Product Instruction Sheet:

Mineral Wool Roof Cover Panel

R. MW 5.15

Packaging

The mineral wool roof cover panels are packed in bundles. In order to reduce the volume of the bundles and protect the panels, the panels are piled up in the bundle with their faces facing each other, as shown in the adjacent image.

Under the bundle, expanded polystyrene block supports are placed in order to protect and facilitate the transport by crane or by forklift.

The entire bundle is wrapped with a transparent polyethylene film to protect the products from environmental conditions, according to the bundling machine boundaries.

Upon request, it is possible to place a self-adhesive transparent polystyrene film on the outer surfaces of the panels to protect the paint coating against mechanical damages.

The adhesive film should be removed immediately upon receipt of the product and in no case later than 4 weeks after the date of manufacture. Panels with adhesive film should never be exposed to rain and to solar radiation.

The dimensions of the bundle vary. The table on the right shows the number of panels in the bundle, the overall height of the bundle and the weight per length (meters), in relation with the thickness of the panels.

The overall width of the bundle does not exceed 1100mm.

The total length of the bundle depends on the desired panel length of each order and is from 2m to 14m.

The total height of the bundle depends on the desired panel thickness of each order and is not more than 1000mm.

Nominal panel thickness	Number of panels per bundle	Overall bundle height	Weight per meter of length
[mm]		[mm]	[kg/m]
50	12-10-10	900 / 2700	182 / 486
60	10-10-8	850 / 2680	159 / 445
80	8-8-6	840 / 2610	146 / 402
100	6-6-6	750 / 2550	119 / 358
120	6-6-4	870 / 2620	133 / 355
150	4-4-4	700 / 2400	101 / 303
200	4-4-2	970 / 2500	122 / 305

Shipping

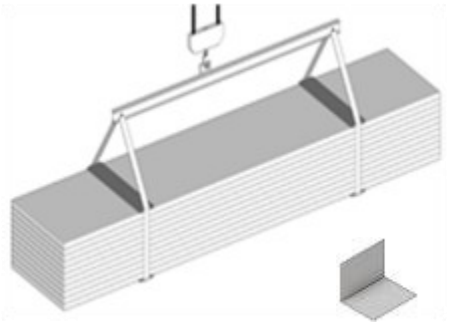
The transportation of the shipments is made by truck carriers by land using the road network.

Upon request or if the conditions require, it is possible to dispatch the products in containers. It is necessary to use special equipment for loading and unloading products.

In case of transportation with container, table values do not apply. Packages and dimensions depend on the type of the container. They are suitably matched for full volume coverage. The technical department of the company can carry out a preliminary loading assessment, upon request.

MINERAL WOOL ROOF COVER PANEL R. MW 5.15 INSTRUCTION SHEET

Product unloading



The unloading of the bundles can be done either by crane or by forklift. It is a procedure that falls under the customer's responsibility.

Unloading by crane

The bundles are hung with synthetic fiber straps at least on two points. The distance between the straps must not be less than half the length of the panels. Commonly the distance between the straps is the 3/5 of length of the panels. It is recommended to use synthetic fiber straps with a width of not less than 100mm. It is not advisable to use chains or wire ropes.

Wooden or plastic planks can also be used as spacers. Their length must be greater than the width of the panels (40mm) and their width at least the same as the width of the straps. We recommend the use of 1 mm thick metallic angles and twice the width of the straps at the points of contact of the straps with the bundle to avoid deformation of the panel edges.

Lifting devices must be secured to prevent slipping. Movements should be done carefully, slowly and gradually.

Take into account the total weight and length of the panels as well as the possible bending of the bundle. The bend arrow must not exceed the maximum permissible limits.

Unloading by forklift

It is recommended to use forklift trucks suitable for handling panels or related products with the possibility of bearing extension attachments for the distance between the forks.

The width of the forks must be at least 250 mm and the distance between them not less than 2 m. The final opening should be not less than the 3/5 of the length of the panels.

Storage

The bundles can be stored on the ground on top of supporting boards. They can be stacked on top of each other, but not more than 3 bundles per stack.

They can be stored either indoors or outdoors. In any case they must be protected against environmental conditions. It is recommended to remove the package (film) before storage.

Storage time **indoors** should not exceed 6 months and the storage room should be dry and well ventilated. Storage time **outdoors** should not exceed 60 days. It is recommended to place the bundles with 5% slope for the drainage of the rainwater.

As long as the paint coating is unattached the panels are protected against oxidation.

It is generally advisable to install the panels as soon as possible and not later than 1 month from the day of receipt.

When transporting using containers, bundles must be unloaded in less than 15 days.

Protect the panels from direct sunlight, rain, moisture, dust and from mechanical damages.

Handling

Always use Personal Protective Equipment (such as protective gloves, safety shoes, workpieces, etc.) in accordance with the regulations. Do not use metallic tools and lifting devices that may damage the panels or the coating.

Generally handling the panels is a two persons job. Lift the panel and place it carefully upright next to the bundle. Do not drag the panels together. Avoid in any case to damage the surface coating.

The panels are transported in a vertical position by personnel comprising at least two people. The number of people depends on the length.

It is strongly recommended not to place packages on high-rise constructions.

Otherwise, secure and anchor the packages in order to avoid the risk of a fall that can lead to serious or even mortal injury.

MINERAL WOOL ROOF COVER PANEL R. MW 5.15 INSTRUCTION SHEET

Installation

The panels should only be installed by qualified personnel with appropriate knowledge and experience. Always refer to the construction plans for proper installation. Additional instructions can be provided by the technical department of the company.

To avoid unnecessary losses and damaging the panels, use the appropriate equipment and tools. A circular saw or jigsaw can be used to cut the panels on site. Tools with abrasive or friction discs are not recommended. Also suitable are drills and screw drills, without impact, with adjustable torque.

- The mineral wool roof covering panels are designed to cover roofs with a slope of not less than 10%.
- Roofs with a slop of 10% to 15% can be covered with one-piece panels if the length from ridge to eave is less than 14m.
- In roofs with a slope of more than 15% it is recommended to install more than one panel in the direction of the slope. In this case the panels must have a transverse overlapping configuration.
- Roof openings and sunlight attachments can be installed. It is recommended to follow the instruction of the foreman and our technical department.

Transversal Overlap

Panels are usually supplied without transversal overlap. The overlapping (removal part of the inner metal face and core) is done on the project site. However, it is possible the transversal overlap to fabricated at the factory if requested.

In this case, it must be clear from the outset whether the overlap will be left or right. This depends on the manufacturer of the project that has studied and specified the roof coverage.

The direction of coverage depends on the direction of the wind and is recommended to be opposed to it. Also the length of the overlap depends on the intensity of the wind.

The usual overlap length is 200-250mm and is enough for most applications.

The following sketches give a schematic illustration of the cover direction.

In figure 1, (left overlap) the cover direction is from left to right and and from the eave to the ridge.

In Figure 2, (right overlap) the cover direction is from right to left and from the eave to the ridge.

Left overlap

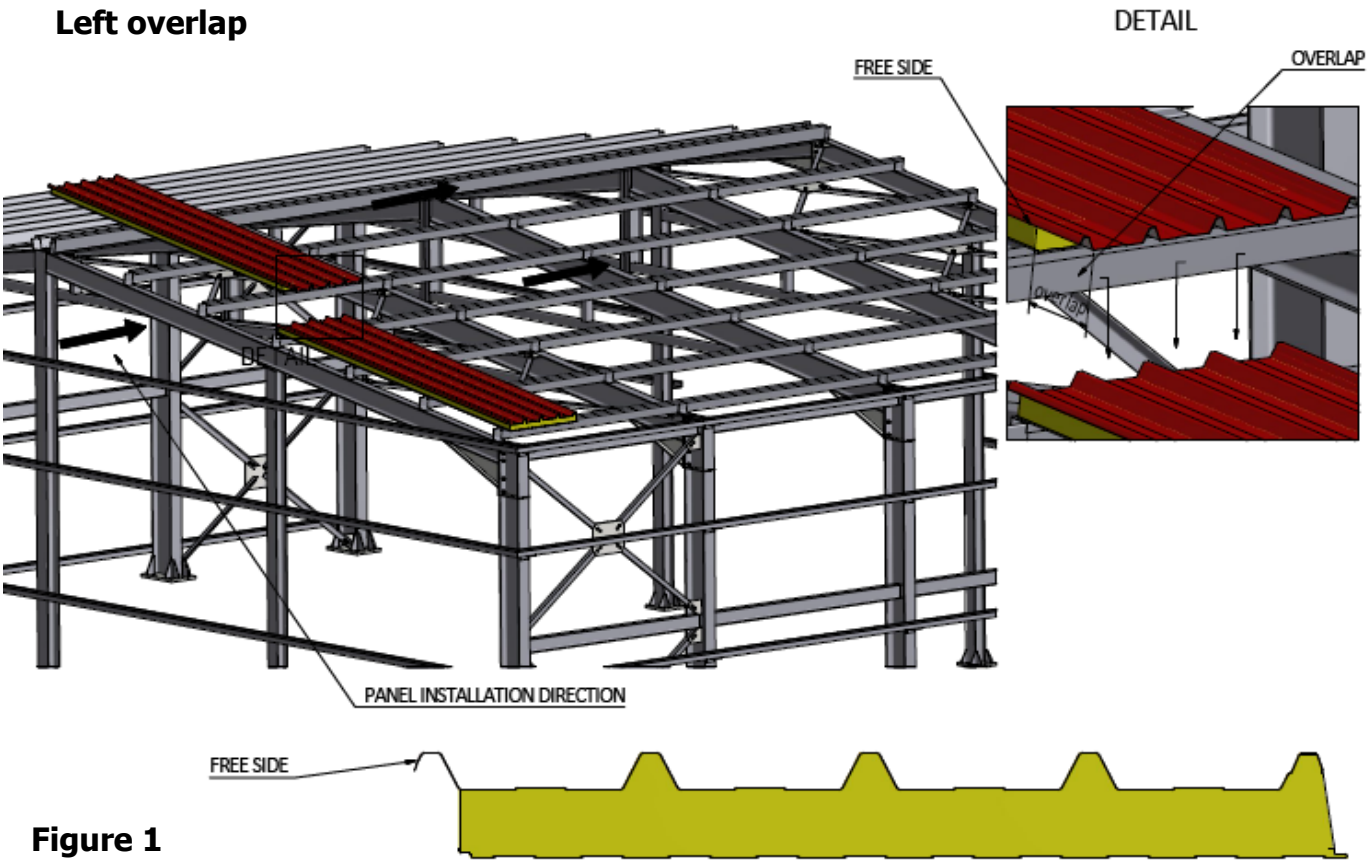


Figure 1

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Right Overlap

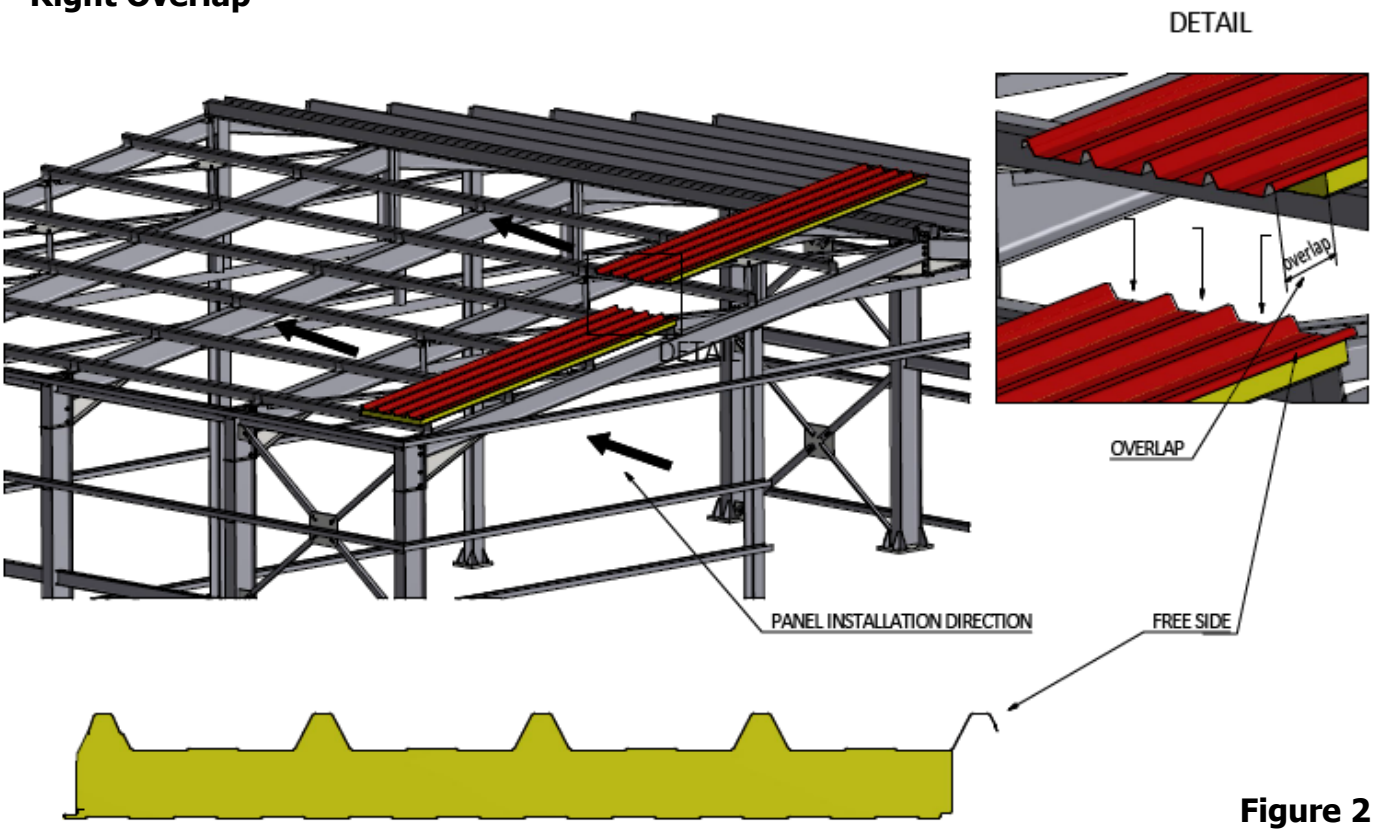


Figure 2

The mineral wool roof covering panels are designed as roof cover, but they can also be used for wall cover. For wall mounting instructions, please contact the technical department of the company.

Sealants

In any case, in order to achieve the best possible result, the transversal joints (overlap), the longitudinal joints of the panels and the joints between panels and flashings, require the use of sealants.

Sealants are not included in the order. It is possible to supply these sealants upon request. Sealants are applied during the installation of the panels and not at the factory.

To achieve the best possible sealing results, it is recommended to use sealants with high fire resistance and water resistance.

In particular, it is suggested to use acrylic or butyl acrylic sealants on the inner side, which offer the best possible resistance to fire.

While on the outer side of the panel are preferred silicone base sealants, whose waterproofing characteristics are more effective.

Fasteners

The roof panels are fastened to the wearer by the visible anchor method, as shown in the next page figure.

The dimensions of the screws vary and depend on both the panel itself (thickness, weight, laminates and so on) and by the designer engineer of the structure.

Typically self-tapping screws with hexagonal head (DIN.7504-K) and washer with sealing ring (EPDM) are used. Their material can be high-strength steel or stainless steel. The type of screws depend on the materials of the structure.

It is also proposed to use trapezoidal plates to increase the clamping force when the conditions require it.

The trapezoidal plates usually made of the same material of the panel metal face.

MINERAL WOOL ROOF COVER PANEL R. MW 5.15 INSTRUCTION SHEET

Assembly process

The assembly process is simple when it is made by qualified personnel. The key points of the process are the following:

1. Inspect and verify the alignment of the structure. It is very important for the structure to be perfectly aligned.

- The first panel is placed on the roof, aligned and secured to the structure.
- The screws that are used are self-tapping with hexagonal head of 6,3mm total diameter and length depending on the total thickness of the panel. It is recommended that self tapping screws are fixed on the ribs and not in the valleys of the roof panel.
- Depending on the winds of the area, screws may be fixed in three, four or even all five ribs, on all the purlins.

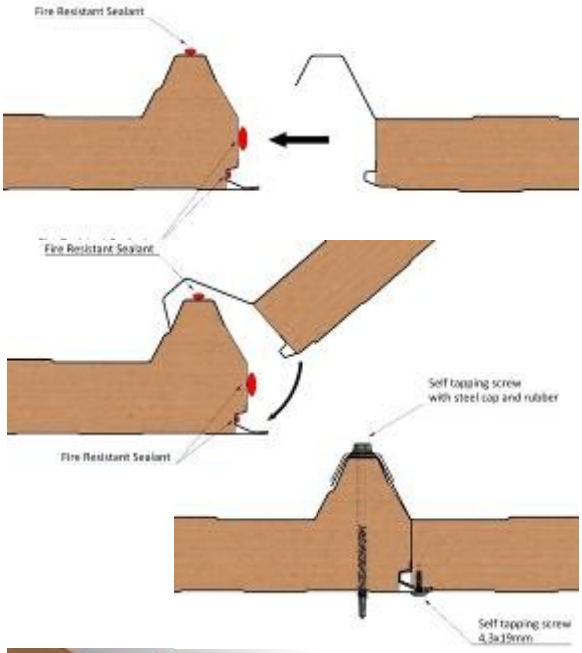
2. Then, along the first panel, apply sealant at the joint as shown in the figure.
3. The next panel is lifted and snaps at an angle. It is aligned and held in place temporarily.
4. The screws are fixed onto the last rib of the first panel, which is the first rib of the next panel.
5. Fix the other screws on the second panel apart from the last rib.
6. For full fire protection, "sew" the joined panels externally and internally with screws e.g. 4,3x19mm. The distance between the screws should be equal or less than 300mm.

If the roof panels **do not** have a transverse overlap,

7. Installation steps 1 through 6 are repeated in the installation direction until the roof is covered.
8. At the end, protective and decorative accessories have to be installed.

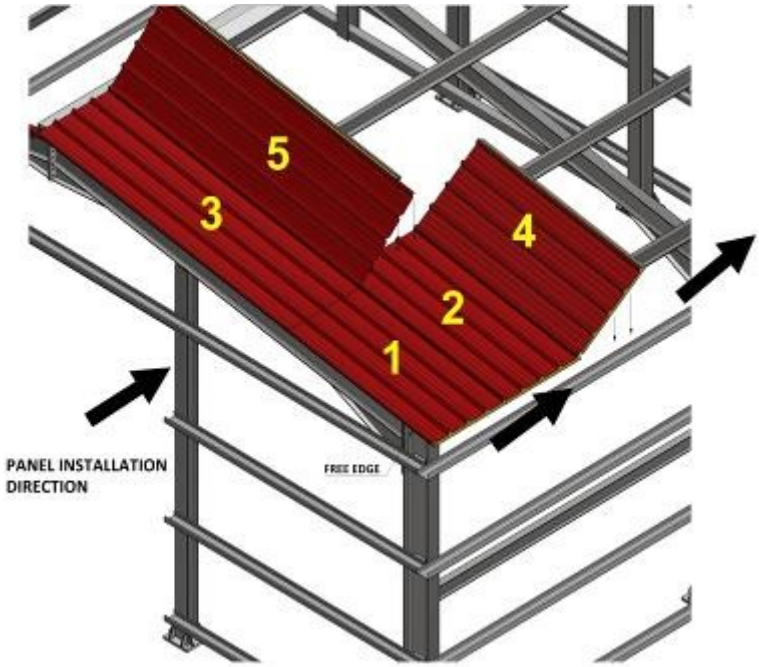
If the roof panels have a **transverse overlap**,

- First, apply two parallel sealing cords across the width of the first installed panel.
- Then, install the panel that will overlap the first placed panel.
- Align and fix screws on all ribs apart from the last and first series of ribs of the overlapping panels.
- After the ribs of both overlapping panels are fastened together, "sew" the joined panels externally and internally with screws, e.g., 4.3x19mm. The distance between the screws should be equal or less than 300mm.
- The 4.3x19mm screws improves the fireproofing and the waterproofing properties of the structure.



It is important that the overlap joints between the panels should be onto a purlin or a secondary support.

Do not allow in any case the placement of the overlap to be without support.



ATTENTION: In order to achieve maximum fire protection according to fire resistance

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Important Installation Notes

- Always use Personal Protective Equipment and always follow the hygiene and safety rules and regulations
- Always use the appropriate tools to handle panels for both processing and transport.
- It is permissible to make minor corrections to any deformations that may arise from the handling of the panels
- Ensure that the structure is intact and perfectly aligned
- REMOVE the protective adhesive film of the panels if any.
- Pay close attention to properly installing the panels so that they fit correctly before install them in the structure.
- Proceed gradually, it is preferable a short delay at the beginning rather fixing the mistakes later.
- The panels must be properly aligned and have a perfect snap
- Do not leave gaps at the joints. If there are gaps, the panels lose their properties (thermal insulation, fire resistance, air permeability, water permeability)
- Do not omit the use of sealants and do not use them sparingly.
- Use suitable sealants that are weather resistant and do not corrode the metal face of the panels.
- Pay attention to the coating of the plates. The panels do not wear over time as long as their coating remains intact.
- Select materials and components resistant to galvanic erosion, especially when there are various metals that come in contact.
- The tightening torque of the screws must be such as to secure the panel without deforming it.
- Do not burden the panel with your weight when screwing in because it can be deformed and not clamped
- Complete the installation by placing decorative and protective accessories.
- Carefully clean the roof without damaging the coating, especially from metallic objects that can be oxidized.
- Wash the structure creating a rainfall in order to check for possible leakages.

Vacuum lifting devices

Professional vacuum lifters offer security and speed in installing panels to cover roofs or walls. Some of the advantages of these are the following:

- They offer security and improve working conditions by relieving staff from handling heavyweight panels (a prerequisite is to comply with safety rules)
- Saving and reducing the workforce for the construction of the project. Saving time and reducing construction costs.
- Reduce damage to products after removing the clamping and lifting accessories that come into contact with the panels
- Flexibility due to their operation with rechargeable batteries

The company has the ability to dispose of such devices **(Clad-Boy)** upon agreement. Along with the device, instructions for use and handling are sent. Before operating the device, read the operating instructions carefully.

Clad boy quarantines easy, fast and safe installation of the panels in all kind of buildings

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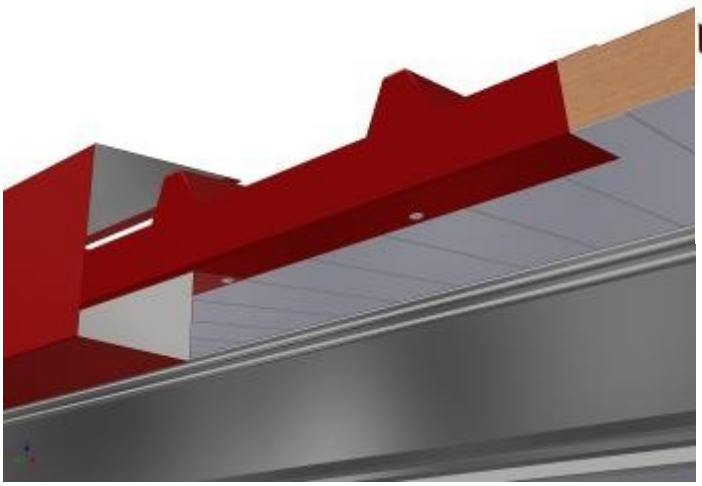
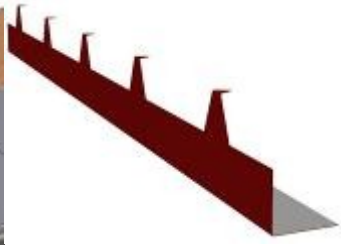
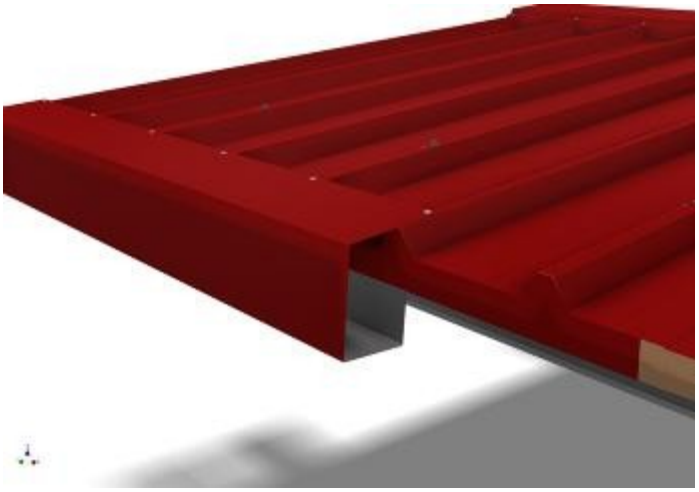
Installation details

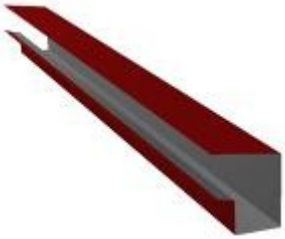


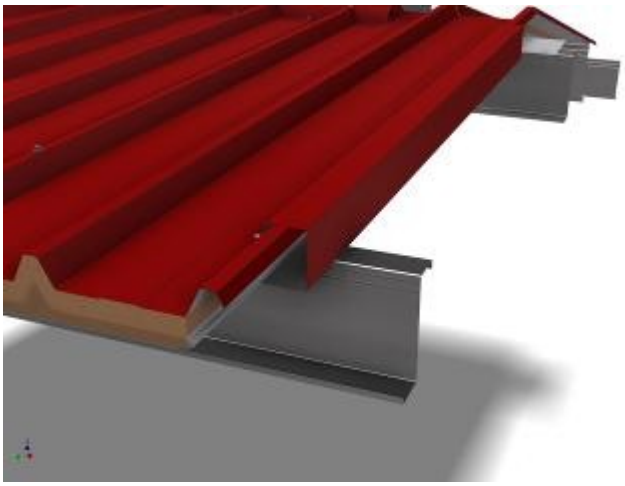


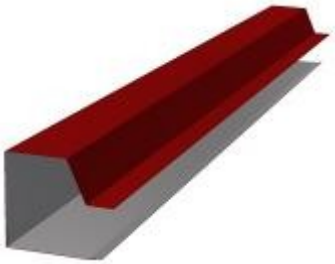
End piece. For effective protection against rainfall, it is necessary to use it in combination with a 3 cm cut -off and sealant.



Gutter Flashing

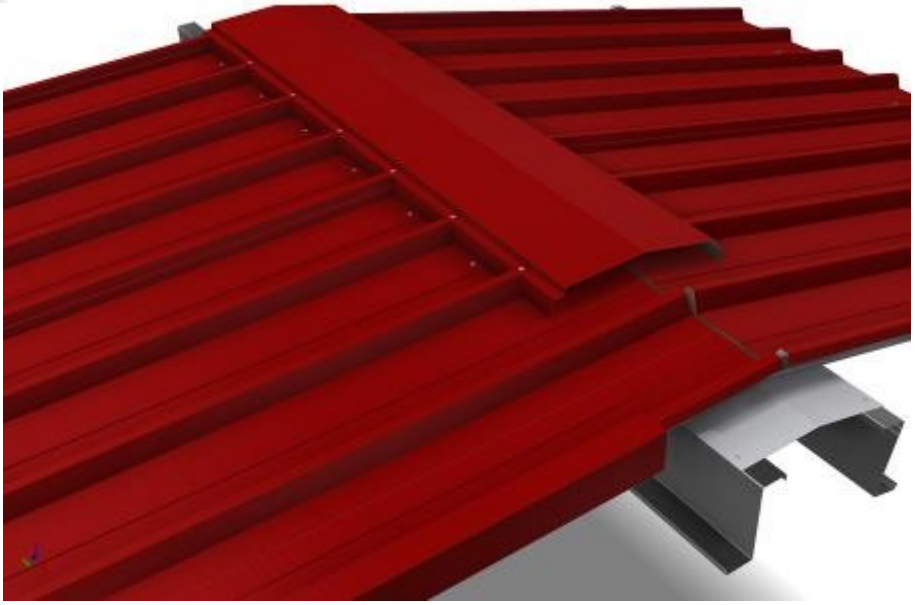






Side end piece

Ridge capping



Install all types of accessories using self tapping screws 4,3x19mm or others provided from our company, as shown in the figures.

For more details and applications, please contact the company design department

MINERAL WOOL ROOF COVER PANEL R. MW 5.15 INSTRUCTION SHEET

Technical support

The company has the ability to provide Technical Support before, during and after construction.

Contact us and ask for instructions and additional information such as:

- **Calculation of coverage areas**
- **Special construction details**
- **Tips for fire protection, thermal insulation and sound insulation**
- **Development and design items with specified use.**

Maintenance

Self-supporting insulating panels are products that require little or no maintenance. Any maintenance required is mainly limited to cleaning. However, it is advisable to carry out an annual check, which includes:

Cleaning check. If necessary, wash the panels with water and soap using a soft brush. You can use scrubbers and pressure water jets, but not high pressure (<50bar). Do not have the nozzle of the water jet perpendicular to the surface.

Coating control. If marks or scratches are observed on the paint coating, repair and repaint the surface.

Check the screws. Retighten or replace the screws that have loosened.

Check accessories. Check the accessories, gutters, end pieces, ridge caps, etc. for oxidation, if necessary clean and repaint the pieces.

Quality & Reliability

The rapid service of our customers' needs, combined with our modern technological equipment, our well-trained staff and our dependable products, place Metallemporiki - Th. Makris SA among the leading companies in the sector.
The company applies a Quality and Environmental Management System in accordance with ISO 9001 and ISO 14001 standards and guarantees the durability and reliability of its products.
The company's panels comply with building regulations and with EN 14509 European Norm.
> In addition to this Instruction Data Sheet, the products are accompanied by the Product Data Sheet, the Declaration of Performance, the CE marking, and all the necessary legal documentation.

Note

All information can be used as a general guide but in no case as a technical manual and the company can not be held responsible if damage is caused .

The laws, regulations and standards of different countries vary and change. Contact our technical department for additional information

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