Ruukki
Building your tomorrow.

Ruukki® Patina sandwich panel

Installation instructions

The operating models presented are examples and are intended to be indicative. They are not directly suitable for use in all applications. In case of conflict, follow the instructions of the structural designer or contact our technical support www.ruukki.com

INSTALLATION DIRECTIONS AND FASTENING FOR PANELS

Ruukki® Patina Panels can be installed horizontally, vertically of diagonally. The English text printed onto tongue joints of the panels indicates the installation direction of the facing in question.

The panels are to be fastened with screws according to Ruukki® Patina Panel details.

Straight contact with COR-TEN material needs to be avoided in all flashing options. In between COR-TEN and other materials need to always be either tape, sealing or elastic sealant. Moreover, all kind of horizontal surfaces and bags that can prevent water from withdrawing need to be avoided.

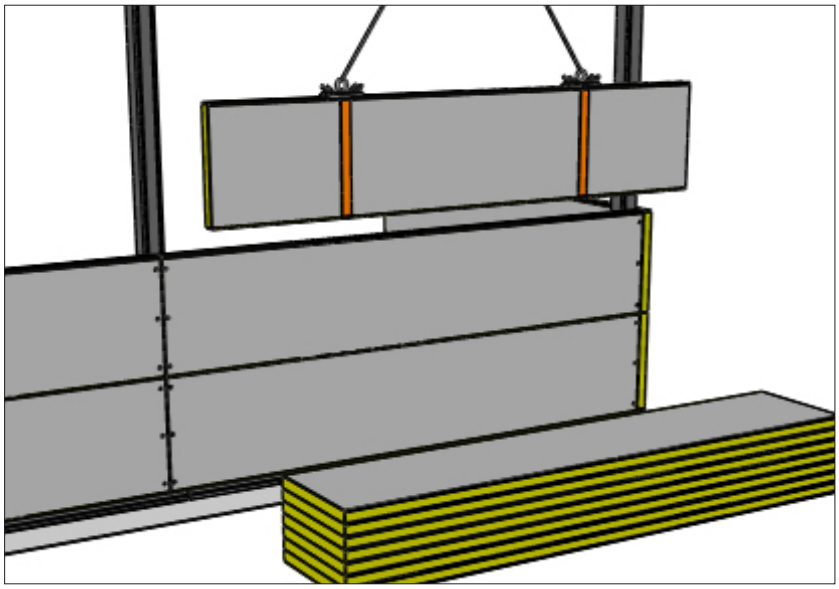


Table 1. Weights of the SPA Patina panels (kg/m²)

Panel wool type	Thickness 150 mm	Thickness 200 mm	Thickness 230 mm
E LIFE	20,1	22,7	24,7
E	24,2	28,1	31,0
F	28,7	34,0	37,9
EE	–	25,4	–

Table 2. Weights of the SPB Patina panels (kg/m²)

Panel wool type	Thickness 150 mm	Thickness 160 mm	Thickness 170 mm	Thickness 180 mm	Thickness 200 mm	Thickness 230 mm
W	27,7	28,8	30,0	31,1	33,4	36,9
WE	23,9	24,8	25,7	26,6	28,4	31,1

ADDITIONAL INFORMATION OF THE PANELS

Further information about the panels can be found on our website.

Ruukki® Patina Panel are supplied without patination. The patination starts right when the protection of the outer surface of the panel is removed and the panel is exposed to weather.

PREPARING THE INSTALLATION

Reception of Good

Always check that the delivery is in accordance with the order and that all items specified in the dispatch note are included. Faulty or incorrect deliveries and any transport damages must be stated on the waybill and the retailer must be notified immediately. The note on the waybill is endorsed by the signature of the driver and the person receiving the goods. Ruukki Construction Oy is not liable for any costs resulting from the replacement of products that have been installed in non-compliance with the installation instructions.

Unloading

Deliveries are unloaded using a crane, and the disposable lifting belts are attached to the package at the factory by moving the panels straight upwards and to the desired level. The panels may also be unloaded using a forklift, but with extra caution. The packages are lifted one by one, grasping them at the middle, inside the cross-supports. Inappropriate lifting of the package may damage the panel at the bottom of the package. No steel cables or chains may be used for lifting the packages. The belts used for lifting must be of sufficient length and width. Belts that are too short may damage the tongues and grooves of the upper panel during lifting.

Storing the Panel Package on Site

It's not recommended to store Ruukki® Patina Panel for long period of time in their package. Maximum storage time for exposed unopened packages is two weeks. If moisture gets inside a panel package, it can cause the product an early and wrong kind of corrosion. Long term storing requires a dry storage space.

Panel packages can be stored outside shortly if following issues are noticed: Panel packages cannot be stored on top of one another. Panel packages need to be protected from rain, sun and pollution by a tarpaulin or other similar cover very carefully. The panel package must be placed on an inclined base so that rainwater can flow out or evaporate. If it's possible for moist to condense inside the panel package, ventilation holes should be cut on the side of the plastic package so the moist can evaporate. In this case sufficient ventilation of the storage unit needs to be also ensured. Opened package can be stored only in a fully sheltered space from the rain.

If Ruukki® Patina Panel packages need to be stored for long period of time, they must be stored in an inside space and plastic packages must be opened.

Handling and machining the Panels

The panels must be handled properly to prevent any damages and protected against moisture and impact damage. Cutting or any machining operation must be carried out using appropriate tools to ensure safety and achieve a fault-free result. Panel surface needs to be protected against machining waste. Hot-cutting (e.g. using a grinding machine) is strictly forbidden, as it would damage the coated surface of the panel. Any stains are to be removed by washing with plain water or mild detergent solution. Ruukki® Patina Panels cannot be touch-up painted, which is why damaged panel is to be replaced. The panel must always be replaced if there is a hole in the sheet metal face or integrity and strength of the structure has been affected. The protective films of the panels must be removed right away after installation. Removing the protective film will become more difficult if it's left in place for an extended period.

In case the package contains panels of several lengths, possible cutting swarf from shorter panels above need to be removed from panel surfaces before lifting or moving them. This ensures that panels are not accidentally scratched while handling them.

Instalaltion of horizontal panels

Thickness of the panel	Lifting tool and safety strap / Max. length of the panel	
150	1 st / 5.0 m	2 st / 10.0 m
200	1 st / 4.2 m	2 st / 8.4 m
230	1 st / 3.7 m	2 st / 7.4 m

Installation of vertical, diagonal and cut panels

Thickness of the panel	Lifting tool and safety strap / Max. length of the panel	
150	1 st / 5.6 m	2 st / 6.0 m
200	1 st / 4.6 m	2 st / 6.0 m
230	1 st / 4.0 m	2 st / 6.0 m

Lifting the Panels

For lifting and handling single panel, a panel lifting tool rented from Ruukki could be used. In some market areas, Ruukki rents out vacuum lifting tools. Read the instructions for use and safety instructions supplied with the lifting tool thoroughly prior to using the tool. NOTICE: Protective film on upper (external) facing of Ruukki® Patina Panel must be removed immediately after the panel is installed in place and on top of it there is installed at least one panel. Ruukki® Patina Panel's protective film must be removed from the visible part of the panel. It is required to leave the protective film in the joints (on the tongues and in the grooves – as shown in the details). The tongue joint of the panel helps the protective film to stay in place in the groove and therefore it's important not to remove the protective film until the upper panel is installed. When damaged during lifting or installation, protective film must be repaired by taping.

Installing Patina Panel

Installation and details of Ruukki Patina Panel system differs to some extent from other installation instructions of Ruukki Panels. Installation of Ruukki Patina Panel is recommended only to a qualified installation company that has been certified by Ruukki.

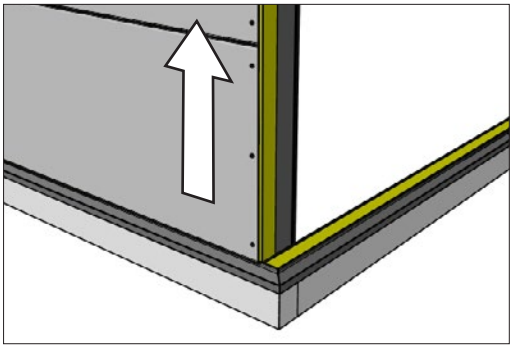
• Work Safety

Always wear work gloves and protective clothing when handling the panels. Be careful with sharp edges and corners. When the panels are being moved, do not go under them. Make sure that the slings are strong and firmly attached. Avoid handling the panels in heavy wind. The lifting slings included in the panel package are disposable. Always follow the occupational safety provisions in force and find out whether the installation site is subject to any particular requirements regarding occupational safety before beginning the installation work. We recommend the use of goggles and respirator when cutting panels. We recommend using an additional handle on the drill (when drilling and mounting screws) for a better grip.

• Waste Recycling

Package waste can be recycled as follows:

- Plastic wrapping can be collected to be used as recycled plastic, or to energy recovery in waste incineration.
- Cardboards can be recycled to paper or cardboard production
- Individual panel protective film, plastic straps, EPS blocks, wooden pallets and lifting belts can be collected for example to energy recovery in waste incineration.
- Lifting belts can be collected to energy recovery in waste incineration.



• External Wall – Horizontal Installation (1/4)

The installation must be carried out according to the structural plans. Begin the installation at the bottom and proceed upward with the tongue of the panel facing up.

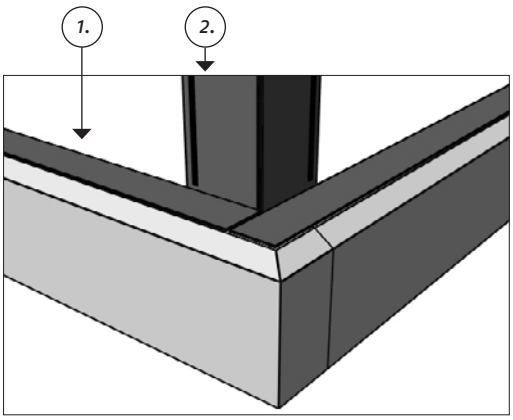
Always remember work safety and wear protective gear during the installation!

If you do not complete the installation, make sure that any exposed wool surfaces are appropriately protected against the weather. Cut edges of the elements (e.g. window openings) should also be sealed carefully. The easiest way to do this is by ordering Ruukki® Rain Protect protective film. The rear surface of the protective film is coated with glue to ensure good fixation to the panel surface.

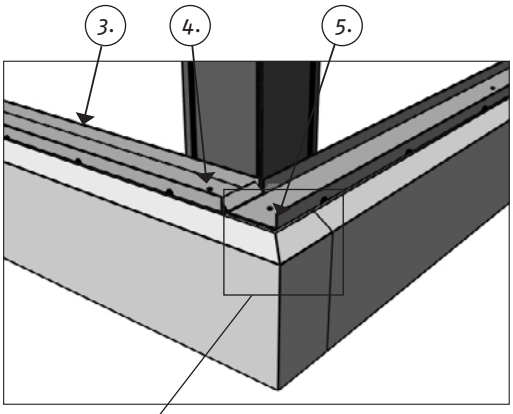
Check the straightness of the installation surfaces. Install the plinth sealing and the sealing strip (4x10 mm) between the columns and the panels. The sealing strip is installed on the face of the columns inside of the line of fasteners as per the detail drawings and plans. This way, the holes for the fasteners can be made vapour-tight without any extra work.

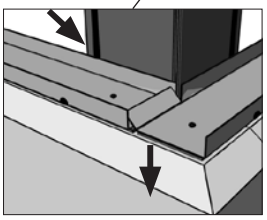
1. Plinth sealing
2. Sealing strip

Install the U-Plinth purlin on the plinth. If the protective film is applied on the outer surface of the U-plinth purlin, then it is required to remove it before installation. NOTE! Do not remove the film covering the thermo perforation on the inner surface of the U-plinth purlin if it is applied there. Fasten a butyl tape to the external surface of the outer side of the U-Plinth purling as shown in the details. In case of U-plinth purlin with weep holes, install it in a way that the holes are on the outer side of the structure. Make sure that the U-Plinth purlin is straight and straighten it if required. Leave a gap of approximately 7–9 mm between the U-plinth purlin and the frame. The panel's inner side's groove must fit into this space. Fasten the purlin on the plinth.



3. U-Plinth purlin
4. Fastener (c/c 600 mm)
5. Butyl tape



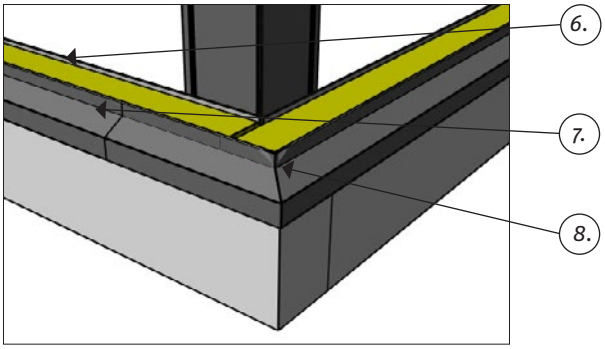


Eliminate the cold bridge. Leave a gap of 7-9 mm between the purlin and the frame.

• External Wall – Horizontal Installation (2/4)

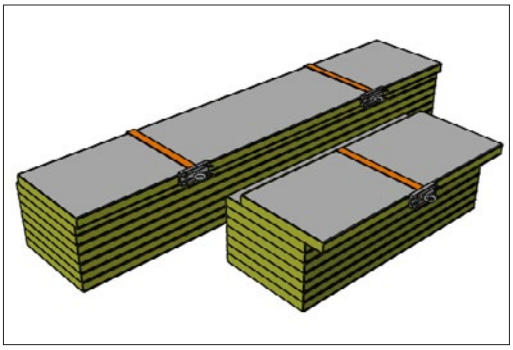
Install the insulating wool inside the U-plinth purlin. Apply a PVC-tape on the top edge of the plinth flashing if required and fasten the flashing according to the details. The order in which the flashings are installed depends on the flashing type. Overlap the plinth flashing lengths of approximately 100 mm. Apply butyl sealant in the Plinth flashing overlap as shown in the panel details. Make a vertical joint in the plinth flashing in the outer and inner corners. See cutting and bending instructions for the vertical joint after this part.

Sealing strip for external panel joint is delivered on separate roll with panels. Add sealing strip onto external groove joint of the panel when panel is still on panel stack. Place sealing strip onto position and cut it to suitable length. Press the sealing strip onto position on bottom of panel joint so that the strip will stay in place until the panel has been lifted and installed onto position on the wall.



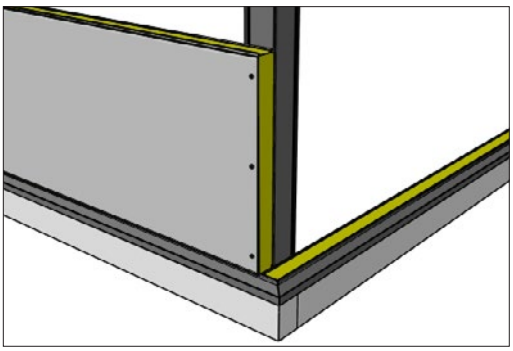
6. Insulating wool
7. Plinth flashing overlap (100 mm) (+ butyl sealant and mastic sealant)
8. Vertical joint in inner and outer corner

Fasten the panel lifting tool or tools on the top-most panel in the package. Follow the instructions for use and the safety instructions provided with the lifting tool. Use a safety strap around the panel to be lifted and, if required, use the boom during the lifting operation.



Raise the panel into an upright position and take care not to scratch the surface of the lower panel in the package. Remove any protective films from the panel excluding the protective film in the joints.

Remove the safety strap prior to positioning the panel. Make sure that joint sealing strip is properly on position in panel joint. Install the panel on the U-Plinth purlin and fasten it to the frame columns as shown in the detail drawing. Make sure that the distance of the fasteners from the edge is maintained. The fasteners must be placed at a minimum distance of 30 mm from the panel end. Do not over-tighten the fasteners, as this would cause dents in the panel surface under the fastener. It would also impair the load-bearing capacity of the fastening. Over-tightening can be avoided by using a depth limiter or a torque screwdriver.

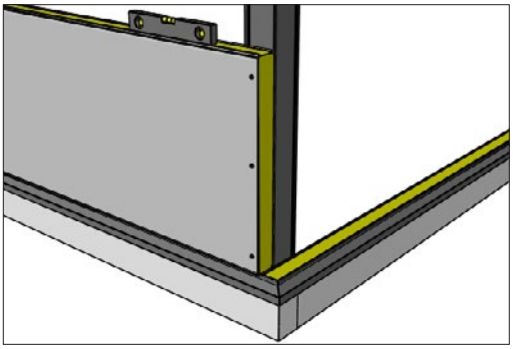


Minimum fastening distance from the edge is 30 mm.The fastening surface of the panels against the beam, i.e. the width of the panel support surface, must be at least 50 mm. Note this at the L and T steels of the eaves, too.

• External Wall – Horizontal Installation (3/4)

During installation, make sure that the groove joint seals are in place. Then, apply mastic sealant to the outer groove joint at both ends of the panel covering the width of the vertical flashing and the inner groove joint at the column seal. This ensures the tightness of the structure.

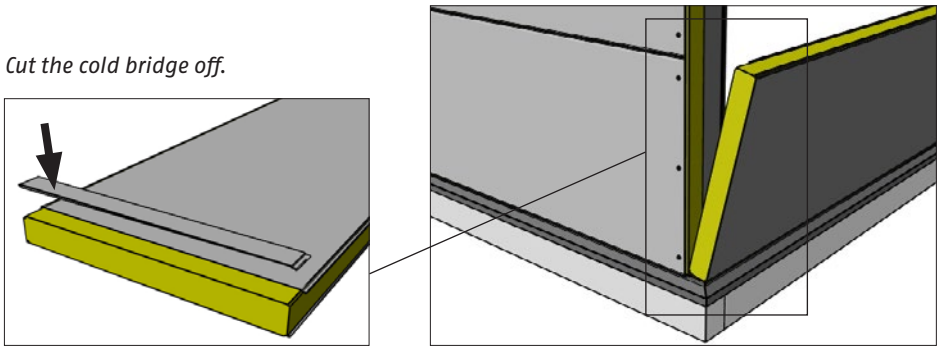
After the installation of the first panel, check that the panel is level. Install the other panels following the installation order from the bottom upwards, one span at a time.



Check the completeness of the protective film in the groove and on the tongue. The damaged places must be taped.

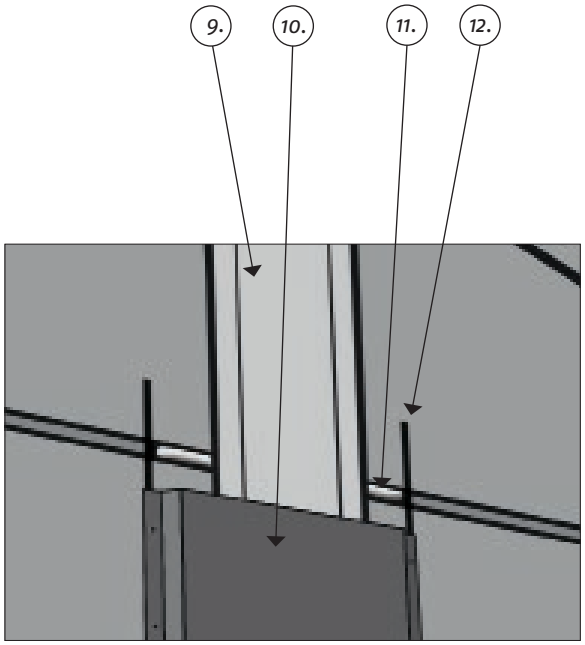
Cut off metal sheet from other of the panels to be installed in the corner so that the cut-off portion corresponds to the thickness of the adjoining panel prevents cold bridging in the corner structure.

Cut the cold bridge off.



• External Wall – Horizontal Installation (4/4)

Apply elastic polyurethane foam into the vertical seam. Apply from bottom to top, starting from the top of the plinth purlin and tightly against the pilar. A 50 millimeter strip of elastic polyurethane foam is enough. Pack the remaining width of the panel mineral wool (as shown in the details). Protect the vertical seams of the pillars against the weather immediately with Ruukki sealing tape. Fold the top edge of the sealing tape at the eave on top of the panel seam in order to prevent rainwater from entering the vertical seam between the panels. Make sure that the groove at the horizontal seam of the element (behind the vertical flashing) is filled with mastic sealant in order to achieve weatherproof connection to the vertical sealing tape. Wider tape is available for outer corners. Ensure that the sheet metal face of the panel is dry and clean before applying the tape and apply the tape by pressing it carefully throughout. If necessary, use a roller or a trowel to press the tape in order to ensure that the tape is applied adequately. Predrill holes in the vertical flashing for the fasteners with 300 mm spacing. Put separating pieces EPDM into the predrilled holes for the fasteners. Apply sealing strips to the vertical flashing before installing the flashings. NOTE! In more challenging climates (e.g. coastal areas), heavy-duty, EPDM-based sealing tape should be used. The flashings are installed with 300 mm spacing, unless otherwise indicated in the schematics.



9. Sealing tape, under flashing (diffusion open)
10. Vertical flashing
11. Mastic sealant
12. Sealing tape

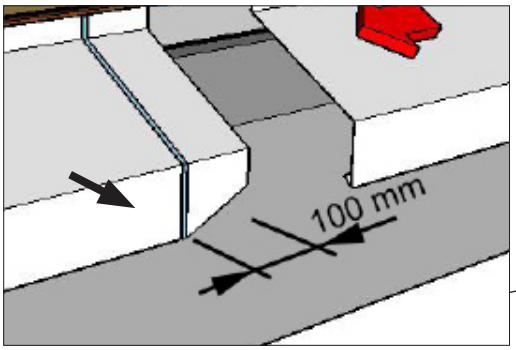
Finishing the Installation

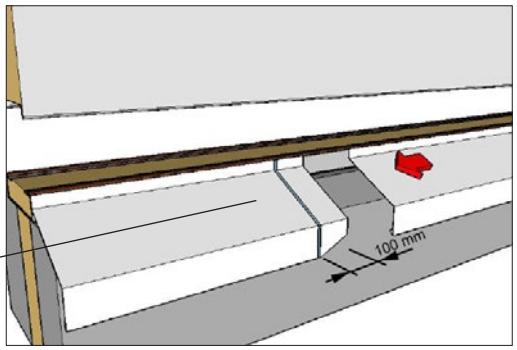
Remove the protective films from the outer side of Ruukki® Patina Panel imediately after the panel is installed in place and at least one panel is installed on top of it. The protective films protect the surface of the panels against scratching and contamination during construction. The protective films will be more difficult to remove if they are left on the panel for a long time. A partly loosen protective film causes harmful corrosion rapidly for Patina Panel which is another reason for removing the film soon after tha panel is installed.

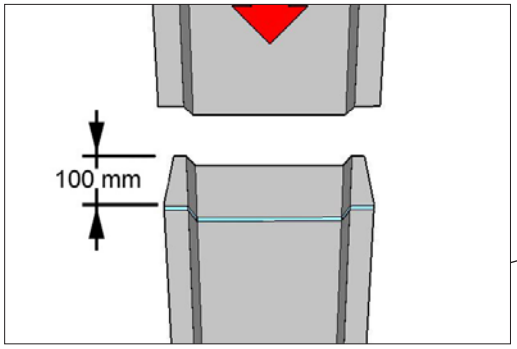
Flashing details

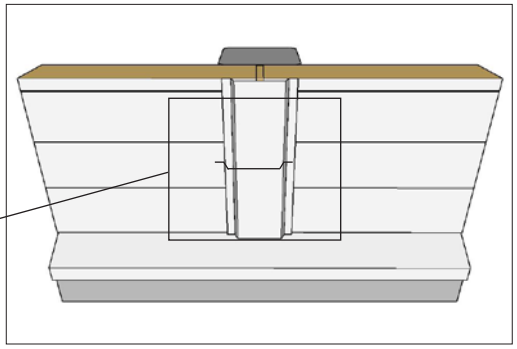
Below you can find instructions and tips to ensure good flashing details. Fasten flashings with a maximum spacing of 300 mm. Cut off an overlapping piece from the lower flashing. Apply sealant mastic on the lower flashing and overlap the flashing a minimum of 100 mm.

Direct contact between COR-TEN and other materials must be avoided in all flashing options. There must always be either tape, sealant or elastic sealant between materials. Moreover, all kind of horizontal surfaces and bags that can prevent water from withdrawing need to be avoided.

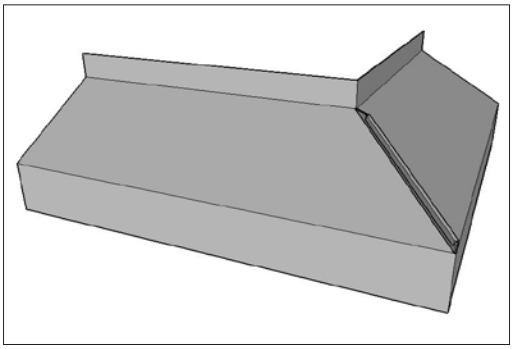


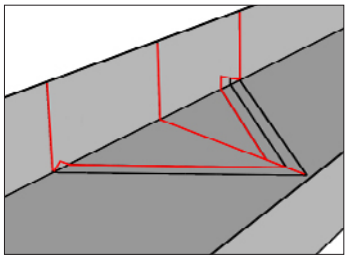




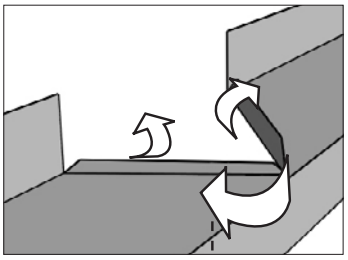


Mark cutting and folding lines on the plinth flashing for vertical joint. Cut along the red lines and fold up along the black lines. Put butyl tape around the shorter folded end so that the metal sheet isn't in direct contact with the contrary folded end of the other flashing. Bend the flashing to a 90° angle. Create a tight vertical joint by folding the longer side to overlap with the shorter side. Below is a series of pictures presenting the cutting and folding process.

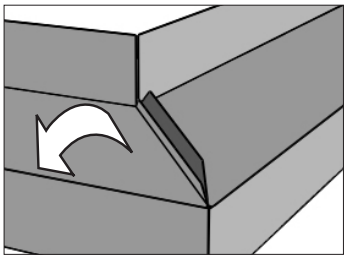




Cut along the red lines and fold along the black lines.



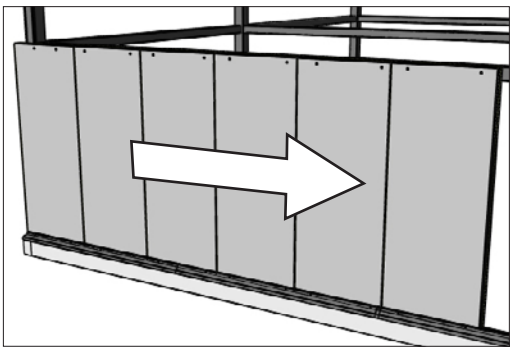
Fold the sides upwards and bend the flashing to a 90° angle. Apply a butyl tape around the shorter fold.



Create tight vertical joint by folding the longer side over the shorter one.

External Wall – Vertical Installation (1/4)

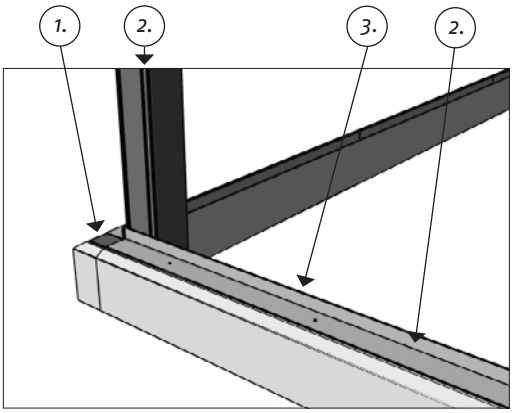
The installation must be carried out according to the structural plans. Begin the installation so that the tongue of the panel is facing the direction of installation.



Always remember work safety and wear protective gear during the installation!

If the installation is not completed, make sure that any exposed wool surfaces are appropriately protected against the weather. Cut edges of the elements (e.g. window openings) should be sealed carefully. The easiest way to do this is by ordering Ruukki® Rain Protect protective film. The rear surface of the protective film is coated with glue to ensure good fixation to the panel surface.

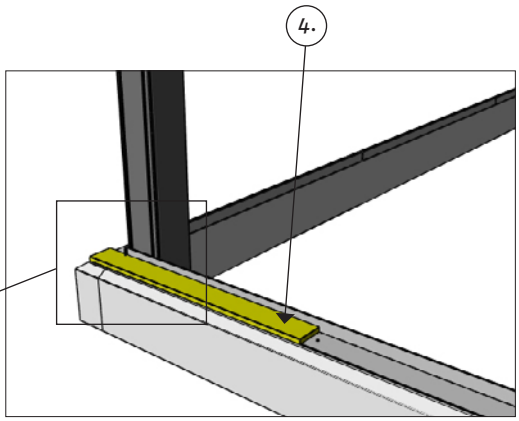
Check the straightness of the installation surfaces. Install the plinth sealing and the sealing strip (4x10 mm) between the beam and the panel. The sealing strip is installed of the face of the column/beam and the plinth purling inside of the line of fasteners as shown in the detail drawings and plans. This way, the holes for the fasteners can be made vapour-tight without any extra work.
Fasten the plinth purlin.

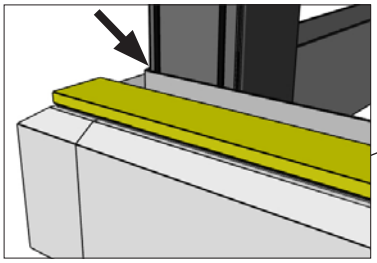


1. Plinth sealing
2. Sealing strip
3. Plinth purling (fastening c/c 600 mm)

Insulating wool must be installed in the plinth purling to ensure the tightness and thermal insulation of the external wall

4. Insulating wool



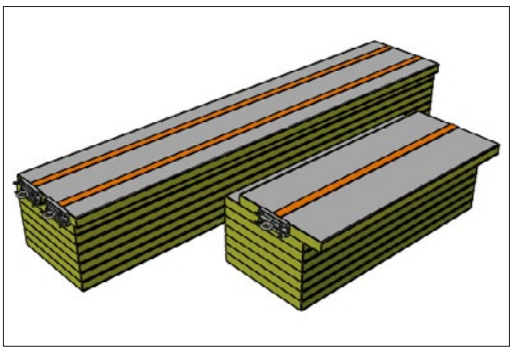


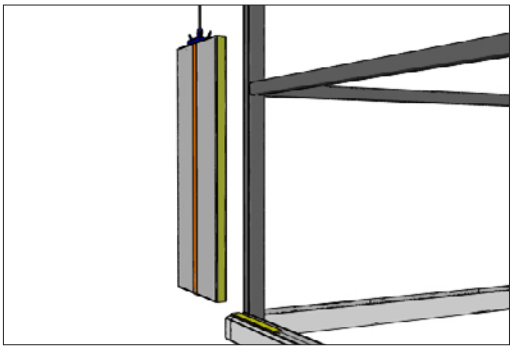
A gap of 0–1 mm between the purlin and the frame

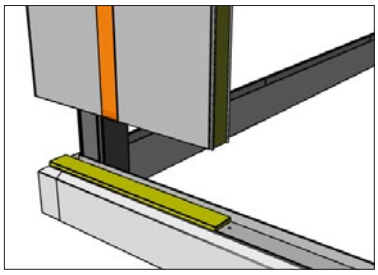
External Wall – Vertical Installation (2/4)

Check that panel's inner groove's joint seal that is installed in the factory, is still in place. The outer groove's joint seal is delivered as a seperate roll with the panel. Apply the joint seal to the outer groove when the panel is still in the pile. Set the joint seal in place and cut it to a suitable length. Squeeze the joint seal to it's place in the bottom surface of the panel joint so that the joint seal would stay in place until the panel is lifted and installed on the wall. Fasten the panel lifting tool or tools on the top-most panel in the package. Follow the instructions provided with the lifting tool. Use a safety strip around the panel to lift it and, if required, use the boom during the lifting operation. Raise the panel into an upright position and take care not to scratch the surface of the lower panel in the package.

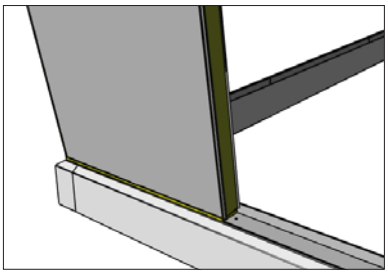
Remove the safety strap prior to positioning the panel. Begin the installation of the first panel with the tongue facing in the direction of installation. Lift the panel in place with the lifting tool. Always read the instructions for use and the safety instructions of the panel lifting tool thoroughly before starting installation.



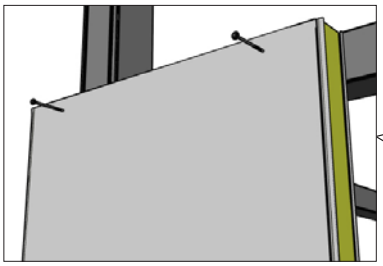




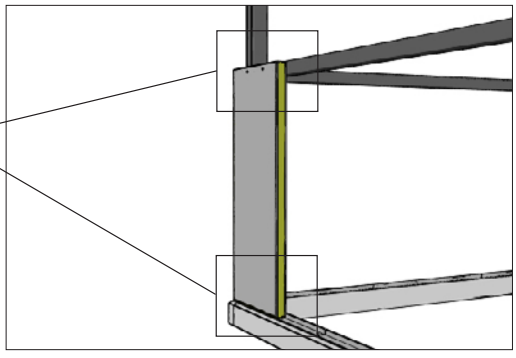
Remove the safety strap prior to positioning the lower end of the panel.



Fasten panel from the lower and upper end to the frame structures. Use a depth limiter in the screwdriver to prevent over-tightening and damaging the panel surface.

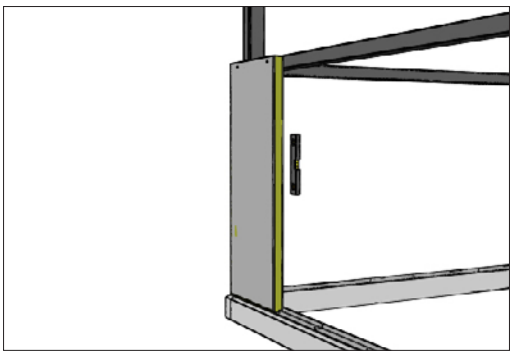


Fastening the end of the panel

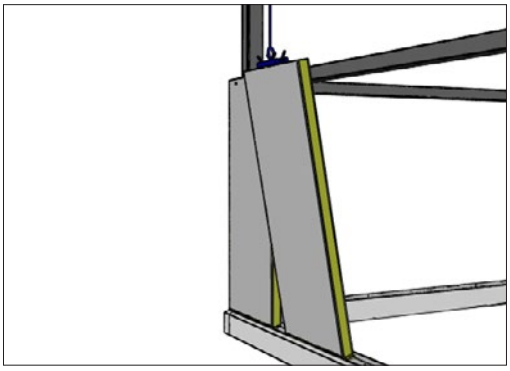


• External Wall – Vertical Installation (3/4)

Check that the installed panel is vertical. The panel straightness must be at least ±2 mm. Check the run and straightness of the wall to be installed at different levels after each installation of two new panels. Well-aligned panels ensure that the joints are securely locked and that the wall is vapour-tight. Install an insulating wool in the plinth purlin for the next panel. Raise the next panel into an upright position on the insulating wool. Remove the safety sling prior to positioning the lower end of the panel.

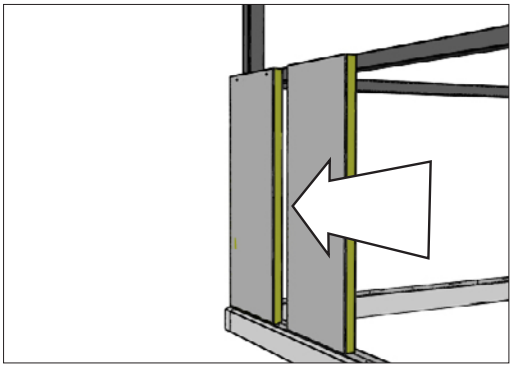


Apply mastic sealant into the outer joint between the panels to be installed. All the outer joints must be sealed on the entire surface of the wall in vertical and diagonal installation. Also apply mastic sealant to both ends of the inner joint (approx. 60 mm) so that the sealant reaches the column seal. This ensures that the structure is properly sealed. Push the panel to be installed firmly against the preceding panel prior to fastening, to ensure the tightness of the structure. Use manual suction cups or a wide clamp belt. Care should be taken and the advancement of panel installation should be measured (depending on the panel modular width), so that the horizontal joints between the panels are tight



When using a clamp, make sure not to damage the joints of the panel. Fasten the panel on the upper and lower support structures. Continue the installation as described above, one wall at a time.

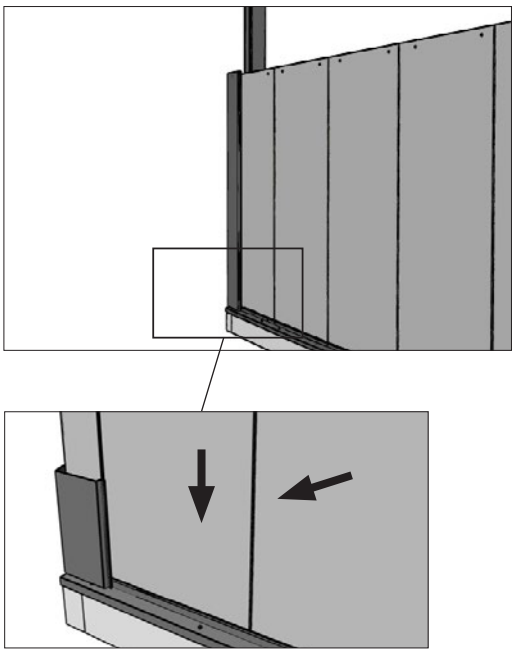
Check the completeness of the film in the tongues and tape the damaged spots. Make sure that the inner and outer joint seals installed in the panel groove joints remain in place during installation. Check the structural plans for any special tightness requirements.



• External Wall – Vertical Installation (4/4)

Apply insulation, sealant and flashings on the finished wall structure. Install a plinth flashing at the bottom edge of the panel and seal the upper edge of the flashing with separating strip EPDM and mastic sealant. Make sure to apply mastic sealant on the vertical joints between the panels, too. Fire protect the panel fasteners in the compartmenting walls. Predrill holes in the vertical flashing for the fasteners with 300 mm spacing. Put separating pieces EPDM into the predrilled holes for the fasteners. Apply sealing strips to the flashings before installing them.

Also install the flashings covering the panel's upper edge and the frame structure and apply sealant (fastening with a spacing of 300 mm).



Apply sealant to the upper edge of the bottom flashing and to the vertical joints.

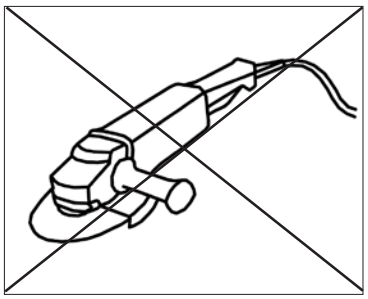
Finishing the Installation

Remove the protective films from the outer side of Ruukki® Patina Panel imediately after the panel is installed in place and at least one panel is installed on top of it. The protective films protect the surface of the panels against scratching and contamination during construction. The protective films will be more difficult to remove if they are left on the panel for a long time. A partly loosen protective film causes harmful corrosion rapidly for Patina Panel which is another reason for removing the film soon after tha panel is installed.

Cutting the Panel

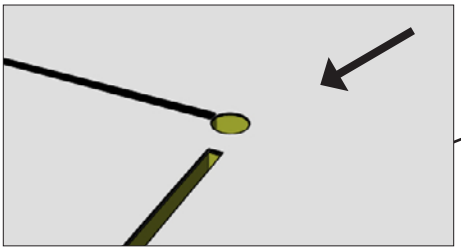
It is recommended, that any large holes in the panels are cut only after the panel has been fastened to the frame. Smaller cuts may be carried out before installation. Appropriate tools and protective equipment must be used for cutting.

Panels may be cut on site using various panel cutters. A circular saw which has a cemented-carbide-tipped blade with a negative angle, can also be used for cutting. Hot cutting and the use of a grinding machine for panel cutting are strictly forbidden, as the hot blade and the sparks would damage the panel surface.

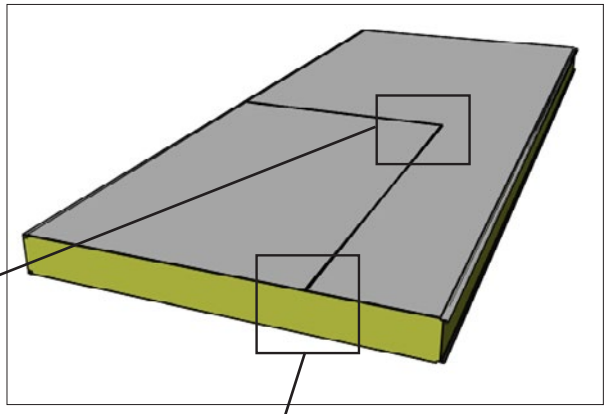


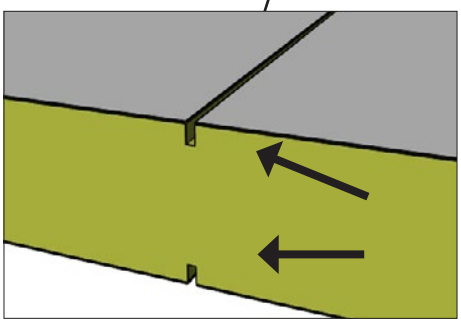
Cutting is carried out by marking the cutting point on the sheet metal faces on both sides of the panel. The metal faces are cut along the marked lines. The insulation between the sheet metal faces is cut by using for example a wool cutter.

Possible panel off-cut pieces should be delivered to dumping places for landfill. Possible flashing and other steel off-cuts should be sent to metal recycling.



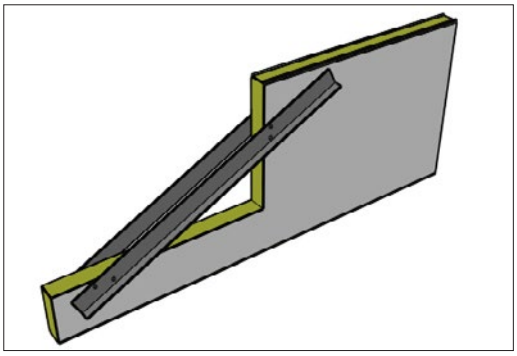
By drilling hole in the corners, the cut will be sharper and cleaner.





Cut the metal faces on both sides before cutting the insulation.

Large openings or slots, which have been cut in the panel before lifting or transporting the panel, must be strengthened to prevent the panel from being damaged.



Large openings (openings which are larger than the panel modular width) and all openings made in a fire-compartmenting wall must be dimensioned separately.

Note! Any insulation surfaces exposed due to cutting should be protected with Ruukki Rain Protect film, which is available from Ruukki.

Sealing

Any gaps and holes on the external surface of the wall during the installation must be sealed as the installation work progresses. The joints of the wall structures must be insulated, sealed and provided with flashings immediately after the installation of the panels. If it is not possible to install the flashings right after the thermal insulation of the joints, the exposed wool must be protected against moisture for example with a cover plastic or adhesive tape. The exposed wool surfaces of the wall structures or single panels must be protected from getting wet at all stages of installation to maintain the tightness of the wall structure

At the points where the panel's inner surface is in contact with the building frame, a suitable column gasket is needed. Moreover, mastic sealant is needed on the internal joint (at the column gasket interface) to ensure air tightness.

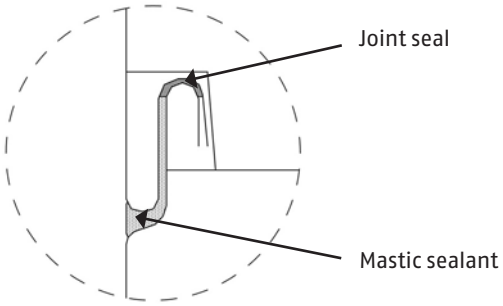
The panel joints remaining under the flashings and the contact faces between the flashings must be sealed with a mastic sealant to ensure that the external surface of the wall will be airtight. When installing the flashings, a sealing strip must be used under the fastening surfaces.

The connections on the external surface must also be sealed to ensure rainwater-tightness; window, door and equipment openings, for example, must be sealed during construction at the distance equivalent to cover flashing width.

In Ruukki® Patina Panel, a joint seal is installed in the inner panel groove joint at the factory. The joint seal in the inner panel groove makes the inner side of the panel wall vapour-tight. The joint seal of the outer panel groove is to be installed on the site.

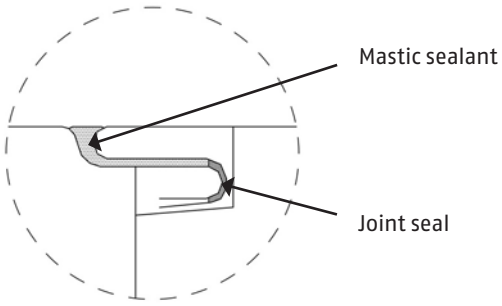
Sealing the Joints of the Panel, Horizontal Installation

Joint seal must always be used in the outer joints of the panels. Additionally, mastic sealant must always be added on site into the outer joints of the panels at a distance corresponding to the width of the cover flashing (e.g. under vertical joint flashing).



Sealing the Joints of the Panel, Vertical Installation

Outer joints of the panels must be always sealed on the entire distance by joint seal and mastic sealant in the vertical installation.



• Fasteners

The use of high-quality fasteners ensures the longevity of the fastening and the corrosion-resistance of the screws. The fasteners must be chosen according to the requirements of the service conditions. The fasteners must always be at least class A2. Over-tightening must be avoided to ensure that the fastening maintains its strength and that the panel is not damaged under the fastener.

Special fasteners which include element fasteners and insulating washers must be used with Ruukki® Patina Panel. Holes need to be pre-drilled into the outer metal surface of the panel in the wanted fixing points. An insulating washer is to be pressed into the pre-drilled hole so that the washer sinks a little into the mineral wool. Next the element fastener is to be fixed normally to the load-bearing frame through the panel.

Fasteners are always ultimately dimensioned case by case by the designer according to the instructions for use and research results of the fastener manufacturer. The designer must define, case by case, the fastener type, designation, number by installation site, distance from the edge and fastening detail drawing among other things.

A panel must be fixed using at least two fasteners at the panel end and three in the corner areas. A higher number of fasteners are often required due to high loads. The panels are fastened to the frame material using suitable fasteners. The width of the support surface must be at least 50 mm, which must be noted when specifying the fasteners and dimensions of the panel. The fastener must be placed at least 30 mm from the end of the panel. The drill chips produced during fastening must be removed without scratching the surfaces.

A panel can be fastened to a more than 14 mm thick steel support by means of normal panel fasteners when pre-drilling is performed (the drilling capacity area of the screw must be reached first). Another option is to use self-threading screws, in which case pre-drilled holes through the frame structure are required.

• Suspensions and Loading (Walls), check separate instructions

Sandwich panel SPA cladding
www.ruukki.fi
NOTE! When suspending from COR-TEN surfaces, crevice corrosion must always be considered!

• Washing and Painting the Surfaces

Washing Façade

When washing façade s, the products used and their sensitivity to mechanical impact must be considered. Therefor when using a suspended cradle make sure that the work platforms do not touch the façade causing indentations or paint damage that may be detrimental later. The detergents must not be abrasive to avoid damage to the surfaces.

Ruukki® Patina Panel can be washed with water, and persistent dirt with mild detergents used in households. If detergents are used, the surfaces must be rinsed well afterwards with clean water. Rinsing of façades must always be carried out from the top downwards Using a pressure washer is not recommended, because water may get into the façade structure. However, if a pressure washer is used, a low pressure (<50 bar) must be applied and direct spraying to the seams of elements and flashings must be avoided.

Dirt and grease spots must be removed from Ruukki® Patina Panels' surfaces immediately after installation according to the instructions.

Maintenance, Overpainting and Repainting

Normally small surface scratches on COR-TEN surfaces are not to be repaired. They disappear in the oxide layer in the long run. In case the color of the coating is to be changed overpainting is possible. In that case rust must be completely removed and the instructions of paint supplier must be followed while painting.

Fixing Small Dents

Dents on Ruukki® Patina Panel must not be filled or repaired by filler materials. In case the damage cannot be repaired satisfactorily by routine adjustment measures, the element is to be exchanged. NOTE! Evening out the tone difference might last several years!

Maintenance and Inspection of the Panels

The general condition and functioning of the panels and other structural parts must be monitored yearly. Regular inspections extend the service life of the panels. During the yearly inspections, attention must be paid to places where dirt and moisture accumulate. The existence of crevice corrosion must be checked when inspecting COR-TEN surfaced products.

When a need arises to replace panels or other structural parts, corresponding products must be used to replace them. A record must be kept of the maintenance work performed on the structures. Things to be recorded include the exact object of maintenance work, measures performed, the date, the person who performed the work and the supplies and materials used.

Fastenings of structural parts must be inspected in connection with the maintenance. The condition of the fastenings is best inspected by unscrewing some of them in different parts of the building. Special attention should be paid on the appearance of fasteners and the condition of the seal under the screw head. This way can be confirmed that the water have been prevent from entering the joints. Damaged or worn fasteners must be replaced.

The structure's seals must be inspected to ensure that the designed level of air and vapour-tightness is maintained. Damaged or worn seals must always be replaced with new seals, using, for example a joint sealant that is suitable for the application. Old seals are to be removed when necessary and situation allows. The condition of the insulation material must also be monitored and replaced whenever necessary, for example if the insulation material has become wet.

COR-TEN surfaces can be washed only when necessary. For accurate instructions on washing, please check previous section on washing façade.

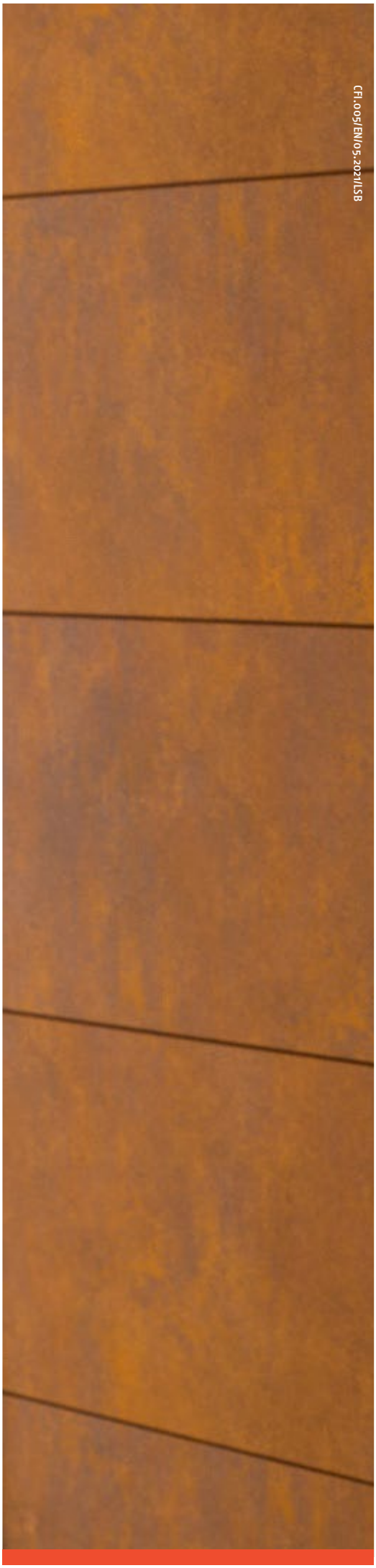
Partial Replacement of the Panel

Panels and other materials can be partly replaced when necessary. For further information contact our technical support.

Annual inspection actions

Target		**Measures**
Fastenings	Panel fasteners	Inspect some of the fasteners for tightness and corrosion. Replacement as required.
	Flashing fasteners	Inspect some of the fasteners for tightness and corrosion. Replacement as required.
Paint coatings	Cleanliness	Washing and painting of surfaces.
	Colour changes	Repainting – contact an expert first.
	Scratches	Touch-up – contact an expert first.
Joints		Inspection of the panel joints and flashings for tightness and corrosion.

We make steel-based products for walls and roofs, for both commercial buildings and private homes. We're a supplier of high-quality products, systems and solutions, developed sustainably and to live up to the highest demands on durability in harsh conditions.



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