



Use and Maintenance Guide

Sandwich Panels

USE & MAINTENANCE





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The latest version of this brochure is always available on the Paroc Panel System's website. Our information material presents applications for which the functions and technical properties of our products have been approved. However, the information does not mean a commercial guarantee.

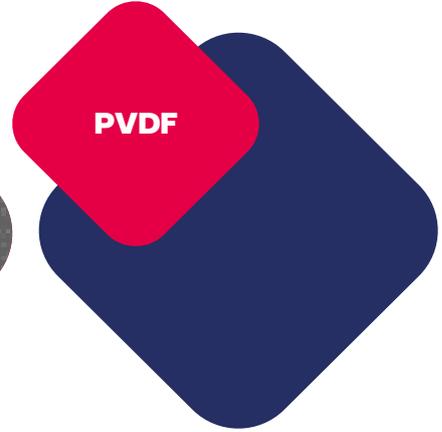
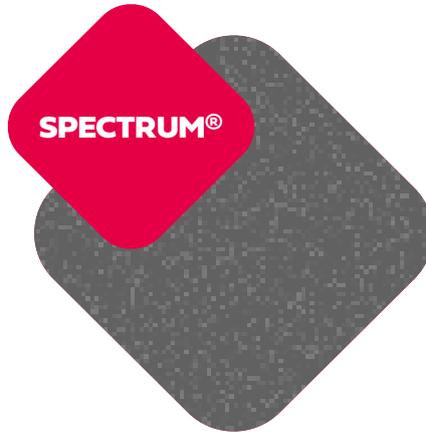
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Range of Coating Systems

External Coatings



External & Internal Coating



Internal Coatings



Our coating systems offer many important advantages:



Excellent corrosion resistance

Our coatings are best in class for corrosion resistance. They use innovative metal alloy substrates, which provide maximum resistance to corrosion on scratches and on cut edges.



Special Care

Air pollution and corrosion

Near to industrial plants, major cities and coastlines impurities and air pollution accumulate on external walls in the form of sulphur dioxide, nitrogen oxides, chlorine gases, soot and other types of dirt. Air pollution together with air humidity generate acids, e.g. sulphur, nitrogen and hydrochloric acid, which have an adverse effect on coatings.

The corrosive effect of salts in the air is mainly based on their moisture binding capability. When forming layers on wall surfaces, salts often bind water and thus build up the moisture content in the surface. At the same time they extend the wet-time of the surface, which to a great extent determines the corrosive impact of the climate. Without water practically no corrosion takes place.



Rainwater and snow keep wall surfaces clean from dirt and pollution inland. However, cleaning at regular intervals ensures longer lifetime for the panels. Especially wall areas protected by eaves are in need of cleaning. In coastal areas special stress is caused by salt from the sea accumulating on the wall surfaces.

Regular service to ensure facings

In the course of years surface appearances change due to dirt, loss of gloss or alterations in colour tones. The highest impact on these changes comes from air impurities, sun UV and heat radiation and outdoor temperature. Dark surfaces are subject to the highest stress. On walls facing south the surface temperature may with dark paint surfaces rise up to +80 °C, with light colours up to +55 °C. The service life of an intact original paint coating is 25 - 40 years on an average depending on coating type, building method and climatic conditions. Due to higher thermal load the service life for dark colours is somewhat shorter than for light colours. When the protecting capability of a paint coating ceases to have effect, the panel is still protected by the zinc coating. It is recommended that CLEANsafe 25 polyester coatings are repainted for maintenance purpose after 15 - 20 years. This will restore the paint surface to almost the same level as when new and it can be repainted again after 10 - 25 years, which will give it a service life of over 50 years.



Scratches and dents

Scratches and dents left unrepaired have an adverse effect on the service life of the product and should therefore always be repaired. If the repair is made immediately, the damaged area often is only a scratch of some millimetre width, which makes the repair quick and easy. After some years it may be considerably more difficult to fix the same damage. It may also be difficult to make the damage unnoticeable as the colour of the patch-paint does not necessarily completely match the old coating.

Usage

Panels in Use

Maintenance in line with the instructions will ensure the functioning and a longer service life of the whole building.

Suspensions

Loads can be suspended in Paroc Panel System panels using fixing screws. If the suspensions cause dynamic loads, penetrating screws shall be used. The suspension loads have to be taken into account when fixing the panels, adding 1 fixing screw per 1 kN of load. The table below shows the number of fixing screws required for different types of suspensions. We recommend that fixings of type Bulb-Tite rivets (SFS intec) should be used.

Cut-outs and penetrations

Cut-outs in the panels may weaken the panel strength. If the cut-outs are larger than 200 mm separate dimensioning is required.

Cut-outs for penetrations are normally so small that no special measures are required due to their effect on the panel strength. If a penetration is made in a fire-partitioning wall, the penetration must fulfil the same fire-technical requirements as the wall.



Deflection

The panels deflect due to load actions (wind pressure and suction) as well as the effect of the temperature gradient between the panel internal and external surfaces. This deflection has to be considered when designing panel connections to other structures.

Protection of load-bearing ceiling

Normal, occasional foot traffic is not harmful to the panels. Panels subject to frequent foot traffic, for instance at entrance doors and where equipment is installed, have to be protected using 10 – 20 mm thick, rigid stone wool slabs and load-distributing building boards. For other passages and installation areas, protection with 15 mm plywood is sufficient. Loads caused by permanent foot traffic have to be steered to the load-bearing frame.

Cut-outs may weaken the ceiling panels. Foot traffic near the cut-outs should be avoided. Heavy loads, for instance caused by heavy equipment, always have to be checked. Also point loads caused by ladders etc. require protection.

Number of fixings per 20 kg					
H, mm	Distance of load from panel surface L, mm				
	200	300	400	500	600
100	1	2	2	-	-
200	1	1	1	2	2
≥300	1	1	1	1	1



With increasing loads, the number of required fixings increases linearly, e.g. Load = 40 kg, the number of fixings is 2 x the number given in the table above. Load = 60 kg, the number of fixings is 3 x the number given in the table above. Note! In the shaded area of the table, always use 2 fixings at the top end of the load-bearing unit.

Annual checking

Annual checking and service are very important for the condition of the whole building. In order to obtain optimum service life for Paroc Panel System structures, annual checking is required with repairs in accordance with the table below. Annual checking performed and actions taken should be registered.

Annual checking of Paroc Panel System structures	
To be checked	Actions to be taken
Dirt on painted surfaces	Visually assess, is the complete wall or only shaded parts in need of washing → wash surfaces
Condition of painted surfaces (cracks, discoloured areas)	Evaluate is the wall in need of touch-up painting or repainting → Paint if there are several defect areas or the wall is unevenly discoloured. It is recommended that an expert is consulted if repair is needed.
Scratches and dents	Check the panels for scratches and dents → Touch-up paint, repair of dents
Panel fixing screws	Panel fixings have to be checked every 10th year. Pull out one screw and check its condition. If rusted, contact the screw manufacturer for consultation on the need of additional fixing.
Flashing fixing screws	Check the grip of the screws. Check also reason, if something can be corrected so screws won't become loose again.
Corrosion of cut edges of flashings	Check the condition of cut edges. If the ends are rusted, remove the rust and clean them. Paint area with paint suitable for steel facade or roof.
Flashing tightness	Check that the flashings are tight against the panel. If gap, add flashing screws.

1) Fixing screw code SFS: www.sfsintec.biz
 Fixing screw code P or JP: www.ferrometal.fi
 Fixing screw code J2 or J3: www.ejot.com

Cleaning

Cleaning of panels

Cleaning at regular intervals ensures longer lifetime for the panels. especially wall areas protected by eaves are in need of cleaning.



Colour coated steel sheets

Dirty or stained areas can be washed with a soft brush and water. Water pressure cleaning (max 50 bar) can also be used, but then the water-spray must not be applied too close or perpendicularly towards the coating. At panel joints the water-spray should be directed at a downwards angle to avoid spraying pressurised water directly into the joints. Old coatings should be handled with special care.

Difficult dirt spots can be removed with a cloth moistened in white spirit. Always wash the surfaces from below upwards and carefully rinse off the detergent with water after a few minutes, working from the top to the bottom. Finally, the rainwater systems should be rinsed with water. If detergents suitable for painted coatings are not available, car shampoos and a carwashing brush can be used. However, car shampoo is not recommended if the panel surface is to be painted.

The shampoos often contain wax, which may weaken the adhesion of the new paint.

CLEANSafe 120 (FoodSafe laminate)

FoodSafe laminate can be washed daily with a soft brush. Water pressure cleaning (max 50 bar) can also be used. The pH value of detergents used for the washing of FoodSafe laminates should be between 5 and 8. The detergent must not contain solvents.

The maximum water temperature is +60 °C. The FoodSafe laminate is allowed to be wet for 6 hours/day.

After this the surface must be allowed to dry properly. For the drying, a soft cloth or air-blowing can be used. Special attention must be paid to drying panel joints and flashing edges. The allowed continuous moisture content of the air has to be lower than 80 % RH.

Acoustic panel

First vacuum loose dirt off the surface. Then wipe surface with damp cloth.



CLEANSafe 304/316L (Stainless steel)

Stains and discoloured areas on stainless steel surfaces are cleaned as specified in the table below.

Additional information

Tampereen Pesuainepalvelu Oy
www.tampereenpesuainepalvelu.fi

Washing graffiti off

The working temperature should be above 0 °C. Try the effect by wiping with a cloth. A too long acting time may be harmful to the PVDF coating.

Wipe off the detergent and graffiti with a dry cloth and rinse the surface carefully with water or clean it with a damp cloth and dry it to remove the remaining paint.

Cleaning methods for stainless steel

Type of stain	Cleaning agent and method
Fingerprints	Wash with white spirit, thinner, trichloroethylene or acetone, then rinse with cold water and dry.
Oil and grease	Wash with organic solvent as above, then with water and soap, rinse with clean cold water and dry.
Difficult stains and discoloured areas	Wash with mild abrasive cleaning powder in the direction of possibly visible surface structure, then rinse with clean cold water and dry, or wash with 10 % phosphoric acid solution, rinse with diluted cold water and dry.
Heating colour and difficult stains	Wash with cleaning powder as above, or grind with abrasive pad in direction of possibly visible Surface structure, rinse with cold water and dry.
Rust stains	Soak surface with oxalic acid solution, give it 15 – 20 minutes to act, then rinse with clean cold water and dry. If required, repeat the procedure using cleaning powder as above.
Paint stains	Wash with paint solvent using a soft nylon brush, then rinse with clean cold water and dry.
Scratches in ground or brushed surface	Polish in the direction of the structure using an iron-free ground or grinding agent and abrasive pad, then wash with soap brushed surface solution, rinse with clean cold water and dry. Note! This method must not be used on 2B surfaces.

Painting and Repair

Scratches and dents left unrepaired have an adverse effect on the service life of the product and should therefore always be repaired.

Preparatory work

Before painting, clean the old paint surface as described under "Cleaning of panels" and let dry properly. Strip off peeling parts of the surface and grind off visible rust. Any dents are to be corrected as described under "Correcting dents". Apply primer on cleaned surfaces.

Touch-up painting

Scratches, impacts, abrasions or flaking may appear on the painted surface, for example from improper handling of installation tools, panel lifting or handling, or from package and transport damage. Small marks are of no significance unless the paint surface is visibly cracked. If the surface is broken, impurities tend to accumulate in the defect area and humidity

may remain for a prolonged time in the scratch. A narrow scratch damage in the paint surface corrodes faster than a more extensive area peeled off the surface. Small scratches are painted using a thin paintbrush (Repair Kit, Touch-up paint). More extensive scratches including surrounding areas are first roughened lightly using abrasive paper (320) or corresponding. If the defect reaches only to the primer coat, one paint layer is sufficient. However, if the scratch reaches through the whole colour coating to the zinc layer, it is recommended that the surface be painted a second time after the first layer has dried. Before painting, always check the paint colour tone on a small test area. For repair of CLEANsafe 120 (FoodSafe laminate) surfaces, in addition to the maintenance paints in the table below, you can use FoodSafe laminate pieces that are also available.



Paints suitable for touch-up painting

Coating	Paint	Manufactured by
PVDF and CLEANsafe 25	Repair Kit Panssari Akva 1) Plaston 1)	Paroc Panel System Tikkurila Teknos
CLEANsafe 120 (FoodSafe laminate)	Repair Kit Touch-up paint P5-526 2) Repco 1) 2)	Paroc Panel System Akzo Nobel Tikkurila
Spectrum®	Repair Kit Panssari Akva 1)	Paroc Panel System Tikkurila

- 1) Priming with Rostex Super primer (Tikkurila)
- 2) Paint does not have food safe approval
- 3) Priming only on demand



Repainting of coating

Defects in the coating and significant changes in colour or gloss are the most common reasons for repainting of coatings. The number of coats required depends on the cover achieved with the first paint

coat. If the original colour still is even slightly visible, a second coat has to be applied after the first has dried. When changing the colour of the coating, two repaint coats are usually needed.

Repair of impacts

Old paint surface corrodes faster than a more extensive area peeled off the surface. Small scratches are painted using a thin paintbrush (Repair Kit, Touch-up paint). More extensive scratches including surrounding areas are first roughened lightly using abrasive paper (320) or corresponding. If the defect reaches only to the primer coat, one paint layer is sufficient. However, if the scratch reaches through the

whole colour coating to the zinc layer, it is recommended that the surface be painted a second time after the first layer has dried. Before painting, always check the paint colour tone on a small test area. For repair of FoodSafe laminate surfaces, in addition to the maintenance paints in the table below, you can use FoodSafe laminate pieces that are also available.

Paints suitable for repainting		
Coating	Paint	Manufactured by
Polyester and Spectrum® 1)	Panssari Akva 2) Temaclad SC 50 (only for professional use)	Tikkurila Tikkurila

1) Priming only on demand

2) Priming with Rostex Super primer (Tikkurila)

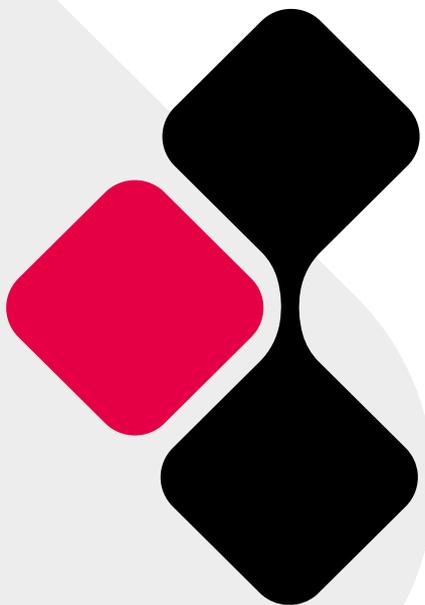
Additional information for repainting

www.teknos.com

www.tikkurila.com

www.bifab.com (Becker Industriefärg AB)

www.akzonobel.com.



Exchanging Panels

In case of bigger damages panels can easily be exchanged according to these instructions.

Preparation

Order in advance replacement panel(s), fixing screws needed and lifting equipment. Also assure that the replacement panel has the same strength properties as the damaged one.

Exchange of panel

Remove the flashings covering the fixing screws on panel C to be demounted as well as on panels A, B, D and E (fig.1).

Add one extra fixing screw to panel A and E (fig. 2).

Fix panels A and B to each other at both ends using thin steel strips which are fastened so that the screw holes are covered afterwards by the flashing.

Find out the weight of the panel B; maximum allowed load per screw is 25 kg (fig. 3).

Remove the fixing screws in panel B.

The panel is now suspended in the steel strips.

Fasten panels D and E together with small steel strips at both ends preventing panel D from falling when panel C is removed.

Mount safety strips (length = panel thickness +15 cm) on both ends of panel D so that when the panel is pulled out, its inner surface stops at appr. 5 cm from the wall surface.

Remove the fixing screws from panel D (fig. 4 and 5).

Remove the fixing screws from panel C and pull out panel C using manual suction clutches. If the panel does not come out, use a knife to cut out the frame sealant from the panel (fig. 6).

Mount the LiftAid on panel C and take it down (fig. 7).

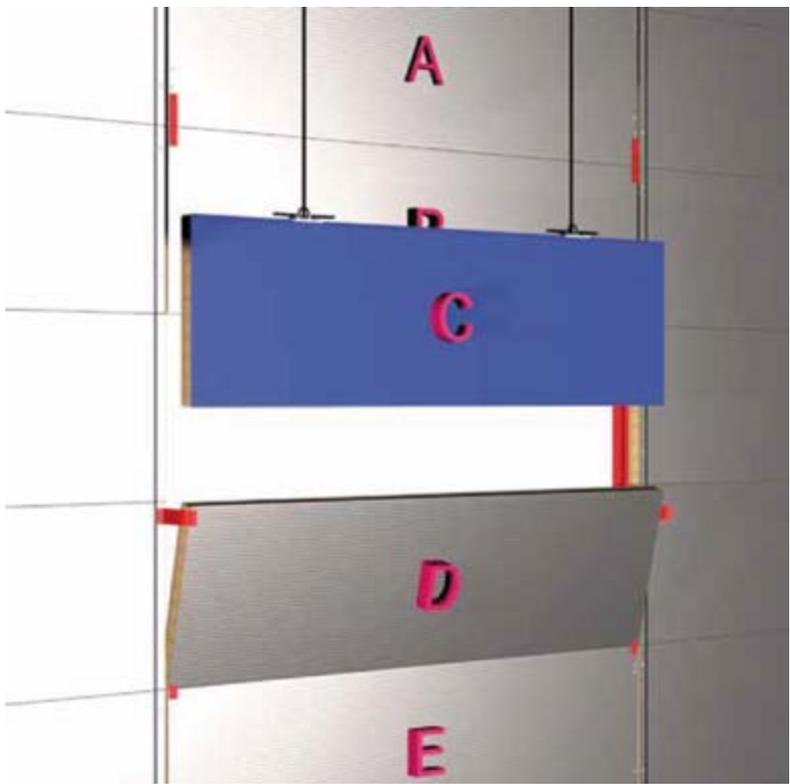
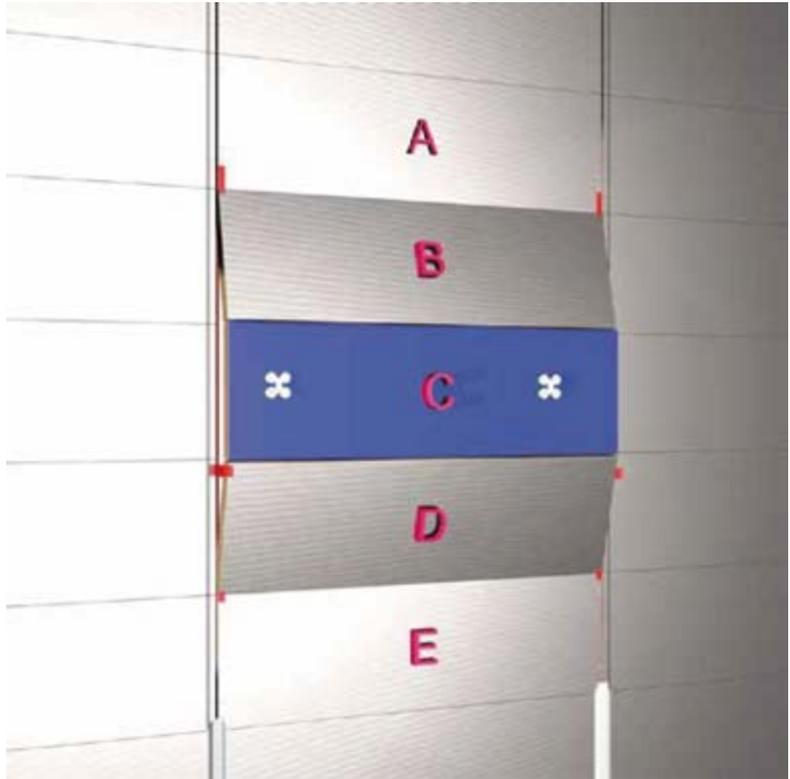
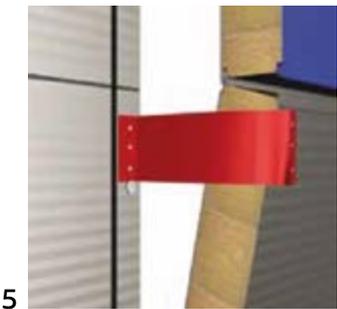
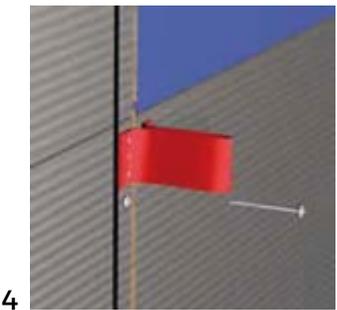
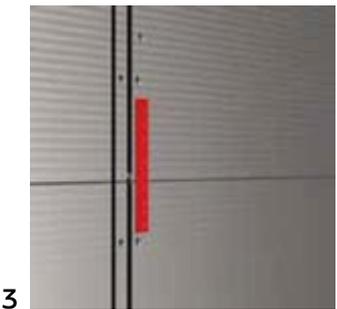
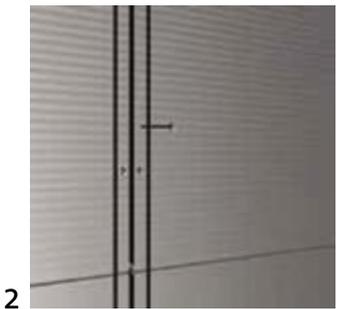
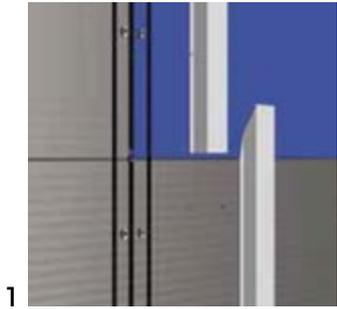
Add sealing compound to the female joint of panel B.

Lift a new panel with LiftAid and mount it into the joint of outwards bent panel D. Take off the LiftAid.

Mount the inside joint of the outwards bent panel B into the inside joint of the new panel. Press the panels against the frame and check that the joints are properly together. Fix the panels with new fixing screws.

Remount the flashings.

NOTE! These instructions are to be used for Paroc Panel System panels up to 150 mm. The method has been patented.





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