

**A** **ADHERED**  
SYSTEM



**alkor** **PLAN**<sup>®</sup>  
BY RENOLIT WATERPROOFING

**RENOLIT WATERPROOFING**  
EXCELLENCE IN ROOFING



# RENOLIT WATERPROOFING ADHERED SYSTEM

## PRODUCT INFORMATION

### alkorPLAN® A<sub>35179</sub>

Calendered/laminated fleecebacked membrane of flexible PVC conforms to UEAtc guidelines.

### Application

Used as a waterproofing membrane within partially or fully bonded systems

| Product data                        | Method         | Requirements according to UEAtc | alkorPLAN® A <sub>35179</sub> |                     | Units   |
|-------------------------------------|----------------|---------------------------------|-------------------------------|---------------------|---------|
|                                     |                |                                 | 3.2 mm                        | 3.5 mm              |         |
| Tensile strength                    | EN 12311-2 (A) | L ≥ 650                         | 797                           | 1012                | N/50 mm |
|                                     |                | T ≥ 650                         | 730                           | 959                 | N/50 mm |
| Elongation at break                 | EN 12311-2 (A) | L ≥ 40                          | 257                           | 339                 | %       |
|                                     |                | T ≥ 40                          | 203                           | 315                 | %       |
| Dimensional stability (6h at 80 °C) | EN 1107-2      | ≤ 1                             | -0.5                          | -0.6                | %       |
| Cold track temperature (-20 °C)     | EN 495-5       | no cracks                       | no cracks                     | no cracks           | -       |
| Tear strength                       | EN 12310-1     | L ≥ 150                         | 389                           | 433                 | N       |
|                                     |                | T ≥ 150                         | 378                           | 383                 | N       |
| Lamination strength                 | EN 12316-2     | ≥ 50                            | 100                           | 95                  | N/50 mm |
| Vapour diffusion resistance (μ)     | EN 1931        | -                               | 10 000 (calc. val.)           | 10 000 (calc. val.) | -       |
| Resistance to static perforation    | EN 12730       | -                               | 20                            | 20                  | kg      |

| Size/Weight                   | Thickness                    | Width  | Weight                 | Roll length | Roll weight |
|-------------------------------|------------------------------|--------|------------------------|-------------|-------------|
| alkorPLAN® A <sub>35179</sub> | 1.2 mm (3.2 mm incl. fleece) | 2.10 m | 1.86 kg/m <sup>2</sup> | 15 m        | ca. 57 kg   |
|                               | 1.5 mm (3.2 mm incl. fleece) | 2.10 m | 2.25 kg/m <sup>2</sup> | 15 m        | ca. 71 kg   |

Standard conditions of sale are included in price lists, all sales of **RENOLIT** products are made under these conditions. alkorPLAN® is delivered in rolls. Every delivery may contain up to 10 % of short rolls (minimum length: 8 m).

### Storage

Store dry. Rolls to be parallel and in original packing where possible, do not stack in cross form or under pressure.



Sunparks (Belgium)

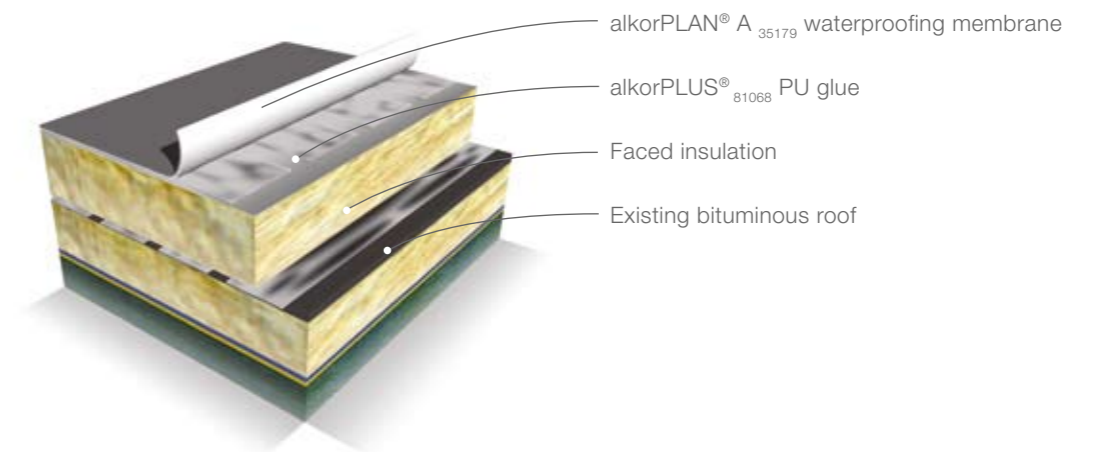


Ewert House Oxford University (UK)

# RENOLIT WATERPROOFING ADHERED SYSTEM

Application of alkorPLAN® membranes, for new structures or refurbishment of existing roofs. The system is used within a maximum wind load of 2,400 N/m<sup>2</sup> for partially bonded systems and 3,600 N/m<sup>2</sup> for fully bonded systems. If in doubt or for specific installation advice, please contact the Technical Department of **RENOLIT**.

### Refurbishment with additional insulation



CCN (Belgium)



Lewis Square (Ireland)

# RENOLIT WATERPROOFING ROOF CONSTRUCTION

## Structure

Before the waterproofing membrane is installed, the roof deck must be free of irregularities, water, frost, ice and debris such as screws, metal off-cuts, etc.

- Timber structure  
The minimum thickness for metal deck to be used with mechanical fasteners is 0.7 mm according BS EN 10147:2000. All construction work is carried out according to current requirements (BS 5950) and design criteria.
- Timber structure  
The minimum thickness of the supporting structure will be:
  - wood: 25 mm (tongued and grooved)
  - plywood (exterior quality): 19 mm (preferably 22 mm) this must conform to the relevant requirements of BS EN 636 and BS 5268.
  - OSB 3: 18 mm according to BS EN 300.

Any treatment should be compatible with the components and the chosen method of attachment of the insulation or single ply membrane. The supporting elements are installed and fixed to obtain a closed deck surface where all vertical movement is excluded. Height or thickness tolerances between panels must not exceed 3 mm. The installation of the supporting timber structure must comply with the local building regulations.

- Concrete roof deck  
A concrete supporting structure should comply with the minimum quality BS 8110 part I 1985 and I.S.326:1995. The surface is to be smooth without protrusions or irregularities over 2 mm (ideally power floated).

## Vapour control layer

Condensation can occur on the underside of the membrane during cold periods. If high humidity exists in a building, there may be a build up of condensation in the construction which will not be fully removed in the drying periods. Depending on the predicted interior climate in the building and the hygrometric characteristics of the roofing materials, a vapour control layer will be required. The alkorPLUS<sup>®</sup><sub>81012</sub> LDPE vapour control layer is available in the standard version. The vapour control layer is laid with an overlap of 100 mm and taped with alkorPLUS<sup>®</sup><sub>81057</sub> adhesive tape. The joint should be fully supported and be hand rolled to secure to the tape. The vapour control layer is taken up and sealed to details in accordance with Part L1 of the UK Building Regulations.

## Insulation

Insulation boards must be approved by the respective manufacturer for use with alkorPLAN<sup>®</sup> membranes. The insulation is installed in accordance with the manufacturers' guidelines. The insulation must resist to the designed dead and live loads. The compressive strength must be at least 0.06 N/mm<sup>2</sup> at 10 % compression (according to BS EN 826). On metal decks, the dimensions and thickness of the insulation boards must suit the dimensions of the metal deck profile.

## Structural movement joints

When installing a bonded roofing system, particular care has to be given to the execution of structure joints. Joint width is the essential factor. Whenever larger horizontal or vertical structural movement is anticipated, please refer to the examples given in our detail manual.

Table1: Structural joints

| Joint width                                 | no additional insulation  | With additional insulation   |
|---|---|--|
| ≤ 10 mm<br>(e.g. between insulation boards) | a strip of 200 mm must be kept free of glue   | a strip of 200 mm must be kept free of glue<br>+ a synthetic foam filler |
| between 10 and 30 mm                        | a strip of 300 mm must be kept free of glue and supported by a fixed galvanised steel sheet | + 200 mm wide alkorPLAN <sup>®</sup> D                                   |
| ≥ 30 mm                                     | a specific joint construction is required   |  |

Please refer to the design manual for precise information.

# RENOLIT WATERPROOFING ROOF CONSTRUCTION

## alkorPLAN<sup>®</sup> membrane

The alkorPLUS<sup>®</sup> 81068 PU glue can only be applied in dry weather at temperatures of 5°C and above. After preparing the surface, the alkorPLAN<sup>®</sup> membrane is unrolled entirely and straightened without tension. The adjoining lap is aligned to the first one with an overlap of 80 mm minimum. A line is printed on one side of the membrane to facilitate this. Then the alkorPLAN<sup>®</sup> membrane is re-rolled for half of its length. Application of the adhesive is executed as follows:

- The appropriate quantity of glue can be applied using the alkorPLUS<sup>®</sup><sub>81069</sub> applicator. Five drums of glue are mounted on the 1 m wide rack. Using a special opener, 2 or 3 openings are made in every drum (see picture 1) and dispersed evenly over the surface using a roller, squeegee or brush.
- When applied by hand, the required glue is poured out and dispersed evenly over the surface using a roller, squeegee or brush. Concentrations of glue must be avoided.

On sloping surfaces, it is essential that the total glue quantity is dispersed evenly over the area. In addition, a certain drying time (10 to 15 min.) is required. The glue surface must still be sticky and not exhibit a skin-like surface. Total drying time is 1 to 5 hours depending on ambient temperature and humidity.

## Glue quantity and windload

The quantity of glue and the percentage of the surface to be covered, will depend on the surface to be glued and the windload. A calculation in accordance to BS 6399-2 will be carried out to determine this. The chosen approved subcontractor will liaise with the Technical Department of **RENOLIT** for precise information.



Pict. 1 use of the alkorPLUS<sup>®</sup><sub>81069</sub> Applicator  
When the adhesive is applied in lines, as illustrated, it must be squeegeed across the width of the membrane to create a full bond.

## Specific instructions

- The surface must be swept clean. Loose elements and dust must be removed.
- alkorPLUS<sup>®</sup><sub>81068</sub> polyurethane glue can only be used for adhering fleecebacked alkorPLAN<sup>®</sup>, and can not be used for the joining of seams, insulating materials or connecting to accessories.
- It is essential to remove any excess glue from the surface of the membrane immediately. (using alkorPLUS<sup>®</sup><sub>81044</sub> cleaner).
- It has to be ensured that the existing surface, insulation and all other layers of the roofing structure are secure and intact.
- Prior to commencing main gluing, a test must be carried out to confirm adhesion strength and performance. A value of 1 N/mm should be achieved.

## Joining longitudinal and transverse seams

Along the longitudinal and transverse seams of the membrane, a strip of 200 mm (100 mm on either side) must remain free of glue. (see Fig. 1.) The adjoining transverse seams of the roofing membranes must be butt jointed. The joint must be covered with a 50 mm wide alkorPLUS<sup>®</sup><sub>81192</sub> aluminium tape, a 200 mm wide strip of alkorPLAN<sup>®</sup> D membrane is then welded over the joint. A test weld must be carried out prior to welding the roofing sheet, to confirm adequate weld strength and performance. The alkorPLAN<sup>®</sup> membrane is welded preferably by hot air, or by solvent, using alkorPLUS<sup>®</sup><sub>81025</sub> welding fluid. The welded area must be continuous and extend a minimum of 30mm from the membrane edge. End laps must be staggered by 250mm, thus preventing a situation where 4 roll ends coincide. Where 3 membranes overlap, the centre sheet must be chamfered.

## Other joints

Where a direct joint with the fleece-free selvedge of the membrane is not possible, joints between the membrane and alkorPLAN<sup>®</sup> metal sheet must be completed with a junction strip of alkorPLAN<sup>®</sup>F roofing membrane.



Pict. 2 pressure exerted onto the membrane

## RENOLIT WATERPROOFING SUPPLEMENTARY FIXING

Edge restraint is installed along the perimeter of the roof and around all penetrations. Special attention is paid to the windtight installation of parapets.

### Edge restraint

alkorPLUS® metalsheet is preformed to obtain a minimum width of 70 x 70 mm for an L-shaped profile. These profiles are fastened through the main roof sheet to the supporting structure. The maximum distance between fixings is 250 mm with fixings on one face only of the alkorPLUS® metalsheet and in zig-zag formation, to resist a continual tensile load of 2,7 kN/m. Subsequently, a 200 mm wide strip of alkorPLAN® D is welded both to the main roof sheet and horizontal shank of the alkorPLUS® metal. If alkorPLUS® metal profiles are fixed in the vertical leg, fasteners will be at 200mm distance. Should the roof have valleys which have angles less than 174°, it will be necessary to include alkorMETAL sections of 140 mm girth, fixed at 250 mm centres.

### Windtight installation to parapet details

- A mechanical edge restraint along the perimeter of the roof and around roof penetrations is not required where the roofing membrane is fully adhered in the perimeter area (minimum 2 m) and to the parapets. (See Fig. 2) The alkorPLUS® 81068 PU glue is applied to the surface of the upstand with a minimum consumption of 300 g/m<sup>2</sup>. The parapet will have an alkorPLUS® metal trim, but the compressive foam and intermediate fastening can be omitted.
- Unbonded upstands are an alternative, using non-fleecebacked membranes to waterproof the upstands and parapets. However, at the point of termination, an Alkormetal section must be included as well as supplementary mechanical edge restraint. With an alkorPLUS® 81058 compressive foam strip underneath the alkorPLUS® metalsheet trim, the parapet top is sealed against wind penetration. The alkorPLAN® membrane is protected from an abrasive upstand surface by a protective layer (min. 300 g/m<sup>2</sup> - alkorPLUS® 81005). Where the parapet height exceeds 500 mm, intermediate support with a continuous alkorPLUS® metalsheet (50 mm wide) is required.

### Execution of details

See Design Manual.

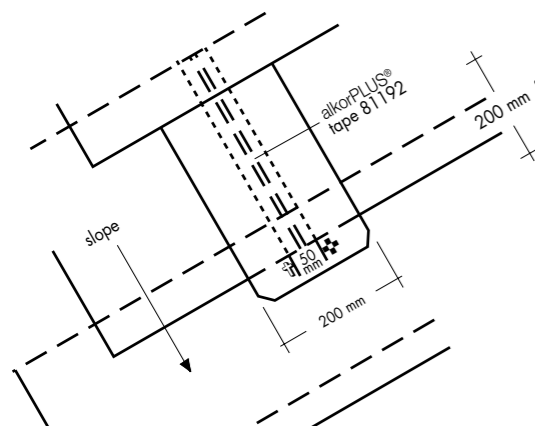


Fig.1. transverse seams of roofing membrane

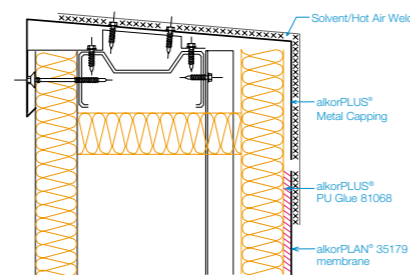


Fig. 2. gluing of parapets

## RENOLIT WATERPROOFING GENERAL REMARKS

### Slope

BS 6229 states that a minimum finished fall at any point of 1:80 should be achieved. Cut-to-falls systems are often produced to a 1:60 fall or 1:40 fall.

### 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. (See brochure «Chemical stability»). alkorPLAN® membranes must not be brought into contact with alkorFLEX® or other 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:

- BBA, UEAtc, IAB
- Irish Building regulations 1997 to 2002
- BS 6229 1982 flat roofs with continuous supported coverings.
- The Building Act 1984 and its Building regulations 2000
- SPrA design guide for single ply roofing.
- All other current norms and directives.
- The product information and instructions for execution of particular details issued by **RENOLIT** concerning alkorPLAN® and alkorPLUS® products.
- The installation and safety instructions issued by manufacturers or suppliers of associated materials and accessories used in the construction of the roof.
- Water outlets and other details are duly fixed to the structure.



Station (UK)



Makro - Metro Group (Belgium)

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 the purchaser we will disclaim all responsibility. The colours respect the UV resistance required by EOTA, but are still subject to the natural change over time. Are excluded from the guarantee: aesthetic considerations in case of partial repair of deficient membrane covered by the guarantee.

[WWW.ALKORPROOF.COM](http://WWW.ALKORPROOF.COM)



The British Board of Agrément have assessed the life expectancy of alkorPLAN® to be in excess of 30 years.



alkorPLAN® roofing products and Systems have a standard guarantee of 10 years, and are installed by approved contractors and installers who are trained and assessed by **RENOLIT**.



All **RENOLIT** waterproofing membranes for roofing are part of the RoofCollect® collection and recycling programme.



The **RENOLIT** division responsible for the roofing activity has been approved to EN ISO 9001:2000.



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