panels.

##### CAUTION

All product surfaces should be free of debris at all times. Installed surfaces should be wiped clean at the end of each work period. Never cut panels over metal surfaces. Metal shavings will rust on the surface, voiding the warranty.

#### TOUCH-UP PAINT

All painted panels and flashings have a factory applied baked on finish. Handling and installing panels may result in some small scratches or nicks to the paint finish. Touch-up paint is available in matching colors from ecoMetals, Co. It is recommended that a small brush be used to apply touch-up paint to those areas that are in need of repair. Touch-up paint does not have the superior chalk and fade resistance of the factory applied paint finish and will normally discolor at an accelerated rate. Aerosol paint should not be used.

### INSTALLATION CONSIDERATIONS

#### GENERAL

ecoMetals Roofing Panels are recommended to be installed directly over a wood substrate (minimum 5/8") with synthetic underlayment. Always check with local building codes prior to all installations for any additional requirements that may be specific to your area.

#### CONDITION OF SUBSTRUCTURE

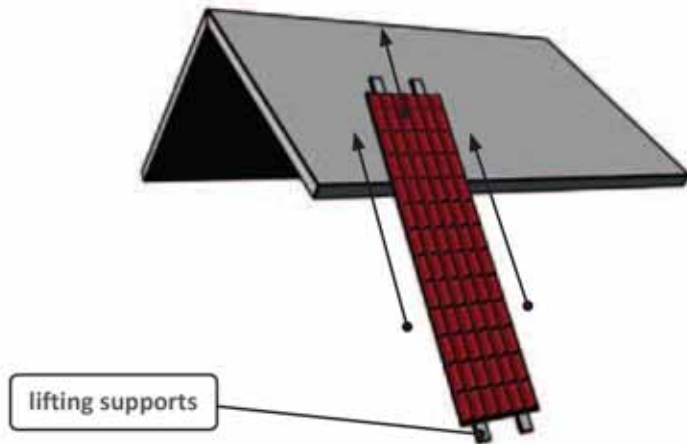
The roof should be inspected for any trapped moisture or structural damage such as warped or loose roof decking. These areas should be repaired prior to installing new ecoMetals Roofing Panels. Prior to installation make sure there are no nails or fasteners protruding from the wood substrate which could damage the panels and impede the installation process. Special attention must be given to valleys, ridge, rake and eave areas.

When installed, panel distortion may occur if not applied over properly aligned and uniform substructure.

Whether installing over new or existing roof, the installer should check the roof deck for squareness before installing ecoMetals Roofing Panels.

#### VENTILATION

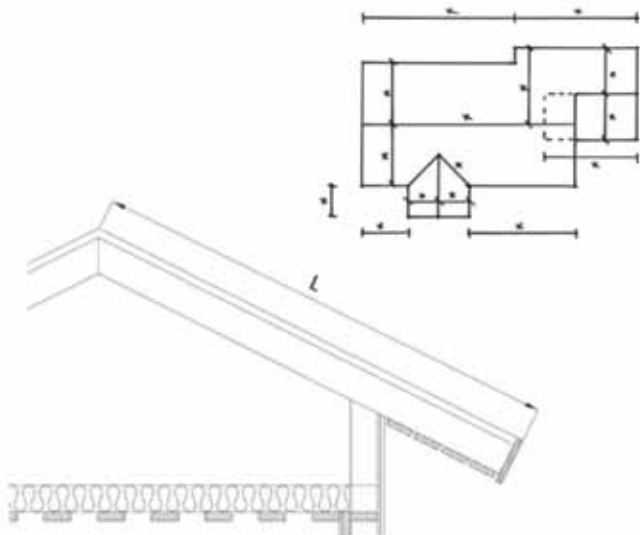
Proper design and installation of vapor barriers and ventilation systems are important to prevent condensation and the resulting problems of moisture damage and loss of insulation efficiency. On buildings that have an attic space, vents should be placed at both the eave and peak of the roof in order to prevent a buildup of moisture (humidity) in the attic space.



### Lifting and laying out the sheets

When handling individual panels, remember that long panels must not be lifted by their ends or allowed to rub against each other. The best way is to lift them from the side edges. Individual panels are lifted onto the roof along supports that run from the eaves to the ground.

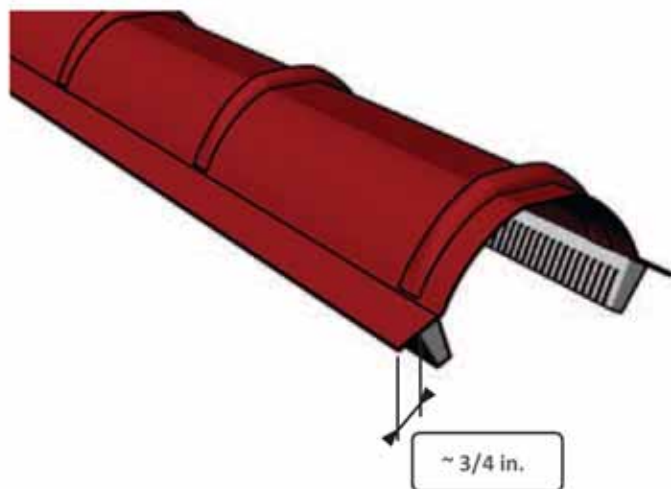
The panels are lifted onto the roof for installation along supports, and lifting can be aided from the ground by pushing the panels from their sides. Do not go under the panels during lifting.



### Ordering the roof

Roofing system is delivered on the basis of measurements provided by the customer. These measurements can easily be found in structural drawings. You can also draw a simplified model including the all necessary measurements.

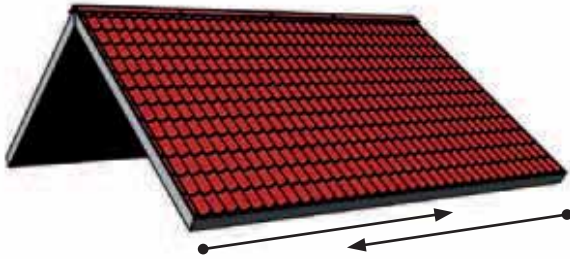
The length (L) of a roofing panels is measured from the outer surface of the furthest fascia board at the eaves to the middle of the ridge. In order for you to obtain the right measurements for the order, it is useful to check the measurements of all roof panes in different places.



### Ridge closure

Apply universal closure to the ridge cap before fixing the cap to the roof. Remove the cover tape from the universal closure and apply the filler under the ridge cap about 3/4 in. from the edge in the ridge direction.

It is not recommended to fix screws through the closure.



### Installation method and direction

Panels can be installed from left to right or vice versa. When working from left to right, the edge of the preceding panel is lifted and the following panel's edge is pushed under it. By this means, the latest sheet is supported by the preceding panel's stamps, preventing the panel from sliding down during installation. This is helpful on steep-pitch roofs or when installing long panels.

With gable roofs, the installation of the roofing panels is usually started at the gable, and with hipped roofs usually at the middle. The sheets are always aligned with the eaves, not the gable.

Try to start the installation with long panels, as that will make aligning the panels with the eaves (at a right angle) easy.

### Fastening

#### Fixing the panels in place

Fix panels to the decking at the lowest point of the wave profile, just below the stamps of the panels.

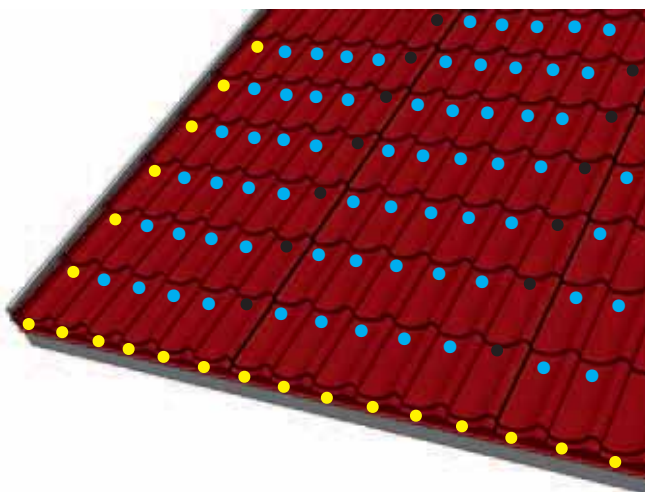
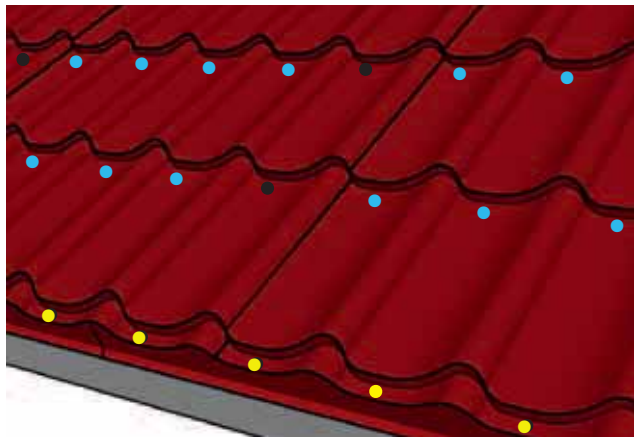
At the overlap joint, fix the panels to the decking at the lowest point of the wave profile below each of the stamps of the panels.

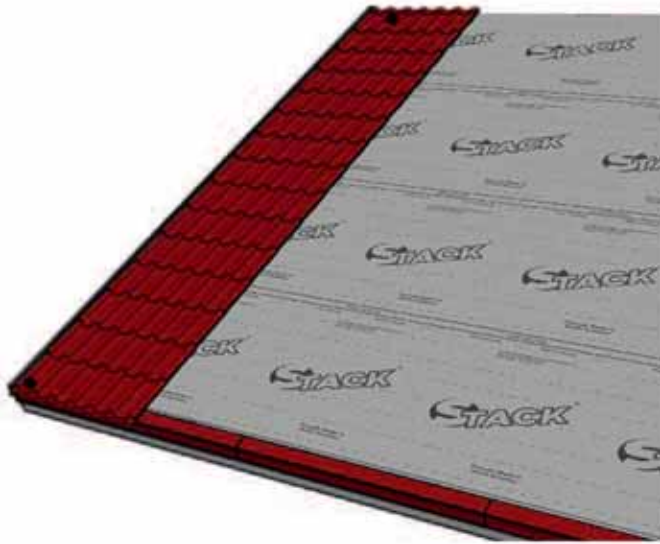
At eaves fix the panels into decking at every second wave.

- - Fixing screws for gables and eaves
- - Fixing screws for overlap joint
- - Fixing screws

Fixing the screws on the roof panel should be started at the gable side, moving right skip 1st and 5th column. In column 2,3 and 4 follow the blue dotted pattern.

The instructions for laying and fixing of the panels take into account issues such as the possibility of wind lifting the panels' edges, thermal movement, and the tightness and appearance of the panel joints.

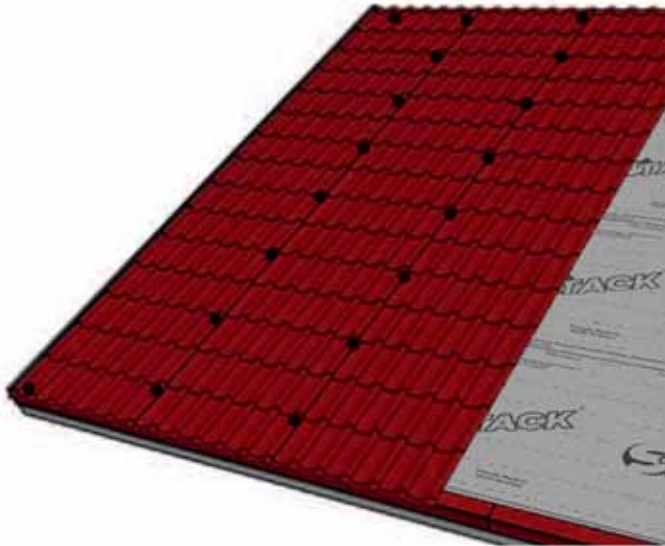




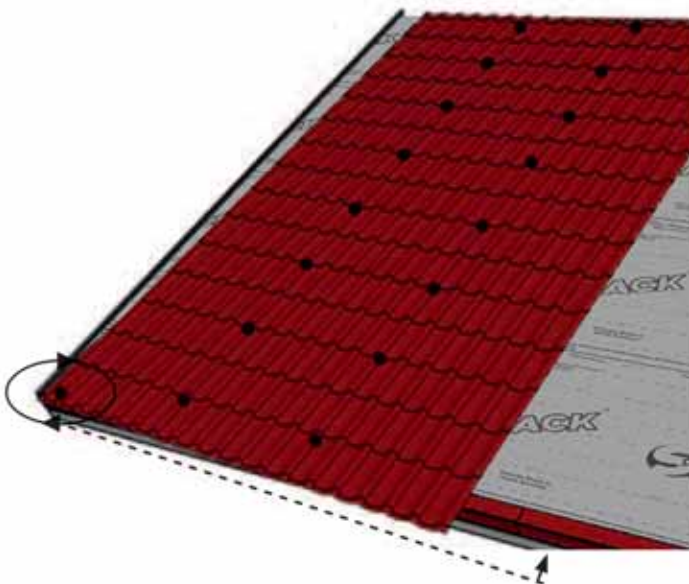
## Installing the sheets

At the side where the roofing is started, fasten the first panel in place, leaving a sufficient overhang over the eaves (approx. 1/4 - 1 inch).

Attach the panel at the eaves with a single screw and temporarily at the ridge.



Fix the next panels at the overlap joint at the highest point of the profile, below every second of the stamp. Install two or three sheets in this manner.



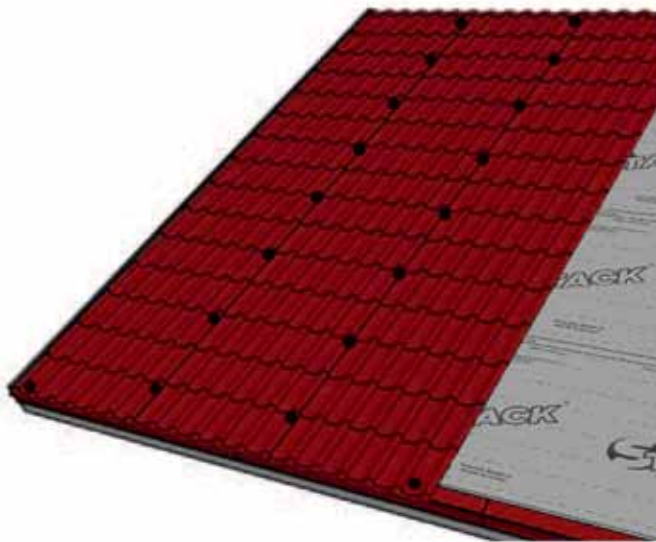
Remove the screw from ridge and align the panels with the eaves. This can be done by measuring to ensure that the length of the overhang is equal at the left and right corner of the sheet (approx. 1/4 - 1 inch).

Lock the panel alignment at eaves with a single screw.

Continue the installation with the next panels. Attach the panels to the decking and at overlaps according to the screwing instructions (p. 3).

Continue the installation as described.

Brush off any cutting and drilling debris from the finished roof panels, using a soft brush.



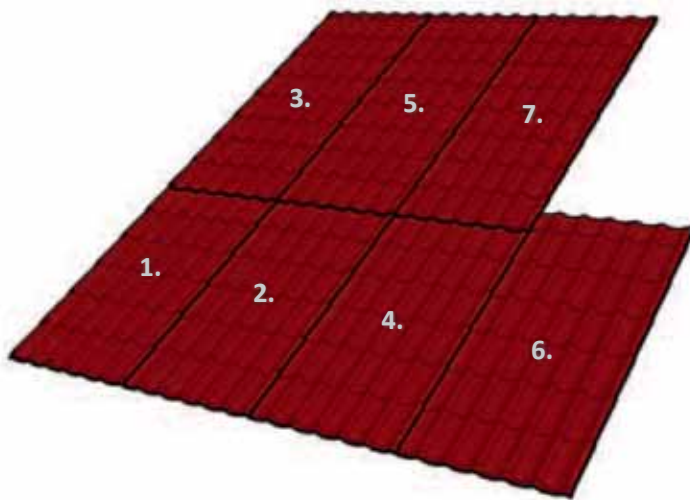
Fix the first sheets in place according to the screwing instructions (see p. 3).

Continue the installation with the next sheets. Attach the sheets to the decking and at overlaps according to the screwing instructions (p. 3).

Continue the installation as described.

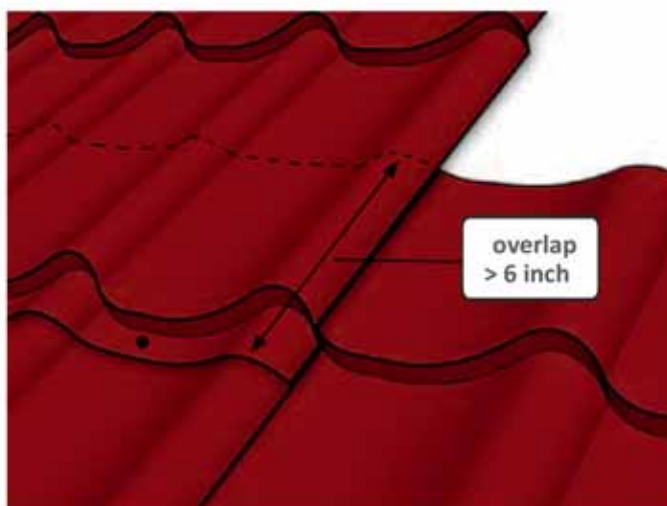
**Overlap screws at highest point of the profile are only used when aligning the sheets with the eave.**

Brush off any cutting and drilling debris from the finished roof panels, using a soft brush.



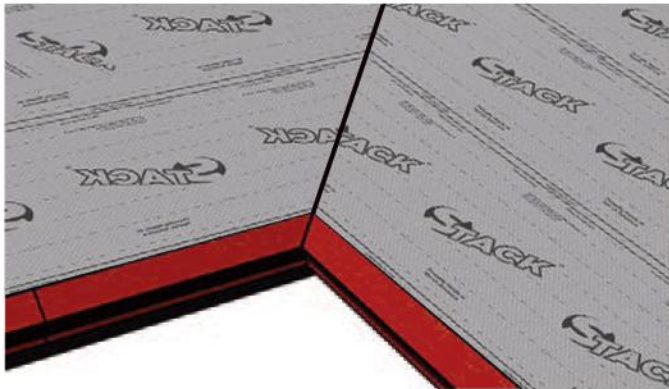
### Longitudinal joining

When doing longitudinal joining with panels install panels according to order in picture. The capillary slot in overlapping edges determines the order of installation.



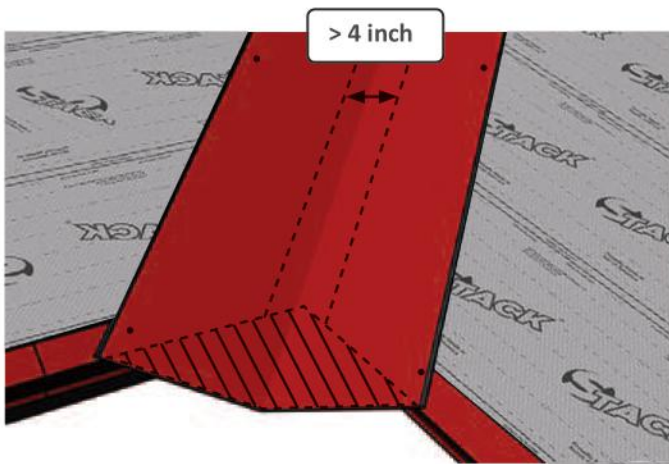
A panel is overlapped at the profile's stamp by at least 6 in. and fixed at the bottom of the wave into the decking below the stamp.

To maintain the appropriate layout of the roofing panels, lay the panel such that the top and bottom panel patterns are aligned precisely with each other.



## Building of the roof valley

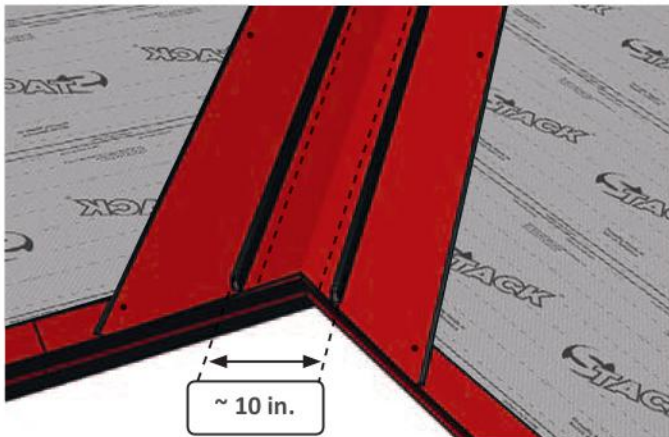
Cut the eaves trims to shape, and install in the corner of the roof valley.



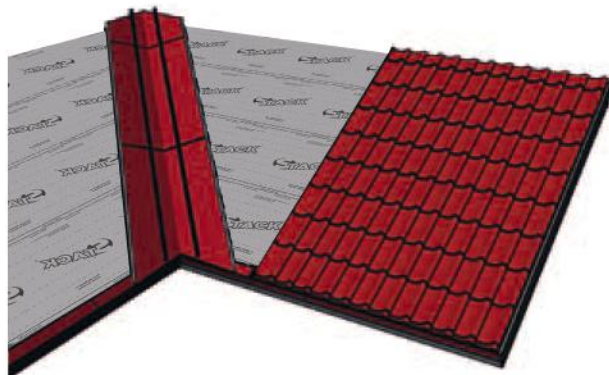
Fit the valley trim in place. Fasten the trim in place with fasteners. The valley trim should have a vertical overlap of at least 12 inch at the joints. The use of sealing compound to seal the overlap is recommended.

Cut and shape the bottom end of the valley trim on the basis of the alignment of the eaves.

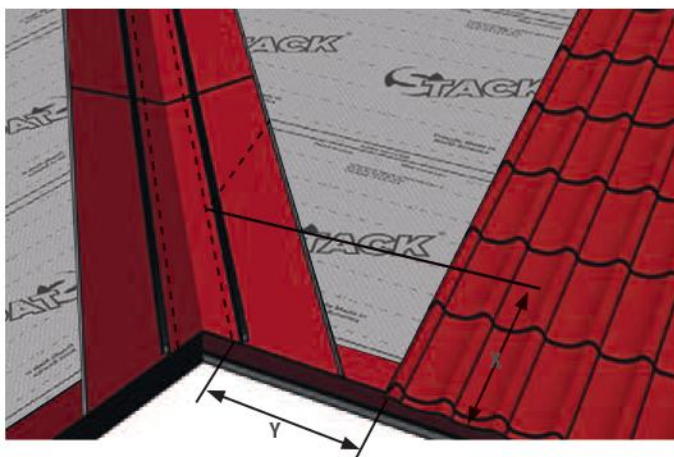
Draw guide lines on the valley trim to show the alignment of the panels along the roof valley. The minimum distance between the guide lines (indicating the position of the roofing sheets) must be at least 4 inch. The valley trim must extend at least 10 inch beneath the roofing sheets.



Apply universal closure to the valley trim: remove the cover tape from the universal closure and apply it about 3 in. from the guide lines in the edge direction of the valley trim.



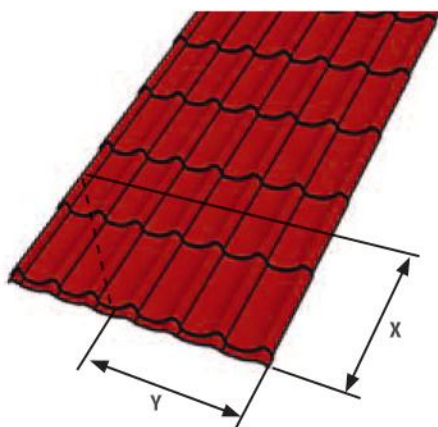
Lay the full-size roofing panels. Leave the panels that require cutting uninstalled at this stage.



Measure the space for the panel, measuring from the guide line to where the panel overlap ends.

First draw an indication line on the decking to where the next panel ends.

Two measures are needed to be able to cut the panels to valley. The width at the lowest point of the panel (Y) and the distance from eave to indication line where the panel overlaps ends (X).



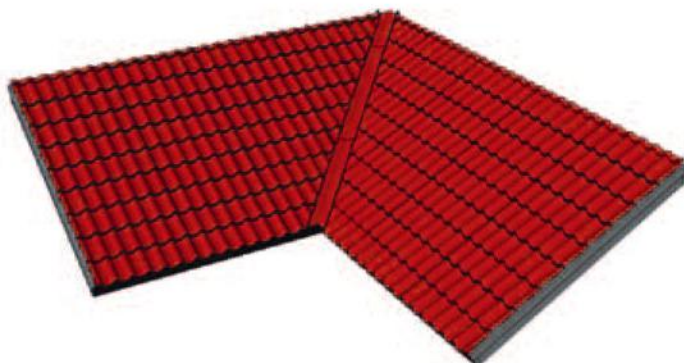
Draw the measured cutting line on the panel.

Cut the panel.



Install the cut panels up to the top of the valley, making sure as you proceed that the angle of the valley follows the guide line you have drawn.

Fix the panels installed in the valley with fasteners.



Continue the installation as described.

Brush off any cutting and drilling debris from the finished panels, using a soft brush.