

RESITRIX®

Single-layer
waterproofing membranes

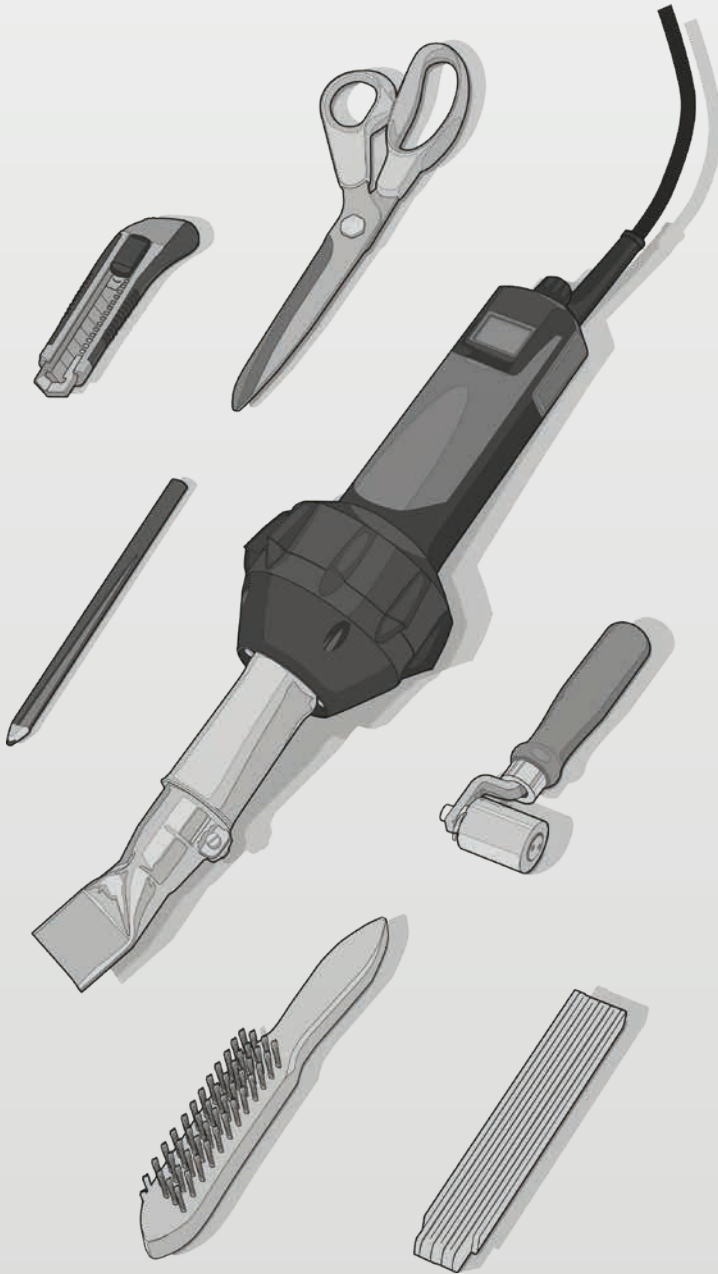
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INSTALLATION INSTRUCTIONS



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CARLISLE
CM EUROPE

RESITRIX®



Foreword

These installation instructions provide information about the materials and, in conjunction with the RESITRIX® specification guidelines, provide a basis for planning the installation and specifying RESITRIX® waterproofing membranes.

They support the installer in combination with practical training at our CARLISLE® ACADEMY and/or directly at the construction site. The essential installation steps are described in text form and are also illustrated with graphics, images, pictures and drawings.

Under some circumstances, other local conditions or material combinations not described here may affect the functionality. Please contact the Technical Department for specific and detailed substrate requirements and installation instructions for individual projects.

The information and product descriptions in this publication are based on our experience and test results and are correct to the best of our knowledge and belief. They are the basis for all of the solutions described here. Claims for compensation may not be derived from the contents of this publication. We reserve the right to make technically feasible design and structural modifications to our product range in accordance with our high standards regarding quality and continuous advancement. These installation instructions replace and supersede all previous editions, which thereby become invalid.

August 2019

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Basic Information

- The latest valid editions of all relevant standards, regulations, directives and guidelines apply.
- All RESITRIX® waterproofing membranes comply with the material-related requirements for high quality roof sealing as per DIN 18531 (property class E1 and application category K2) and the specialist rule for sealing applications (flat roof guidelines), with the additional requirements having to be complied with as per the applicable set of regulations.
- All RESITRIX® waterproofing membranes meet the material related requirements for the waterproofing of buildings as per DIN 18531, 18532, 18533, 18534, 18535 and subsequent standards.
- All prior services from other trades must be suitable for the roof structure in question.
- The installation instructions cannot take into account all construction related partial or specialist solutions.
- The applicable national occupational health and safety and accident prevention regulations must be complied with. Please obtain the EC and national safety data sheets for each material.



In addition, please comply with the instructions on the packaging of the RESITRIX® system components.



Important installation instructions

During the planning and installation of the structure, as well as detailed solutions, the following individual instructions must be borne in mind:

- In accordance with the set of technical regulations, a minimum tapering of 2 % must be planned for seals. This can only be deviated from in justified exceptions.
 - All RESITRIX® waterproofing membranes can be welded at ambient temperatures down to -10 °C (also, please note the permissible ambient temperature for applying the respective surface primers/ adhesives).
 - Please comply with the general substrate requirements for the individual installation variant. In particular, all substrates must be checked for suitability with regard to material compatibility and mechanical stress. Suitable protective layers or separating layers made from non woven glass fibre or synthetic fleece or bitumen membranes must be laid if necessary.
 - Any joints in the concrete must be sealed to prevent ingress of hot bitumen to the surface below, e.g. on driveable surfaces, can be created by full surface bonded RESITRIX® CL on hot bitumen compound. In the case of full surface adhesion of RESITRIX® SK W Full Bond following priming with FG 35 test report is available on request (test report issued by the Leipzig Institute for Materials Research and Testing on 23 May 2017).
 - Above expansion joints, suitable additional measures must be taken, e.g. through the installation of the RESIFLEX® SK expansion joint sealing strip.
 - We recommend extending the roof membrane in front of vertical surfaces by approximately 50 mm in order to avoid water seepage as much as possible in the interim.
 - Around roof drains, the substrate should be lowered by at least 10 mm on a surface of at least 0.5 m² (0.7 x 0.7 m) to allow the faster drainage of rainfall. Outlets should be centralised as much as possible within a seamless section of the RESITRIX® waterproofing membranes.
- If metal components are required, we recommend the use of stainless steel (for the exact type, please consult the relevant manufacturer), aluminium or the use of suitable synthetic for the construction of drainage elements. No warranty claims will be considered in the event of signs of corrosion on unprotected drainage elements made from zinc or zinc alloys as a result of adverse environmental conditions – e.g. acid mist or rain. Corrosion protection measures are also required on the inside face if there are drainage elements made of galvanised steel or titanium zinc.
 - Depending on the individual layers, additional measures may need to be taken in conjunction with the roof geometry to prevent slippage.
 - In cases of direct renovations of sealing susceptible to shrinkage, prior consultation with our Technical Department is required.
 - As a vapour barrier membrane on profiled steel decking and on wood / timber decking, we recommend installing the self-adhesive aluminium vapour barrier membranes ALUTRIX® FR or ALUTRIX® 600. The tear-resistant and puncture resistant membranes have an equivalent air layer thickness (sd value) of > 1,500 m and are suitable for use as emergency or auxiliary sealing. ALUTRIX® FR also has a thermal value of below 10,500 kJ/m² or calorific value of ≤ 11,600 kJ/m² and therefore meets fire safety requirements as per DIN 18234 and the Industrial Buildings Directive (IndBauRL). ALUTRIX® FR meets FM Standard Class No. 4470 (FM Approval). Further information on ALUTRIX® vapour barrier membranes can be found in the relevant datasheet and the ALUTRIX® installation instructions.
 - When installing thermal insulation made from polystyrene hard foam boards under exposed seals, the temperature resistance of EPS must be noted. Since this temperature resistance can be exceeded in local areas of the roof with increased heat accumulation, for example in front of heat-reflecting light or glazed façades, we recommend the additional arrangement of a ballast or the use of alternative insulation.

- Roof seals are exposed to a range of internal and external influences, especially of a mechanical and thermal nature. The high flexibility of RESITRIX® waterproofing membranes, coupled with their practical, shrink-free behaviour, prevents the build-up of material tension and therefore the premature ageing of the seal compared to many other shrink-prone materials. However, it is not always possible to exclude optical changes in the form of unevenness or waviness while in use.

This primarily affects bonded RESITRIX® waterproofing membranes on old roofs with residual moisture, on wood / timber deck with natural domestic moisture and on insulation prone to movement and shrinkage. The functional safety of the entire seal is however not impaired by the modified installation appearances.

- Additional measures are required to absorb horizontal forces (roof edge fixing) for a multitude of roof structures. Because RESITRIX® waterproofing membranes are not subject to material shrinkage themselves, such safety measures are limited to roof structures with other layers which are prone to movement or at risk of slipping (base layer, thermal insulation). Please refer to the RESITRIX® specification guidelines or contact our Technical Department.
- To ensure the maximum service life of the entire waterproofing installation, regular servicing, inspections and maintenance should be undertaken in accordance with the relevant national regulations. In this regard, we advise taking out a suitable inspection and/or maintenance contract.



1. Product and material description

1.1 RESITRIX® EPDM waterproofing membranes

For more than 35 years, the RESITRIX® product range has provided permanently reliable systems for sealing roofs, walkable surfaces, components that touch the ground, interiors, containers and façades, for both new builds and renovations. We also have the perfect product for every type of living roof. To guarantee the best solution for your individual project, we offer customised RESITRIX® waterproofing membranes for every type of roof construction, in a variety of installation options.

Waterproofing membranes can only be as good as the materials from which they are made. RESITRIX® unites in one unique combination of materials the excellent properties of EPDM with the proven benefits of high-quality polymer-modified bitumen in a highly flexible, single-layer waterproofing membrane.

This is a successful combination, because the base layer of polymer bitumen allows the material to be laid on almost any substrate. You can also weld the membranes quickly, easily and safely to each other using a hot air gun, without any naked flames. There is no need for chamfering previous layers prior to forming a T-joint.

1.1.1 RESITRIX® CL

RESITRIX® CL is the classic EPDM waterproofing membrane that can be welded using hot air, preferably bonded onto the substrate using PU adhesives, which have proven themselves to be outstanding on numerous flat roofs for many years.



1.1.2 RESITRIX® MB

RESITRIX® MB is the EPDM waterproofing membrane that can be welded using hot air, particularly for mechanical fixing and loose installation.



1.1.3 RESITRIX® SK W FULL BOND

RESITRIX® SK W Full Bond is a EPDM waterproofing membrane that is self-adhesive and root-resistant across the full surface. It can be welded using hot air, and is FLL test certified and licenced under DIN EN 13948.

RESITRIX® SK W Full Bond can be installed on numerous substrates, for example as a full-surface bonded system or under all types of roof gardens and green roofs.



1.1.4 RESITRIX® SK PARTIAL BOND

This EPDM waterproofing membrane that can be welded using hot air is partially self-adhesive.

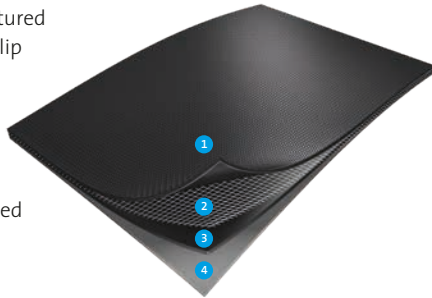
RESITRIX® SK Partial Bond can be used on materials that are susceptible to movement and substrates with residual moisture.



1.2 RESITRIX® material

1.2.1 MATERIAL STRUCTURE

- 1 EPDM with textured surface – non-slip
- 2 Glass fibre reinforcement
- 3 EPDM
- 4 Polymer-modified bitumen



1.2.2 PHYSICAL PROPERTIES

| | RESITRIX®SK W FULL BOND RESITRIX®SK PARTIAL BOND | RESITRIX®MB RESITRIX®CL |
|-----------------------------|---|----------------------------|
| Overall thickness | 2.5 mm | 3.1 mm |
| Weight | 2.75 kg/m ² | 3.5 kg/m ² |
| Length | 10 m | 10 m |
| Width | 1 m * | 1 m * |
| Thickness of the EPDM layer | 1.6 mm | |

* Cut strips on request

1.3 Transport and storage

RESITRIX® SK W Full Bond
RESITRIX® SK Partial Bond

RESITRIX® MB
RESITRIX® CL

The rolls should be stored and transported in an upright position in a cool (between +5 °C and +25 °C), dry environment. Pallets should not be stacked on top of each other.

In their original packaging, the rolls can be stored for a maximum of 24 months from the date of production. The rolls must be protected from direct sunlight by using the original grey protective film or a light-reflective tarpaulin. Particularly when working in strong sunlight, make sure that rolls taken from the pallet are installed immediately. Rolls remaining on the pallet must always be protected as described above.

The rolls should be stored and transported in an upright position in a cool (between +5 °C and +25 °C), dry environment. Pallets should not be stacked on top of each other.

In their original packaging, the rolls can be stored for a maximum of 24 months from the date of production.

1.4 RESITRIX® system accessories

1.4.1 FG 35 SURFACE PRIMER

In combination with the self-adhesive RESITRIX® waterproofing membranes, FG 35 surface primer can be used on a wide range of substrates.

FG 35 is a solvent containing primer based on synthetic rubber and resins. Please refer to the respective product data sheet or product catalogue for more detailed information.



1.4.2 FG 40 SPECIAL PRIMER

The FG 40 surface primer allows full-surface, securely positioned direct bonding of the self-adhesive RESITRIX® SK W Full Bond and RESITRIX® SR onto unfaced EPS foam plates. To ensure even and thin distribution with FG 40, the product is applied exclusively with a spray gun in combination with the FG 40 pressurised container.



1.4.3 G 500 CLEANER

G 500 cleaner is suitable for degreasing metallic substrates and for cleaning lightly soiled surfaces and equipment.



1.4.4 PU ADHESIVE PU-LMF-02

The PU adhesive is a solvent-free and softener-free, free-flowing single-component polyurethane adhesive that has been especially developed for bonding surfaces of the RESITRIX® CL waterproofing membrane.



Please be sure to comply with the safety instructions on the packaging labels and on the EC material safety data sheet.

1.5 RESITRIX® accessories for detailing work

1.5.1 RESITRIX® CORNER PIECES

There are special prefabricated formed parts for sealing round fitted parts and for constructing any corners. The cut pieces are formed from the RESIFLEX® SK self-adhesive expansion-joint sealing strip. These parts enable quick and convenient formation of internal and external corners.

The cut pieces are made up of a circle with notching for external corners, a closed circle for internal corners and an oval tongue as an add-on for internal and external corners. The cut pieces have a minimum width of 200 mm. Alternatively, it is also possible to form manual cut-outs, preferably made of self-adhesive RESITRIX® waterproofing membranes with the same dimensions.



1.5.2 RESITRIX® PIPE SLEEVE, SMALL

The RESITRIX® pipe sleeve is a prefabricated, weldable sleeve for sealing round roof penetrations with diameters of between 5 and 35 mm.



1.5.3 RESITRIX® PIPE SLEEVE, LARGE

Prefabricated, weldable RESITRIX® pipe sleeve for sealing round roof penetrations with diameters of between 35 and 100 mm.



1.5.4 LIGHTNING CONDUCTOR SYSTEM

A system for guiding and fixing lightning-conductor systems with a maximum diameter of 10 mm on flat-roof constructions without ballast.



2. Tools

2.1 Hand tools

The following tools are required to install RESITRIX® waterproofing membranes:

- hand held welding device (e.g. Leister with nozzle width of 40 mm)
- silicone pressure roller (width: 40 mm)
- wire brush
- brass pressure roller (width: 60 mm)
- scissors
- folding rule or tape measure
- cutter knife
- stick of chalk
- chalk line

2.1.1 RESITRIX® SILICONE PRESSURE ROLLER

The silicone pressure roller facilitates the proper and convenient installation of heat-weldable RESITRIX® waterproofing membranes and is specifically designed for professional use on roofs: balanced, stable, durable and long-lasting.



2.1.2 BRASS PRESSURE ROLLER

Brass hand roller with bearings on two sides and with an all-metal wheel on ball bearings.



2.1.3 RESITRIX® SCISSORS

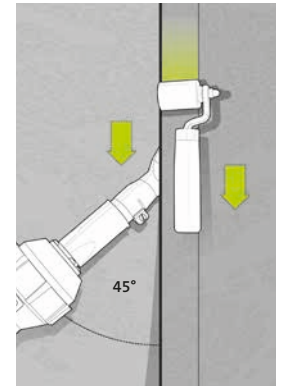
Due to their sharpness, RESITRIX® scissors provide optimum flexibility and allow the clean and accurate processing of RESITRIX® waterproofing membranes.



2.2 Welding with a hand-held welding device

We strongly recommend always performing a test weld prior to starting the actual installation work. Please select a welding temperature between approx. 500° C (level 8) and a maximum of 700° C (level 10). The optimal setting depends on the ambient temperature, wind conditions and substrate composition.

- Guide the welding nozzle at an angle of around 45° into the overlap.
- The RESITRIX® silicone pressure roller is guided precisely along the top edge of the membrane.
- A bead of bitumen measuring approx. 2 - 4 mm extrudes very visibly from the membrane edge.
- The distance between the welding nozzle and silicone pressure roller is around 20 to 40 mm.



General information:

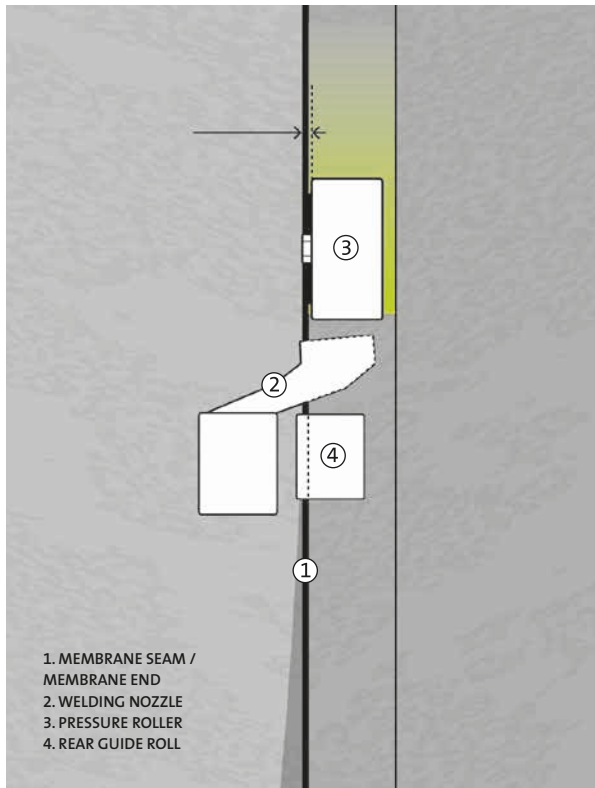
- During installation on unprotected EPS foam, the following must be borne in mind. Before the actual welding, a sealing-off of the welding bead needs to be done. The automatic hand-held welder is inserted below the overlap at a distance of 40 or 80 mm (depending on the chosen installation variant) from the upper edge of the membrane.

2.3 Welding with an automatic welding machine

We strongly recommend always performing a test weld prior to starting the actual installation work. Please set the welding temperature to approx. 620 °C / highest level.

The pressure roller on the automatic welding machine should be moved precisely along the top membrane edge. A clearly visible and approx. 2-4 mm wide bitumen bead 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.



Welding Machine Types:

Automatic welding machine, e.g. Leister (type: Varimat or Bitumat RESITRIX® type).

Recommendation:

400 Volt power supply (230 Volt for Planon machines).

Accessories:

- spare heating element
- silicone pressure roller (40 mm wide)
- brass wire brush
- extension cable (minimum cross section 4 mm²)
- lubricants
- screwdriver
- Allen key
- G 500 cleaner and cloth



Note:

- The width of the pressure roller and nozzle on the adhered and ballasted version is 40 mm.
- For mechanically fixed installations, the respective settings depend on the type used: Varimat | Bitumat RESITRIX® type = 80 mm.

2.4 Priming with the sprayer

The FG 35 / FG 40 pressurised container spray system contains ready-to-use primer that can be applied directly without using a compressor or electrical connection.

The set for priming using the spray diffuser (mechanical application) consists of:

- 1 14.4 kg FG 35 / FG 40 pressurised container (disposable)
- 2 connection hose
- 3 stainless steel spray gun including extension (lance)
- 4 CARLISLE® backpack for pressurised container, optional



Before use

- Ensure that all parts of the pressurised container spray system (disposable container, connection hose, spray gun and lance) are undamaged and do not have any faults.
- Shake or roll the pressurised container for at least 30 seconds before use.

Structure and assembly

Screw the individual threaded components together. Make sure that the union nuts are firmly tightened. Close the adjusting nut on the spray gun.



Important:

Please make sure to read the set-up instructions before using the equipment.



FG 35

FG 40

Use/Handling:

- Completely open the valve on the pressurised container before first using the spray diffuser. Check the system for any leaks.
- Using the adjusting nut on the spray gun, regulate the flow of primer to achieve an even spray distribution.
- The additional use of the custom-fit rucksack prevents the continuous rearranging of the container, thus making work easier.
- After spraying, close the adjusting nut on the spray gun. The valve on the pressurised container remains open until it is completely empty. To maintain its serviceability, clean off any product residue on the nozzle using G 500 cleaner.



Please do not completely open the adjusting nut of the spray gun, as there is no end stop on this. Otherwise the primer would spray out in an uncontrolled manner.



- 1 Connect the spray gun to the hose, tighten firmly using a union nut
- 2 Spray gun
- 3 Adjusting nut
- 4 Nozzle
- 5 Connecting hose
- 6 Adjusting nut does not have an end stop!
- 7 Connection of hose to valve of the container
- 8 Rupture joint. Strike to harden the product residue

Changing the container

- Only change the container once it is completely empty. An empty state can be identified by the sound of propellant gas emerging. After closing the container valve, unscrew the connecting hose from the container, simultaneously opening the spray gun to relieve the pressure. After closing the adjusting nut on the spray gun, the accessories can be reconnected to a new container.

Disposal:

- Open the valve of the empty pressurised container to reduce the remaining residual pressure. This procedure should be carried out outdoors, as there may be an escape of primer residue. It takes at least 24 hours for the residual pressure to fully reduce. Product residue can harden after opening a rupture joint next to the valve.



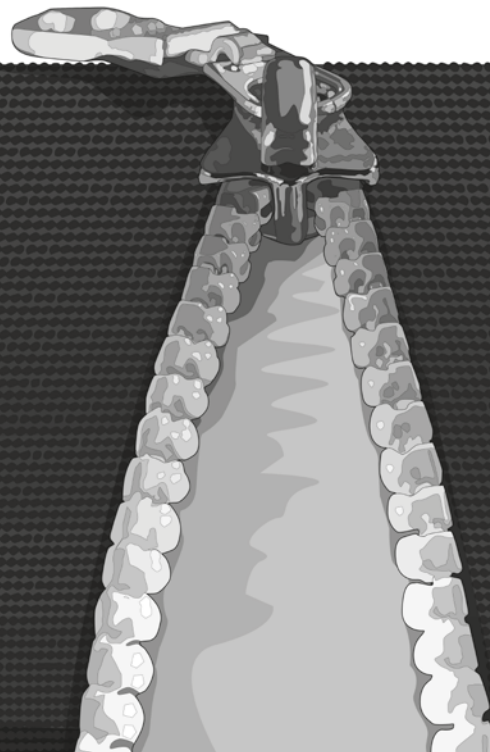
Follow your local authority guidelines for safe disposal.

3. Installation instructions

3.1 Overview of installation variants

| INSTALLATION | PARTIAL BONDING | FULL SURFACE BONDING | | PRIMING | MECHANICALLY FIXED | LOOSE LAID |
|----------------------------------|----------------------------|--|--|--------------|--|------------|
| <i>RESITRIX® CL</i> | with PU adhesive PU-LMF-02 | with hot bitumen | | – | with technically certified and approved fasteners* | ballasted* |
| <i>RESITRIX® MB</i> | – | – | | – | with technically certified and approved fasteners | ballasted* |
| <i>RESITRIX® SK W Full Bond</i> | with FG 35 | with FG 35, on unfaced EPS foam with FG 40 | | full-surface | with technically certified and approved fasteners* | ballasted* |
| <i>RESITRIX® SK Partial Bond</i> | with FG 35 | – | | full-surface | with technically certified and approved fasteners* | ballasted* |

* possible, but not standard variant

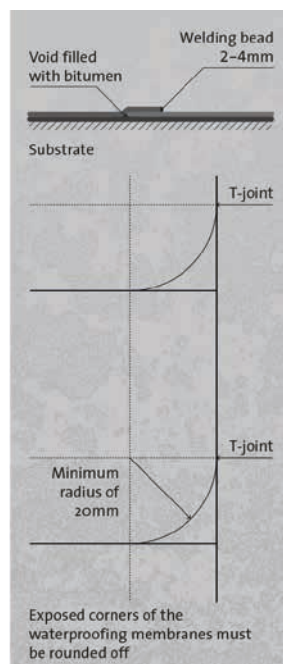
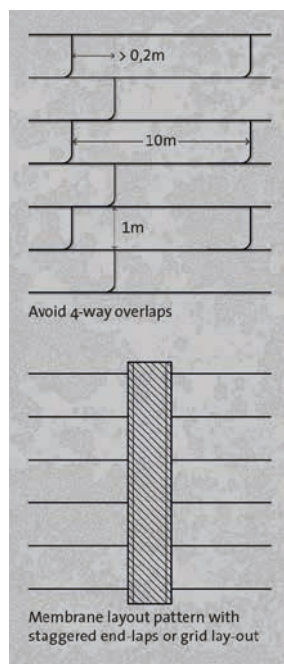


3.2 General installation instructions

Our Technical Department is available any time to provide information about specific and detailed substrate requirements, structural calculations and CAD drawings, or to conduct additional tests, such as wind load calculations, in our own in-house testing laboratory. For individual application information, please contact the Technical Department.

3.2.1 SUBSTRATE REQUIREMENTS

The substrate must be even and free from tension, blisters, creases, folds, sharp edges, burrs, rough sections, damaging joints, seams, voids, cracks, etc. In the case of bonded installation variants, the substrate must also be dry and frost-free.



3.2.2 SELF-ADHESIVE, BONDED, LOOSE-LAID, BALLASTED AND LIVING ROOFS

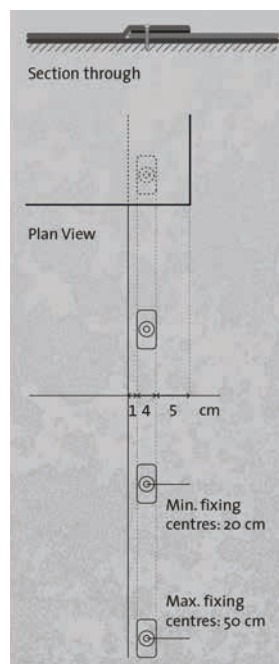
An overlap of at least 50 mm is required. On unfaced rigid polystyrene foam with or without non-woven glass fibre, the overlap must be 80 mm. The welding width must be at least 40 mm. A nozzle width of 40 mm must therefore be used.

An additional base tie-in with individual fasteners at vertical surfaces is only required for loose-laid connections and terminations.

3.2.3 LOOSE-LAID, MECHANICALLY FIXED

An overlap of at least 10 mm is required. On unfaced rigid polystyrene foam with or without non-woven glass fibre, the overlap must be 130 mm. The welding width must be at least 80 mm. A nozzle width of 80 mm must therefore be used. The

overlap between the upper edge of the membrane and the fastening plate is 50 mm. The distance between the lower edge of the membrane and fastening plate is 10 mm (with a total overlap of 100 mm) and 40 mm (with a total overlap of 130 mm). Both the distance and the total overlap can be larger if fastening plates with larger diameters or wider widths are used.



For wind lift calculations please contact our Technical Department.

3.2.4 APPLICATION RATES FOR SURFACE PRIMER AND ADHESIVE

MANUAL APPLICATION: SURFACE PRIMER

Full surface priming with FG 35: usage approx. 200 g/m²

MECHANICAL APPLICATION:

Full surface priming with FG 35: usage approx. 140 g/m²

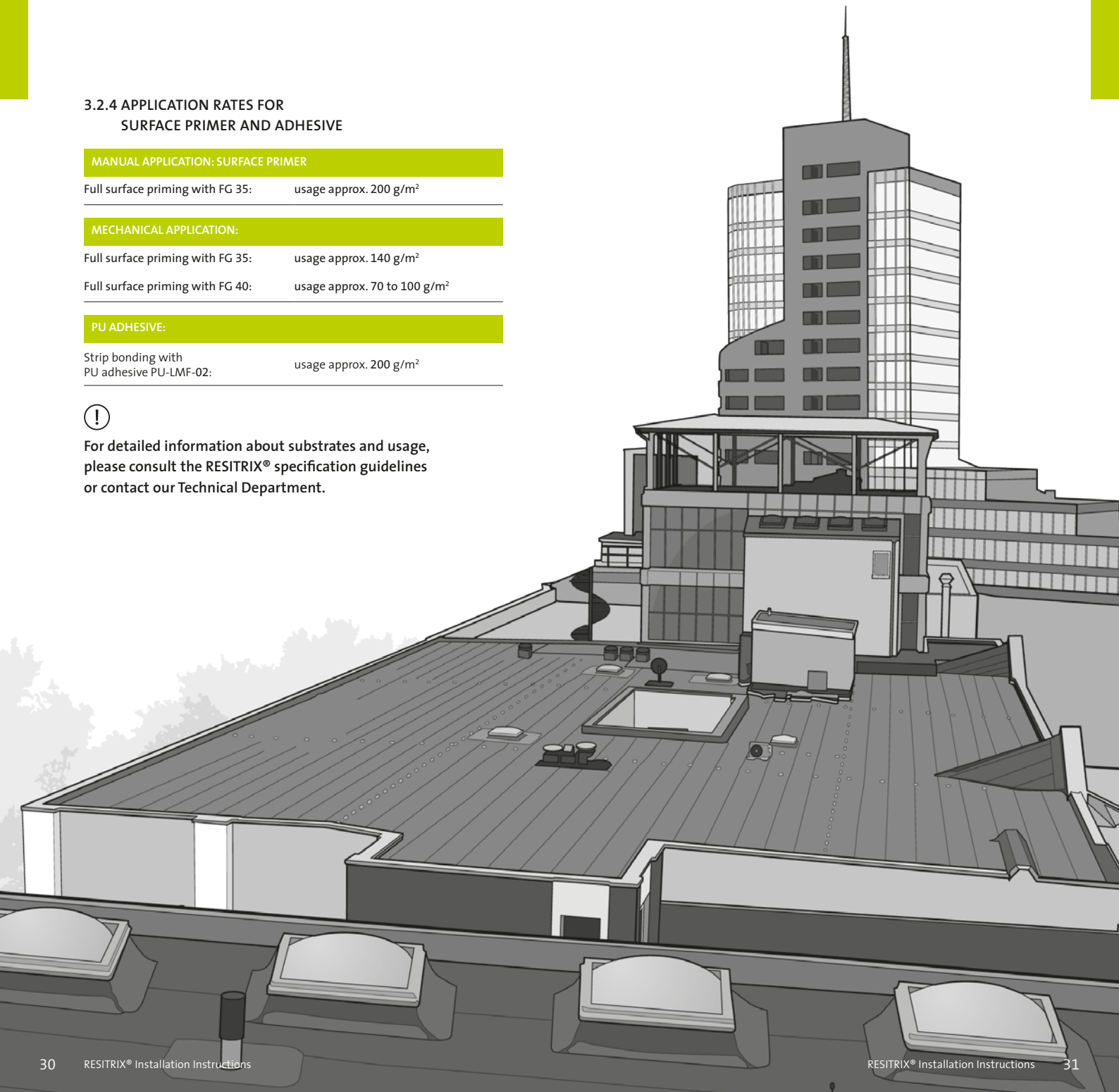
Full surface priming with FG 40: usage approx. 70 to 100 g/m²

PU ADHESIVE:

Strip bonding with
PU adhesive PU-LMF-02: usage approx. 200 g/m²

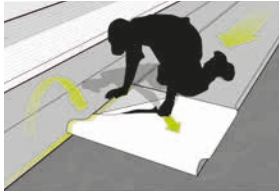


For detailed information about substrates and usage,
please consult the RESITRIX® specification guidelines
or contact our Technical Department.



3.3 Self-adhesive installation variants

Installing and laying the self-adhesive RESITRIX® SK W Full Bond and RESITRIX® SK Partial Bond waterproofing membranes. After applying surface primer and allowing it to dry completely, unroll and align the membranes with the specified overlap and with the edges running parallel to each other. Next, remove the PE release film on the back of the membrane.



- Once the FG 35 has adequately dried between 20-30 minutes depending on weather conditions, unroll the waterproofing membrane with an overlap width of 50 mm or 80 mm in the case of EPS insulating materials.
- Fold back the first metre of membrane, cut into and pull off the release film underneath.



- Using both hands, position the first metre of the membrane ensuring it is even, smooth and free from creases.
- Press down this area, for example using a wide broom.
- Ensure adequate adhesion



- Unroll the rest of the membrane.
- One person tensions and re-adjusts the alignment of the membrane by lifting and pulling it taut as required (ensure the 50 mm or rather 80 mm minimum lap width!).
- A second person removes the release film diagonally from the membrane in a lengthwise direction.

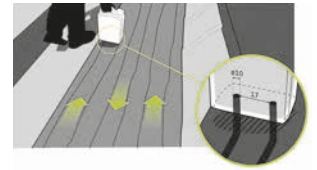


- Press down the membrane, e.g. with a broom or pressure roller, starting in the centre and moving out towards the edges, in order to prevent air pockets.
- Next, weld the laps with a width of 40 mm (the nozzle width on an automatic welding machine should also be 40 mm).

3.4 Bonded installation variants

3.4.1 RESITRIX® CL STRIP BONDING WITH PU ADHESIVE PU-LMF-02

Unroll and align the RESITRIX® waterproofing membranes with the specified overlap and with the edges running parallel to each other. Then fold back the membranes in a lengthwise direction.



- Drill the canister base at two points, 170 mm apart (diameter 10 mm). If an air-lock occurs, briefly open the locking cap.
- Apply the PU adhesive (see graphic)
- Fold down the membrane
- Keep overlaps free of PU adhesive
- Press down on the membrane, for example using a wide broom
- Then weld the overlaps with a width of 40 mm (the nozzle width on the automatic welding machine should also be 40 mm).

3.4.2 BONDING RESITRIX® CL WITH HOT BITUMEN

Unroll and align the RESITRIX® waterproofing membranes with the specified overlap and with the edges running parallel to each other. After aligning each membrane, roll it back to the centre of the roll. Pour the hot bitumen and use a brush to apply it evenly across the entire width of the bonding area; the required application rate is approx. 1.5 kg/m². Make sure that the membrane overlaps are kept free from hot bitumen. Next, unroll the other half of the membrane and bond it with hot bitumen using the same procedure. Finally, weld the laps with a width of 40 mm and the nozzle width on an automatic welding machine should also be 40 mm.

3.5 Loose-laid, mechanically fixed

RESITRIX® MB AND RESITRIX® CL

Unroll and align the RESITRIX® waterproofing membranes with the specified overlap and with the edges running parallel to each other.

The fixings and fastening plates used must be technically certified and approved. It may be possible to increase the 400N design load after prior testing by the Technical Department. In such cases, a fastening plan has to be drawn up.

Care should be taken not to over-tighten the fasteners, in order to avoid the formation of any folds, creases or waves in the welding area following the welding process.



Important:

To prevent folds and creases from forming, we recommend that you weld the overlap first, before mechanically fixing the other side of the membrane.

3.6 Loose-laid and ballasted

RESITRIX® MB AND RESITRIX® CL

Unroll and align the RESITRIX® waterproofing membranes with the specified overlap and with the edges running parallel to each other.

The type, layout and surface weight of the ballast may vary depending on the usage conditions and the respective wind load calculation.



Important:

For specific details on the installation process and individual on-site requirements, please contact our Technical Department.



3.7 Living roofs

RESITRIX® SK W FULL BOND

After applying surface primer and allowing it to dry completely, unroll and align the membranes with the specified overlap and with the edges running parallel to each other.

Next, remove the PE release film on the back of the membrane.

The type, layout and surface weight of the ballast may vary depending on the usage conditions and the respective wind load calculation.



Roof vegetation projects can be divided into two categories:

- intensive roof vegetation
- extensive roof vegetation

Intensive roof vegetation projects predominantly involve the use of perennials, shrubs, woody plants and grassy lawns. Bushes and trees may also be individually planted in selected areas. With extensive roof vegetation, the thin substrate layers are planted with grass, moss, herbs, sedums and other hardy regenerative plants.



3.8 Substrate requirements

| WATERPROOFING MEMBRANE | MINERAL WOOL | POLYSTYRENE (EPS) | POLYURETHANE FOAM (PUR) / POLYISO (PIR) | FOAM GLASS | SUPPORTING STRUCTURE, UNINSULATED | OTHER SUBSTRATES (EXISTING ROOF /DECK) |
|--|----------------|-------------------|---|--|-----------------------------------|--|
| <i>RESITRIX®</i> <i>CL</i> strip bonding with PU-LMF-02 | – | unfaced | unfaced or faced on both sides (except aluminium) | – | no restriction | bitumen / elastomer bitumen polyurethane-foam |
| <i>RESITRIX®</i> <i>CL</i> fully bonded with hot bitumen | surface faced | – | unfaced or faced on both sides (except aluminium) | unfaced or faced surfaces | no restriction | bitumen / elastomer bitumen |
| <i>RESITRIX®</i> <i>MB</i> mechanically fixed | no restriction | no restriction | no restriction | – | no restriction | only restriction: roof structures with foam glass |
| <i>RESITRIX®</i> <i>SK W Full Bond</i> fully bonded | surface faced | only FG 40 | unfaced or faced on both sides | faced or unfaced surfaces with hot bitumen | no restriction | bitumen / elastomer bitumen APP bitumen plastic systems (softener-free) elastomer membranes liquid-applied plastic systems |
| <i>RESITRIX®</i> <i>SK Partial Bond</i> partially bonded | – | surface faced | faced or faced on both sides | – | no restriction | bitumen / elastomer bitumen APP bitumen plastic systems (softener-free) elastomer membranes liquid-applied plastic systems PU in-situ foam |

! Notes:

1. Requirement for all adhesive variants is a sound substrate / underground.
2. In case additional membranes are installed beneath the RESITRIX® waterproofing membranes, the substrate requirements shown in the "Other substrates" column apply.
3. In addition, application criteria and installation instructions of the insulation manufacturer and of the manufacturer of potential additional underlays must be considered.
4. In addition, the national fire safety regulations must be observed and complied with.
5. Loose laid applications / installations below vegetative roof systems or loose laid with ballast are only possible with appropriate wind uplift testing / documentation.
6. The installation of RESITRIX® waterproofing membranes on other substrates is only possible following consultation with our Technical Department.

4. General description of flashings and terminations

4.1 RESITRIX® SK W Full Bond and RESITRIX® SK Partial Bond

Connection and termination areas made from unfaced EPS are always primed with FG 40. When FG 40 is used as a primer inside a roof surface, the associated connection and termination areas can be primed both with FG 40 and FG 35. All other connection and termination areas are primed with FG 35. Application is generally full surface. FG 40 is always applied with a spraying device. FG 35 can optionally be applied manually or sprayed on. After removing the release film, adhere separate flashing strips in several steps. Do not remove the release film from the roof-side section of the flashing piece until immediately before starting the welding process. Firmly and evenly press down or roll down the flashing strips, making sure that the entire surface is bonded. The length of the flashings depends on the shape and handling of the connection and termination areas. When calculating the flashing length, make sure it is long enough so that the membrane can be installed without forming any folds or creases. If a hand-held welder is used for the welding, the overlap onto the roof membrane must be approx. 100 mm; if an automatic welding machine is used, the overlap onto the roof membrane must be approx. 150 mm. For mechanically fixed installations, the welding width must be at least 80 mm, otherwise min. 40 mm. The surface primer is applied to the entire surface.

4.2 RESITRIX® MB and RESITRIX® CL

Loose guidance of separate flashing strips up to the upper edge / leading edge of the connection or termination area. Top-side mechanical fixing of the flashing strip. Additional mechanical intermediate fixing is also required for connection or termination heights over 500 mm.

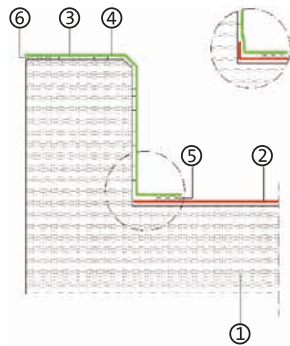


5. Detailing work

5.1 Flashings and terminations

5.1.1 BONDED

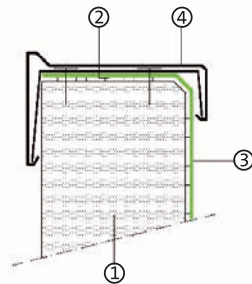
With the self-adhesive RESITRIX® waterproofing membranes



Please follow the general installation instructions when performing the individual detailing work illustrated below.

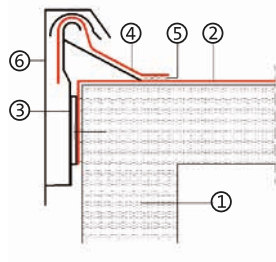
1. Building structure / substrate
2. RESITRIX® roof membrane (type determined by selected installation variant)
3. FG 35 or FG 40 surface primer (full surface)
4. Self-adhesive RESITRIX® waterproofing membrane bonded
5. Self-adhesive RESITRIX® waterproofing membrane hot-air welded to the roof membrane
6. Self-adhesive RESITRIX® waterproofing membrane hot-air welded to the parapet or trim

5.1.2 METAL CAPPING



1. Building structure / substrate
2. FG 35 or FG 40 surface primer (full surface)
3. RESITRIX® waterproofing membrane bonded
4. Mechanically fixed capping profile

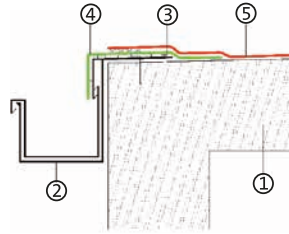
5.1.3 MULTI-PART ROOF EDGE FASCIA PROFILE



1. Building structure / substrate
2. RESITRIX® roof membrane (type determined by selected installation variant)
3. Multi-part roof edge fascia profile mechanically secured (sub-construction)
4. RESITRIX® flashing strips (type according to selected installation variant) loosely installed and clamped into place
5. RESITRIX® flashing strips hot-air welded to the roof membrane
6. Multi part roof edge fascia profile (super-construction)

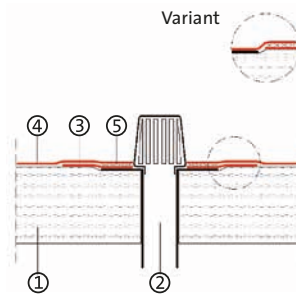
5.2 Roof drainage

5.2.1 EAVES GUTTER



1. Building structure / substrate
2. Eaves gutter mechanically secured in place
3. Surface primer on metal closure
4. Flashing strips made from RESITRIX SK W Full Bond or RESITRIX SR
5. RESITRIX® roof membrane (type determined by selected installation variant) hot-air welded to the roof edge flashing strips

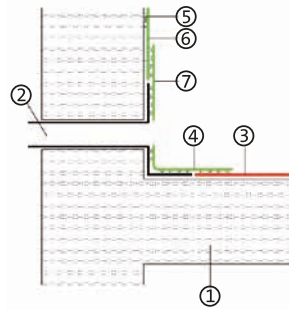
5.2.2 DROP OUTLET



1. Building structure / substrate
2. Outlet
3. RESITRIX® connection sleeve
4. RESITRIX® roof membrane (type determined by selected installation variant)
5. RESITRIX® roof membrane hot-air welded to sealing flange

5.2.3 SAFETY DRAIN

With RESITRIX® connecting sleeve

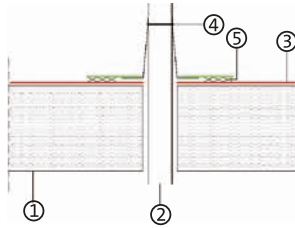


1. Building structure / substrate
2. Safety drain
3. RESITRIX® roof membrane (type determined by selected installation variant)
4. RESITRIX® waterproofing membrane sealing flange hot-air welded to outlet flange and waterproofing membrane
5. Surface primer
6. RESITRIX® waterproofing membrane bonded
7. RESITRIX® waterproofing membrane connecting sleeve welded with hot air to the flange and parapet flashing

5.3 Roof Penetrations

5.3.1 ROOF PENETRATION

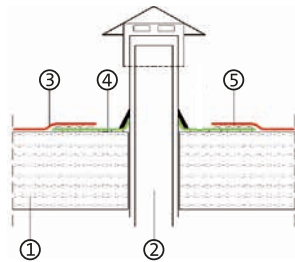
With RESITRIX® pipe sleeve (small) diameter 5-30 mm (analogue: roof penetration with RESITRIX® pipe sleeve (large) diameter 35-100 mm)



1. Building structure / substrate
2. Pipe penetration (diameter 5-30 mm or 35-100 mm)
3. RESITRIX® roof membrane (type determined by selected installation variant)
4. RESITRIX® pipe sleeve with factory-applied sealing flange; secured to the pipe with a hose clamp. Alternatively: Extension with supplied heat-shrinkable tubing
5. RESITRIX® SK W Full Bond sealing flange hot-air welded to the waterproofing membrane

5.3.2 FAN / VENT PIPE

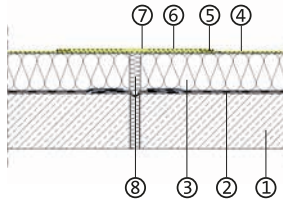
With RESITRIX® connecting sleeve



1. Building structure / substrate
2. Vent pipe with factory-applied sealing flange
3. RESITRIX® waterproofing membrane (type determined by selected installation variant)
4. Surface primer
5. RESITRIX® sealing flange hot-air welded to the waterproofing membrane

5.3.3 EXPANSION JOINT WITH RESIFLEX® SK

In the bonded roof structure, variant 2

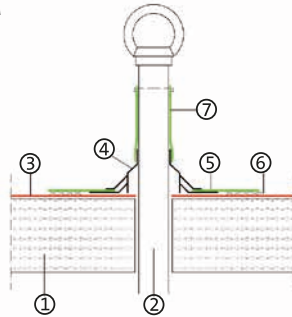


1. Slabs
2. Vapour barrier membrane, e.g. V6o S4 Al, bituminous pre-coat
3. PUR / PIR thermal insulation, bonded
4. RESITRIX® SK Partial Bond, bonded to FG 35 surface prime
5. RESIFLEX® SK, welded onto base membrane
6. RESIFLEX® SK
7. ARBO® closed cell foam
8. Soft insulation

5.4 Fall protection systems

5.4.1 FALL PROTECTION SYSTEM

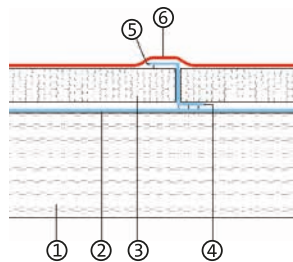
With connecting sleeve
(manufacturer: ST-Quadrat)



1. Building structure / substrate
2. Fall protection system (system: ST-Quadrat-Lux-top ASP)
3. RESITRIX® roof membrane (type determined by selected installation variant)
4. PVC protection cover with integral sealing hose at top and hose clamp
5. RESITRIX® SK W Full Bond sealing flange
6. RESITRIX® SK W Full Bond sealing flange hot-air welded to the waterproofing membrane
7. Elastomeric sealing hose with hose clamp at top

5.5 Sealing-off

Flashing strip in insulated area



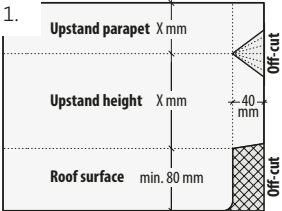
1. Building structure / substrate
2. ALUTRIX® 600 / ALUTRIX® FR vapour barrier
3. Thermal insulation
4. ALUTRIX® 600 / ALUTRIX® FR self-adhesive flashing strip bonded onto the vapour barrier
5. ALUTRIX® 600 / ALUTRIX® FR self-adhesive flashing strip bonded onto the insulation board
6. RESITRIX® roof membrane (type determined by selected installation variant)


5.6 Internal and external corners

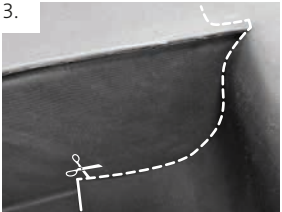
Corner formation is carried out using flat, prefabricated parts made of RESIFLEX® SK. These parts are prefabricated in the proper shape and therefore enable quick, safe and convenient formation of internal and external corners. The corner parts are made up of three parts: a circle with groove, a closed circle and an oval tongue. Alternatively, the necessary corner parts can also be simply cut from the roll. Directly on the construction site, so

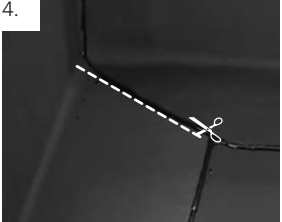
there is next to no material loss in this situation. To comply with the overlap width, the diameter and the width of the formed parts / cut-outs must be at least 200 mm. The individual parts / cut-outs are fully surface-welded with hot air on the flashing strip with an overlap width of min. 40 mm. The seam connections of the individual parts / cut-outs are also formed using hot air welding.

5.6.1 FORMING INTERNAL CORNERS


1. 


Cut-out according to the illustration on the left, carefully cut the film on the rear with a craft knife.
2. 


Lay first flashing strip.
3. 


Cut and bond the second flashing strip.
4. 

Make a mitre cut in the roof surface area.

5. 

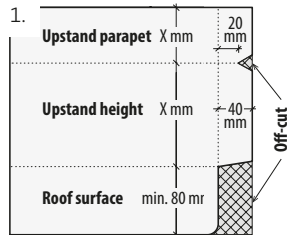
Attach the formed part without creating any creases and fully surface-weld.
6. 

Remove the protective film in the inverted pleat area and weld it with hot air. Fix the inverted pleat to the upstand using migrated bitumen from an off-cut.
7. 

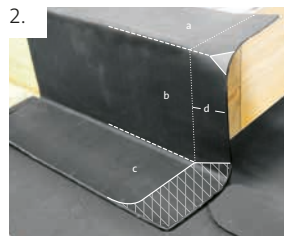
First of all, stretch the moulded part (tongue) in the corner areas (top and bottom) (see shaded areas). Then place the tongue over the inverted pleat at a distance of 3 mm above the roof waterproofing membrane and fully surface-weld.
8. 

Completed detail.

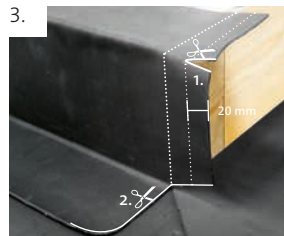
5.6.2 FORMING EXTERNAL CORNERS



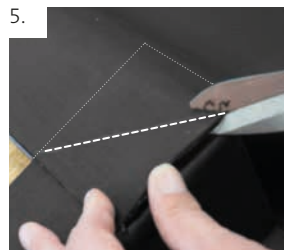
Cut-out according to the illustration on the left, carefully cut the film on the rear with a craft knife.



- a) Upstand parapet
- b) Upstand height
- c) Roof surface
- d) Projection to the corner (40 mm)



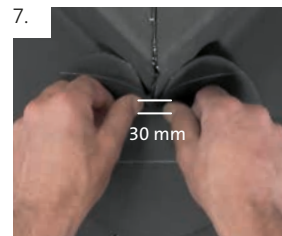
Cut 20 mm into the top projection (1.) and cut into the bottom projection as far as the corner (2.). Form an inverted pleat.



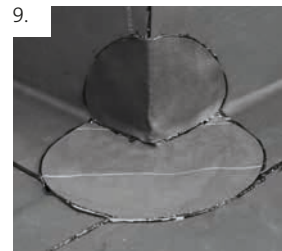
Apply the second flashing strip and make a mitre cut on the upstand parapet.



Bond and weld the second flashing strip.



Attach the formed kidney shape in the corner area without creating any creases; coverage in the corner area 30 mm, fully surface weld.



Attach the semi circle at a distance of 3 mm from the roof surface and fully weld.

CARLISLE®
Construction Materials Ltd.

United Kingdom

Lancaster House | Concorde Way
Millennium Business Park | Mansfield
Nottinghamshire | NG19 7DW

T +44 (0)1623 62 72 85
F +44 (0)1623 65 27 41
E info.uk@ccm-europe.com

VISIT US ON:



www.ccm-europe.com