

RENOLIT WATERPROOFING



Design manual

Roofing...
with style



RENOLIT WATERPROOFING



Design manual



ALKORFLEX®/ALKORPLAN® DESIGN MANUAL

INTRODUCTION

In producing this document, the Technical Department of RENOLIT WATERPROOFING : sought to provide essential design information. The Design Manual is intended to be used in conjunction with the System Documents:

- **ALKORFLEX® A**
- **ALKORFLEX® F**
- **ALKORFLEX® L**
- **ALKORPLAN® A**
- **ALKORPLAN® F**
- **ALKORPLAN® L**

By selecting the system and membrane type best suited to the prevailing conditions, the appropriate section of the manual can be referred to. Experience has shown that most roofs have a relatively small number of detail variations, with these variations appearing on roofs with distinctly different specifications, the method of application only varying slightly. Consequently, this document does not provide drawings of every conceivable detail. The Technical Department of RENOLIT WATERPROOFING provide specific design assistance whenever necessary.

Windload Calculation

ALKORFLEX® and ALKORPLAN® roofing systems offer three fastening alternatives:

- F: mechanically fastened
- L: loose laid (incl. inverted roof or garden roof)
- A: adhered (with an ALKORPLUS polyurethane glue or hot bitumen)

The effect of windloads on a flat roof must be understood, in order for the construction of the roof and the method of attachment of the waterproofing layer, to be designed accordingly.

For mechanical fastening, a steeldeck structure is the most common. In this case, the internal pressure of the building will penetrate through the roof structure via the joints in the metal deck. The membrane will have to cope with both wind uplift as well as internal pressures. On concrete surfaces, however, the internal pressure is unlikely to affect the underside of the membrane.

The roof design should ensure that the roof system has sufficient capacity to resist the calculated uplift pressures, using adhesion, applied loadings, dead weights or mechanical fasteners. The calculation of the wind uplift forces should also take account of local applied pressure zones, perimeters, areas, bases of plant rooms, or other large pieces of plant.

ALKORFLEX® 81191 metalsheet

Galvanized 0.6 mm steel sheet with an 0.6 mm unreinforced ALKORFLEX® membrane laminated onto its surface. The bottom face is treated with an anti-corrosion coating.

- UV-stabilized
- excellent adhesion between steel sheet and ALKORFLEX®
- excellent mechanical properties
- can be cut and formed into any required shape using common steel handling equipment

Application

Specifically developed to be used as an accessory for ALKORFLEX® roofing systems in order to provide high-quality upstands and parapets:

- intermediate fastening on unbonded upstands over 50 cm high
- metal profiles to cover parapets
- linear edge restraint

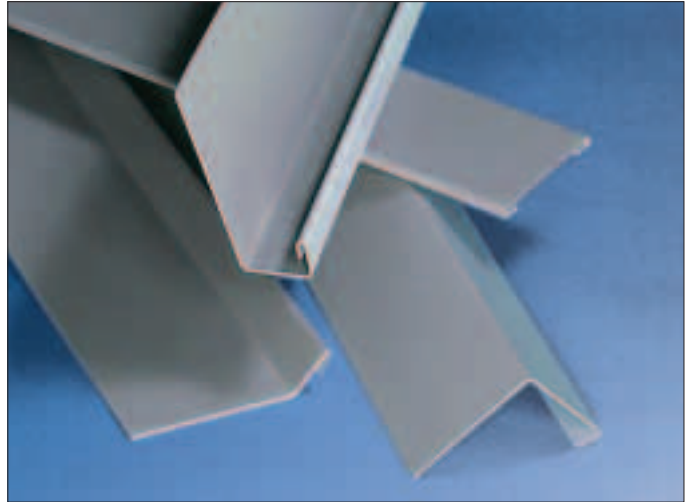


Fig. 1: ALKORFLEX® metalsheet and -profiles

Metalsheet Delivery Conditions	Thickness (NBN A43-201)	Colour	Width	Length	Weight	Quantity/pallet
ALKORFLEX® 81191	1,1 mm	light grey	1,00 m	2,00 m	5,4 kg/m ²	50

ALKORFLEX® 81092/81093/81094 corners

ALKORFLEX® inner- (81092) and outer corners (81093) as well as roof light 70° corners (81094) for a reliable and quick finish of various corner types.

- unreinforced ALKORFLEX®
- colour: light grey

ALKORFLEX® 81036 Liquid

Liquid 81036 seam sealer is applied to the edge of the welded seams



The complete ALKORPLUS accessory, which can be used in combination with ALKORFLEX® and ALKORPLAN® includes:

- glass fleece separation layer 81001
- Protection and separation layer 81005
- Vapour control layer 81012
- Adhesive tape 81057
- Welding fluid 81025
- PE bottle 81145 and nozzle 81245
- Applicator brush 81345
- Cleanser 81044
- Detailing contact adhesive 81040
- Compressive foam strip 81058
- Polyurethane glue 81068
- Applicator 81069
- Aluminium tape 81192

Please ask for the detailed ALKORPLUS product information.

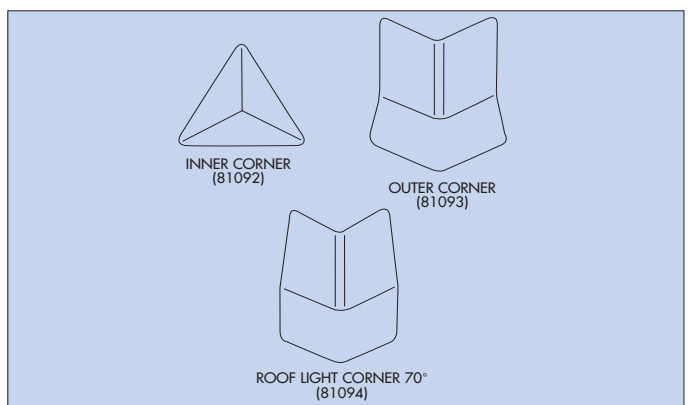


Fig. 2: ALKORFLEX® inner-, outer- and 70° angles



Fig. 3: Liquid ALKORFLEX® 81036 applied with the ALKORPLUS 81145 PE bottle and nozzle 81245

ALKORPLAN® 81170/81171 metalsheet

Galvanized 0.6 mm steel sheet with an 0.8 mm unreinforced ALKORPLAN® membrane laminated onto its surface. The bottom face is treated with an anti-corrosion coating.

- UV-stabilized
- excellent adhesion between steel sheet and ALKORPLAN®
- excellent mechanical properties
- can be cut and formed into any required shape using common steel handling equipment

Application

Specifically developed to be used as an accessory for ALKORPLAN® roofing systems in order to provide high-quality upstands and parapets:

- intermediate fastening on unbonded upstands over 50 cm high
- metal profiles to cover parapets
- linear edge restraint

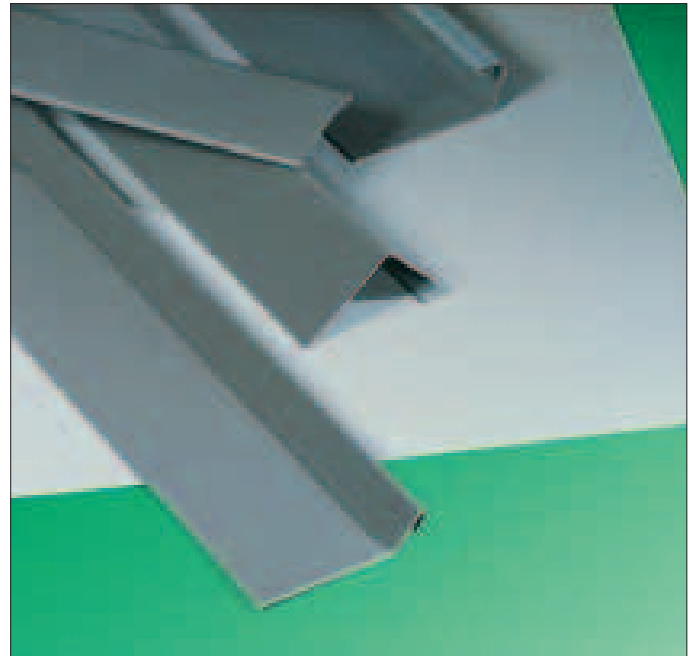


Fig. 4: ALKORPLAN® metalsheet and -profiles

Metalsheet Delivery Conditions	Thickness (NBN A43-201)	Colour	Width	Length	Weight	Quantity/pallet
ALKORPLAN® 81170	1,4 mm	light grey/charcoal	1,00 m	2,00 m	5,8 kg/m ²	50
ALKORPLAN® 81171	1,4 mm	grey/charcoal	1,00 m	3,00 m	5,8 kg/m ²	30

ALKORPLAN® 81060/81061/81062 corners

ALKORPLAN® inner- (81060) and outer corners (81061) as well as roof light 70° corners (81062) for a reliable and quick finish of various corner types.

- unreinforced PVC-P ALKORPLAN®
- colour: light grey

ALKORPLAN® 81088 outlets

Unreinforced ALKORPLAN® outlets for a reliable and aesthetic finish of existing water outlets, including outlet grating

- unreinforced PVC-P ALKORPLAN®
- colour: light grey
- dimensions:
 - Ø 70 mm for water outlets of ca. 80 mm in diameter
 - Ø 85 mm for water outlets of ca. 100 mm in diameter
 - Ø 110 mm for water outlets of ca. 125 mm in diameter

ALKORPLAN® 81038 Liquid PVC

Liquid 81038 seam sealer is applied to the edge of the welded seams

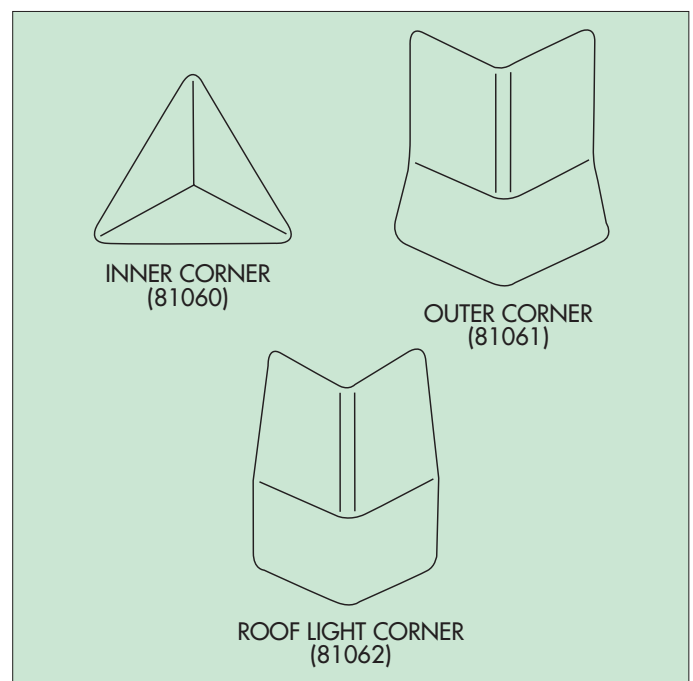
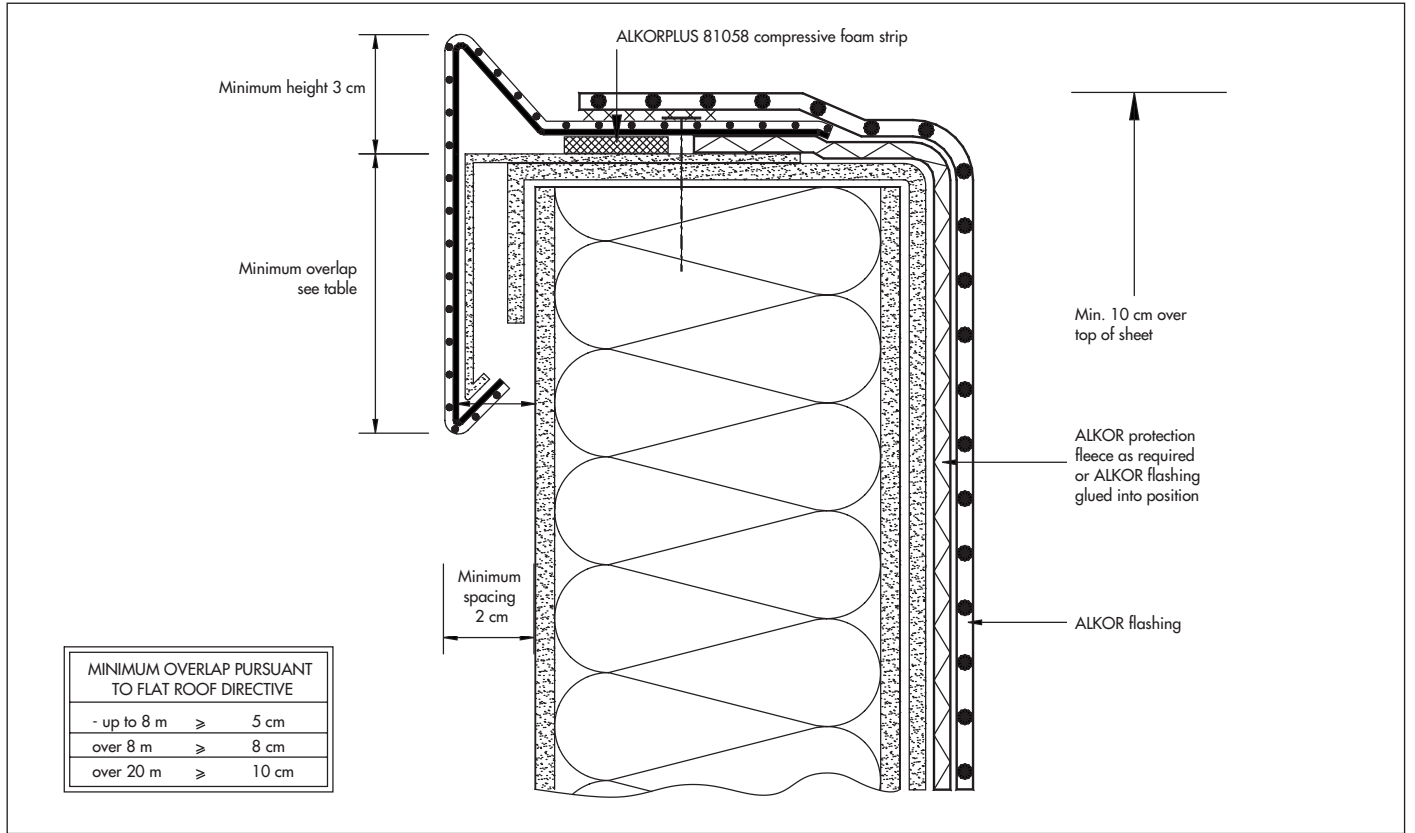
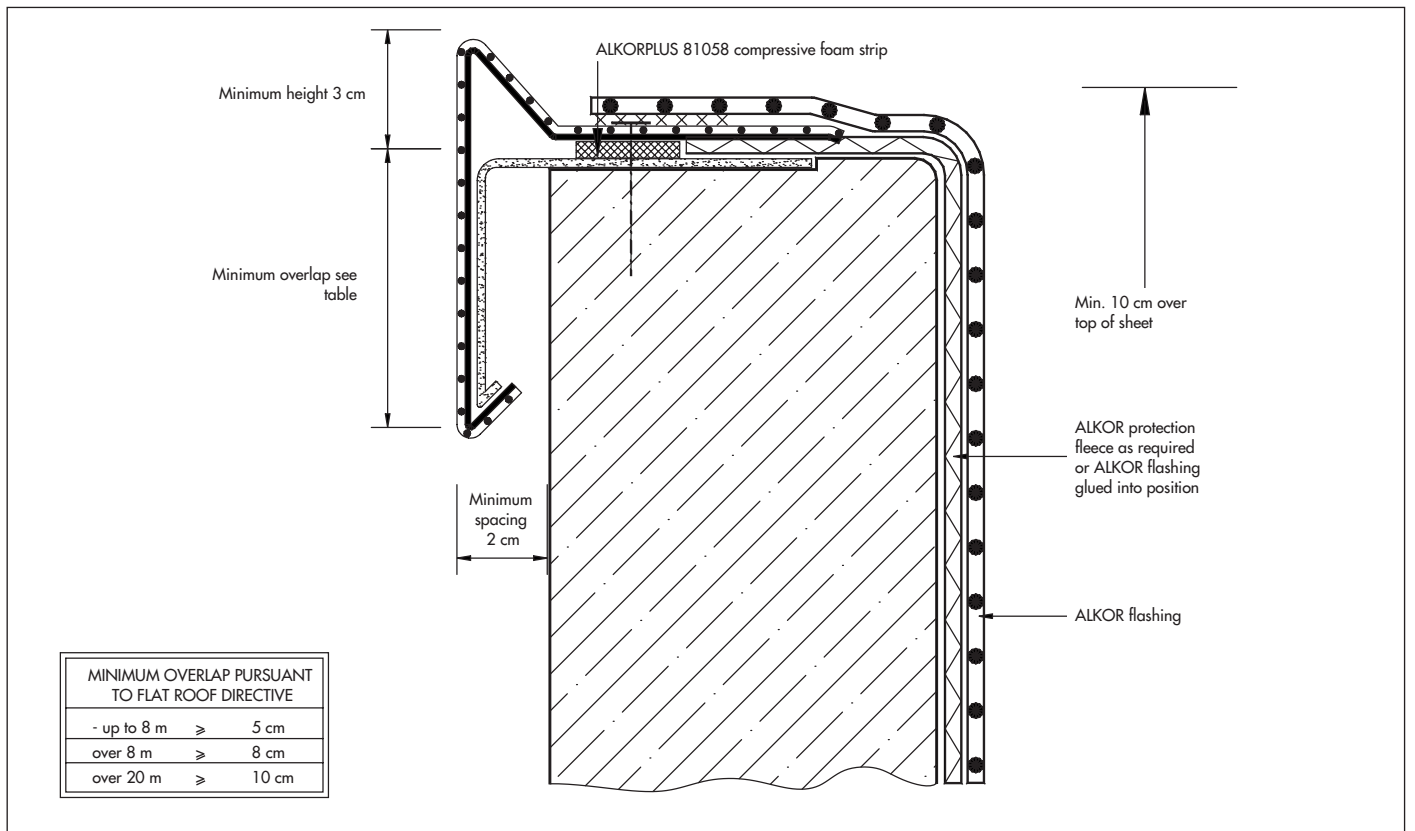


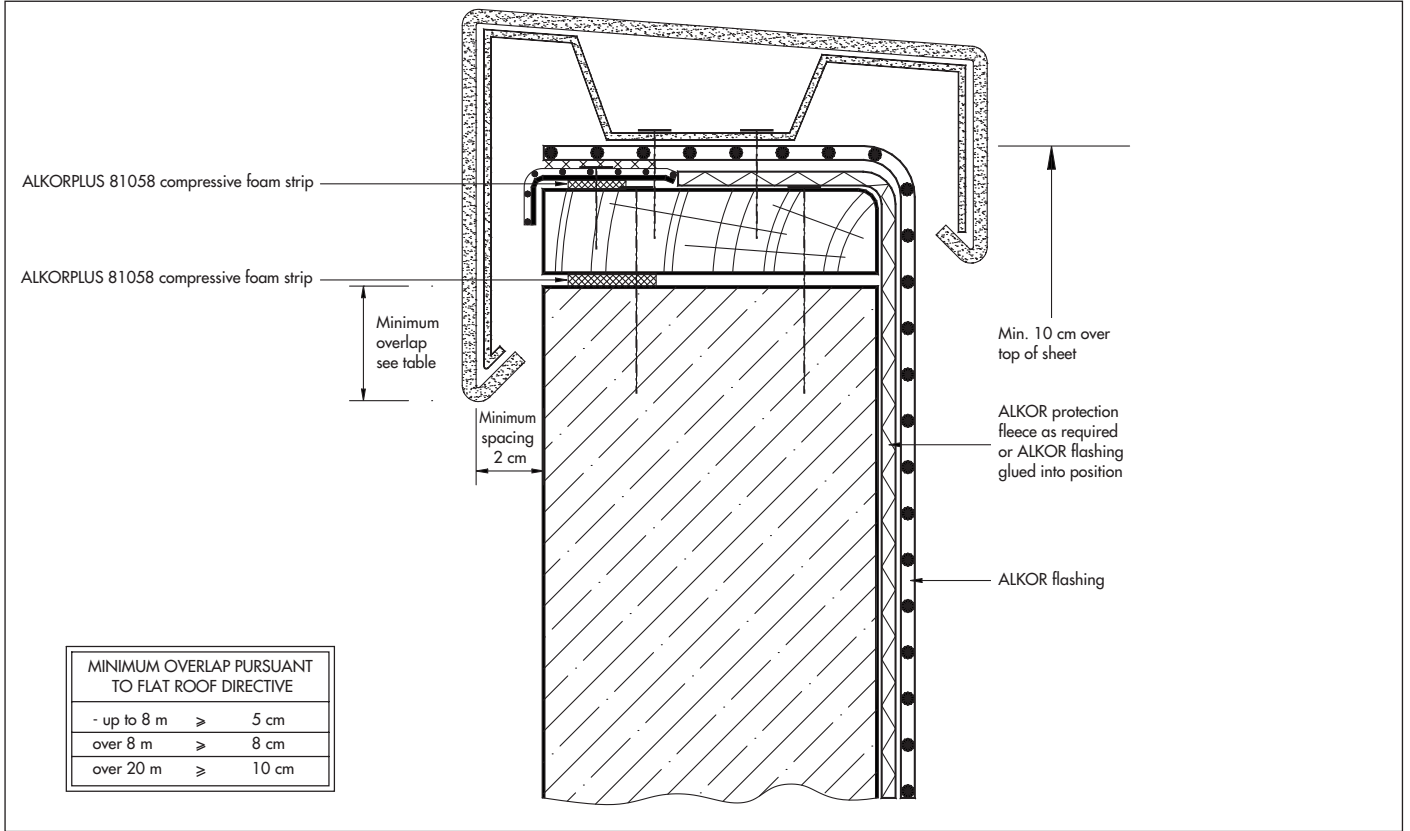
Fig. 5: ALKORPLAN® inner-, outer- and 70° angles



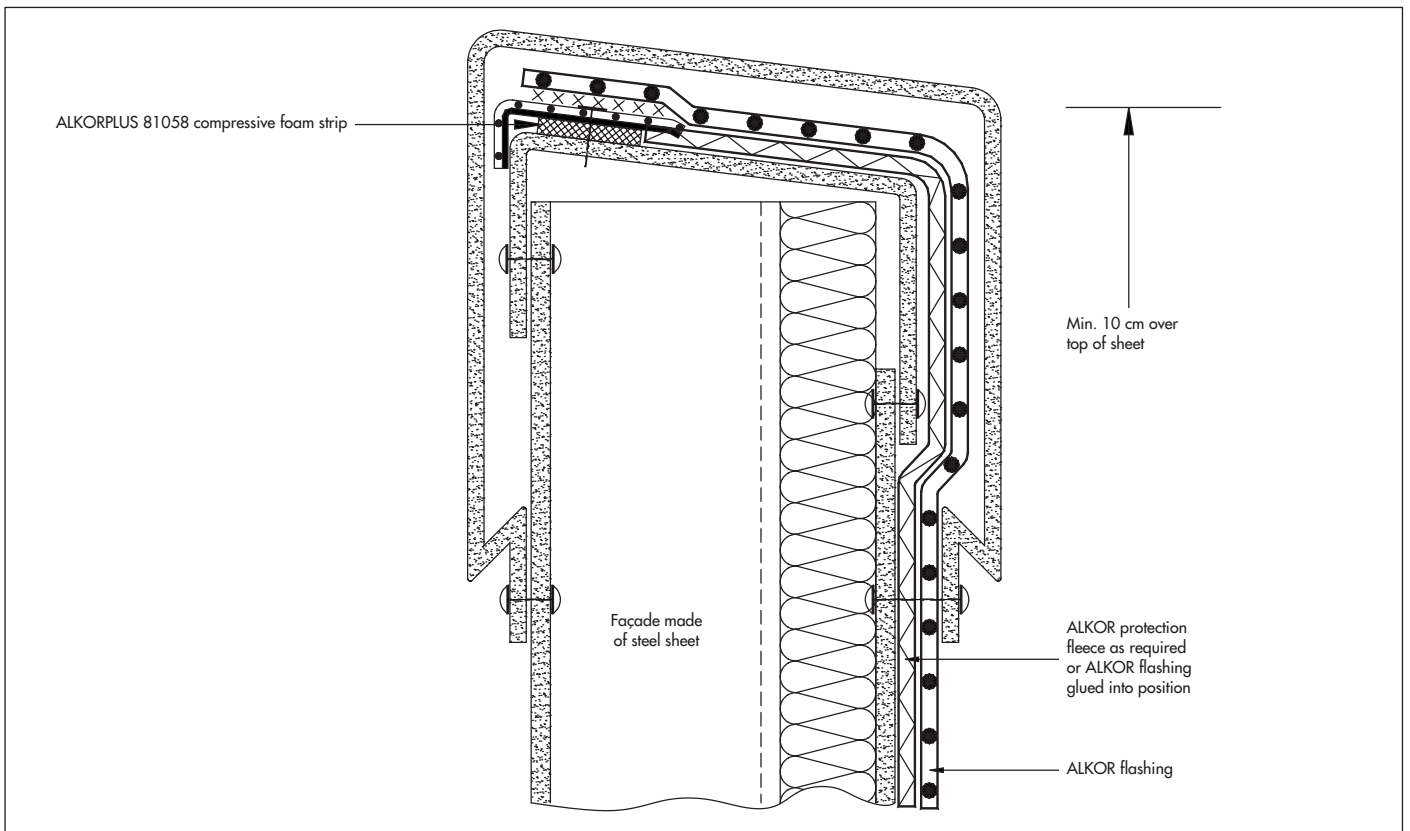
Roof edge seal 1



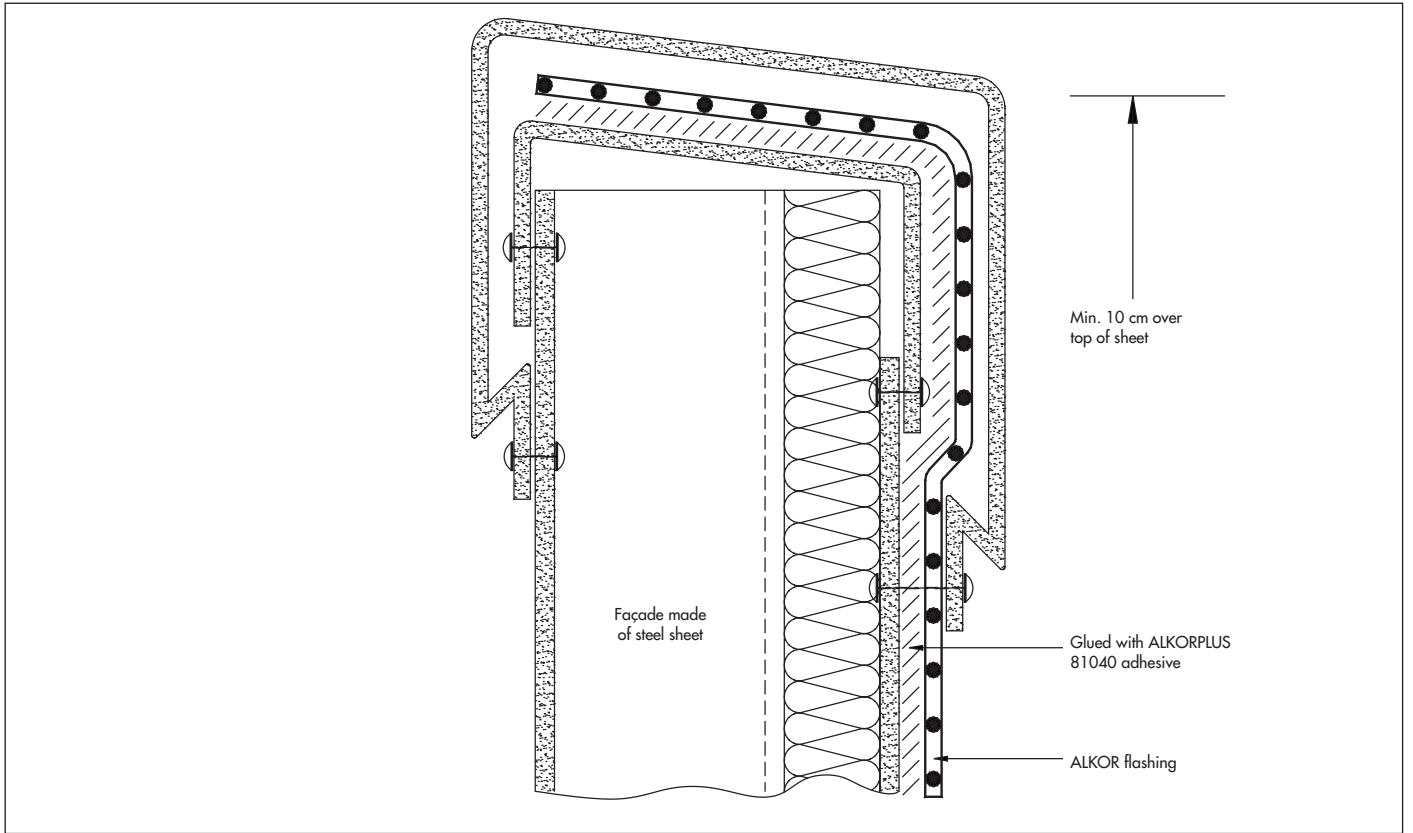
Roof edge seal 2



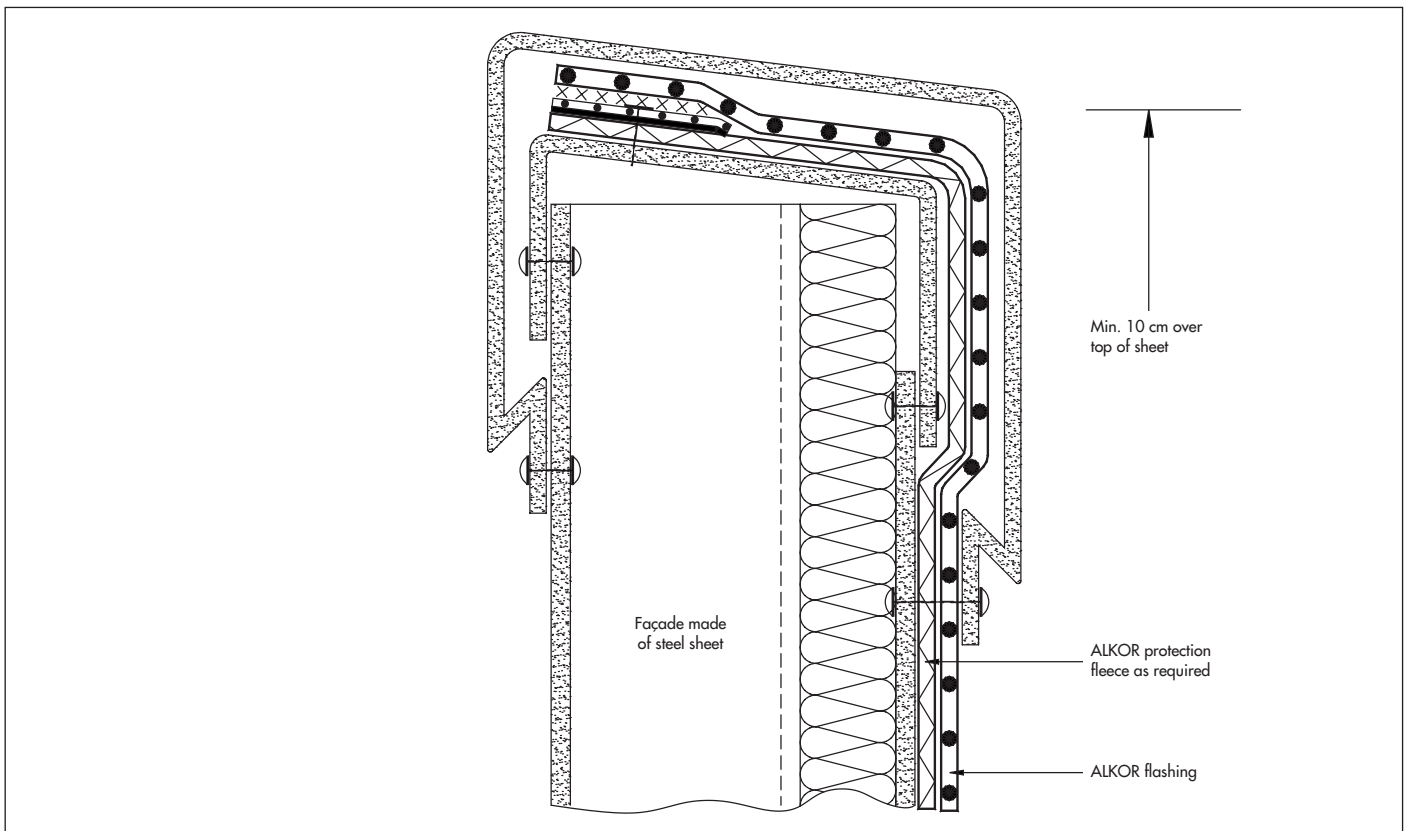
Roof edge seal 3



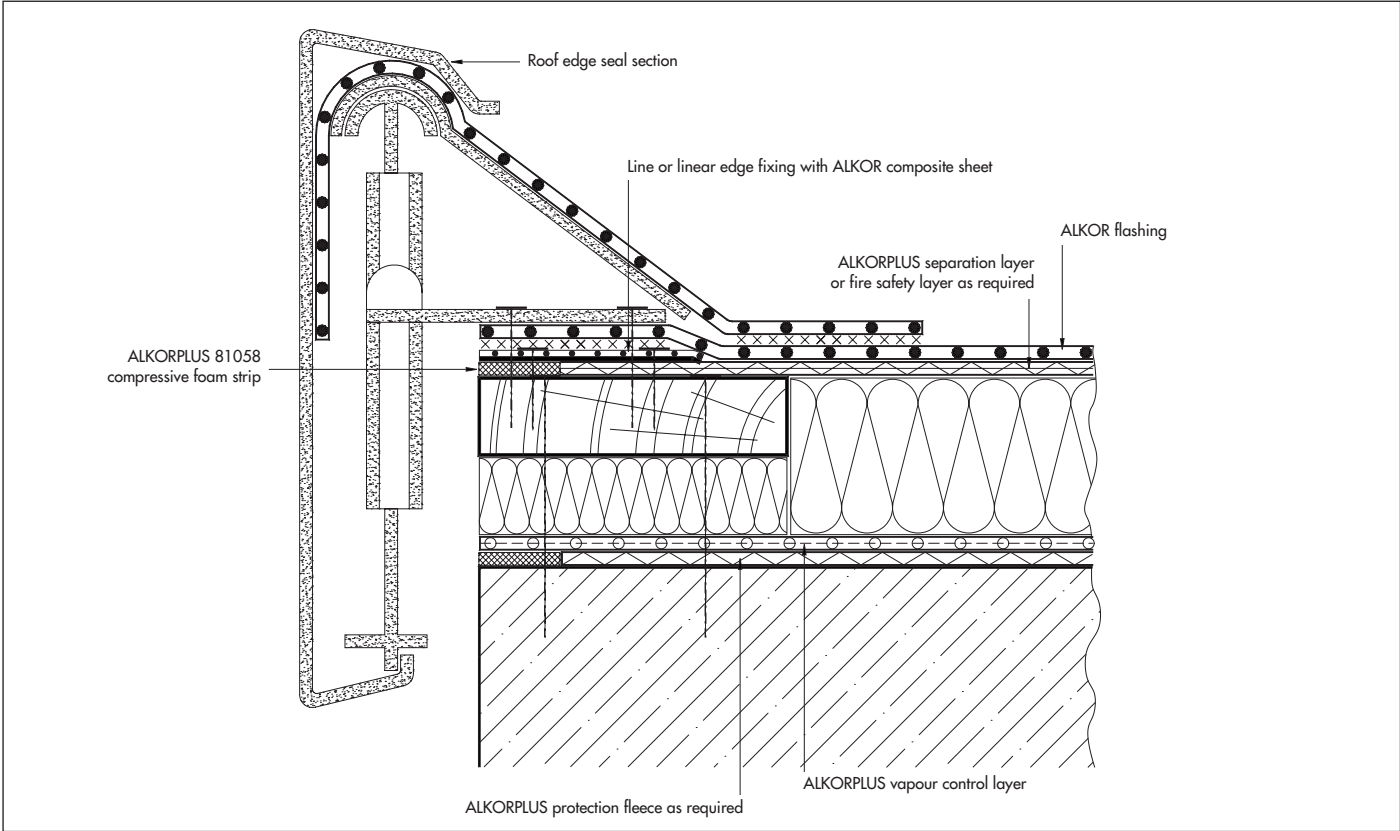
Roof edge seal 4



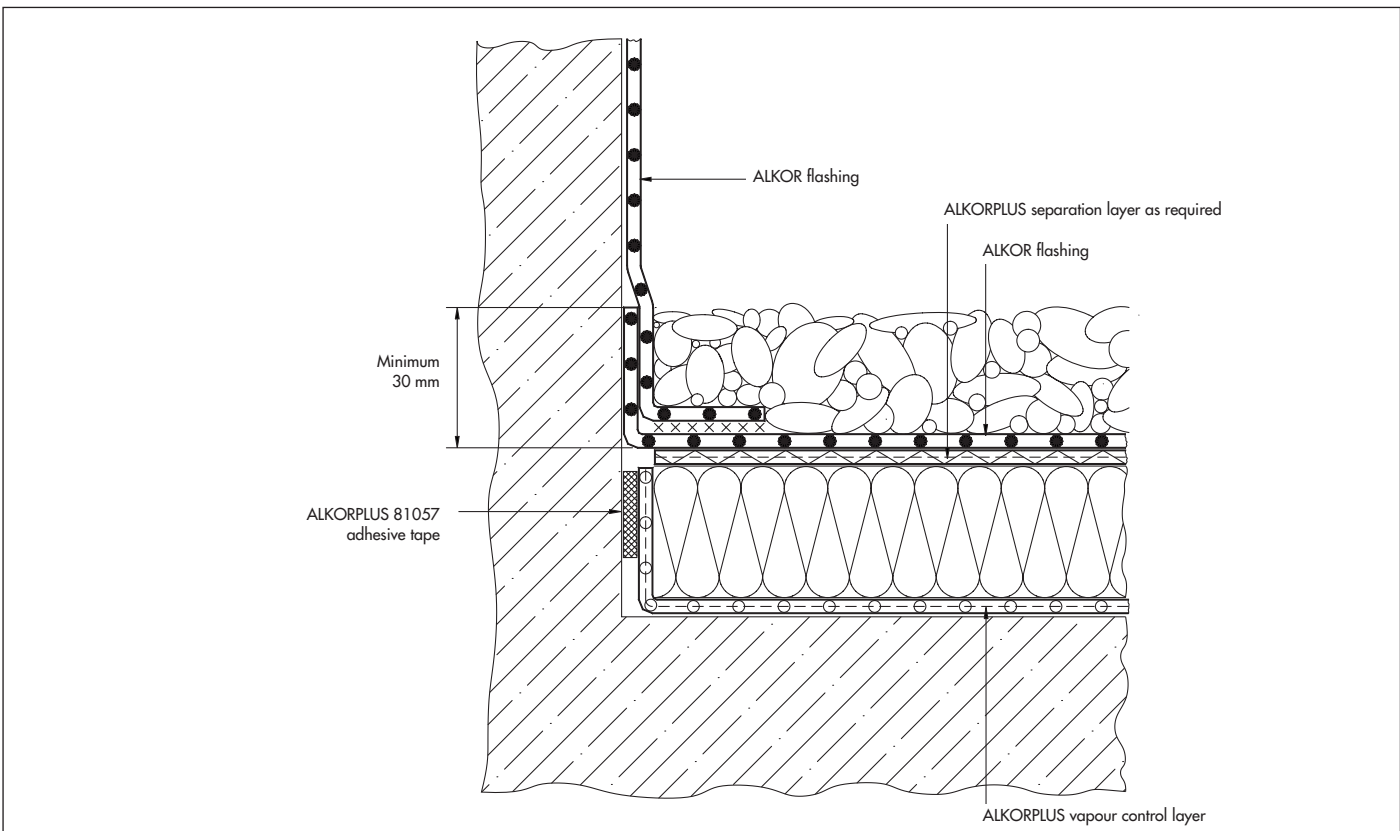
Roof edge seal 5



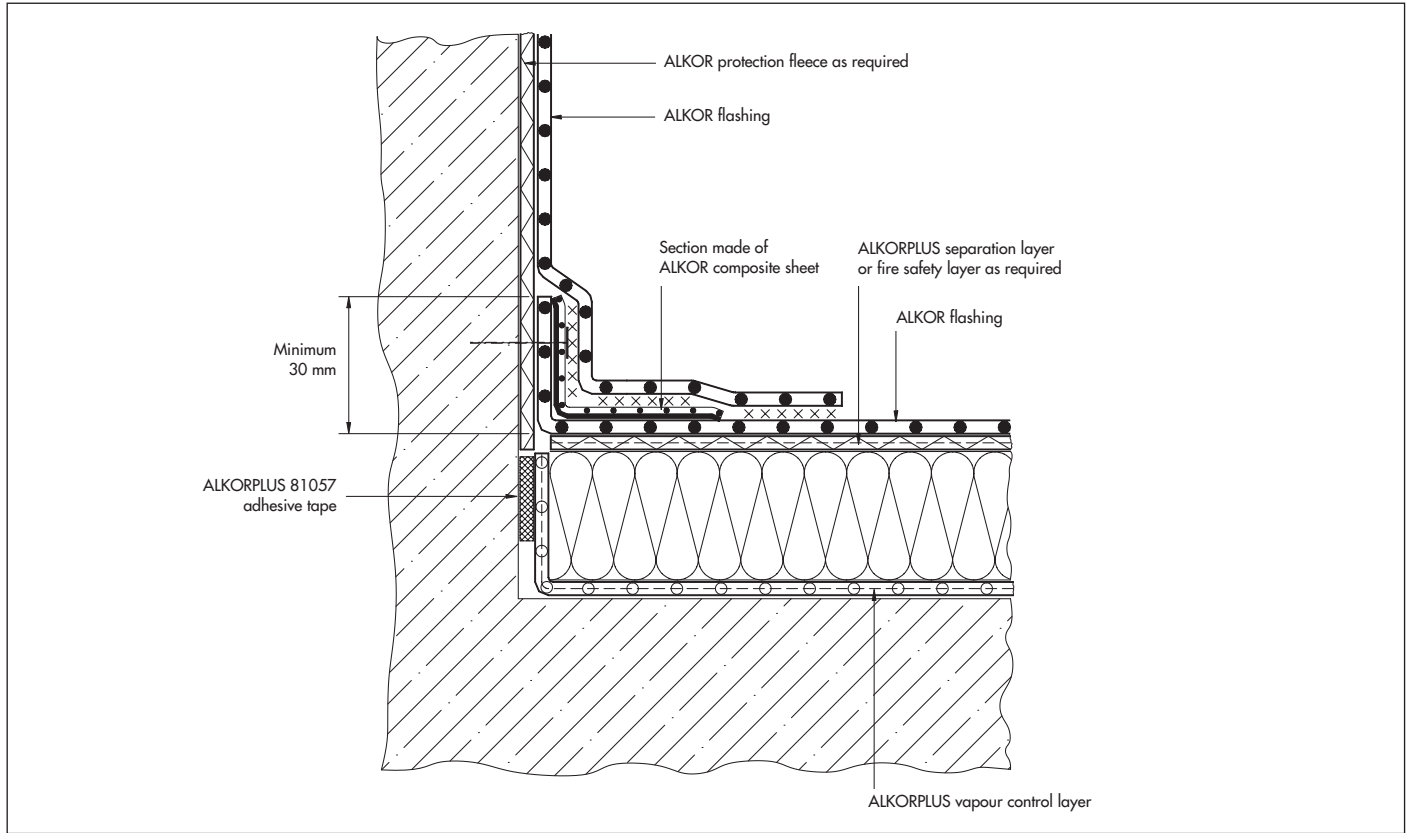
Roof edge seal 6



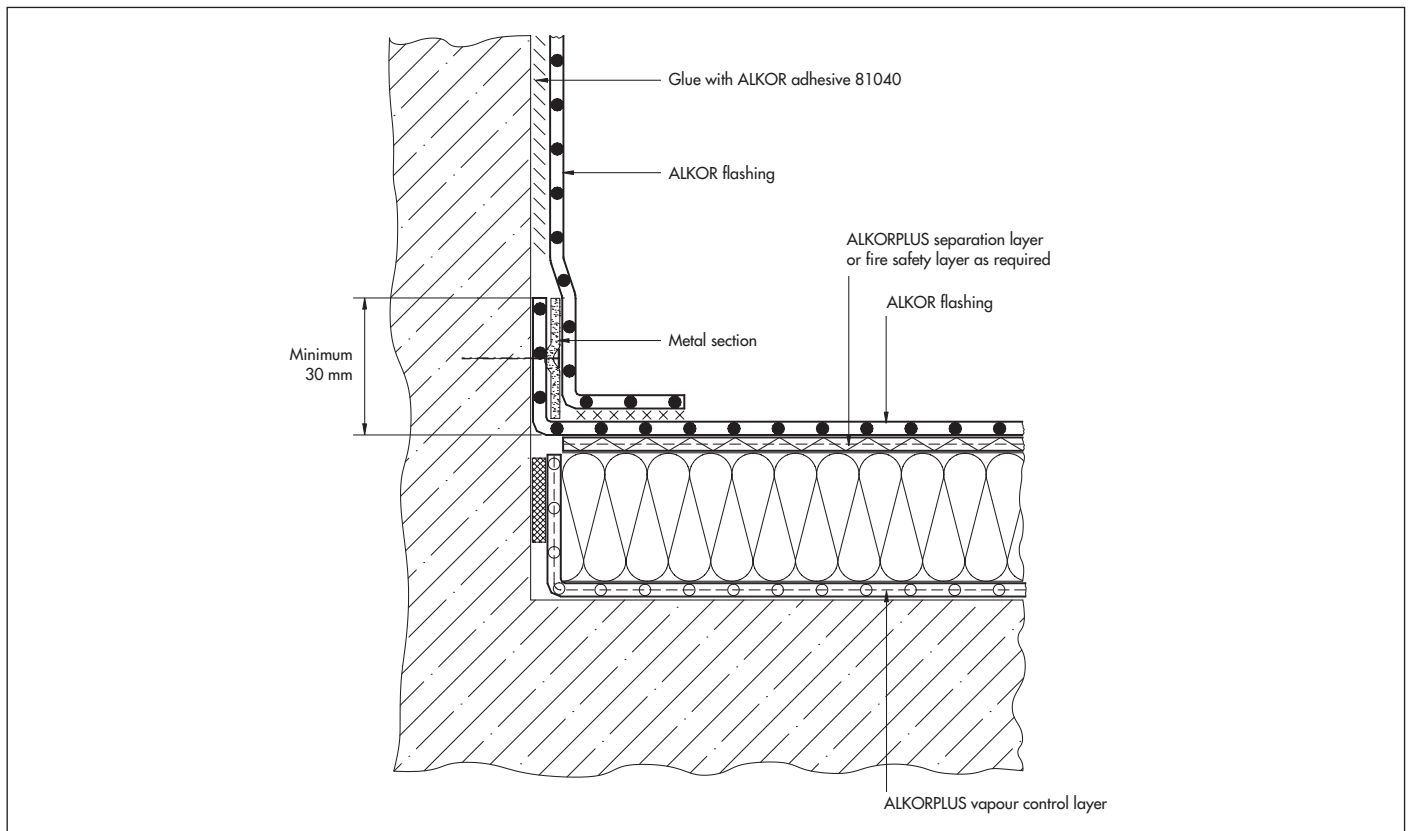
Roof edge seal with roof edge section



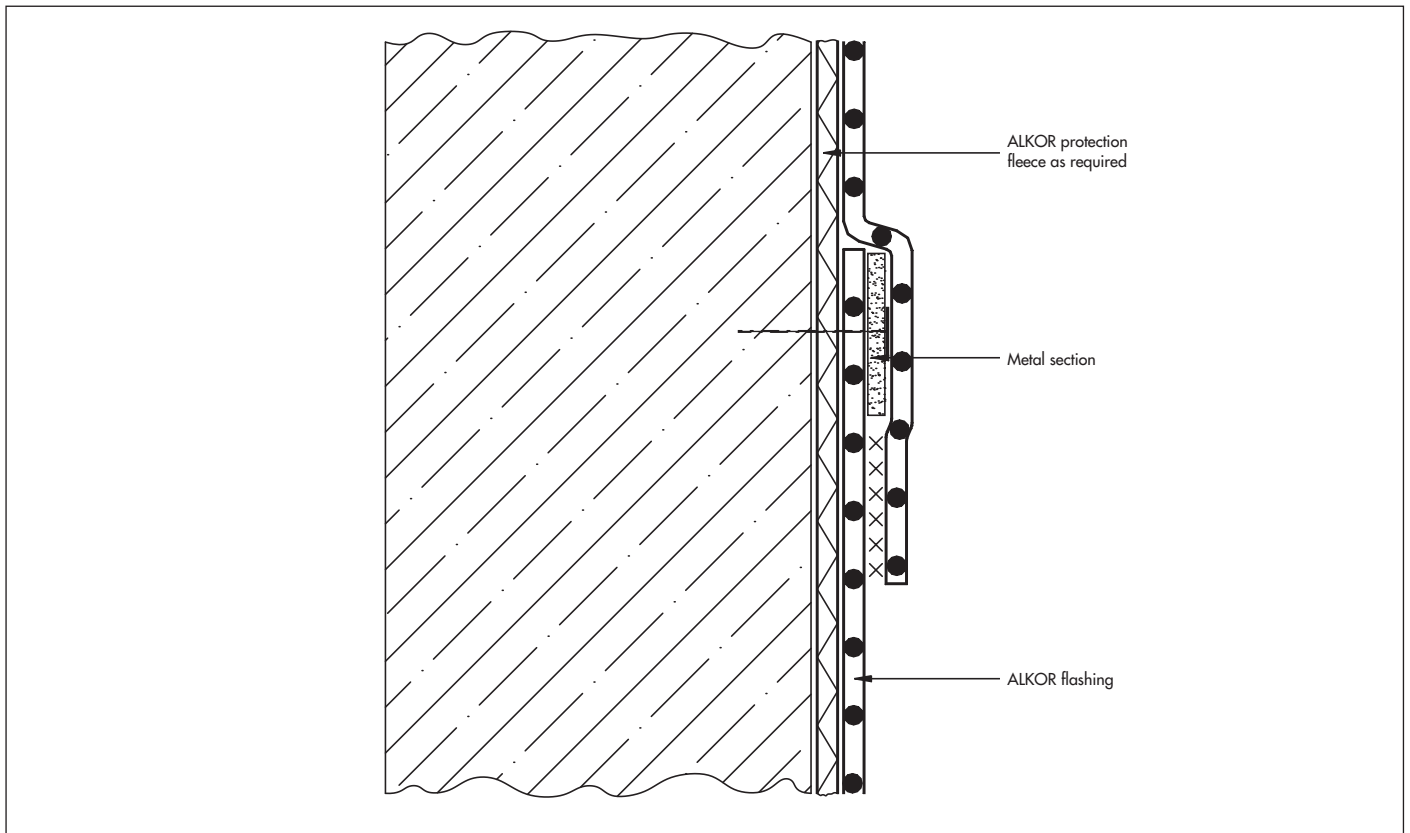
Valley formation without edge fixing



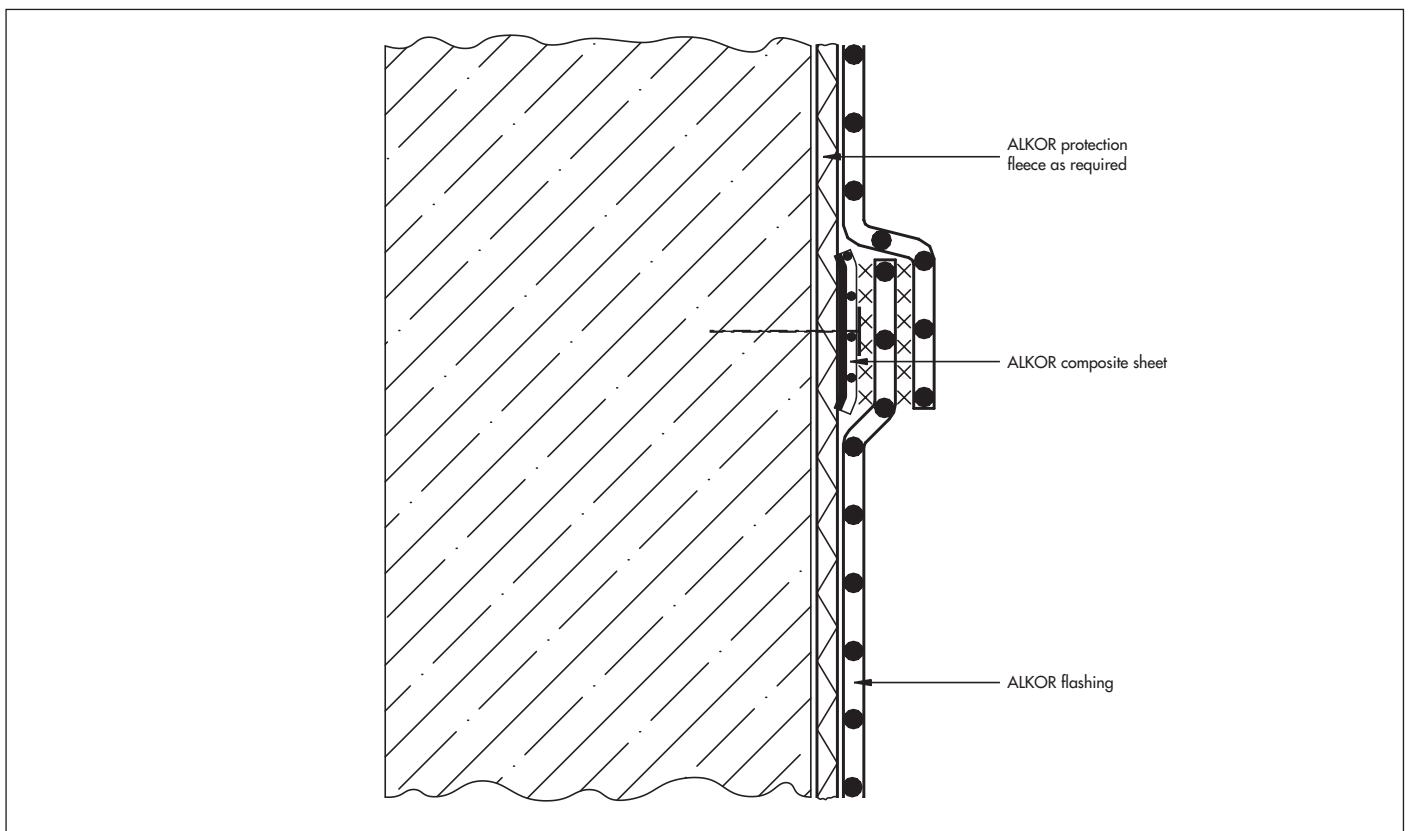
Edge fixing with ALKOR composite sheet



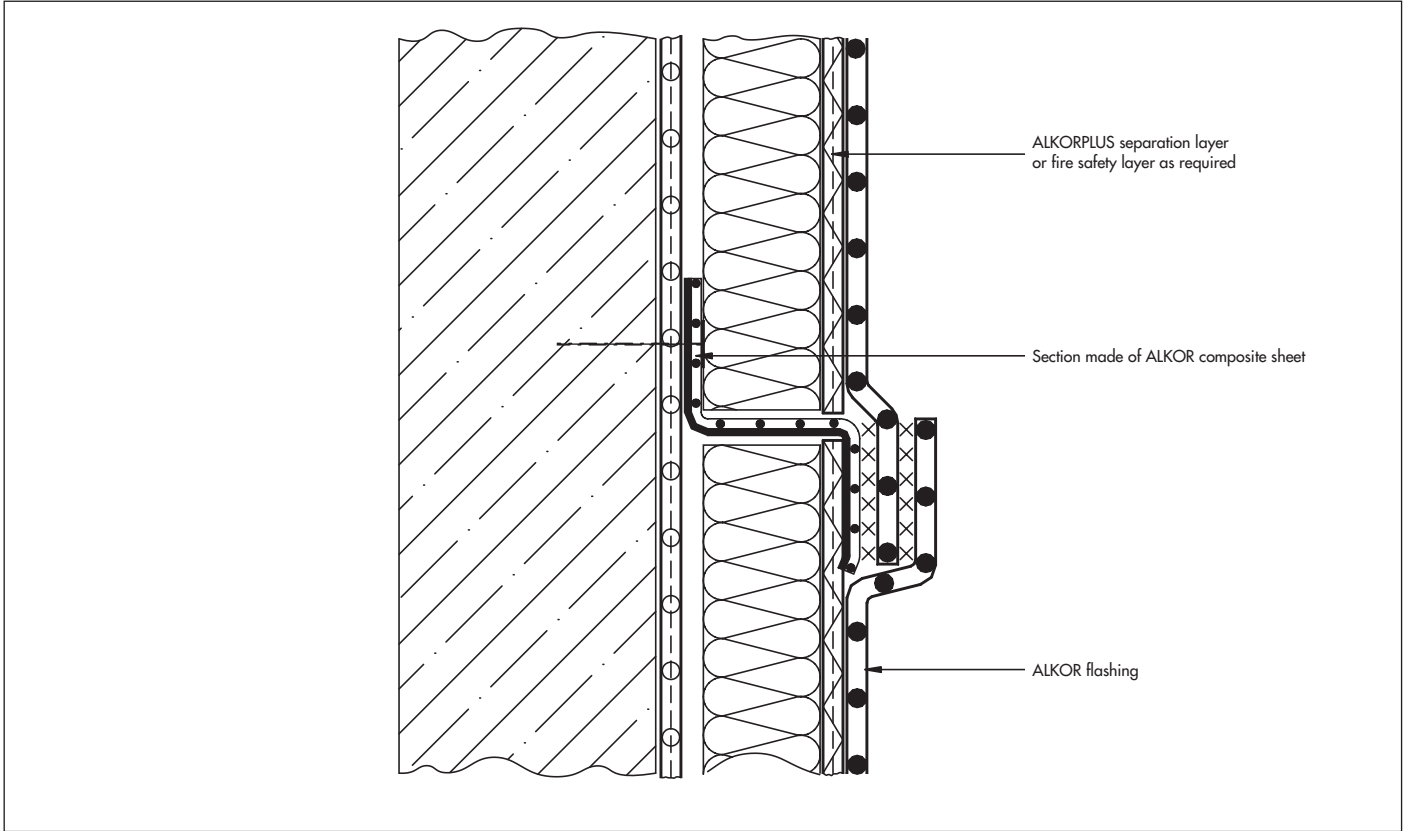
Edge fixing with metal section and adhesive



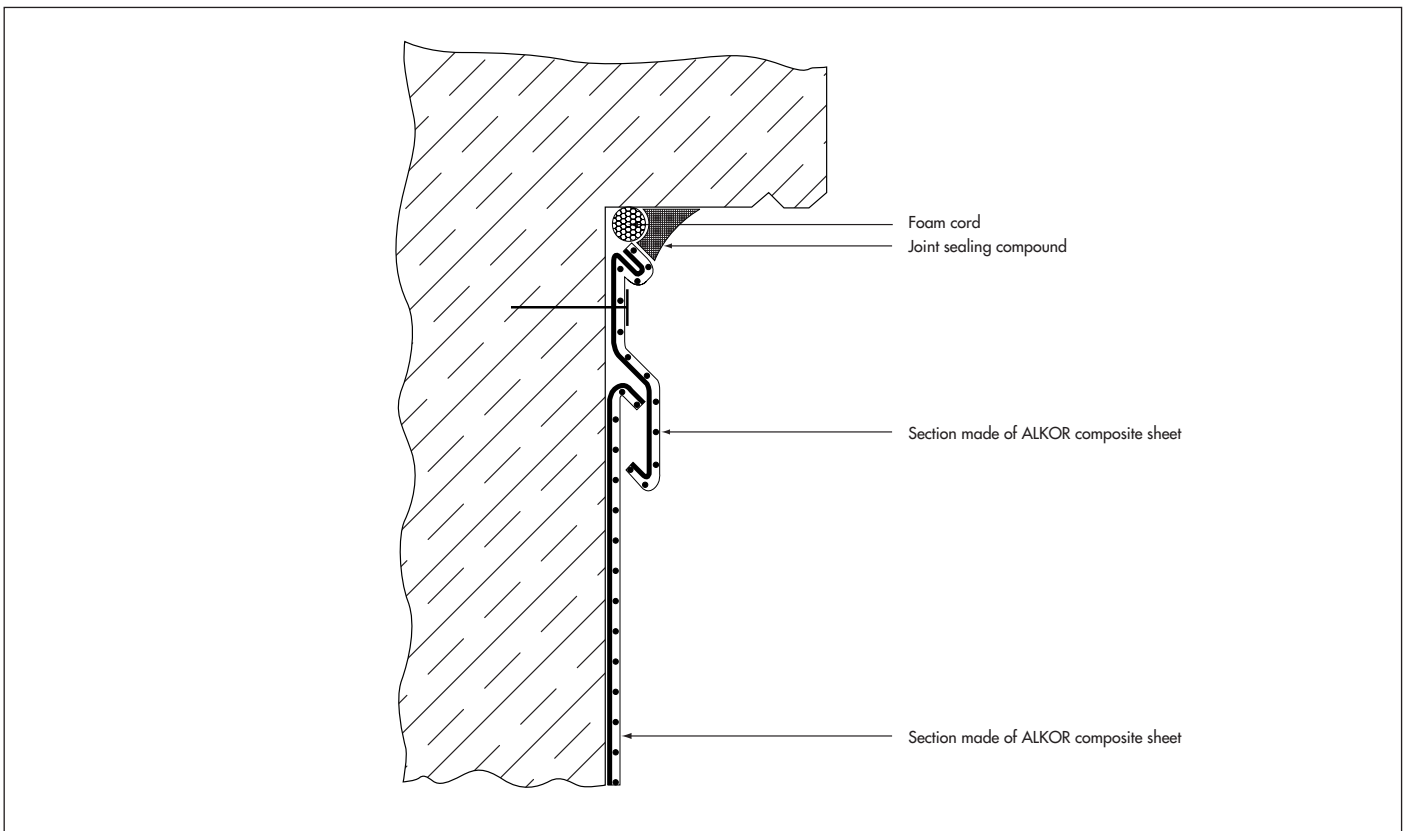
Intermediate fixing with metal section



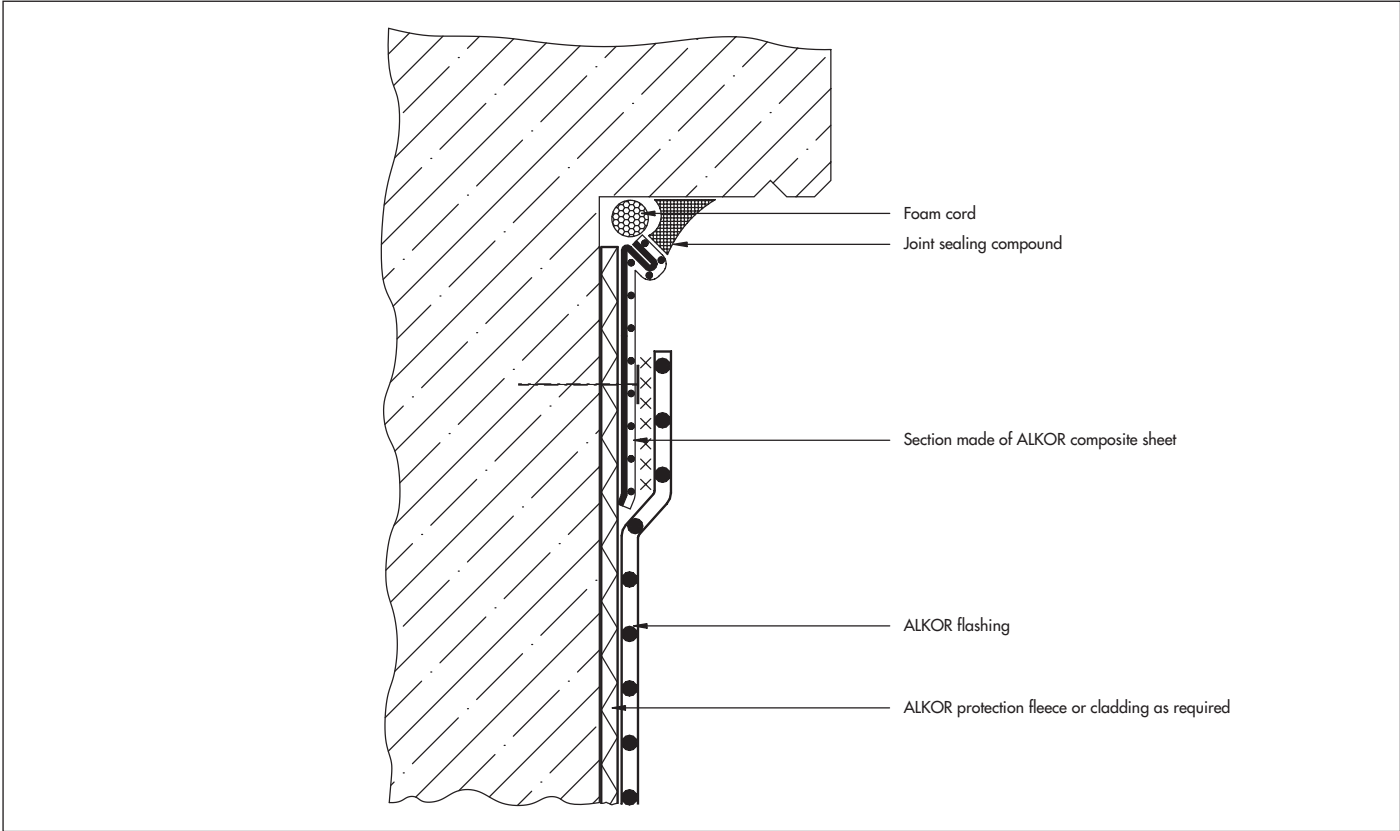
Intermediate fixing with ALKOR composite sheet strips



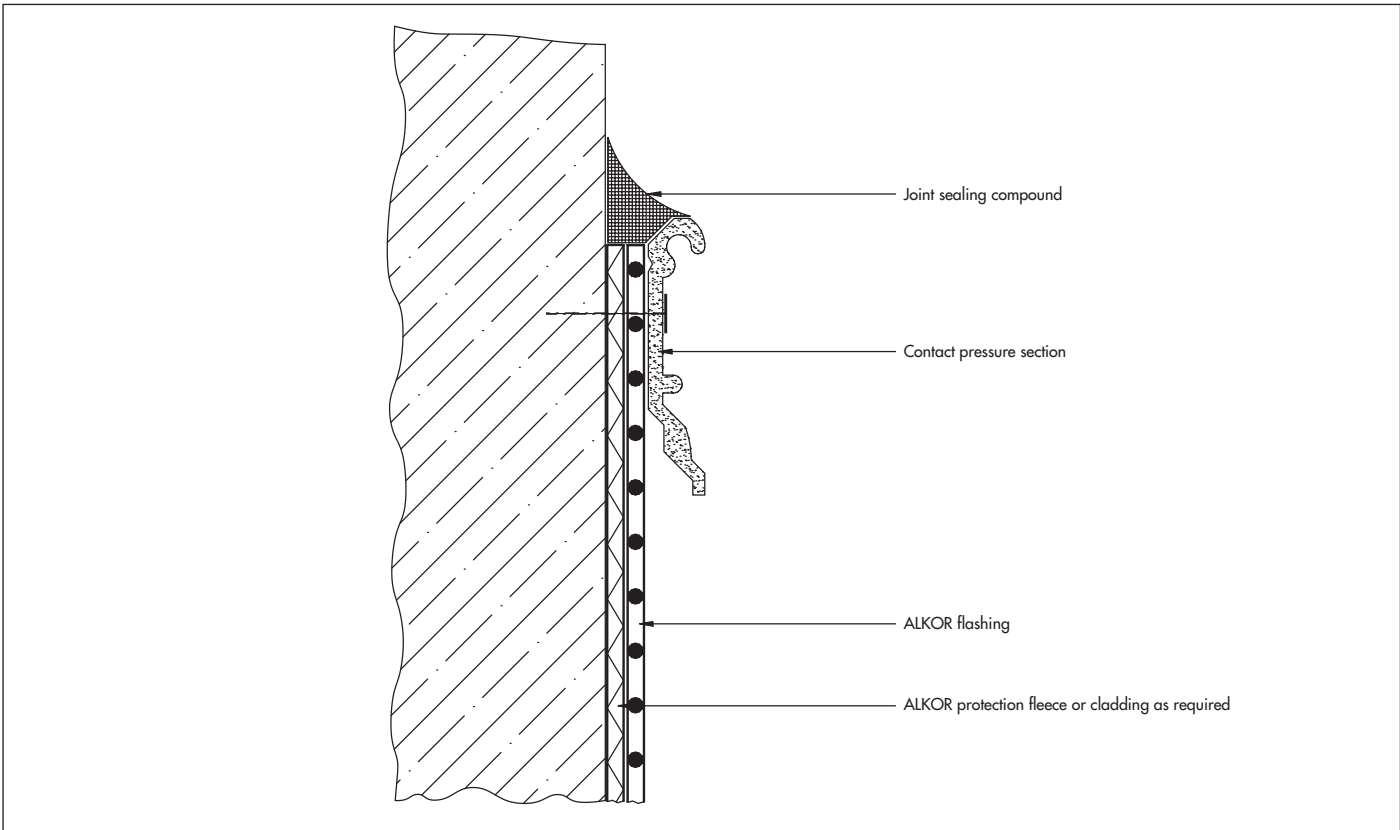
Intermediate fixing with ALKOR composite sheet section on heat insulation



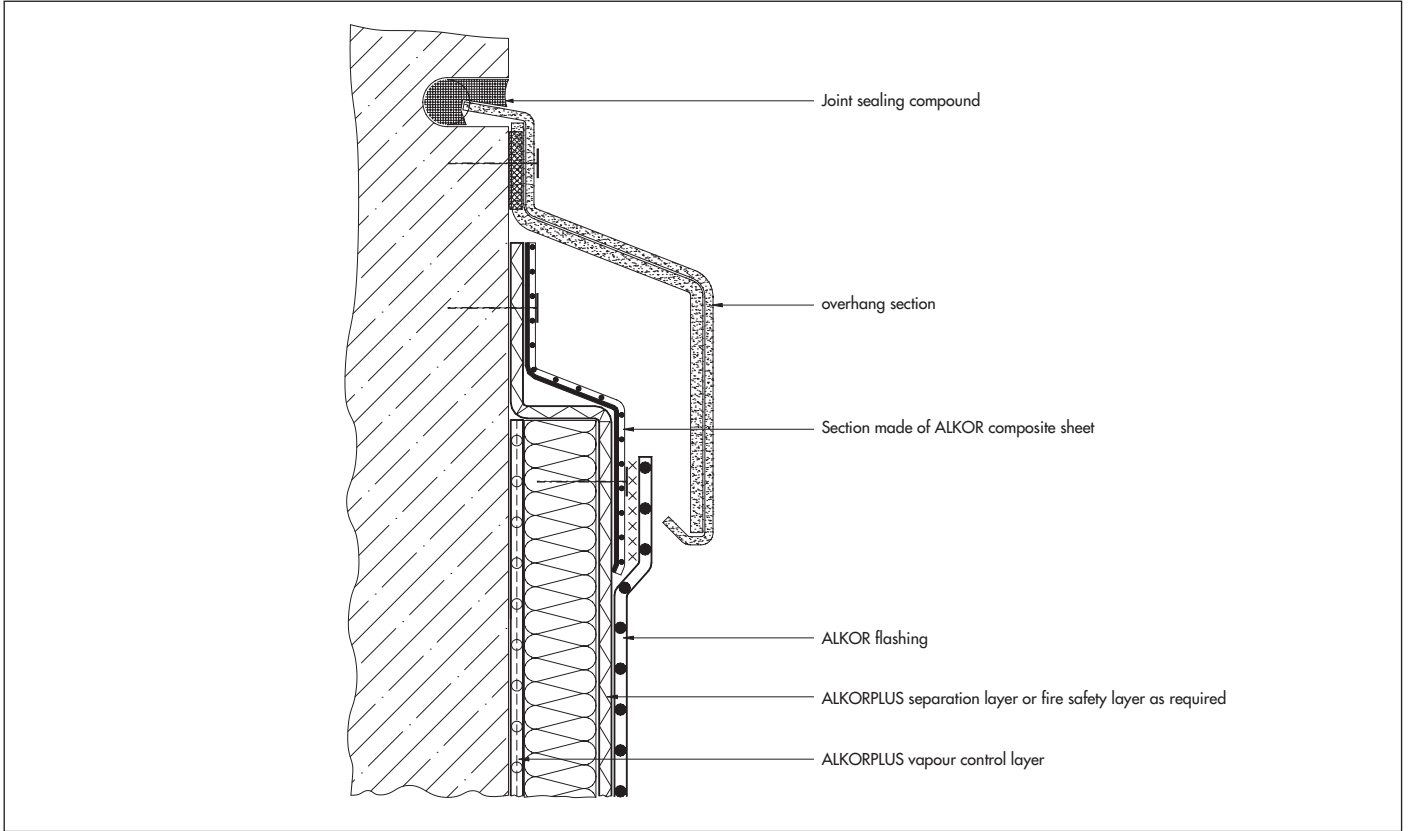
Moving wall connection with ALKOR composite sheet



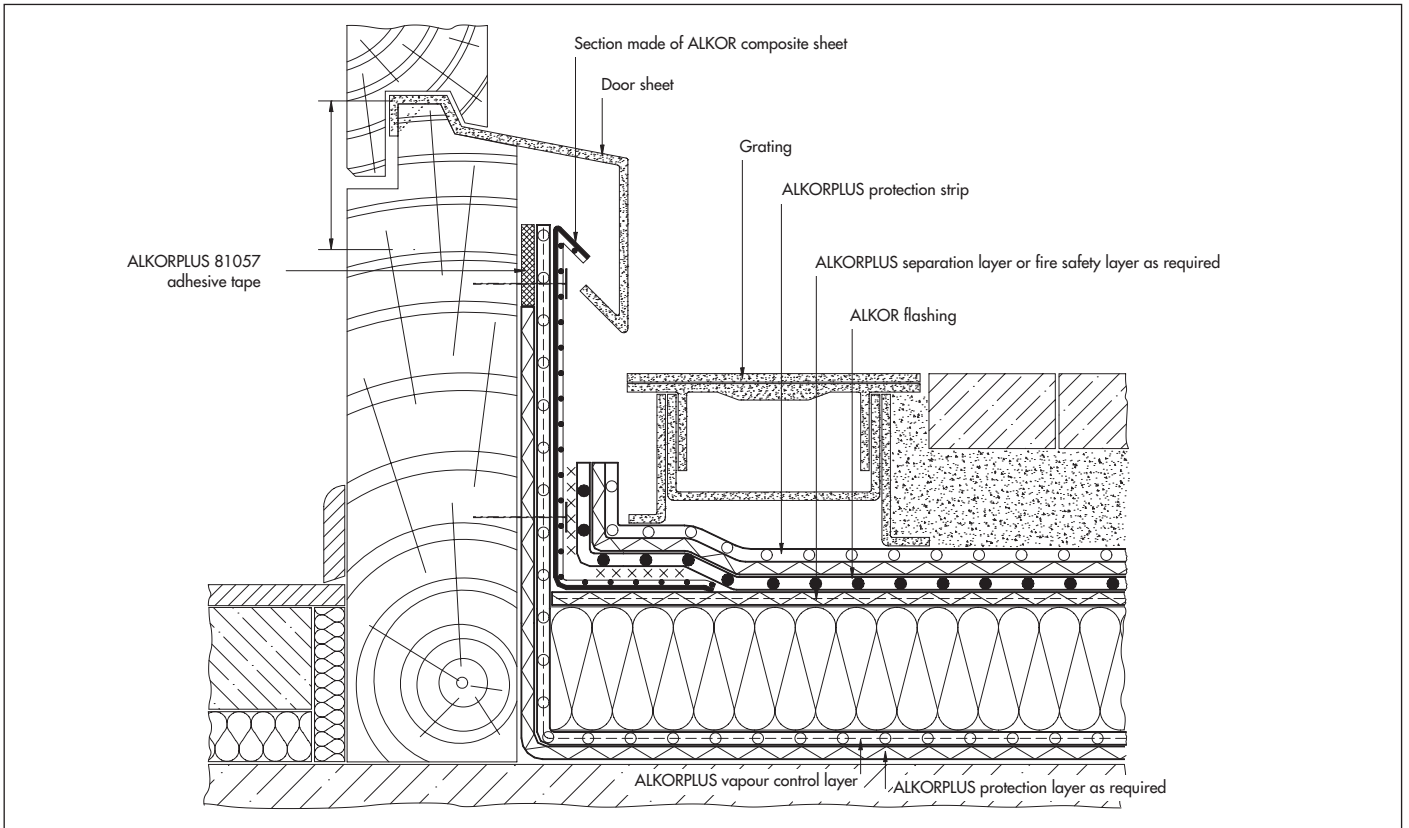
Wall connection with ALKOR composite sheet and ALKOR flashing



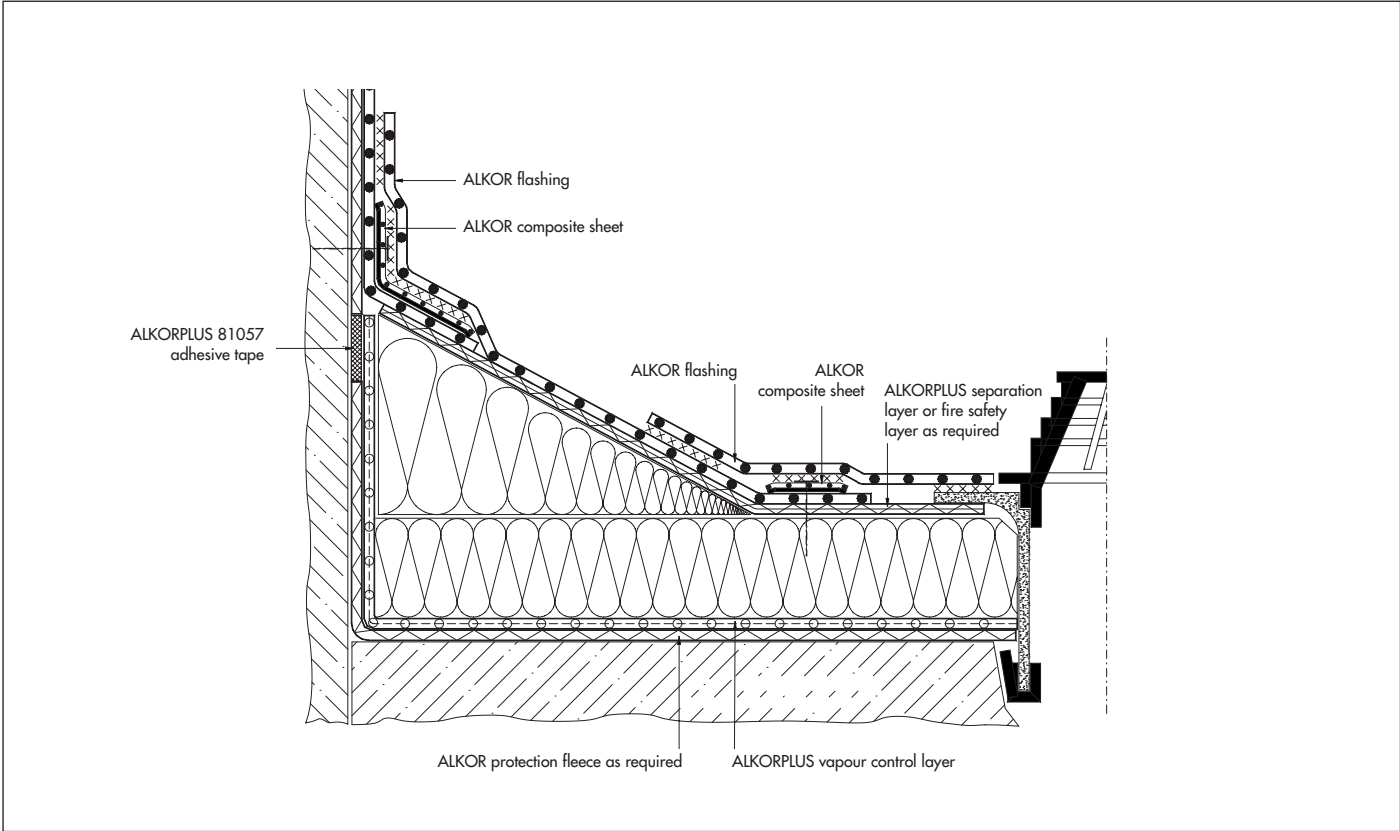
Wall connection with contact pressure section



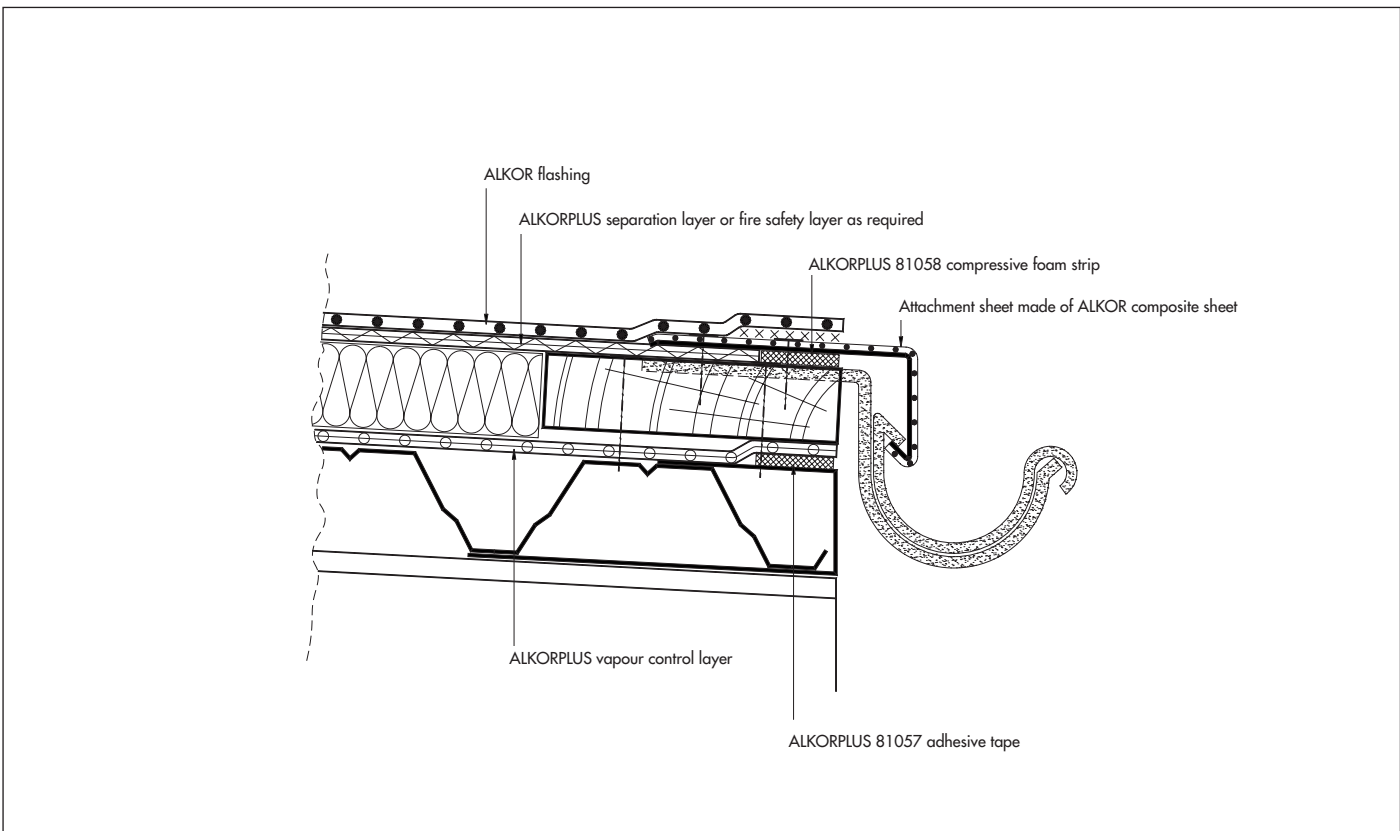
Wall connection with ALKOR composite sheet and overhang section



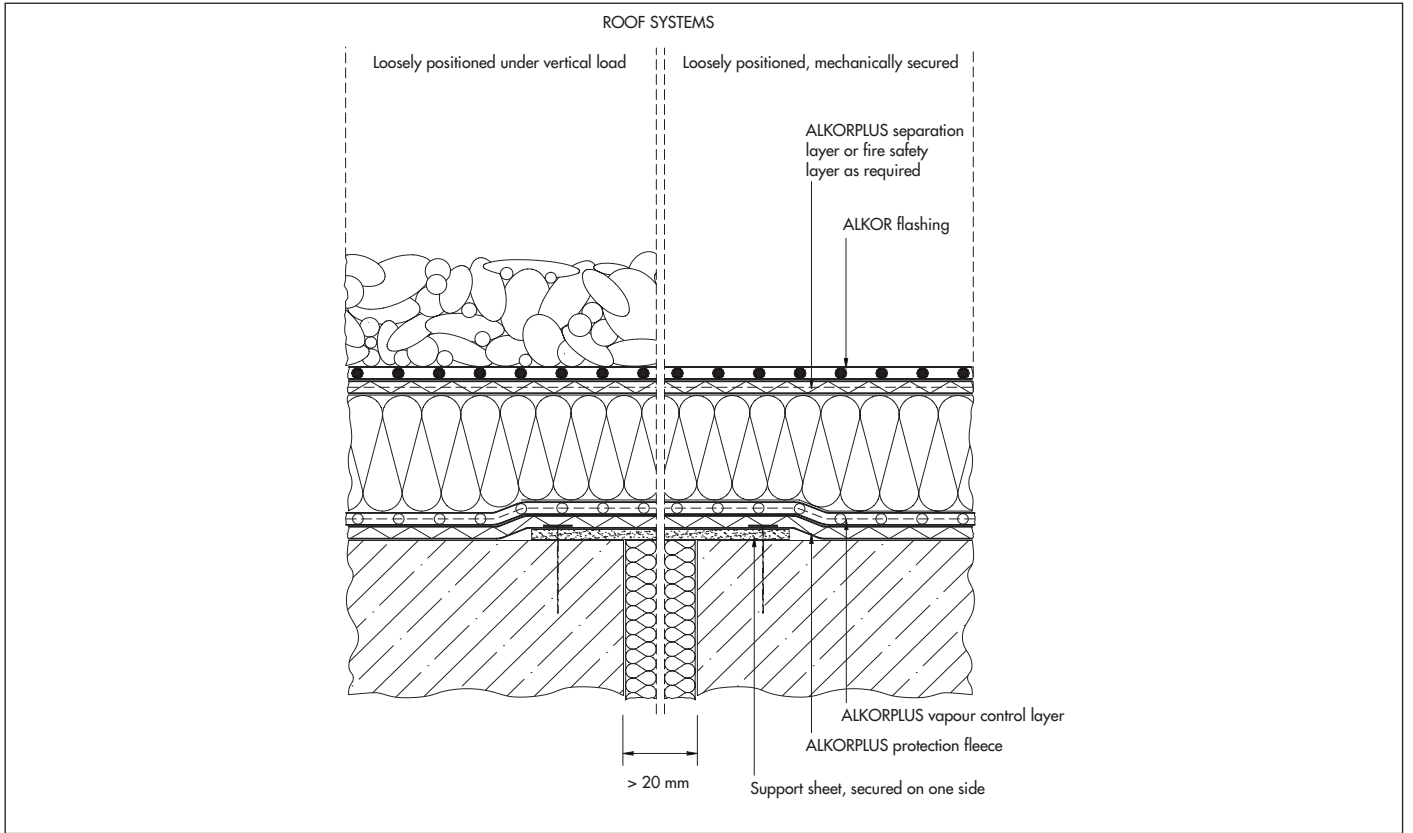
Terrace door connection



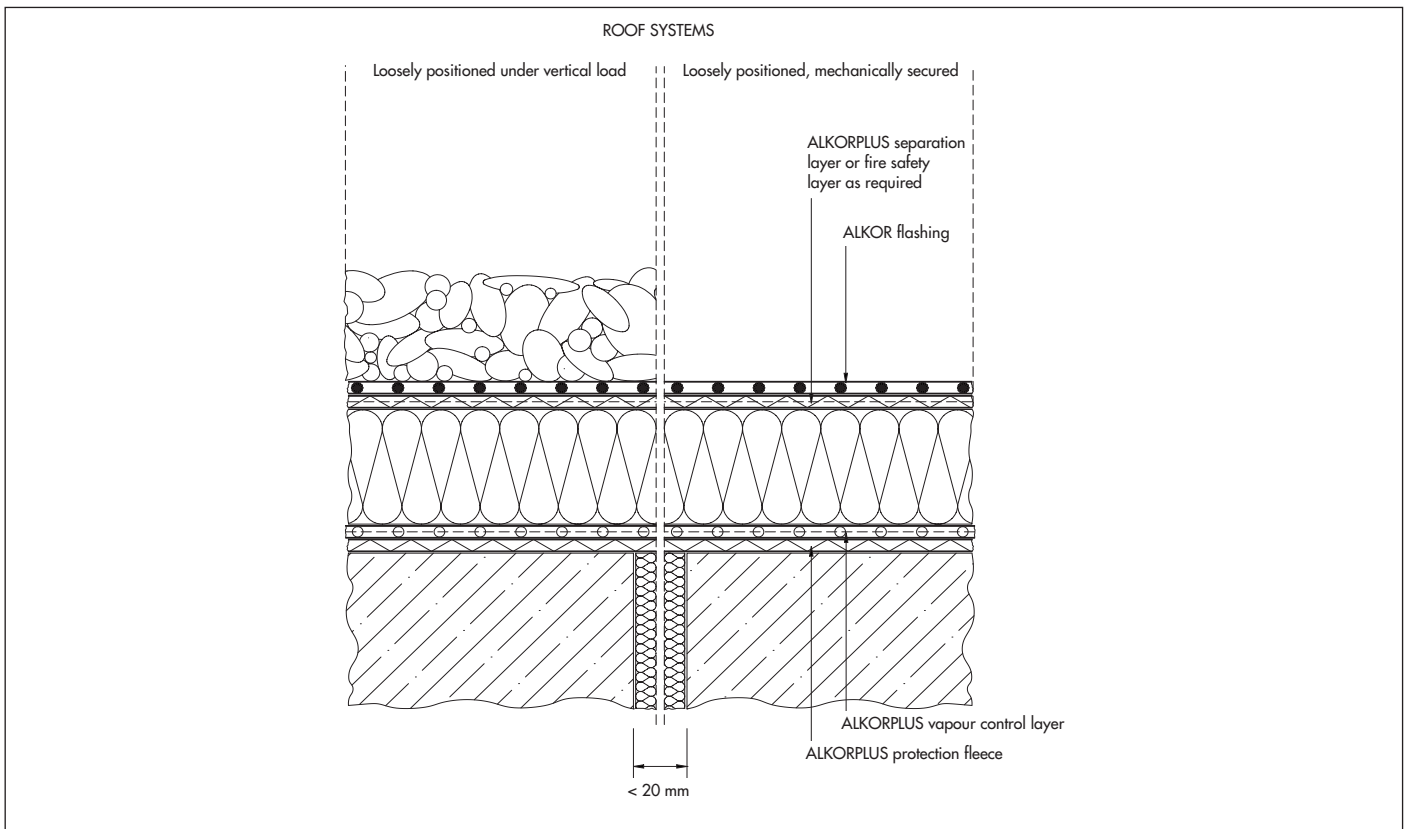
Roof edge connection with counter gradient and drainage



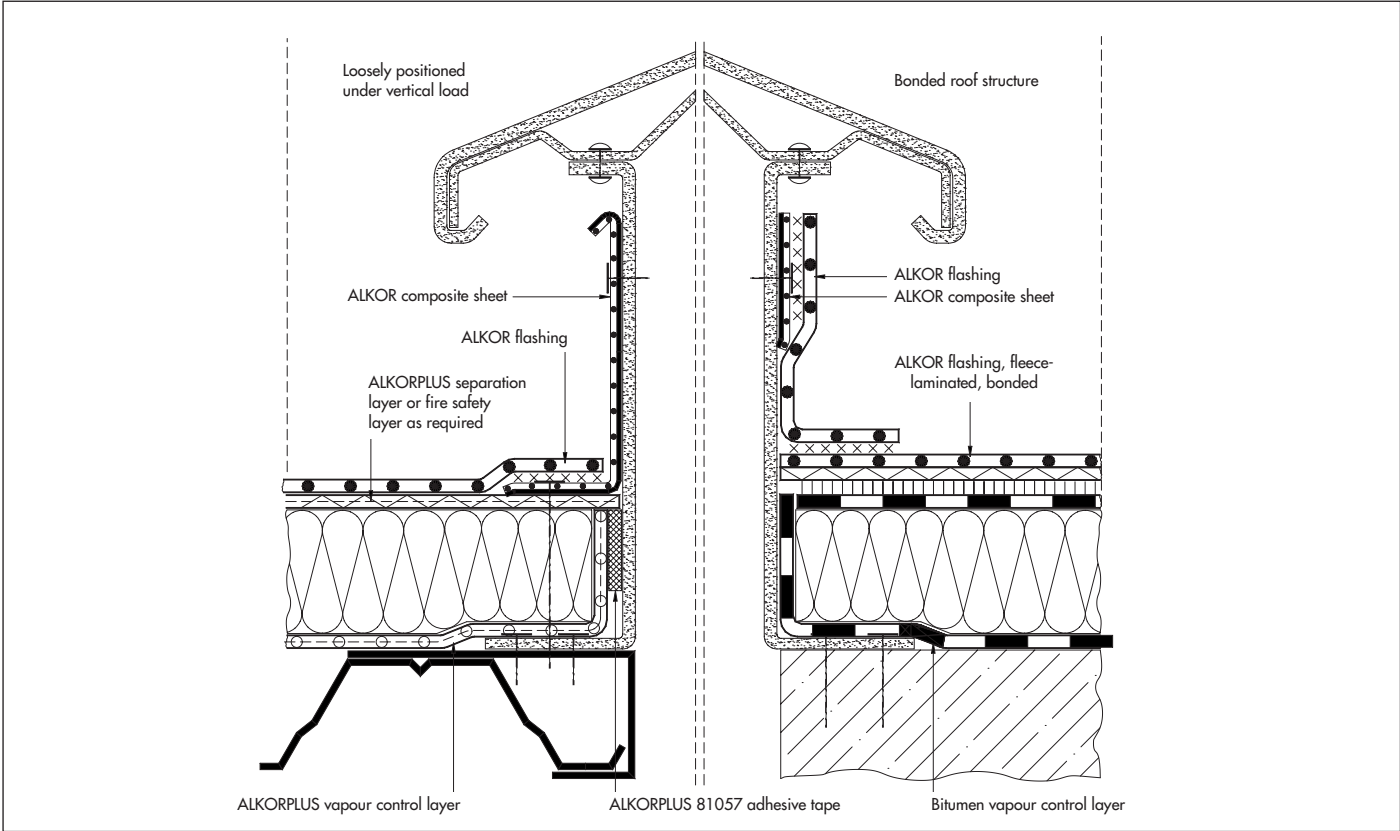
Roof edge seal with attached gutter



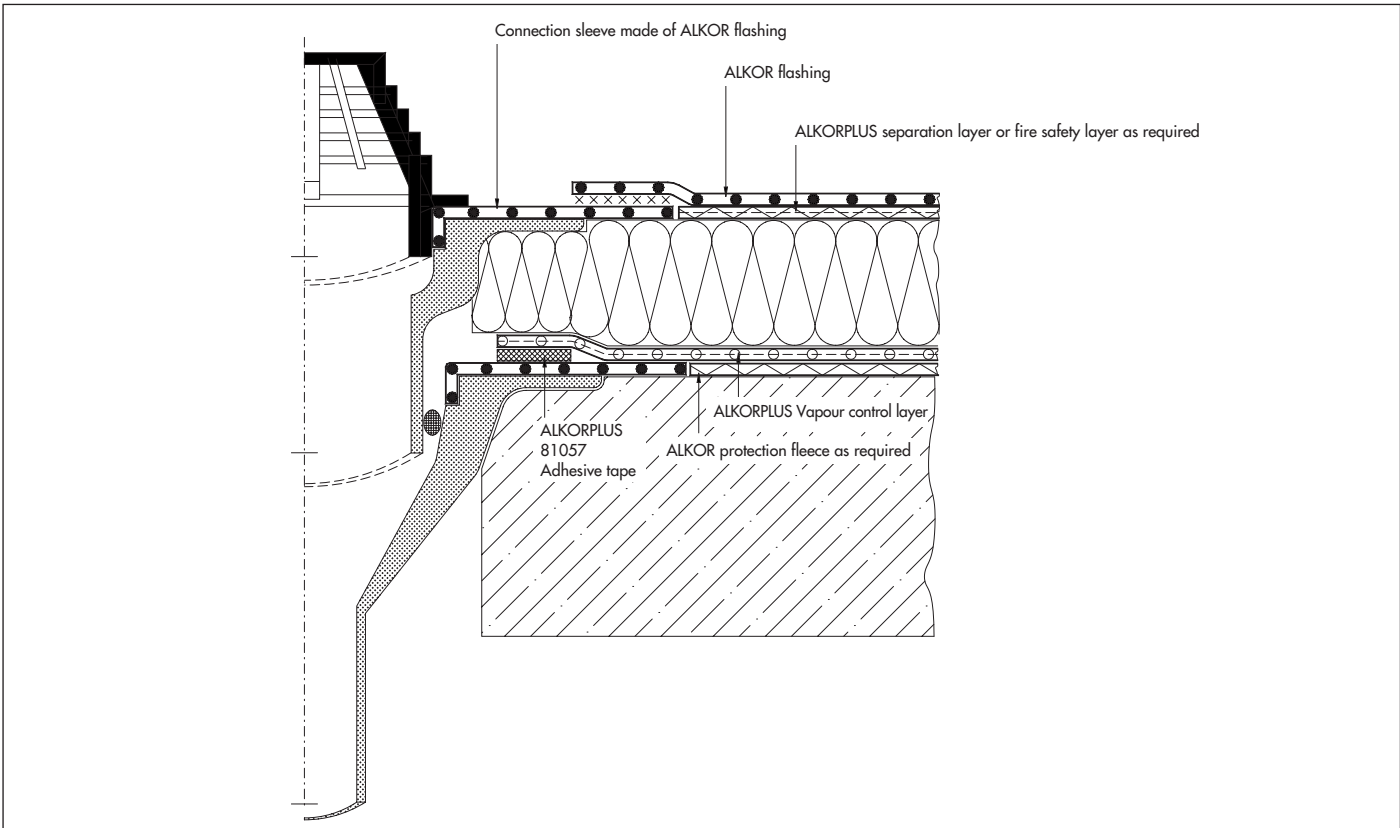
Movement joint, joint cavity > 20mm



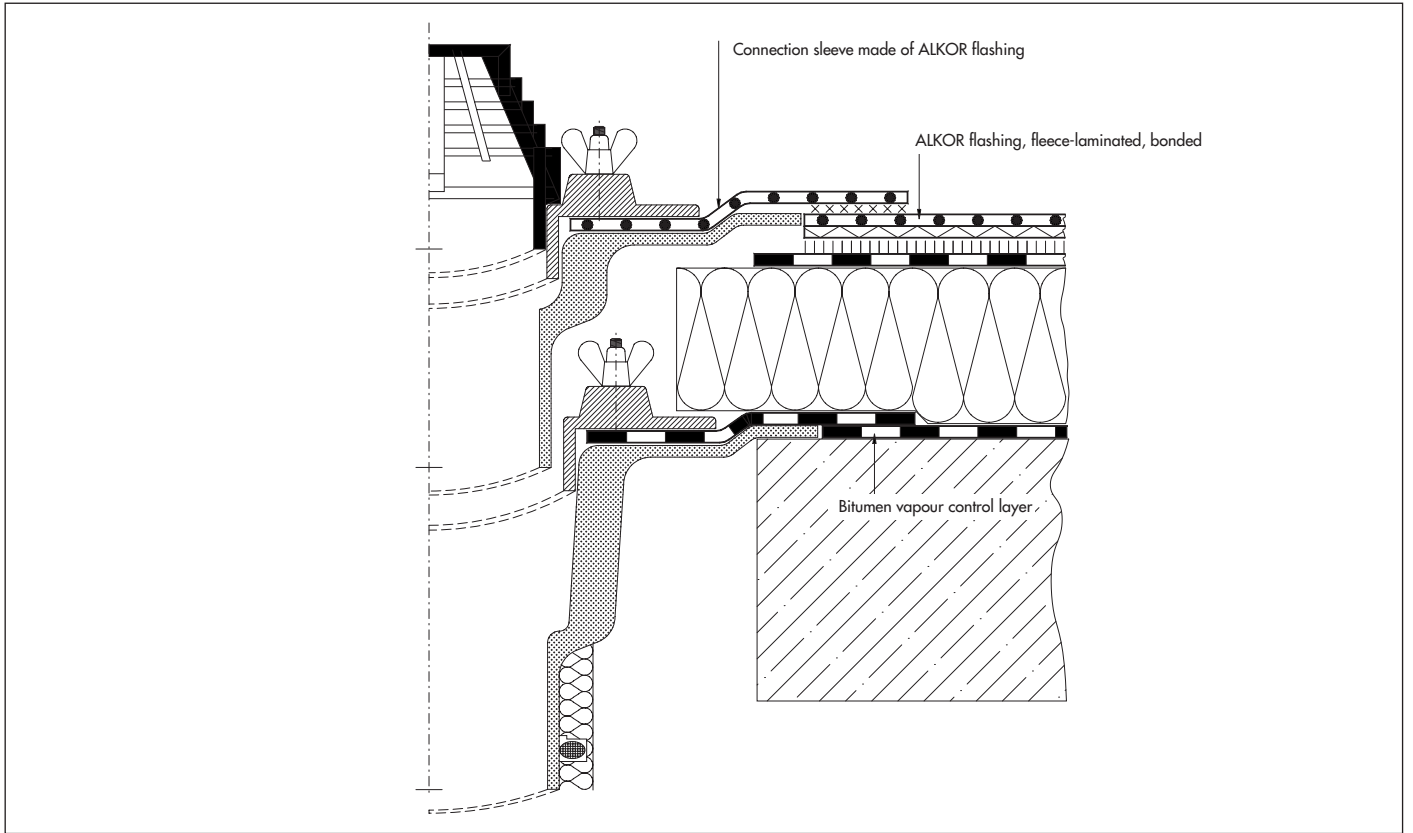
Movement joint, joint cavity < 20mm



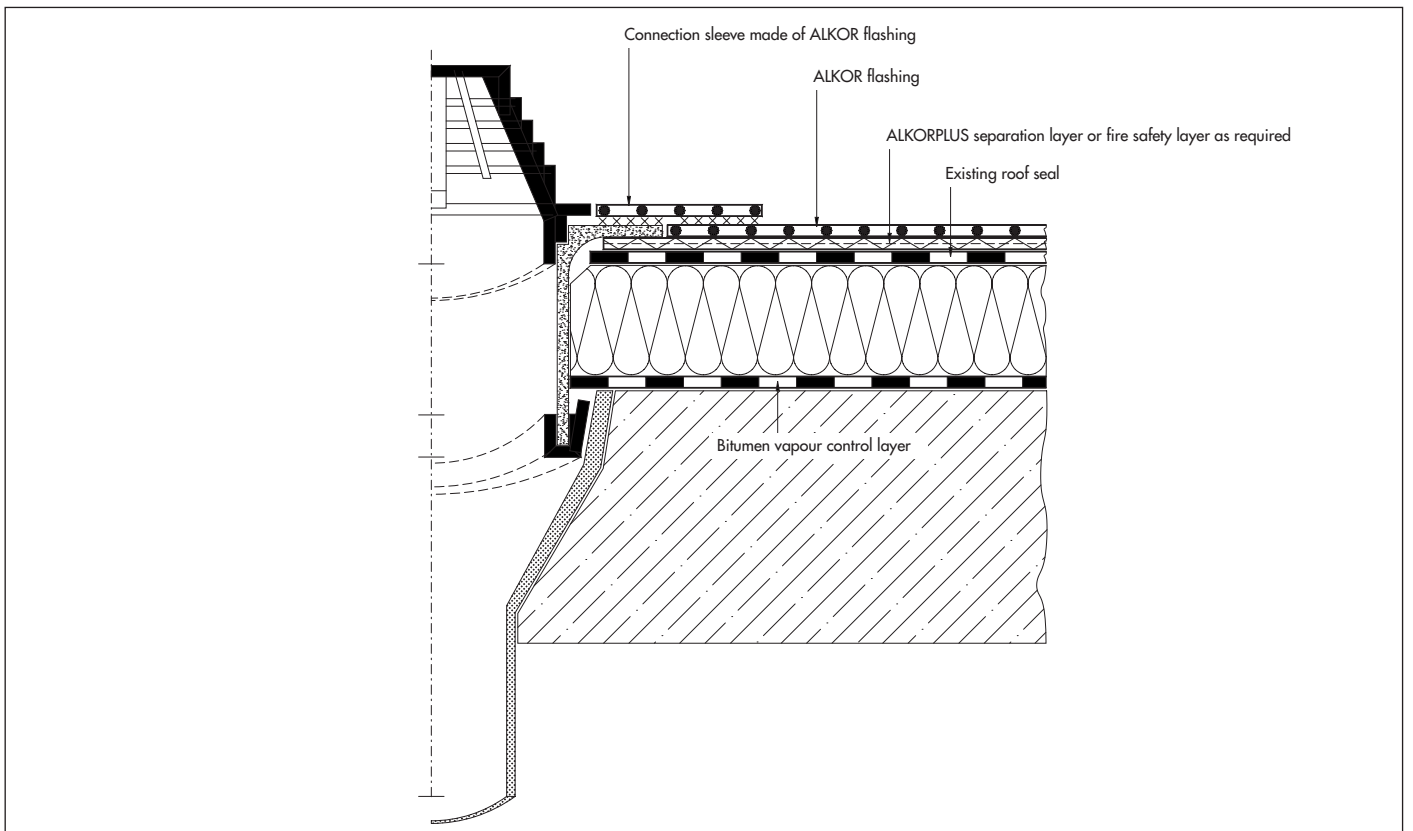
Movement joint with auxiliary construction



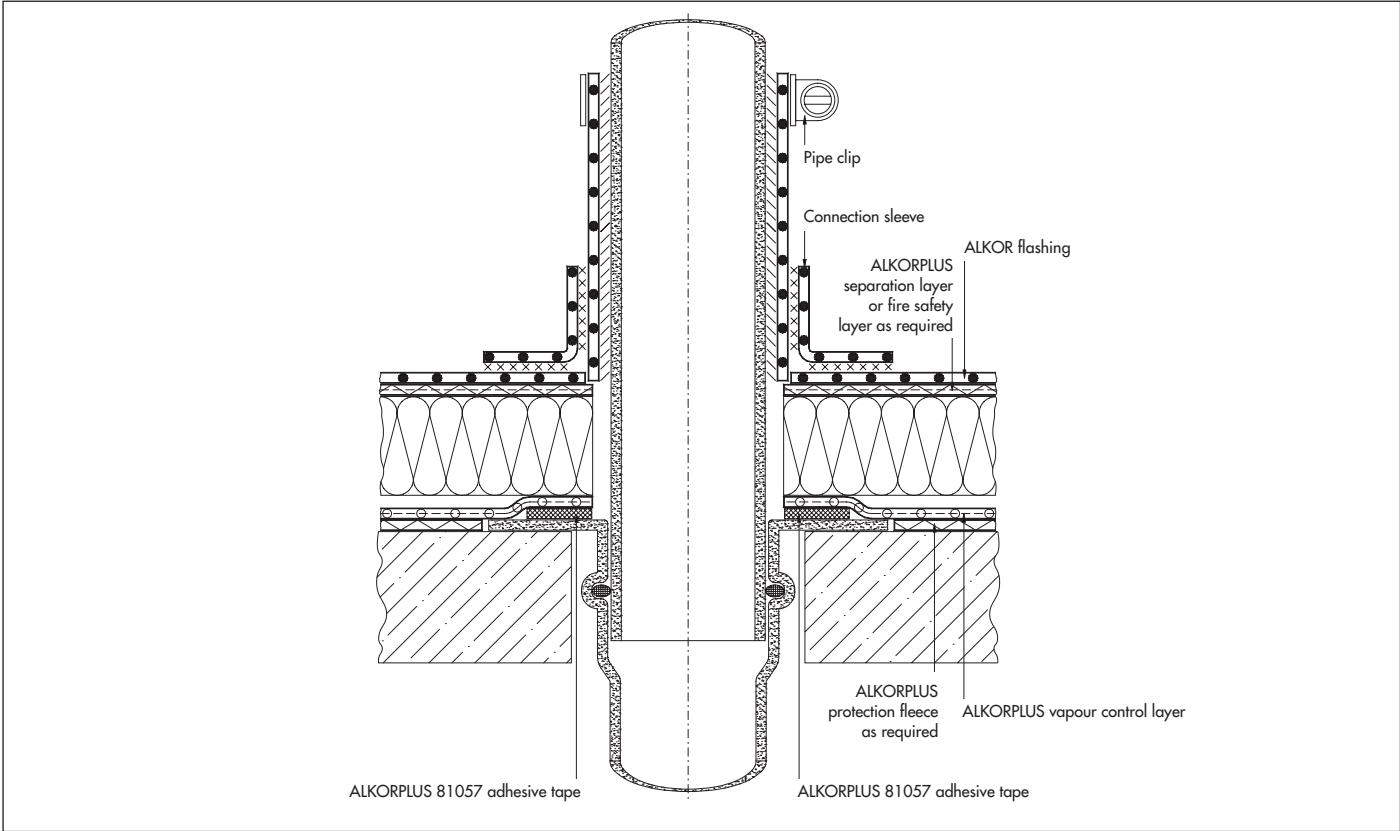
Connection to gutter with foamed sleeve



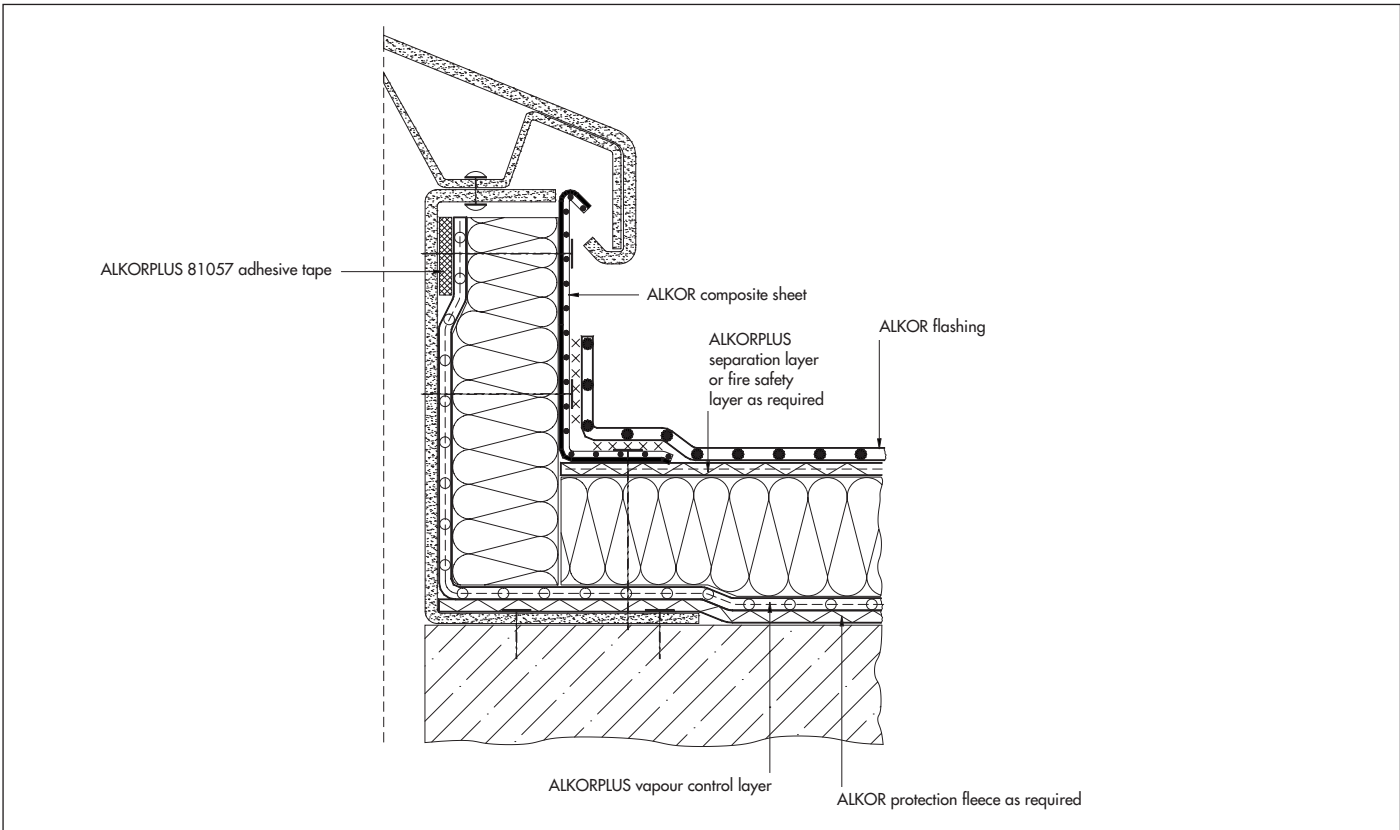
Connection to gutter with screw flanged



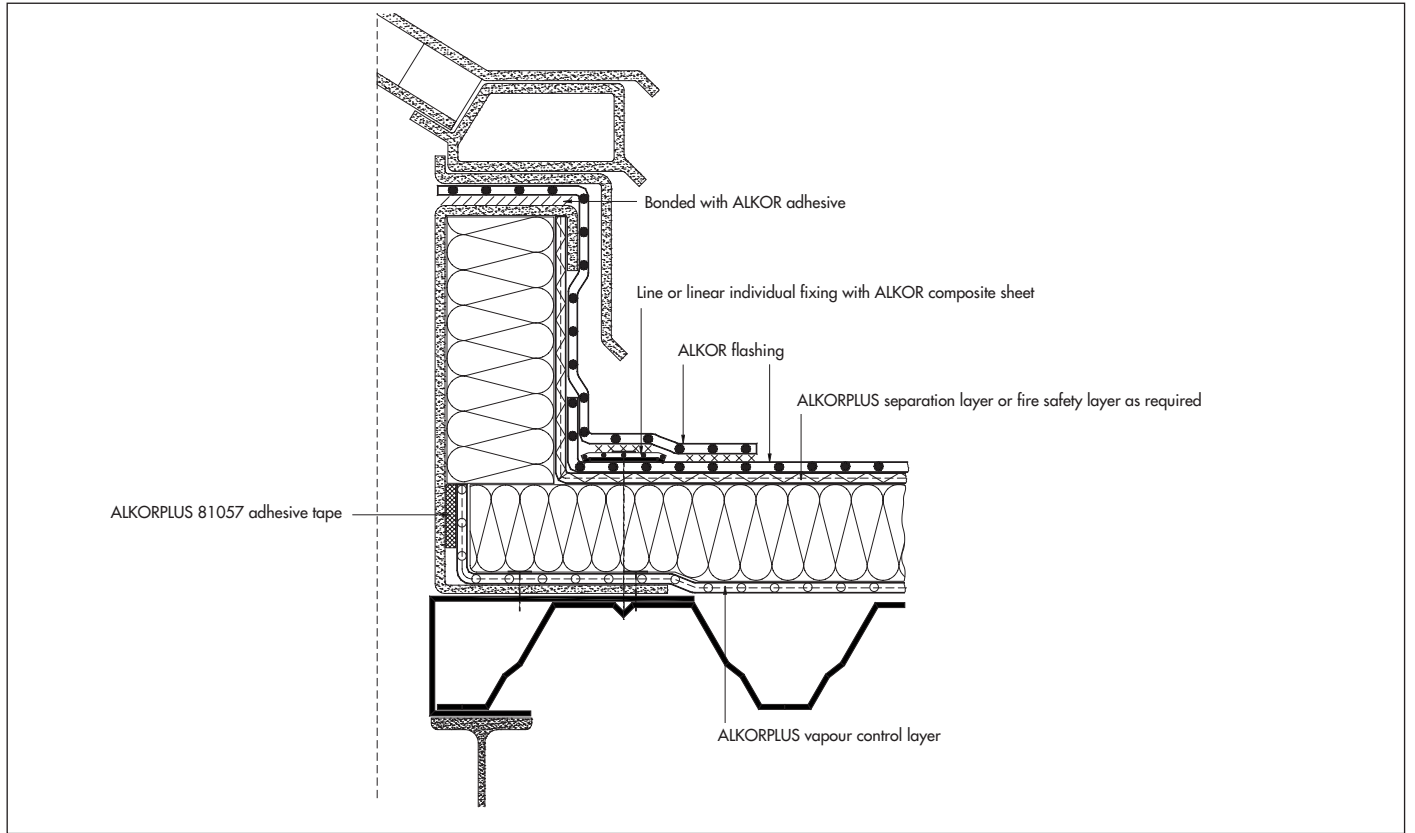
Connection to renovation gutter made of rigid PVC



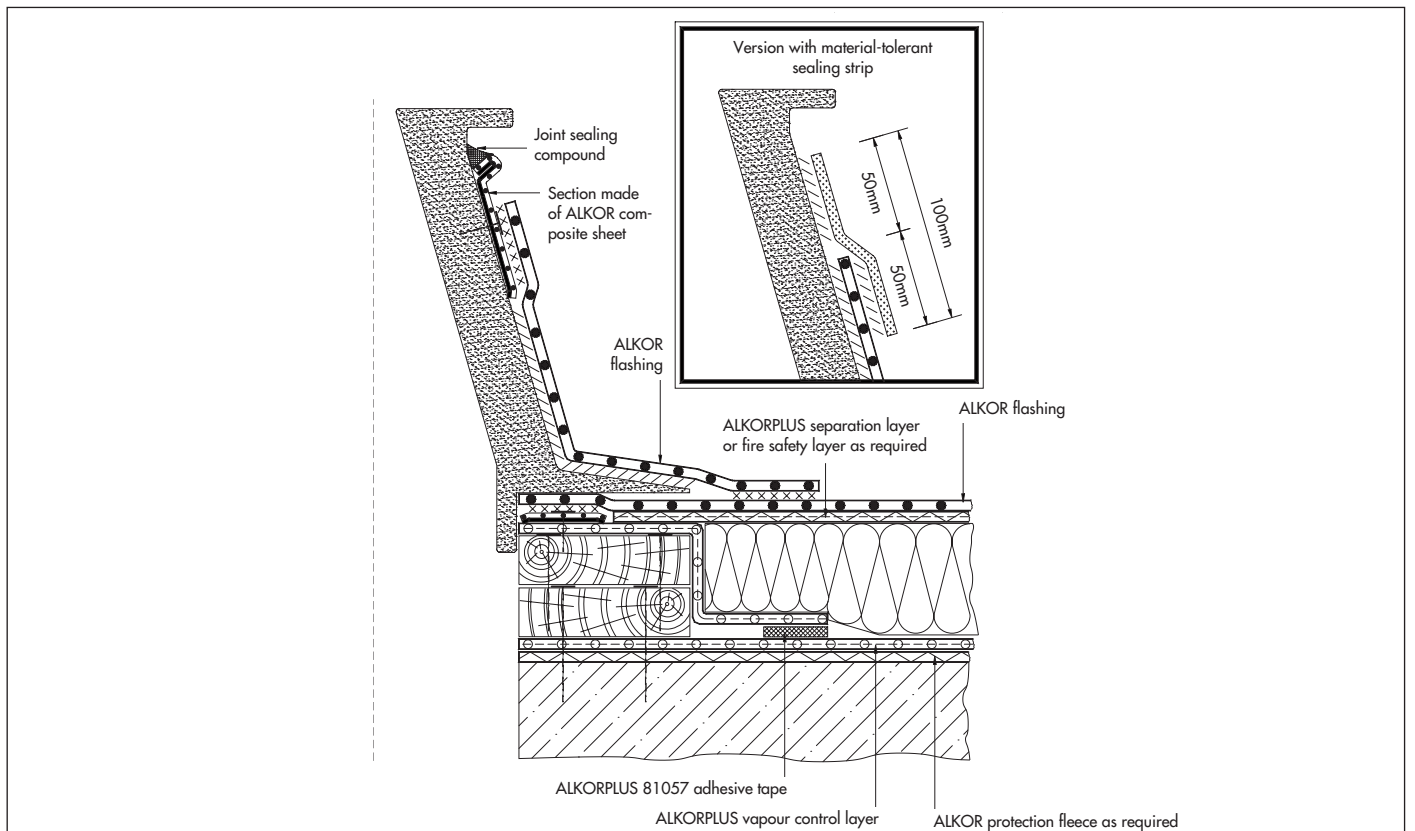
Connection to pipe passage



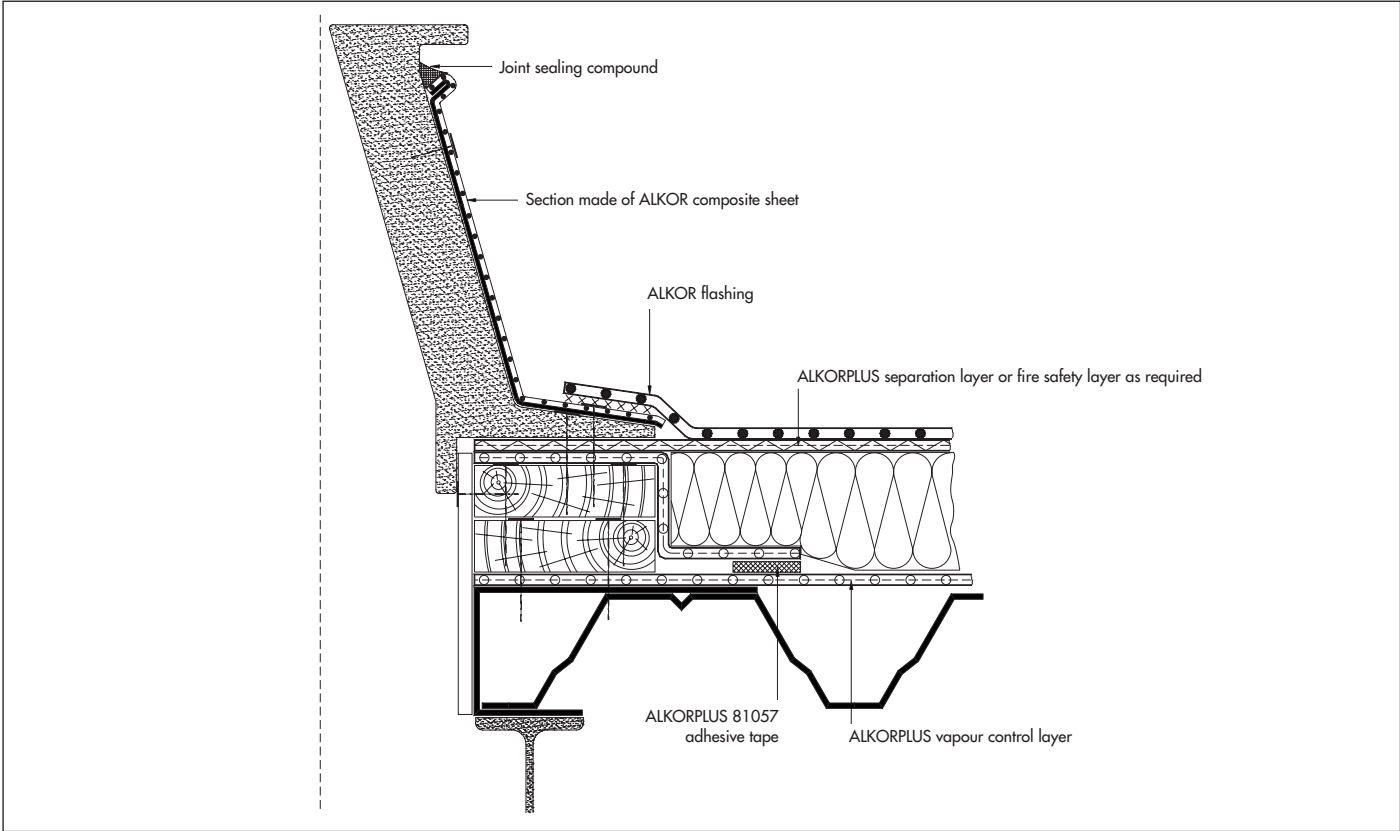
Connection to rooflight strip 1



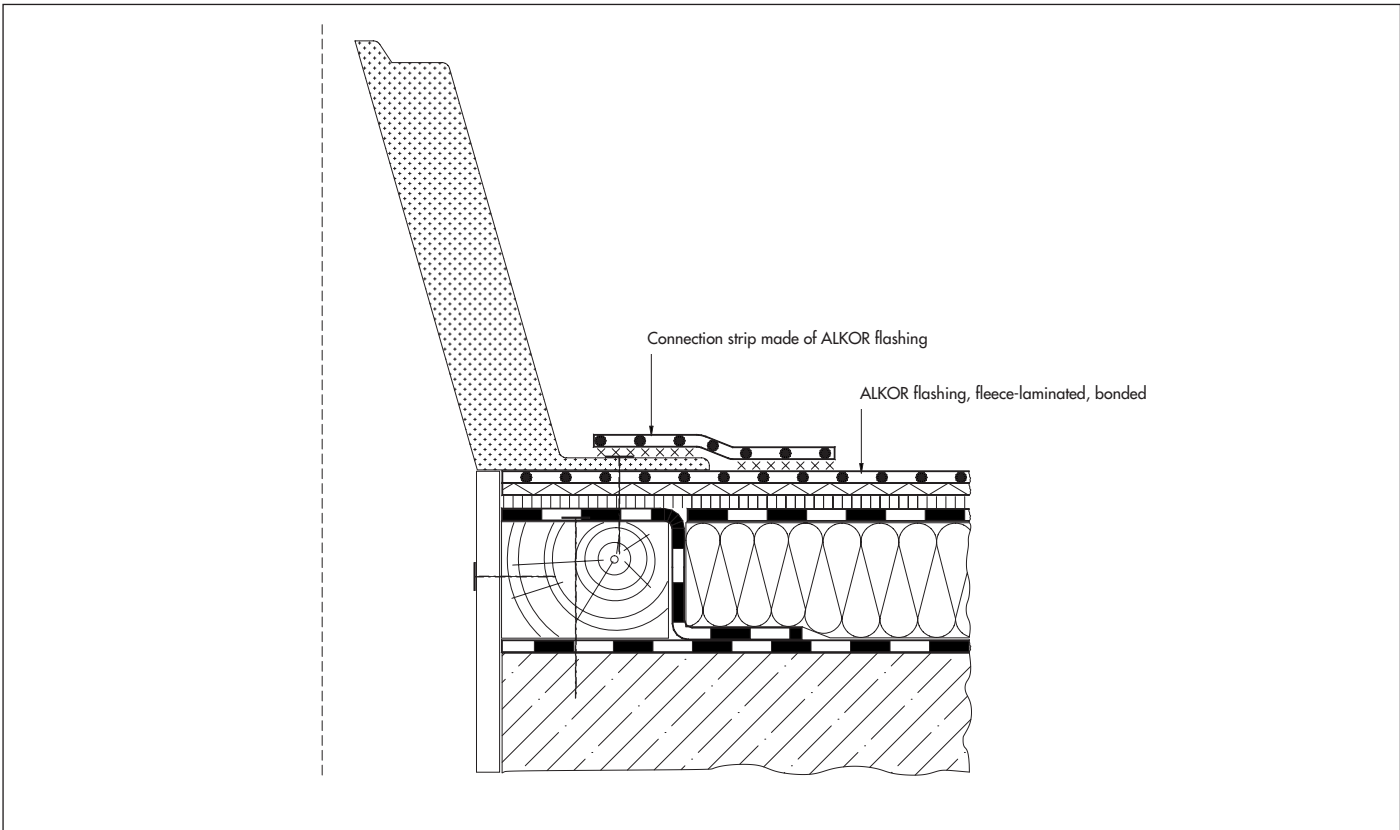
Connection to rooflight strip 2



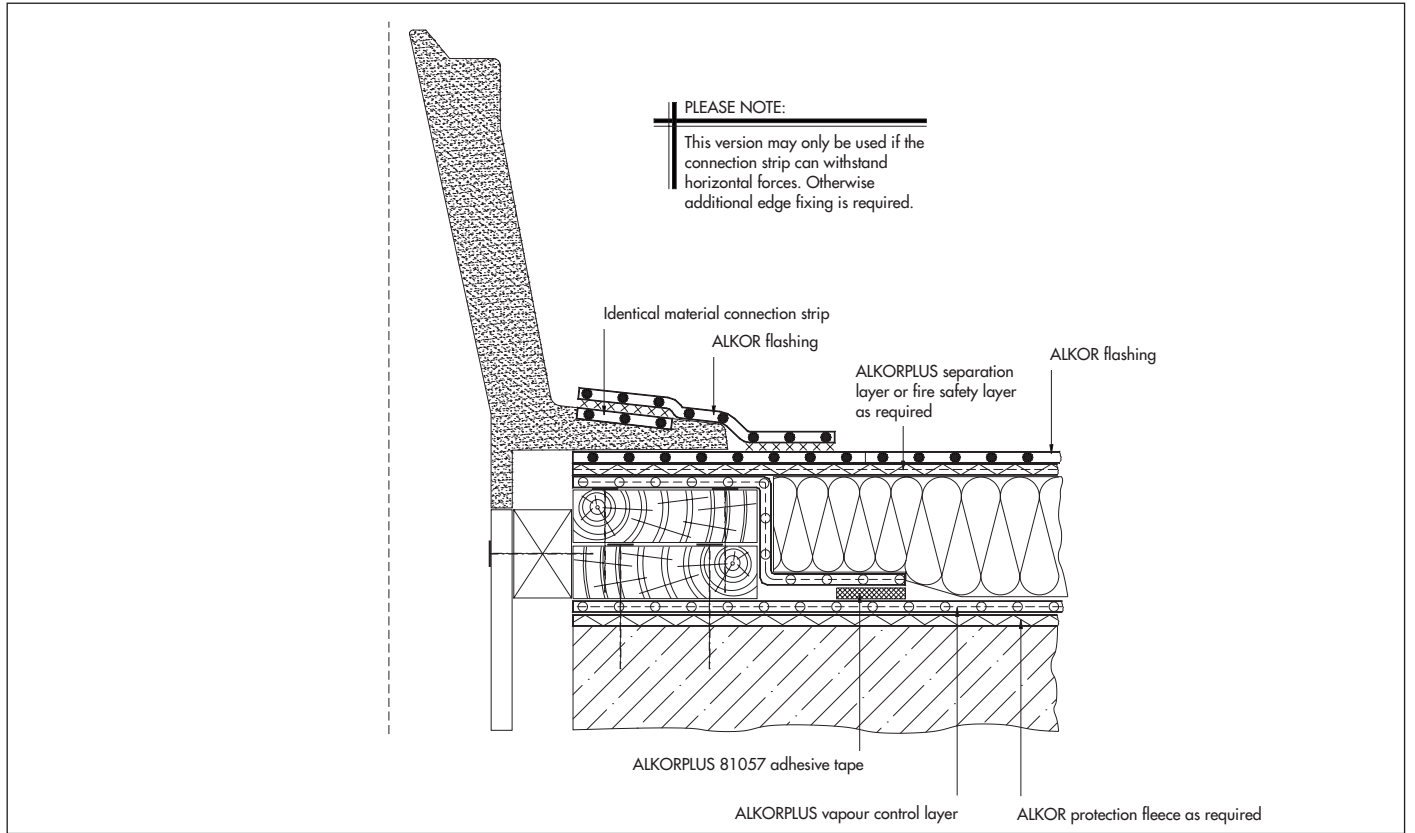
Connection to rooflight using ALKOR composite sheet 1



Connection to rooflight using ALKOR composite sheet 2



Connection to rooflight made of rigid PVC



Skylight connection with identical material connection strip

Roof maintenance

The composition of the membranes to be employed (ALKORPLAN[®]) precludes the need for maintenance of the membranes or associated components.

Once Every Six Months

However BS6229: 1982 recommends that all flat roofs be inspected annually, it also states that in areas of high dust or pollution, inspections should be carried out more frequently. This ensures that dirt or debris is removed before causing damage and that signs of failure can be reported and remedial action taken at an early stage. Ideally flat roofs should be inspected once every six months, in the spring and Autumn. These inspections involve a routine look at the roof structure and its ancillary services.

In spring it is important to check that the gutters and outlets are not blocked by fallen leaves which may cause water to pond.

Once A Year

Each year it is essential that a more detailed study of the flat roof is carried out to identify any potential problems and renew damaged components.

Before any work is undertaken the original specifications should be consulted as the roof may be under guarantee. If there is a guarantee it is essential that remedial work is carried out by the original contractors to ensure that the guarantee is not invalidated.

As with the six monthly inspection, the roof must be checked for debris and gutters and outlets cleaned. Gratings and wire cages should be renewed where necessary and flashings, trims and cap-pings replaced if damaged.

Once Every Ten Years

The roof structure should be inspected professionally, either by a roofing contractor or roofing system manufacturer. This inspection will identify any current problems and those which are likely to occur in the future.

It is important that this inspection is carried out by a professional, as many of the potential problems will not be apparent to the untrained eye. The roof should be surveyed for the deterioration of structural elements, especially where a timber deck has been used as this is susceptible to moisture.

Roofing, do's and don't's

- DO report a leak as soon as it is noticed.
- DO check with the original specification to identify the roof build up.
- DO consider skilled repair now rather than costly replacement later.
- DO record the cause of the problem and the date and location of repair for future reference. This should ideally take the form of a building book.
- DO use a recognised roofing contractor or materials manufacturer.
- DO seek the advice of the original contractor/manufacturer should any ancillary services be installed at a later date. This will ensure that the new components are properly detailed and waterproofed to maintain the roof's waterproofing integrity.
- DO check the roof and get a written report on it before and after any work is carried out by other trades. In this way damage caused by other people will be easily identifiable.
- DON'T use the roof as a working platform for adjoining buildings. Where access is required, protection must be given so as not to damage the waterproofing membrane.
- DON'T allow other trades to fix units through the waterproofing membrane without proper advice. This is especially important when having television aerials, heating and ventilating plant and telephone cables installed.
- DON'T drop cement, paint or solvents on the roof as these may soften and destroy the roof covering.

General instructions

- Installation instructions relative to specific fastening systems are included in the specific installation literature.
- Parapets and upstands must not damage the membrane, if necessary an ALKORPLUS protection layer will be installed.
- All parapets and upstands must be executed in a windtight way.
- Water outlets and other details are mechanically fixed to the roof.

Compatibility

Contamination of ALKORPLAN[®] membranes by oil, petrol and other solvents, hot or cold bituminous products, tar, etc. must be avoided as these will attack the PVC polymer, damage the appearance and reduce the life expectancy of the products. For a list of chemical resistance with a number of substances, a summary table is available.

ALKORPLAN[®] membranes must not be brought into contact with ALKORFLEX[®] or ALKORTOP[®] membranes.

Wood in contact with ALKORPLAN[®] membranes should only be treated with salt-based products to avoid adverse effects. Under no circumstances should solvent-based preservatives be used.

Other remarks

The following rules and regulations must be respected at all times:

- the product information and instructions for execution of particular details issued by RENOLIT concerning ALKORPLAN[®] and ALKORPLUS products
- the installation instructions issued by manufacturers or suppliers of other materials and accessories used during the construction of the roof.
- all other current norms and directives

The information contained in the present commercial literature has been given in good faith and with the intention of providing information. It is based on current knowledge at the time of issue, and may be subject to change without notice. Nothing contained herein may induce the application of our products without observing existing patents, certificates, legal regulations, national or local rules, technical approvals or technical specifications or the rules and practices of good workmanship for this profession.

The purchaser should verify whether import, advertising, packaging, labelling, composition, possession, ownership and the use of our products or the commercialisation of them are subject to specific territorial rules. He is also the sole person responsible for informing and advising the final end user.

When faced with specific cases or application details not dealt with in the present guidelines, it is important to contact our technical services, who will give advice, based on the information at hand and within the limitations of their field of expertise. Our technical services cannot be held responsible for the conception of, nor the execution of the works.

In the case of negligence of rules, regulations and duties on the part of purchaser we will disclaim all responsibility.

Roofing...
with style





RENOLIT WATERPROOFING

Export
Industriepark De Bruwaan, 9
9700 OUDENAARDE
België
Tel: +32 (0) 55/33 98 51
Fax: +32 (0) 55/31 86 58

