



Installation Manual

RubberShell Roofing System

Edition: 2016-01



TABLE OF CONTENTS

PRODUCT INFORMATION	pp. 4-11
Product Description	4
Product Overview	4
Product Characteristics	4
Materials Handling And Storing	5
Preparations	6
Substrate And Insulation	6-11
HEAT-WELDING INSTRUCTIONS	pp. 12-13
MEMBRANE LAY-OUT	p.14
INSTALLATION	pp. 15-28
Mechanically Attached	15-16
Loose-Laid And Ballasted	17
Self-Adhered	18
Corners	19-24
Drains	25-26
Pipe Penetrations	27-28
BUILD-UP	pp. 29-30
Mechanically Attached	29
Self-Adhered	30
DETAILS	pp. 31-36
Upstands	31
PE Outlet	32
Terminations	33
Connection To Non-Watertight Walls	34
Connection To Watertight Walls	35
Concrete Wall Cover	36

TABLE OF CONTENTS

GUTTERS	pp. 37-43
Installation	37-40
Outer Corners In Gutters	41
Inner Corners In Gutters	41-42
Drains In Gutters	42
Details	43
FACADE APPLICATIONS	p. 44
SUPERVISION AND MAINTENANCE	pp. 45-46
QUALITY ASSURANCE AND CONTROL	p. 47
TECHNICAL INFORMATION	p. 48
CONTACT DETAILS	p. 49
NOTES	pp. 50-51

PRODUCT INFORMATION

Product Description

RubberShell is a multifaceted and reinforced rubber membrane for building envelopes. RubberShell is unaffected by permanent contact with water and is UV-resistant. RubberShell has guaranteed function and integrity in all climates. The bitumen layer of the product enables an instant, visually verifiable result of lap sealing due to material bleed. The products contain no dangerous chemicals such as chlorine or plasticisers. The expected service life exceeds 50 years.

Product Overview

Product	Installation Method	Range Of Use
RubberShell S 2.5 mm	Mechanically. Min. overlap 100 mm (ballasted: 50 mm)	Waterproofing of roofs.
RubberShell S-FR 2.5 mm	Mechanically. Min. overlap 100 mm. (ballasted: 50 mm)	Waterproofing of roofs. Fire classification: Broof t1,t2,t4
RubberShell SA 2.5 mm	Self- Adhered. Apply Primer 9800 to substrate. Min. overlap 50 mm.	Waterproofing of roofs.
RubberShell SA-FR 2.5 mm	Self- Adhered. Apply Primer 9800 to substrate. Min. overlap 50 mm.	Waterproofing of roofs. Fire classification: Broof t1,t2,t4
RubberShell SA 1.6 mm	Self- Adhered. Apply Primer 9800 to substrate. Min. overlap 50 mm.	Waterproofing of gutters and facades.

Product Characteristics

RubberShell SA 1.6 mm

Thickness: 1.6 mm **Weight:** 1.9 kg /m²

Width: 100 mm - 1600mm **Length:** 20 m

RubberShell SA/SA-FR 2.5 mm

RubberShell S/S-FR 2.5 mm

Thickness: 2.5 mm **Weight:** 2.85 kg/m²

Width: 1700 mm* **Length:** 10 m

**Additional widths available upon request. Please contact your local sales representative for more information.*

PRODUCT INFORMATION

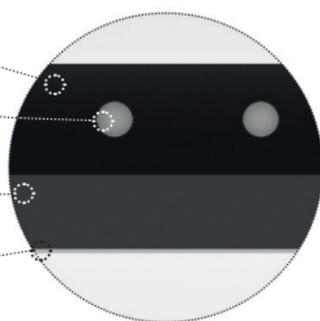
RubberShell S/S-FR

Elastic EPDM rubber membrane

Reinforced with a grid of glass fibres

Polymer-modified bitumen layer

Separation foil



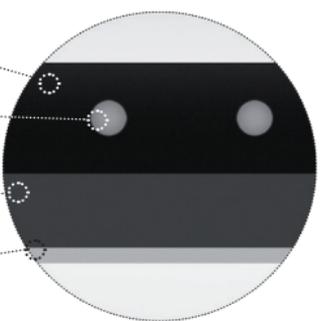
RubberShell SA/SA-FR

Elastic EPDM rubber membrane

Reinforced with a grid of glass fibres

Self-adhesive polymer-modified bitumen layer

Protective release film



Materials Handling And Storing

- ✓ Check the material as verified by specifications, shipping document and product label. Missing or damaged goods should be reported to SealEco.
- ✓ Store all materials according to the product specifications. Maximum shelf life for the product is 12 months.
- ✓ Never store the product in direct sunlight. All rolls must be stored and transported in a vertical position (except versions in width 1200 mm and wider). Do not store pallets on top of each other. Do not open packages until immediately before installation.
- ✓ Keep the work site in good order and free from construction debris, loose nails, steel sheet off cuts etc.
- ✓ Make sure that the substrate can carry the load when material is placed on the roof (point load).

PRODUCT INFORMATION

NOTE!

- All places that are uneven (>5mm) under seam must be treated by putting an extra patch over the seam.
- Insulation boards must be properly fixated and the surface even. Never make fixations in between plates.
- RubberShell S cannot be installed using torch.
- Seam passing over angle horizontal/vertical must be patched for extra safety.

Preparations

The basic behind an efficient and safe roof installation is preparation and careful planning of the work. The roofing work as well as quality assurance becomes easier and more secure. If there is a way to split the roof in smaller areas that can be finished in detail during each working period. If the work is interrupted exposed rolls must be covered or put back in their original packaging.

Do not conduct any work operations until precautionary measures have been taken. Make sure to read the corresponding Material Safety Data Sheets (MSDS).

Ensure to have the necessary tools/accessories available prior to beginning installation ;

- Scissors • Screwdriver • Knife/cutting tool
- Pressure roller • Hot air welding tool • Mastic gun
- Brush or roller for primer • Measuring tape • Chalk line
- Broom • Cleaning wash 9700 • Primer 9800
- Prefabricated corner details • Drains and outlets

Substrate And Insulation

The chosen insulation must be suitable for low slope roofing and adapted to the requirements of the roof design. Insulation should have compression strength at 10% deformation of minimum 60 kPa (60 kN/m²) to assure a proper installation. Install insulation suitable for the roof in accordance with the guidelines of the supplier. Make sure to control that the build up and products chosen is compatible with the local legislations. When installing self-adhered RubberShell, verify that the insulation is compatible with Primer 9800. See table on pp. 10-11.

PRODUCT INFORMATION

Substrate And Insulation

When installing RubberShell S/S-FR onto polystyrene, the overlap should be 80 mm. It is not possible to adhere to "naked" polystyrene or mineral wool. These insulations requires facing or must be covered with a bitumen felt or equivalent before installiing the RubberShell membrane.

Keep Primer 9800 and Cleaning Wash 9700 away from insulation that cannot resist solvents. The substrate must be dry, clean and free of any debris. RubberShell can be used on all common substrates like: concrete, timber or corrugated metal deck. Concrete or timber decks can be used for cold roofs without insulation but on metal deck, insulation is required.

The roofing substrate shall have adequate strength and rigidity to carry actual loads from wind and snow etc.

RubberShell is not influenced by ponding water but we still recommend a slope of at least 2% to prevent ponding water. The substrate shall be relatively even - equivalent to wood floated concrete. Screws or nails must be properly entered into substrate without risking coming out. The smoothness of the substrate is important under splice areas. Difference in level more than 5 mm must be levelled before splicing. Avoid installation in case of humid weather or condensation on the substrate. RubberShell SA must never be installed onto moist insulation or substrate.

Vapour barrier

When installing a new warm roof a suitable vapour barrier must be applied under the insulation and it should be installed to be air tight over the entire surface. At roof terminations, and connections to walls, the vapour barrier shall be brought up over the thermal insulation. At penetrations, the vapour barrier shall be connected air tight with construction tape. The "Alushell" vapour barrier is available for purchase from SealEco.

PRODUCT INFORMATION

Substrate And Insulation

Cleaning Wash 9700

Cleaning Wash 9700 is a technical petrol used for cleaning weathered rubber membranes before installation and repair. Cleaning Wash 9700 is highly flammable. Keep away from open fire. Average consumption is 4-5 m²/litre. Packaging: 5 litre can or 1 litre bottle. Shelf life: 6 months in unopened package.

Primer 9800

Primer 9800 shall always be used to treat substrate prior installation of **RubberShell SA 1.6 mm and SA/SA-FR 2.5 mm**. Shake and stir the primer before use. Apply Primer 9800 to the substrate using a fleece roller or brush and make sure to cover the whole installation area.

After applying the primer onto the substrate, wait approx. 20 minutes (20 C° en 50% RH) before adhering the product. In cases where the work has been interrupted for a longer period of time (>3 h), a second layer of Primer 9800 has to be applied. Do not apply Primer 9800 or RubberShell in temperatures below +5 C°.

Allow the primer to flash off before applying RubberShell. Use of fire or open flame is not allowed during installation. Close the can immediately after use. The solvents in Primer 9800 will evaporate if exposed to the air.

Store the Primer in temperatures between +5 C° and + 25 C°. Packaging: 6 and 17 litre/can. Shelf life: 12 months if stored cool in unopened original packing.

Primer 9800 is highly flammable. Keep away from open fire.

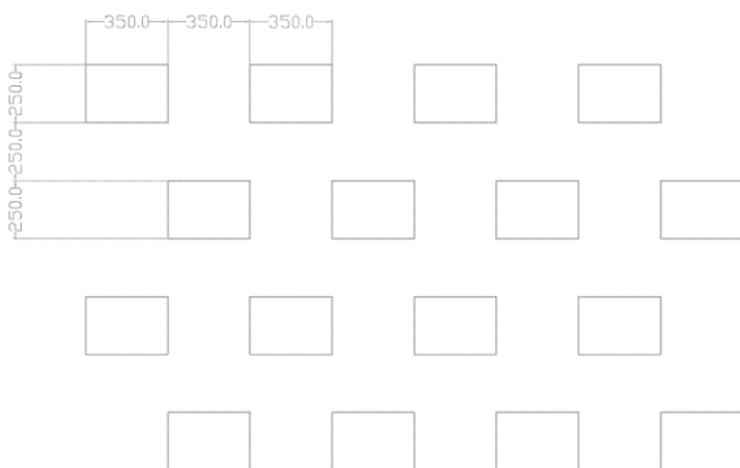
Primer 9800 is not suitable as a primer for Polystyrene foam and plasticized PVC foil.

PRODUCT INFORMATION

Substrate And Insulation

Pattern for partial adhesion with Primer 9800

Primer 9800 does not have to cover the whole surface. To minimize consumption of Primer 9800, partial adhesion is possible if Primer 9800 is applied according to the pattern illustrated below. The surface must be completely covered with Primer 9800 in a distance of 1 m from perimeters.



i For more specific installation information regarding Primer 9800, see table on pp. 10-11.



PRODUCT INFORMATION

Substrate And Insulation

Primer 9800

Substrates and average consumption of Primer 9800.
Always check with the producer of the insulation whether
adhesion to the substrate is suitable.

Substrate	Remark	Average consumption (g/m ²)
Plywood	Water resistant	175
Wood	-	200
OSB	Pts 3	200
Heraclit (concrete cement fibers)	Supplementary layer of bitumen (V3 or plywood).	200
Concrete, vibrated	Smooth surface.	200
Concrete, rough	Supplementary layer of bitumen (min. V3)	200
Concrete, cellular	Apply Primer 9800 twice.	200 + 175
Sand/ concrete	Only when acceptable quality.	225
Sanded bitumen	No loose particles on the surface.	200
APP	Clean the surface, no slates	175-200
SBS Bitumen	No loose particles on the surface.	200-250
Oxidized bitumen	110/30 supplementary layer of sanded bitumen V3 min. 85/25 not to be used.	200

PRODUCT INFORMATION

Substrate And Insulation

Primer 9800

Substrates and average consumption of Primer 9800.
Always check with the producer of the insulation whether adhesion to the substrate is suitable.

Substrate	Remark	Average consumption (g/m ²)
PUR laminated with aluminum	-	NO PRIMER
PUR laminated with bitumen	-	175
PUR laminated with glas fleece	-	200
PIR laminated with aluminum	-	NO PRIMER
PIR laminated with bitumen	-	175
PIR laminated with glas fleece	-	200
Foamglas Perlite Mineral wool	Bituminious layer necessary (min V3).	200
Zink	Surface completely covered by the membrane.No contact with water allowed.	NO PRIMER
Galvanized metal Stainless steel Aluminum Copper Glass	Clean surface carefully- no grease allowed. Surface must be completely covered and unexposed to water. Teflon covered surfaces not allowed.	NO PRIMER

HEAT-WELDING INSTRUCTIONS

For the onsite seaming during the installation the hot air seaming technique is applied. Automatic welders should be used on all places where it is possible to do so. Handheld welding tool in combination with silicone or brass pressure roll is used for detail work and at locations with narrow space or for very short splices.

Machinery settings

Machine	Temperature	Speed	Air flow
Automatic welder	500 - 620 °C	1.5 -3.5 m/min	60-80 %
Handheld welding tool	450 - 550 °C	Adapted	-

Environment

Heat splicing can be made in ambient temperature in the range -20 to +50°C. Hot air seaming should not be done during precipitation, in the presence of excessive moisture, in areas of ponding water or during excessive winds.

Membrane

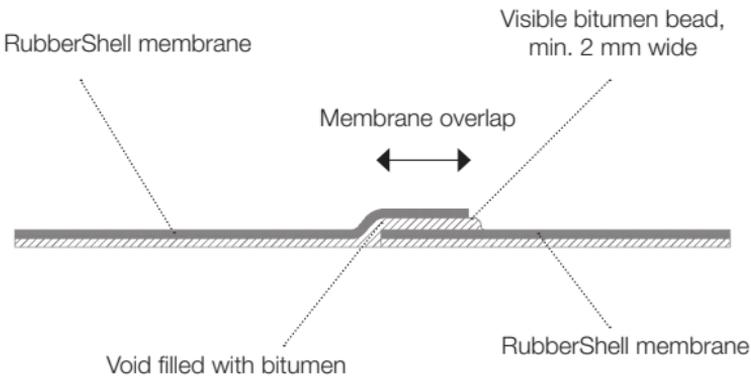
The splice areas of the membrane must be smooth clean and free from wrinkles. It is of major importance that both areas that should be seamed together are heated before the contact areas are joined. No stress should be build to the seam.

HEAT-WELDING INSTRUCTIONS

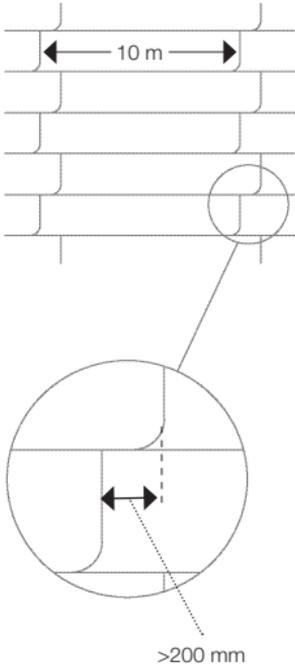
Splice properties

The pressure roller on the automatic welding machine should be moved precisely along the top membrane edge. Be careful not to move the wheel directly over the seam edge. A clearly visible bitumen bead, min 2 mm to approx. 5 mm wide, is extruded from the edge of the membrane. This enables a simple visual inspection to confirm that the welded lap is completely watertight. If welding is interrupted, the welding process must be recommenced from the precise position where the previous weld terminated.

A test weld should always be done at start-up of each working shift. The sample should be examined and tested to assure good quality. Note that the seam doesn't reach full strength until it has cooled down. Do not cover a larger roof area than it is possible to finalize splicing upon during the working period.



MEMBRANE LAY-OUT



Round off only the visible corners.

End laps should be shifted longitudinally with 200 mm to avoid too significant material thickness.

Trim the parts carefully in a similar way.



Membrane installed in grid

At parallel edges, an end strip has to be installed over the membrane edges.

INSTALLATION

Mechanically attached RubberShell (S/S-FR)

Unroll and align the RubberShell membranes with the specified overlap and with the edges running parallel to each other. Make sure that a proper fixation plan for the Rubbershell membrane exists and that it is based on an unique wind uplift calculation for the project. If the needed rows for fixation are less distanced than the adhered width, additional row of fixation can be entered in the middle of the membrane and be covered with a RubberShell splice strip. The installation of Rubbershell shall preferably start at the lowest parts of the roof either in a valley or the lowest side. From this point the lay-out of the membrane is done cross the slope direction with a membrane overlap of min. 100 mm. Exception to this must be done if it is a corrugated metal deck that runs in the direction of the slope. If so the membrane is installed along the slope to enable attachment. The Rubbershell rolls shall be positioned so that they can be rolled out into their final position without adjustments.

Splice the membranes by means of hot air.

Overlaps should be at least **100 mm wide**. Distance between fastener and edge: min 10 mm. Minimum seam width allowed is **80 mm**.

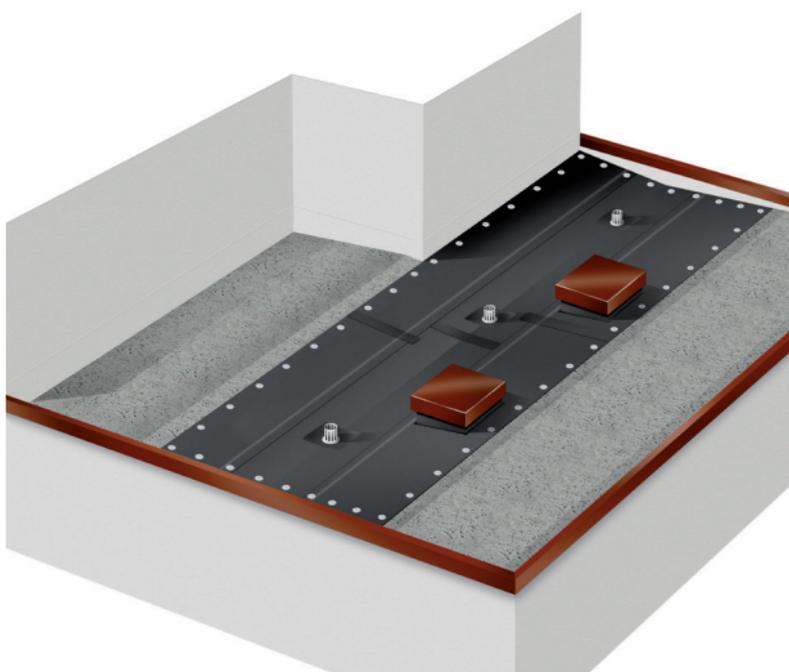
The end laps of mechanically attached RubberShell shall be overlapped minimum 50 mm with mechanical attachment.

INSTALLATION

Mechanically attached RubberShell (S 2.5 / S-FR 2.5)

The valleys should be covered with full length membrane to minimize cross seaming. Mechanically attachment with screws and stress plates should be installed at all perimeters, upstands and around penetrating details in the roof field measuring 500 mm or more (side or diameter). The distance between these stress plates should not exceed 200 mm. Cross-seaming of mechanical fastened RubberShell is done with a cover strip or overlap.

Make sure that the mechanical attachments are properly entered into the substrate and that the stress plate is close and tight to the RubberShell membrane. The stress plate should however not be too tight installed giving wrinkles in the membrane or entered into soft insulation. When working on soft insulation telescopic tubes shall be used. We recommend that all cuts and overlaps for splicing should be properly marked with a caulk line before execution. Straight line for cuts and splice is crucial for easy installation and good appearance.



INSTALLATION

Loose-laid and ballasted RubberShell (S 2.5 / S-FR 2.5)

On a ballasted roof construction the membrane is laid loose to the substrate and secured by proper weight from ballast. For this reason the ballast should be applied shortly after panel installation. The membrane overlap should be at least **50 mm**. The membranes are heat-spliced with a minimum seam /nozzle width of **40 mm**.

Example of suitable ballast is: gravel, pavers, concrete or timber. In many cases different ballast is suitable for different areas on the same roof. Pavers are most suitable at areas with regular foot traffic. Gravel is extra suitable around drainage details for paver ballasted roofs.

The weight of the ballast must be adapted for each building and be based upon local conditions and requirements. Example that influence the needed load from ballast are: wind zone, terrain, height and shape of building and height of parapets. There is also different legislation in different countries. We recommend a ballast weight of 80 kg/m² or more but never less than 50 kg/m². If there is less ballast than 50 kg/m² an additional fixation of the membrane is necessary.

The influence from wind load is always bigger in the corners and at perimeters of the roof than in the field. Therefore gravel ballast should be applied with thicker layer in corner and perimeter zone than in the field.

A general guide to designing gravel thickness can be:

- Thickness x 1 in Field Zone.
- Thickness x 2 in Perimeter Zone.
- Thickness x 3 in Corner Zone.

The ballast should be applied with care to avoid damage to the membrane.

INSTALLATION

Self-Adhered RubberShell (SA 2.5 / SA-FR 2.5)

1. Primer 9800 shall always be used to treat substrate prior installation of RubberShell SA/SA-FR 2.5 mm. Shake and stir the primer before use. Apply Primer 9800 to the substrate using a fleece roller or brush and make sure to cover the whole installation area. After applying the primer onto the substrate, wait approx. 20 minutes (20 C° en 50% RH) before adhering the product. In cases where the work has been interrupted for a longer period of time (>3 h), a second layer of Primer 9800 has to be applied.

2. After applying the primer, and allowing it to dry, roll out and align the membranes with the specified overlap and with the edges running parallel to each other. The installation of adhered RubberShell shall always start at the lowest parts of the roof either in a valley or at the lowest side. From this position the lay-out of the membrane is done cross the slope direction with a membrane overlap of **minimum 50 mm.** Fold back the first metre of the membrane, and remove the release film diagonally from the underside of the membrane. Remove the release film from the membrane by pulling the film in a 45° angle while pressing the membrane onto the substrate. Apply pressure over the membrane with a wide roller or broom to ensure adequate adhesion.

3. When the first metre of the membrane is adhered, unroll the rest of the membrane. For smoothest installation, we recommend that the membrane is adjusted and aligned by one person, while a second person simultaneously removes the release film diagonally from the membrane in a lengthwise direction. Make sure to overlap the membranes with the specified width.

4. Press down the membrane, e.g. with a wide broom or roller, starting in the centre and moving out towards the edges, in order to prevent air pockets. Weld the laps, using a hot-air welder with a nozzle width that is no wider than the overlap (**we recommend that the nozzle width on an automatic welding machine is 40 mm).**

INSTALLATION

Corners

To seal external and internal corners, use separately shaped pieces of RubberShell, preferably RubberShell SA. Prefabricated corner pieces are also available for purchase from SealEco. The overlap/welding width should be at least 25-30 mm wide.

Outer Corners

① This technique is also applicable for outer corners in gutters.

Cut the membrane in accordance with *illustration 1*. The overlap should be at least 25-30 mm (indicated by the dotted line).

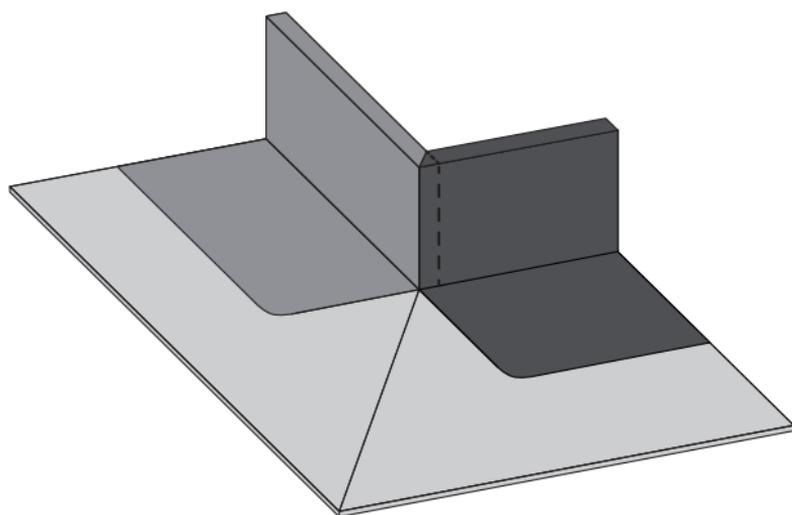


Illustration 1

INSTALLATION

Outer Corners

Illustration 2. Use a prefabricated corner piece (or cut a piece of RubberShell into a kidney shape). Put it in place by means of hot air. Apply hard pressure across the membrane using a roller.

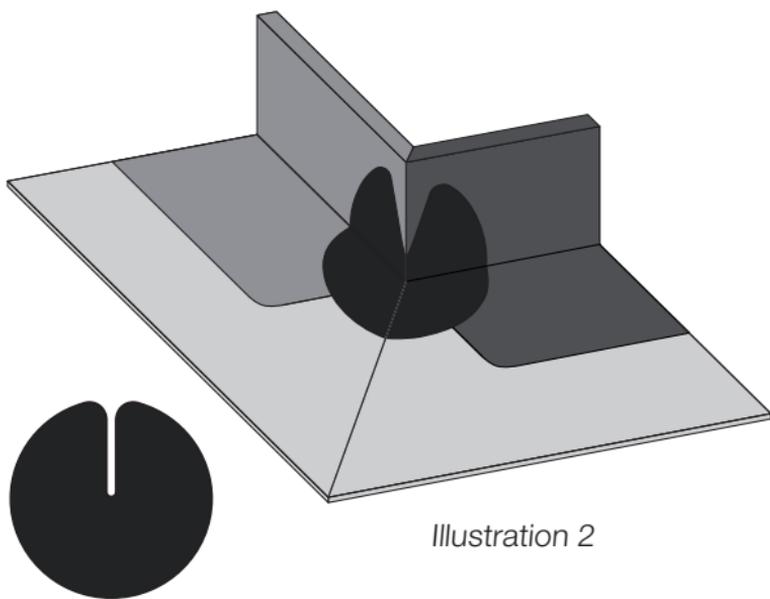


Illustration 2

Illustration 3. Use a prefabricated corner detail or cut a piece of RubberShell into a half circle shape. Install the second piece as indicated and splice with hot air.

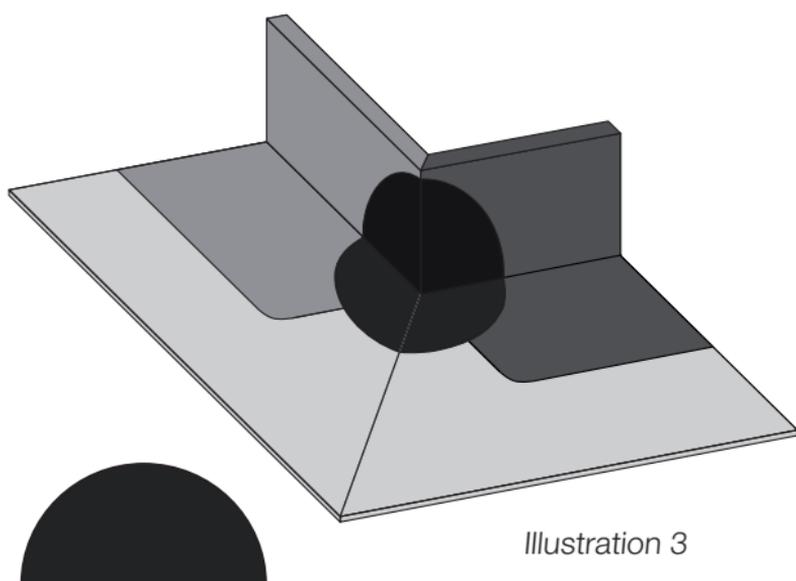
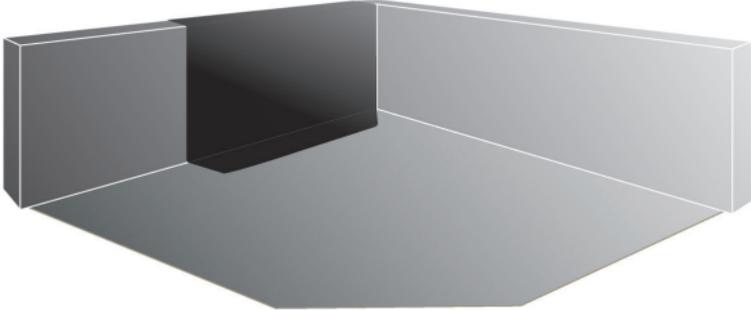


Illustration 3

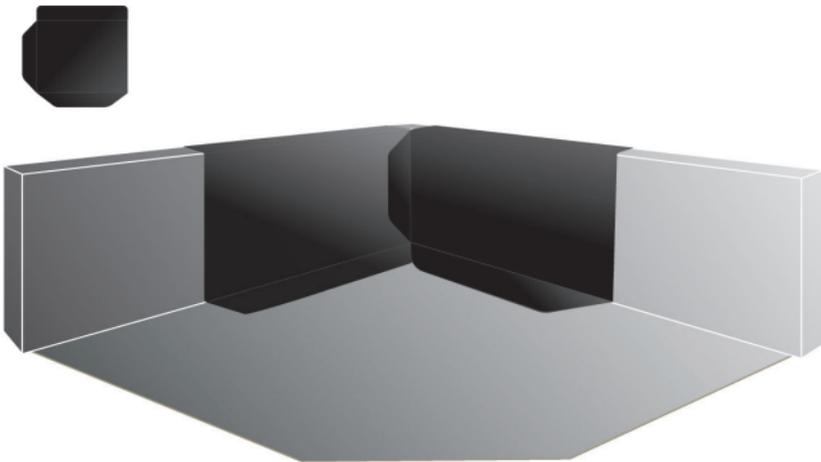
INSTALLATION

Inner Corners

1. Adhere the first flashing strip onto the upstand and heat-weld onto the roof side.

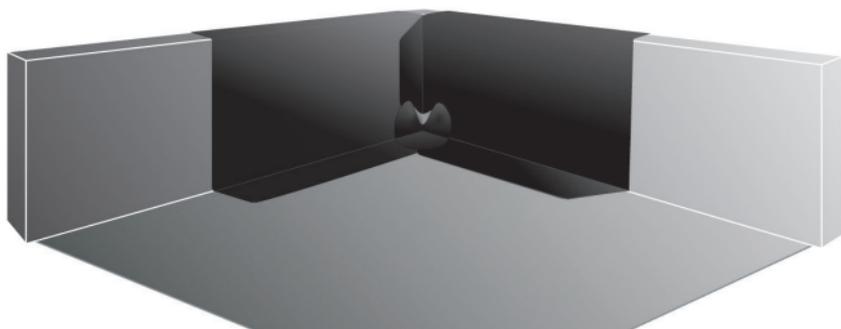


2. Apply the second flashing strip; heat-weld the overlap and onto the roof side.

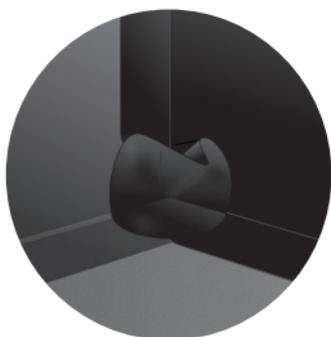
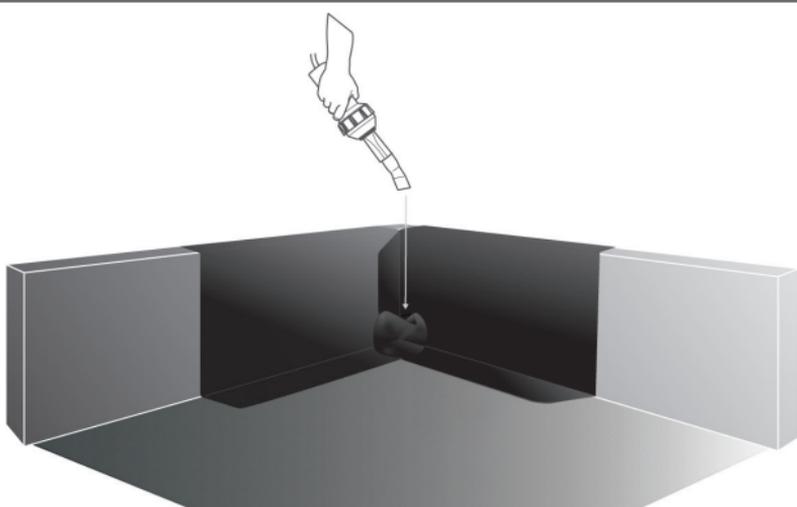


INSTALLATION

Inner Corners



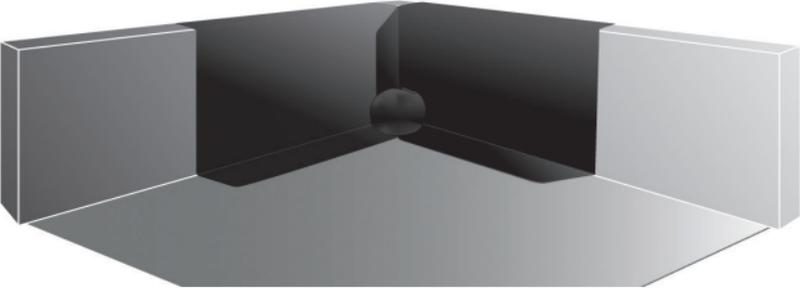
3. Cut a circular piece of RubberShell. Remove the release film, leaving about a third of the surface still covered by the film. Heat-weld the circular piece into the bottom inner corner.



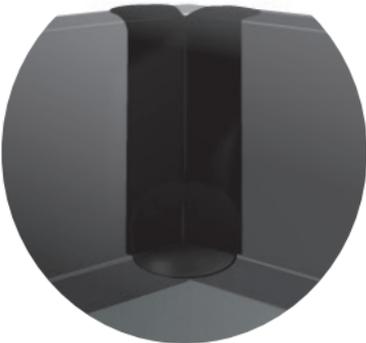
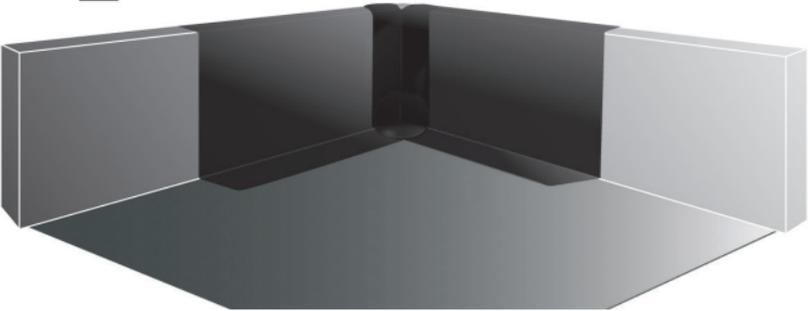
4. Remove the remaining release film. Fold the unwelded flaps together in a V-shape and heatweld.

INSTALLATION

Inner Corners



5. When the V-shaped part is joined, it shall then be folded and heat-welded towards one side of the inner corner.



6. Cut a piece of RubberShell in accordance to the illustration and weld it into the middle of the corner, also overlapping the top corner.

INSTALLATION

Inner Corners



- 7.** Place an L-shaped cover strip in the top corner overlapping both flashing strips and the middle corner piece.
-

INSTALLATION

Drains

The size of the drains have to be adapted to the surface of the roof. Make sure that all drains fit tight to the water pipes to prevent condensation and return water. The drain also has to be firmly fixed to the structure, and thus remain unaffected by windload, tensions or other present forces.

The membrane must be mechanically fixed on the edges by means of a suitable profile. In applications with tiles or slate, the membrane should be installed at a minimum vertical height of 150 mm and higher than the upstand of the gutter. The membrane must be installed underneath the bottom layer of the pitched roof. If there is risk of leakage when the drain is clogged, installation of outlets is recommended.

Illustration 4. RubberShell PE drains have to be fixed into the construction with an adhesive or mechanically. The drain shall be fixed under the RubberShell membrane. When applying the RubberShell membrane, cut a hole for the drain, slightly larger than its diameter. Heat weld the membrane onto the drain.

Picture 1. **RubberShell PE drains** are available in following dimensions: 63-75-90-110-125 mm.

Picture 1.



Illustration 4



Illustration 4 . **RubberShell PE drains** are fixed under the membrane into the construction/substrate.

INSTALLATION

Drains

RubberShell can also be combined **with aluminum metal drains coated with a self-adhesive layer**. If using other types of metal drains, make sure that the metal is compatible with the RubberShell membrane. Before installation of RubberShell into the gutter or on the roof, clean the metal surface using cleaning wash. Metal drains can be installed on top of the RubberShell membrane or directly into the construction. If using standard metal drains, installation is only possible under the membrane.

If installed on top of the membrane, the drain is self-adhered and heatwelded to the membrane.

If installed under the membrane the metal drain is installed into the construction mechanically. Cut a hole in the RubberShell membrane slightly larger than the diameter of the drain, making it possible to make a splice. Install the RubberShell membrane over the drain. Heat-weld the membrane onto the drain.

Illustration 5 . **Aluminum metal drains** are self-adhered on top of the membrane and heat-welded.



Illustration 5

INSTALLATION

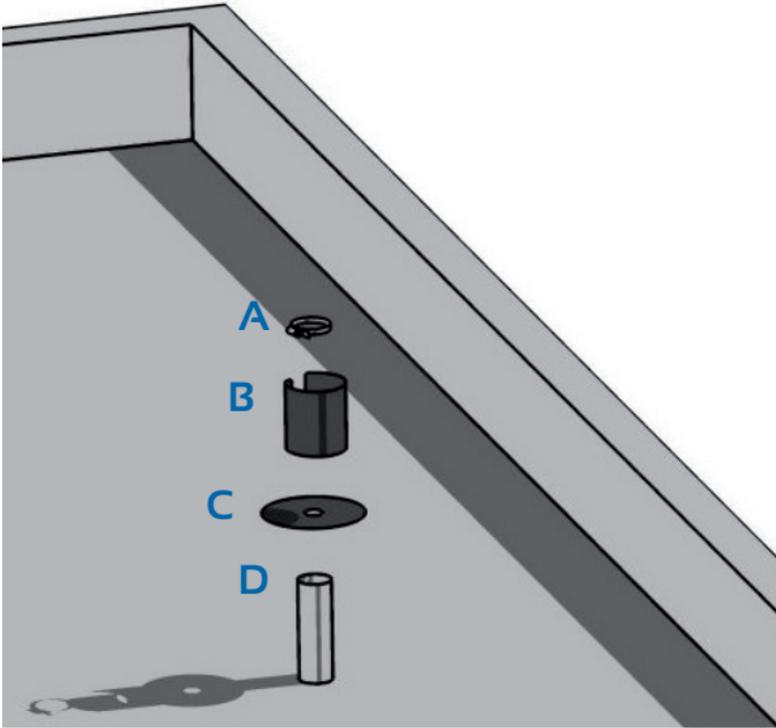
Pipe Penetrations

At pipe penetrations, pipe sleeves have to be formed from a suitable piece of RubberShell and attached to the pipe.

- 1.** Cut a circular piece of RubberShell SA. Measure the diameter of the pipe and cut a hole in a piece of RubberShell. The size of the hole should correspond to the pipe's diameter minus 50 mm.
 - 2.** Use a hot air gun to heat up the edges of the hole, then stretch it slightly.
 - 3.** Thread the circular RubberShell piece over the pipe all the way down to the base of the pipe.
 - 4.** Starting from the inside, remove the release film and apply pressure to make it adhere to the substrate.
 - 5.** Heat-weld the outer edges with a hot air gun and apply pressure with a roller. Make sure that a small bead of bitumen is created along the edge.
 - 6.** Measure the height of the pipe and cut another rectangular piece of RubberShell to size. Fold it around the pipe and remove the release film.
 - 7.** While removing the film and folding/attaching, heat-weld the rectangular piece onto the first piece of RubberShell previously attached to base of the pipe.
 - 8.** When entirely attached to the base, heat-weld the rest of the rectangular piece together vertically. Use a roller to make it attach properly to the pipe. Finally, attach a stainless pipe clamp on the top of the pipe sleeve.
-

INSTALLATION

Pipe Penetrations



A. Stainless pipe clamp.

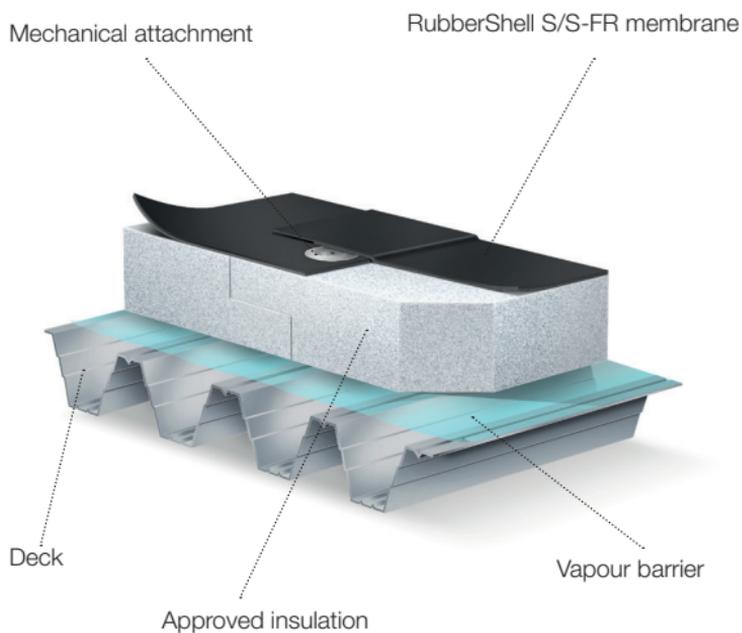
B. Pipe sleeve. Rectangular piece of RubberShell SA, cut to size based on the height of the pipe.

C. Circular piece of RubberShell SA, with a hole size corresponding to the pipe's diameter minus 50 mm. Stretch before installing.

D. Pipe

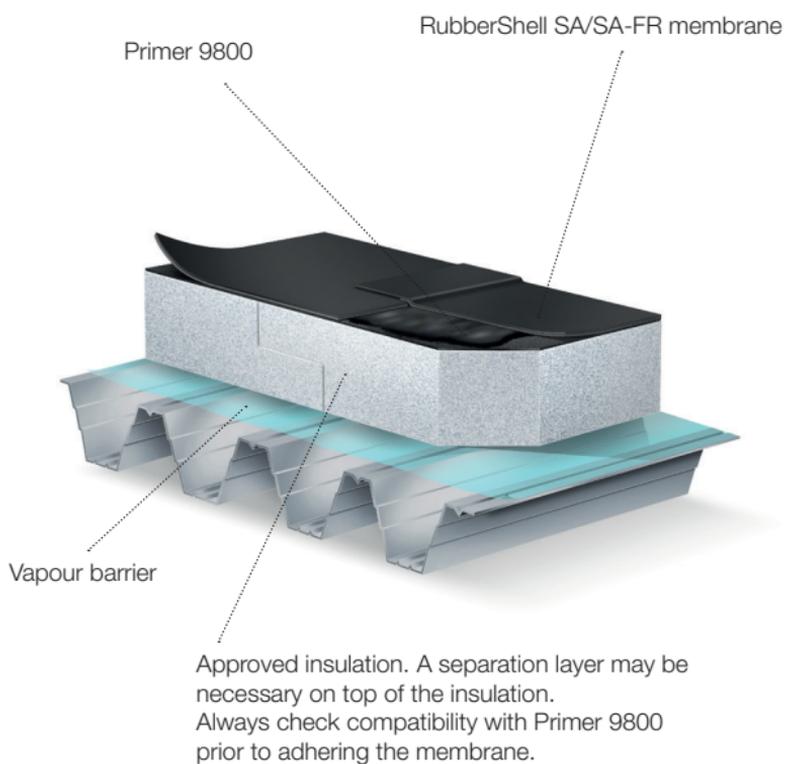
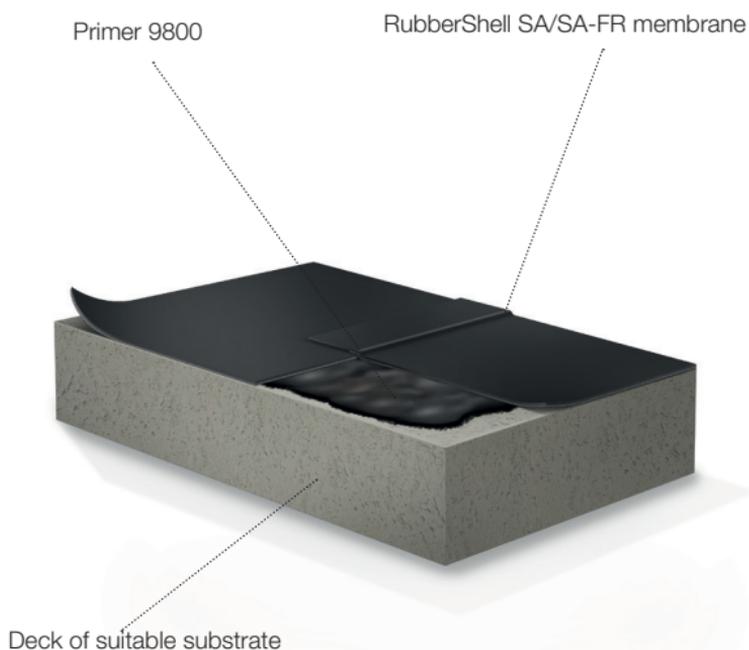
BUILD-UP

Mechanically Attached



BUILD-UP

Self-Adhered



DETAILS

Upstands

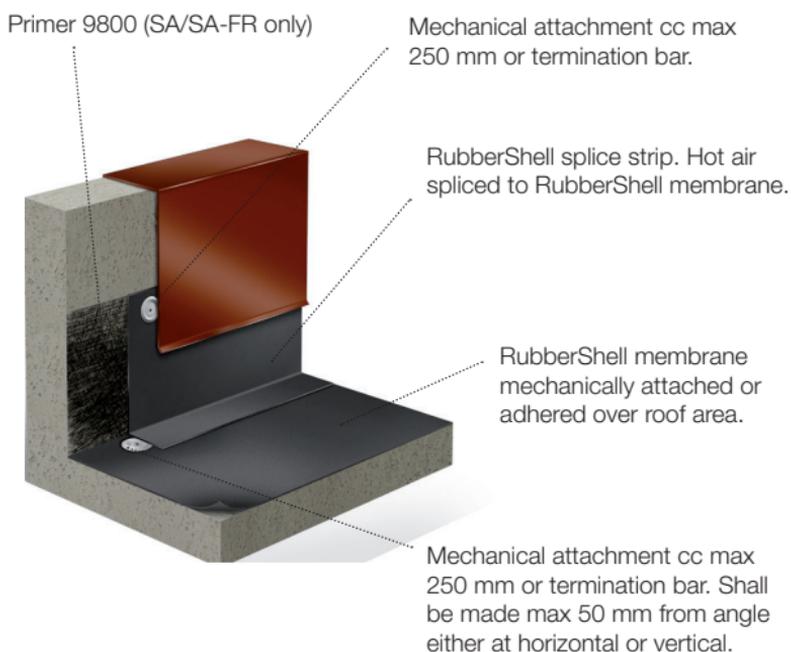
All places where the substrate makes a change in angle greater than 15° should be considered as an upstand and treated accordingly by breaking and mechanical anchoring the RubberShell membrane. This is done in addition to the membrane securement in the field area and should be done at perimeters and walls.

Instructions for installing SA/SA-FR 2.5:

For upstands with a height exceeding 500 mm, the membrane must be mechanically attached cc 250 mm. The substrate must also be covered with Primer 9800.

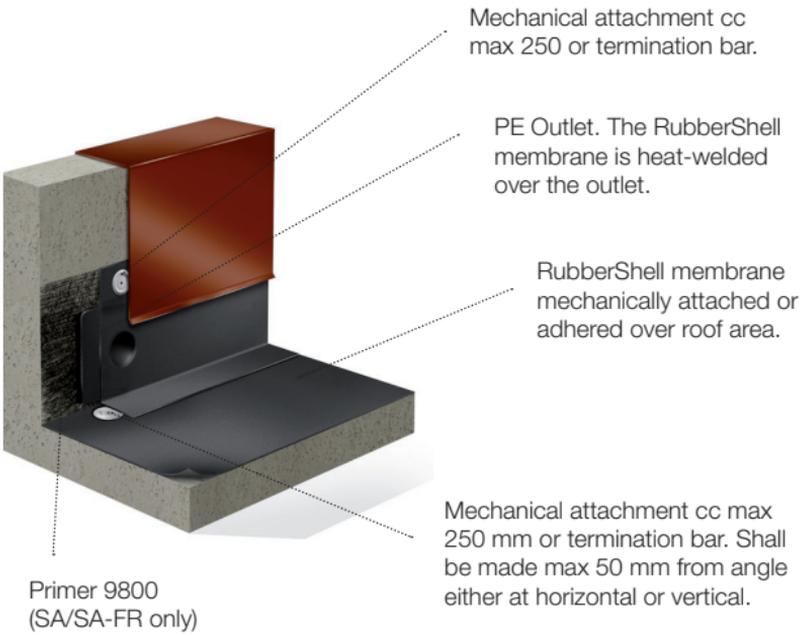
Instructions for installing S/S-FR 2.5:

For upstands with a height exceeding 250 mm, the membrane must be mechanically attached cc 250 mm. Primer 9800 is not necessary.



DETAILS

PE Outlet



DETAILS

Terminations

① Conceptual illustrations of the installation techniques. The metal profiles illustrated are not standardized.

Illustration 6. Profiles made of plastics/polyester or aluminum are fixed mechanically through the membrane into the substrate. Adhere the RubberShell capping to the profile and splice the membrane using hot air. The RubberShell strip should overlap the profile with at least 50 mm. To prevent the strips from displacement in the profile, put mastic in the profile, along the RubberShell edge.

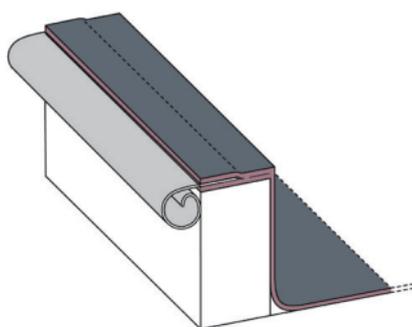


Illustration 6

Illustration 7. Detail with metal profile.

In order to use a metal profile combined with RubberShell, make sure that the metal of the detail is compatible with the membrane. After installing RubberShell to the substrate fixate the metal mechanically through the membrane every 150 mm. Splice the strip (heat welding) on the metal and the RubberShell (on top of the upstand).

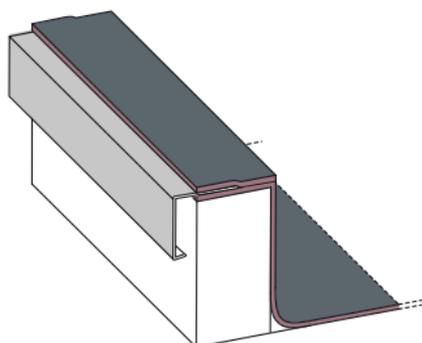


Illustration 7

DETAILS

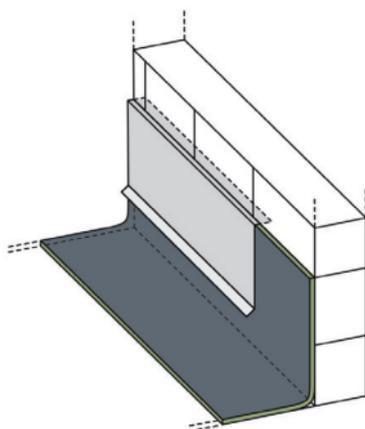
Connection To Non-Watertight Walls

Illustration 8. Connection to a non-watertight wall

For installations against non-watertight walls, follow the instructions below:

- The surface of the upstand has to be smooth. In case of rough masonry or other irregular, unsmooth substrate a fully fixed bituminous layer or adequate wood board has to be applied.
- Apply Primer 9800 to the substrate and fixate the membrane mechanically every 200 mm.

Illustration 8



DETAILS

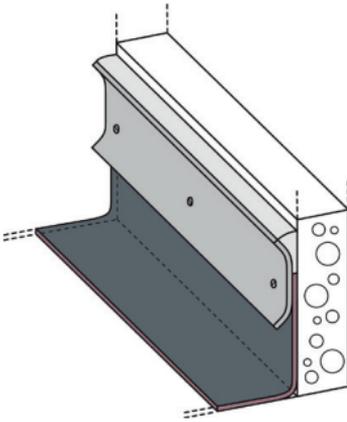
Connection To Watertight Walls

Illustration 9. Connection to a watertight wall.

In cases where the upstand consists of a watertight material such as concrete and metal there are two options available: a continuous aluminum profile or a polyester Z profile.

Apply Primer 9800 on the substrate and fixate the profile onto the upstand. Fixations through the membrane should be made every 200 mm. Put mastic into the top of the profile.

Illustration 9



DETAILS

Concrete Wall Cover

Illustration 10. Detail with a concrete wall cover.

The substrate under the wall cover should be completely flat, in order to reach good adhesion.

Apply Primer 9800 on the substrate and fixate the membrane using a roller. Leave a 20 mm space from the edge of the wall. Fill the space with mastic combined with a foam profile.

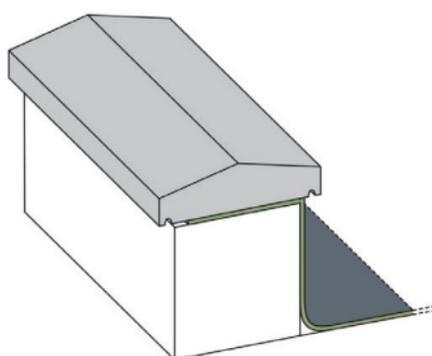


Illustration 10

GUTTERS

Installation

① In gutters, RubberShell SA 1.6 mm is recommended. Gutters are treated as an external application. These instructions are not applicable to details on the roof, for example roof valleys.

Illustration 11. The first steps in the installation are to take measurements of the area and cut RubberShell to size. Remember to calculate with overlaps and upstands.

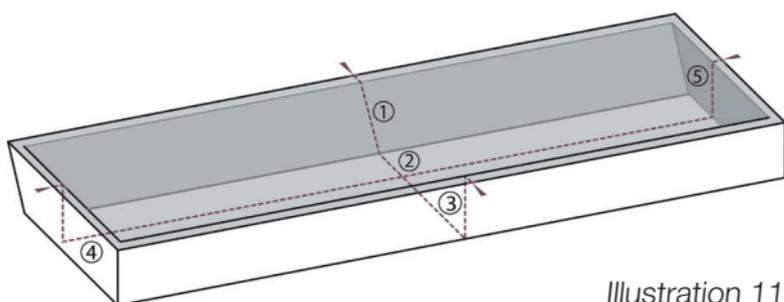
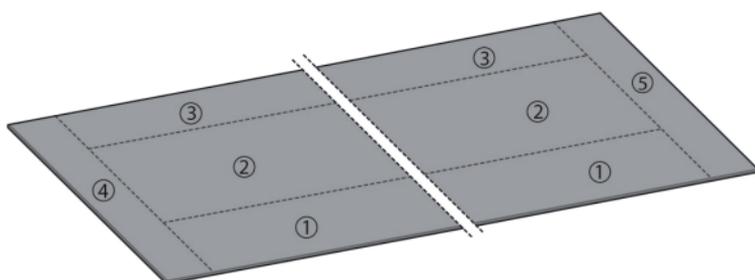


Illustration 11



GUTTERS

Installation

Illustration 12. Use a sharp knife to cut the release film. By dividing the film into smaller sections, the placing and installation is made easier.

❶ Pay extra attention while cutting to avoid damage to the RubberShell membrane.

Illustration 12

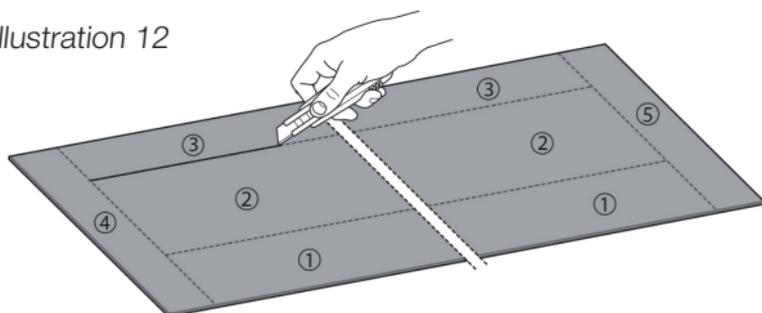


Illustration 13. Place the RubberShell membrane into correct position - start in the middle of the gutter. Remove the release film from the membrane, starting with the area representing the upstand of the gutter. Gently push the membrane onto the substrate. Roll the upstand gently with a silicone- or teflon roller.

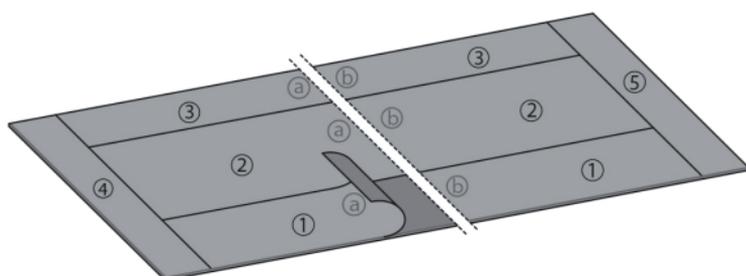
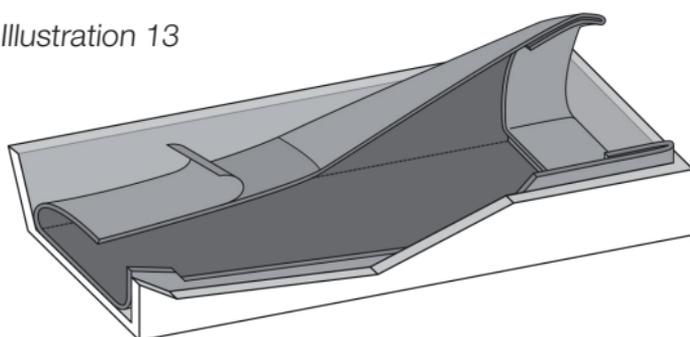


Illustration 13



GUTTERS

Installation

Illustration 14/15. Once the membrane is fixed, release the film from the horizontal part. While doing so, keep the film in a 45° angle. Push the membrane onto the substrate and apply pressure with a roller.

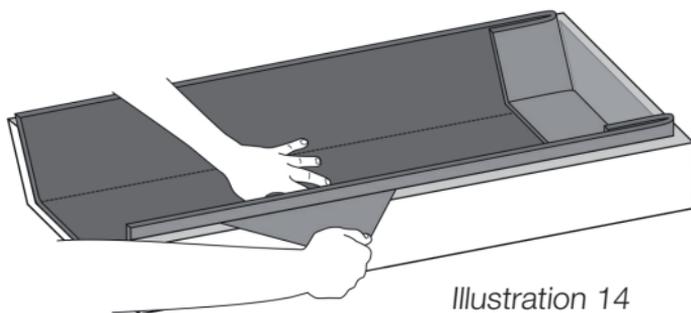


Illustration 14

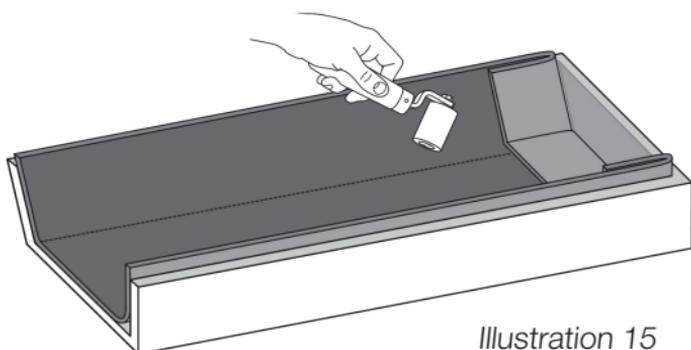


Illustration 15

Finally, perform above described actions with the opposite upstand. Both ends of the gutter have to be fixed separately. More detailed installation instruction regarding short side gutter ends is described in a separate section of this manual (see “Inner Corners In Gutters”, pp. 41 -42).

GUTTERS

Installation

ⓘ **Attention!** Splicing should be carried out with hot air only. Primer 9800 is not allowed in splice areas.

Overlaps

Illustration 16. Overlaps in gutters should be minimum 50 mm wide. When welding, a 2-5 mm line of bitumen has to be created along the overlap edge. Pay extra attention to splices going through corners. Splice the horizontal part, then the vertical on both sides. Avoid tension in the membrane. Always apply a RubberShell patch with rounded corners in the area shown in *illustration 17*.

Illustration 16

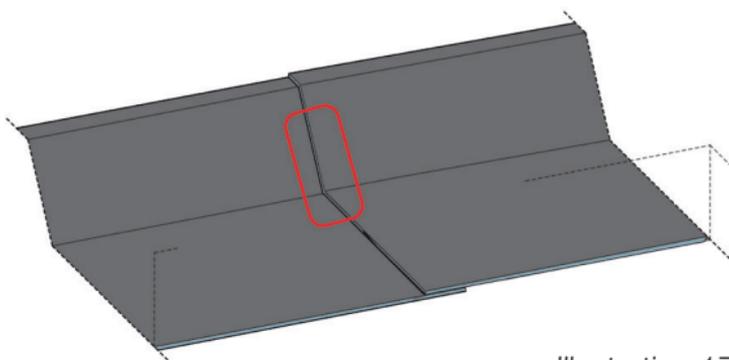
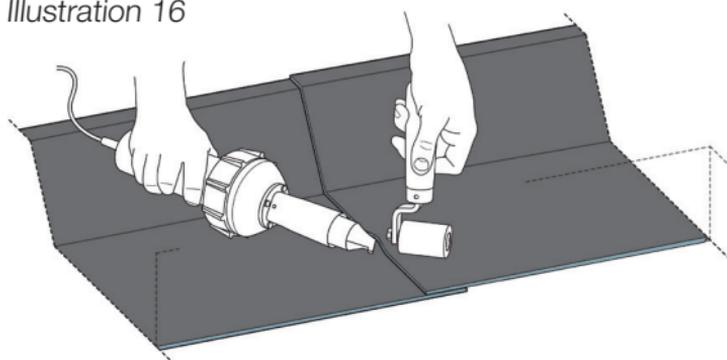


Illustration 17

T-joints in gutters

The top layers have to be rounded off. Make sure that every part of the splice is carefully welded. The gap between the two layers has to be completely filled with bitumen.

GUTTERS

Outer Corners In Gutters

For instructions on how to install RubberShell on outer corners, see pp. 19-20.

Inner Corners In Gutters

Folded and heat-welded inner corners

Folded inner corners are possible to install as long as the height does not exceed 250 mm. If the height exceeds 250 mm, follow the instructions for upstands on roofs (p. 31).

Illustration 18 shows how to fold and cut the membrane (red dotted line shows where to cut the membrane after first folding).

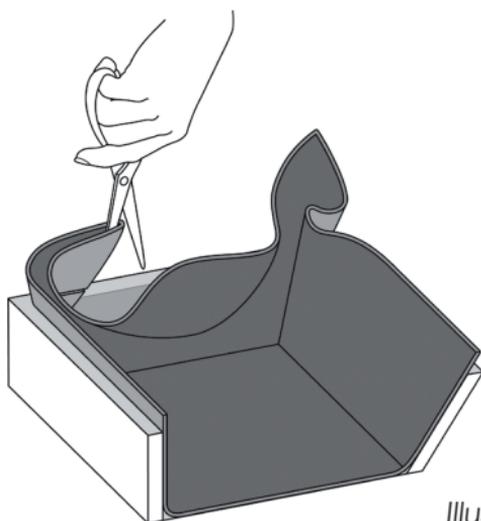
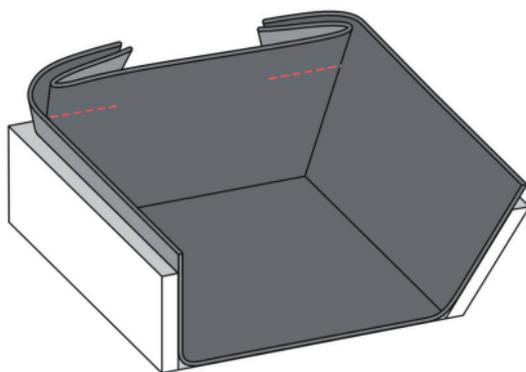


Illustration 18



GUTTERS

Inner Corners In Gutters

Folded and heat-welded inner corners

Illustration 19. Once the membrane is folded, the edges are heat spliced.

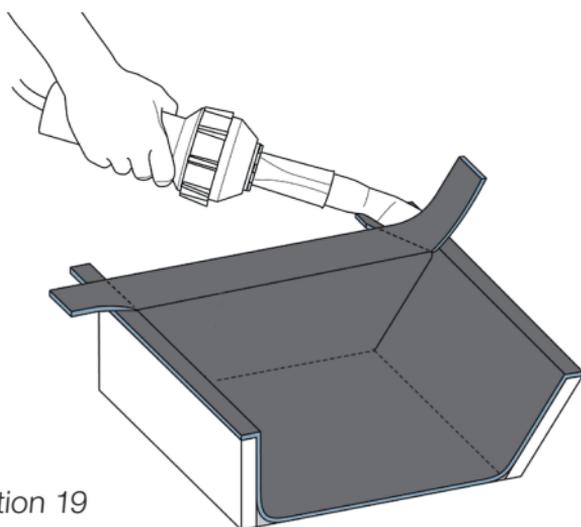


Illustration 19

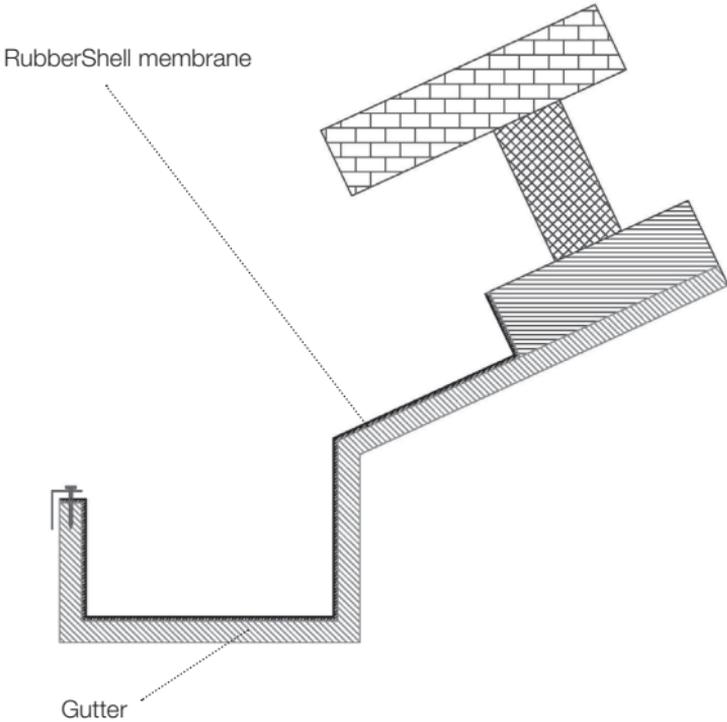
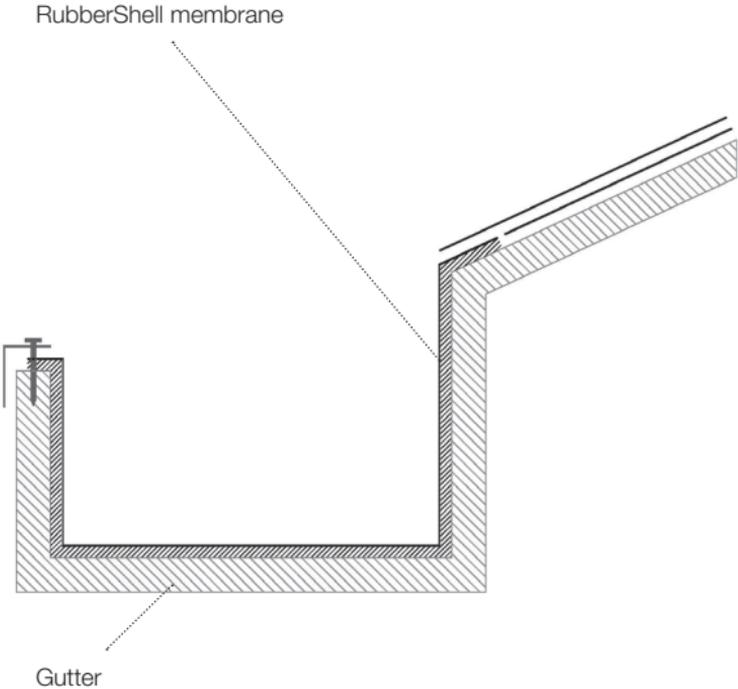
Drains In Gutters

For instructions on how to install drains in gutters, see pp. 25-26.

GUTTERS

Details

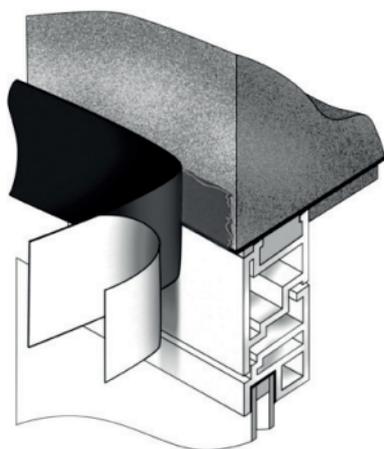
In eaves gutters, we recommended that the RubberShell membrane is mechanically fastened to the edge metal. Use screws with a sealing washer.



FACADE APPLICATIONS

RubberShell solves problems in many critical parts of a building envelope. RubberShell SA can be applied in building foundations as ground plate insulation between the ground plate and the wall or as cavity wall protection.

For windows, RubberShell SA is an effective and smooth solution for sealing between the window profile and the building.



The substrate must be primed with Primer 9800 before applying the RubberShell membrane. Remove the release film and press the RubberShell membrane to the substrate. Use a silicone- or steel roller to apply pressure and to achieve good bonding between the membrane and the substrate. Make sure that the membrane is applied without building in tension and stress to the splice. RubberShell must be mechanically secured at the top to avoid sliding. Seams between RubberShell strips shall be firmly pressed together or preferably welded with hot air.

Note: RubberShell shall not be applied in temperatures below 5°C or during precipitation.

SUPERVISION AND MAINTENANCE

The RubberShell membrane is maintenance free and has excellent durability without any sort of treatment.

We recommend that the roof is inspected by an authorized roofer on a regular base and also after extreme weather like storms or excessive precipitation. During the inspection the function of the roof is evaluated and deviations should be handled.

Details in the roof are of higher importance than the surface and should be carefully examined: skylights, ventilation, curbs, connections to walls, drains, and pipe penetrations.

To maintain good functionality of the roof it should be cleaned on a regular basis. All objects not belonging on the roof should be removed like contaminations, vegetations and leaves. It is of extra importance to keep the drainage free so that dewatering can function as intended.

RubberShell should never be exposed to aromatic hydrocarbons like oil, diesel or fat. If this type of chemicals should leak to the roof it must be removed immediately or it will damage the membrane.

Regular walking on the membrane should be kept to a minimum. If there is regular traffic this should be considered in the design by adding walkways or pavers in that area.

If snow or ice needs to be removed from a roof, shoveling must be done carefully leaving minimum 5 cm on the roof surface to make sure that the membrane isn't damaged by the work.

SUPERVISION AND MAINTENANCE

Leakage

If a leakage into a building is detected there can be several reasons and a careful investigation must be done. Leakages does not necessary mean that there is a problem with the RubberShell membrane.

Finding the problem includes considering:

- Mechanical damage of the membrane?
- When did the leakage first show?
- Weather conditions prior to leakage?
- Clogged drains or bad piping?
- Bad roof windows or ventilation shafts?
- Bad cladding in connection to the roof or the façade?
- Condensation from within due to wrong construction?
- Under what conditions does the leakage start/stop or does it constantly leak?
- Point of leakage in comparison to the slope of the roof (drained area)?

SealEco can assist in and have well developed techniques for finding leakages.

QUALITY ASSURANCE AND CONTROL

Quality control and assurance are essential elements in the installation of RubberShell Roofing System. As the quality of the waterproofing is highly dependent upon the workmanship of the installer only contractors that are trained and certified by SealEco are allowed to do installations.

Documentation

Each installation should be carefully documented including data on installed membrane.

Visual control

Visual controls of the work and the quality should be done throughout roof installations. Problems and faults should be detected and fixed as early as possible. Controlling aspect should be:

- That correct material are being used and installed with the right equipment and that proper storing at site is assured.
- That the material is installed according to the guidelines of SealEco, local regulations and in accordance with good workmanship practice.
- That the material isn't risking mechanical abuse.

Splice control

Test splices shall be carried out with every hot air machine at the beginning of each working period as well as longer interruptions.

A clearly visible bitumen bead, approx. 2-5 mm wide, should be extruded from the edge of the membrane. This enables a simple visual inspection to confirm that the welded lap is completely watertight.

TECHNICAL INFORMATION

SealEco technicians will gladly respond to every question or uncertainty regarding the RubberShell system.

The information contained in this manual is a guideline to providing sound waterproofing. The base for the guideline is many years of practical and design experience obtained by SealEco over more than 45 years. Local legislation or design practice may differ slightly from these specifications and instructions, however the information enclosed should be considered as a general guideline towards the most effective product use and application in a given situation when installing our membranes.

Since the handling and installation is beyond our control, SealEco retain no responsibility for these areas.

We make every effort to ensure that the information provided in this document is current and accurate. However, errors, misprints, inaccuracies, omissions or other errors may sometimes occur despite our best efforts.

SealEco does not warrant that the content of this document including, without limitation, product-/ installation descriptions or photographs and illustrations, is accurate or complete.

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Business Concept

"SealEco provides tailor-made sealing solutions for building envelope and lining applications improving efficiency and durability with environmental benefits."

Our Core Values



Environmental Building Envelope Solutions

SealEco offers innovative water- and weather protection solutions for increased service life of buildings and other types of constructions. Our solutions also include lining applications as geomembrane for ponds and reservoirs, landfill ponds and cappings, as well as tank liners giving secondary containment for farming, industrial use or industrial waste containments.

We understand and fulfill your needs by providing complete, market-leading solutions which meet high standards in terms of durability with environmental benefits.

Studies show that we have rubber materials that can retain their function for over 50 years at a total cost which is often substantially lower than that of alternatives. The durability of our systems is the foundation for us being the environmentally sustainable alternative!

With SealEco as your partner, you will get access to more than 45 years of experience and knowledge. As a leading partner in our field, we are always able to provide the best solutions for your needs.

References can be found all over the world- from arctic cold to desert heat.
We seal the world.



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