Features

Self adhesive, Torch applied and bonded systems to waterproof structures in traditional build applications to the most exposed and rigorous demands of modern day construction requirements.

Factory controlled thickness to ensure full coverage to specification.

Self adhesive and weldable jointing systems.

All systems compatible with other Alderburgh products to form totally integrated waterproofing systems.

Full application QA product warranty on designed systems.
Alderburgh Limited specialises in the manufacturing and marketing of high quality products for complete structural protection, encompassing membrane systems, liquid systems, expansion joint fillers, ventilation products and drainage systems. We have available a wide range of expertise and are constantly reviewing products to provide up to date solutions for today’s construction problems.

### Waterproofing Membranes
- Alderprufe Tuflex
- Alderprufe 15K
- Alderprufe 20K
- Alderprufe 30K
- Alderprufe 30K HD
- Alderprufe Aqua System
- Alderprufe Nu-Life

### Expansion Joints and Protection Boards
- Foamflex 1, 2, 3
- Corkflex - B
- Fibreflex
- Backerboard 501 - A
- Angle Fillet
- Multistick

### Gas Barriers
- Alderprufe Tuflex
- Tuflex CO2
- Alderprufe MR
- Alderprufe MR50
- Alderprufe GRA
- Alderprufe GRM
- Preformed Details

### Waterstops and Drainage Systems
- Centrally Placed Water Stops
- Caviduct 20
- Externally Placed Water Stops
- Aqua Drain
- Nu-Life

### Damp Proof course and Cavity Tray Systems
- Aldercourse Century 2000
- Aldercourse Excell Hy-Grip
- Aldercourse GRA
- Aldercourse Tuflex DPC
- Aldercourse Cavity Trays
- Aldercourse Thermal Block
- Aldercourse Thermal Stop
- Higrade DPC

### Aldervent Ventilation Systems
- Aldervent Geo-Grid and Geo-Grid 25
- Aldervent Geo-Void 12/25/52/100
- Through Wall Ventilation Systems
- Aldervent Vent Bollard
- Gas Sump
- Ground Level Vent Units
- AVSS
- AVR T
- AVRTR
- AVOF

### Liquid Compounds
- LD10 Liquid Waterproofer
- Black Bitumen Paint - type II
- Weatherprufe Waterproofing Compounds
- Bitumen Mastic
- Alderprufe Tac Primer
- Solar Reflective Paint
- Felt Adhesive
- Alderseal 810
- Alderseal 850
- Gritting Solution
- Aluminium Flashing Tape

### Water Management Systems
- Alderburgh Geo Void Cell 30/100
- Alderburgh Geo Void 80/100
- Alderburgh Geo Cell Tank
- Surface Water Re-cycling Systems

### Geo-Textiles
- Stabilisation & Filter
- Alderway
- Geotex
- Protection & Filter
Background

Since the introduction of BS 8102:1990 the options available to the designer and constructor have been increased significantly to suit the degree of risk. The new Code of Practice has defined more clearly the level of protection and form of construction related to the basement usage and should not be confused with the structural forms defined in CP 102. The changes call for an assessment of the structure's construction and its inherent water resistant qualities to determine its integrity and long term performance. This has led to a radical and more practical approach in allowing permutations of construction and waterproofing techniques to achieve the level of performance demanded.

Implications

BS 8102:1990 has been expanded to include four new internal environmental grades of basement usage in addition to the identification of three basic water resisting forms of construction and are described briefly as follows:-

Internal Environment

**Grade 1** - Car parking and plant rooms (excluding electrical equipment) and workshops
- some seepage and damp patches tolerable

**Grade 2** - Workshop and plant rooms, requiring drier environment and retail storage areas
- no water penetration but moisture vapour tolerable

**Grade 3** - Ventilated residential and working areas, including offices, restaurant and leisure centres
- dry environment

**Grade 4** - Archives and stores, computers, requiring a controlled environment
- totally dry environment

Forms of Construction as defined in BS 8102

**Type A** - Tanked Protection Constructed from concrete or masonry and offering no protection against the ingress of water and water vapour by the nature of its design. Protection is therefore totally dependent on a continuous barrier system applied to the structure.

**Type B** - Structural Integral Protection Designed and constructed in reinforced or pre stressed concrete either to BS 8110 (to minimise water penetration) or to BS 8007 (to prevent water penetration) dependent on the chosen grade of basement use. Transmission of water vapour may not be wholly prevented.

**Type C** - Drained Protection Constructed from structural concrete (including diaphragm walls) or masonry to minimise the ingress of water Any moisture which does find its way into the basement is channelled, collected and discharged within the cavity created through the addition of an inner skin to both walls and floor. Vapour transmission may be prevented by ventilation of the cavity and by providing an effective damp proof membrane over the under drained floor. For those seeking maximum assurance this combination of construction and waterproofing is considered the most effective and trouble free.

Waterproofing Options

The various forms of construction dictate the structure's in-built integrity and the waterproofing options available and can be summarised as follows:

**Type A** - Totally dependent on a waterproof and vapour proof membrane
- External tanking plus drainage
- Reverse tanking plus drainage
- Sandwich tanking plus drainage

**Type B** - All in watertight construction
- Water resistant concrete plus drainage
- Water resistant concrete plus damp proof barrier
- Water resistant concrete plus tanking

**Type C** - Drained cavity protection
- Drained cavity
- Drained cavity plus water resistant concrete
- Drained cavity plus moisture barrier
- Drained cavity plus tanking
Sub Surface Drainage

Drainage plays a critical role in the design and construction of both Type A and Type B sub-structures. Lack of proper drainage may result in a build-up of temporary hydrostatic pressures due to surface water run-off or burst water mains. Subsequent leakage may occur through the structural elements, which may be concrete or masonry, or an ineffective tanking membrane.

Water can be kept from prolonged contact with basement slabs or walls with a combination of drainage aggregates and filter fabrics. Serious consideration should be given to the use of geocomposite drainage systems such as Alderprufe Aquadrain, which combine an open core structure, pre-wrapped with filter fabric. Thereby reducing the requirement for costly selected imported drainage aggregates.

The combined installation of vertical, geocomposite sheet drains with horizontal fin drains, serves not only to collect and deflect water away from the building structure, but will create a positive air gap between the structure and surrounding soil to enhance the basement's thermal insulation.

Any existing system of land drains should be carefully preserved and sub-surface drainage systems should be graded to storm water drains, or open outlets on the downside of the building to divert water away from the structure.

Solution

By understanding and appreciating the limitations of the various forms of construction, it is possible to assess the emphasis and importance of the waterproofing components, so that an economical and buildable, design is used to suit the ground conditions. It is essential that the basement construction is capable of taking the imposed loadings from the structure, ground and hydrostatic pressures, but its form can vary from masonry to water resistant reinforced concrete.

The options for the waterproofing and drainage elements also acknowledge that traditional external tanking is not the only method of preventing water from entering the structure. By varying the construction, increasing the performance and accepting that water can enter the structure, arrangements can be made to safely deflect, collect and remove it by pumping from the basement.

Summary Evaluation

TYPE A STRUCTURES
Tanked Protection

These structures have been redefined in BS 8102 where it is emphasised that new Type A structures are without integral protection and rely totally on the effective integrity of the waterproofing barrier.

The introduction of Alderprufe Aquadrain to DRAIN and DEFLECT water away from the structure, will place less dependency on the performance requirement of the water/vapour proofing membrane and should be considered an essential requirement for domestic basements.

Remove the hydrostatic pressure with effective drainage and minimise the risk of failure.

TYPE B STRUCTURES
Structurally Integral Protection

Designed in water resistant concrete to minimise or prevent water penetration. Originally these structures were designed to exclude visible water only, but the performance of this type of structure can now be upgraded by combining integral protection with Alderprufe membranes, to achieve the highest level of protection required from conventional tanking systems.

TYPE C STRUCTURES
Drained Protection

The fail safe solution to basement design; the preferred option Not originally included within CP 102, but covered in C.I.R.L.A Guide 5. A system designed to collect any water ingress and discharge through formed cavity walls and floors to collection points. The inclusion of an internal cavity drain system such as Caviduct 20 will achieve significant savings in construction costs, plus an increased return of potential rental income will accrue through the reduced width of the wall cavity combined with enhanced performance.

Guide Levels

By assessing the design risk, the perceived performance and attendant risk in choosing to design a Type A, B or C structure can be evaluated in respect to the chosen internal environment. Subject to buildability, a balance should be achieved between the required performance level and budgeted cost plan for the development.
LD10 Rubberised Liquid Waterproofer

Special Properties
LD10 complies with the appropriate sections of BS3690, 1982.

Description
LD10 is an effective high quality product made from pure refined bitumen and natural rubber latex. It is applied cold by brush. LD10 has excellent brushing characteristics although lightly thixotropic. LD10 dries to form a heavy duty bitumen barrier with excellent elasticity. The product is resistant to moisture and forms an effective water vapour barrier. It is resistant to all normal temperature variations when dry. LD10’s natural elasticity means that it will allow for the small movement stresses caused by temperature changes in the building materials to which it is applied. LD10 may be used successfully on damp surfaces enabling work to proceed without interruption.

Applications
LD10 may be used for waterproofing floors, exterior and interior walls, for all roofing maintenance work, as a vapour barrier, and as a plaster bonding agent for difficult surfaces. Not suitable for use with cement-based plasters, or for use where gypsum plasters are being used to improve fire resistance.

Specifying
LD10 should be specified by name and used as detailed.

Sitework
LD10 must be thoroughly stirred before use. It does not require any heating. It may be applied without difficulty to damp surfaces (but not very wet surfaces). The surface should be sound and free from dust, dirt or grease. Brush strokes should be applied evenly in one direction using soft fibre brooms or soft bristle brushes. These should be dipped in water and then well shaken before being charged with the material. After use brushes and brooms may be washed in soapy water before the material has set. If it has dried LD10 may be removed with solvents, such as paraffin or paint thinners. Any splashes on the paintwork or other surfaces must be wiped off immediately using a damp cloth.

LD10 AS A SANDWICH MEMBRANE IN NEW CONSTRUCTION
Is an effective damp proof membrane for use in the sandwich construction of new concrete floors. Two coats at the specified rates will give dried film thickness of at least 0.6mm but three coats are recommended in British Standards Code of Practice 102, 1973.
On the smooth and clean concrete floor, the first coat of LD10 is brushed at the rate of 1m²/litre and allowed to dry thoroughly. The second coat is then applied at 1.5m²/litre and allowed to dry thoroughly. This second coat may be blinded with clean sand while wet as a protection against foot traffic and to provide a good key for the top screed. The top finishing screed should be at least 50mm thick. The membrane must be taken up walls to marry up with DPC. Great care should be taken to ensure that the dried film is not punctured or damaged. The concrete screed should be allowed to cure and dry out thoroughly before laying a further floor covering. This may take several weeks.
LD10 FOR INTERIOR WALLS  
(Moderate Dampness)
Remove all plaster, wallpaper, loose distemper, paints, dirt, dust and grease. Any damage to brickwork and mortar joints should be made good with cement mortar, then apply three coats of LD10 at 2.25m²/litre allowing each coat to dry out thoroughly before applying the next. The final coat should be blinded with clean sharp sand while it is still wet. It is a good idea to leave a section of the wall at the top untreated, say 300mm deep, so that any trapped moisture may evaporate away. New gypsum plaster may then be applied to the level of the surrounding plaster.  
NB: Under no circumstances should ‘Renovating Plaster’ or other sand/cement mixes be applied over LD10.

AS A SURFACE TREATMENT ON EXISTING FLOORS
Where severe dampness is unlikely to occur, surface treatment with LD10 will prove an effective precautionary measure (however if the conditions are severe and damp appears to be penetrating then sandwich construction should be undertaken). The floor should be sound and free of dust, oil and grease. A priming coat of LD10 diluted with 1 part of water should initially be applied at 17.5m²/litre and allowed to dry thoroughly. Two coats of LD10 at 1m²/litre should then be applied. All coats must be taken up to and join with the existing DPC. The dried film of LD10 should not be punctured or damaged and must be overlaid with a suitable floor covering. As the surface of LD10 remains slightly tacky after drying a lining paper should be used under loose floor coverings.

Extterior Walls
Remove all dirt, dust and grease. If the surface is uneven it should be levelled using cement mortar. Bare brickwork should be covered with a thin skin of cement mortar. This should be allowed to dry. 3 coats of LD10 should be applied at 2.25m²/litre. Each coat should be allowed to dry, before applying the next. Whilst still wet and ‘tacky’ the final coat should be blinded with clean sharp sand.

LD10 ROOF MAINTENANCE, FELT, ASPHALT, LEAD ZINC OR IN SITU CONCRETE ROOFS
The surface should be thoroughly cleaned. Any cracks should be raked out and a coat of LD10 at 1.5m²/litre applied, extending 75mm each side of the crack and allowed to dry. The cracks should then be filled with a bitumen mastic. A 175mm wide strip of either asbestos underlay or aluminium foil should next be bonded with LD10 across the crack. A further coat of LD10 applied at 1.5m²/litre should then be applied over the covering material and well lapped onto the roof surface. On asphalt roofs where blisters have occurred these should be heated with a blow lamp until soft and then smoothed out. If the asphalt is crumbling or badly cracked it must be removed and replaced with an asbestos underlay bonded or nailed to the roof deck. Blister in roofing felt should be opened out, cleaned with a stiff bristled brush, allowed to dry out and coated with LD10 at 1.5m²/litre. LD10 should be allowed to set until it is ‘tacky’ and then the felt should be re-fixed by nailing it down. A final coat of LD10 at 1.5m²/litre should then be applied over the repair and to 75mm around it. Concrete roofs should be thoroughly cleaned, free of dust, grime and grease, moss etc, and LD10 diluted with 1 part of water a 7.5m²/litre as a primer. This should be allowed to dry. In each case the LD10 Roof Method should then be applied.

LD10 Roof Method
The standard roof treatment with LD10 is 1 coat at 1m²/litre into which is immediately laid a layer of Standard Glass or Polypropylene fabric reinforcement (or scrim). The fabric or scrim is brushed into position with a brush painted with LD10. When the first coat has thoroughly dried a second coat is applied at 1.5m²/litre and allowed to dry. The third and final coat is applied at the same rate and, while the LD10 is still ‘tacky,’ well blinded with 12mm (14 mesh) stone chippings or clean sharp sand.
Timber Roofs

Examine the timbers for signs of wet rot. Replace timbers showing symptoms of this. An underlay felt is then stagger nailed to the timber deck, an overlap of 75mm being allowed. LD10 is applied at 1m²/litre to the lap joints and edges of the underlay and allowed to dry. Roof Method is then applied.

Slated or Corrugated Roofs

The roof should be carefully examined for damaged or missing slates or sheets. Any loose slates or sheets should be re-fixed firmly in place. 1 coat of LD10 at 1.5m²/litre is applied and immediately a Standard Glass or Polypropylene fabric (or scrim) is laid into it. Where there are corrugations care should be taken to lay the fabric well and without leaving the fabric under any tension. The fabric is overlapped 75mm each side and the insides of each lap painted with LD10 the ends must be well sealed. Two further coats at 1.5m²/litre are applied, the one being allowed to dry before the next is applied. The third and last coat should be blinded with 1-2mm (14 mesh) stone chippings while it is still tacky.

BRIDGE ABUTMENTS, RETAINING WALLS, CULVERTS, CONCRETE OR BRICK FOUNDATIONS

LD10 is applied by brush to form a waterproof membrane. It acts as a curing membrane when applied to 'green' concrete. The surface should be sound and free of dust, dirt and grease. Hot, very dry or absorbent surfaces should be dampened slightly with water. A first coat is applied at 2.5m²/litre and is allowed to dry thoroughly. A second coat is then applied at 2.25m²/litre and is allowed to dry thoroughly. The final coat applied at 2.25m²/litre and may be blinded with clean sharp sand whilst the LD10 is still wet and tacky.

GENERAL NOTES ON USE AND STORAGE SAFETY PRECAUTIONS

Spilled LD10 should be cleaned up immediately. It is very adhesive so that splashes on the skin should be cleaned off with soapy water before it has set. Protective gloves should be worn and eyes protected from splashes. Avoid prolonged skin contact. Accidental eye splashes should be irrigated with copious quantities of water. Avoid ingestion. In case of accidental ingestion, seek immediate medical attention. Keep out of reach of children.

1. Apart from priming, LD10 should never be diluted.
2. LD10 must be protected from frost when in storage.
3. Do not apply to water-logged surfaces.
4. Do not apply if there is a risk of frost before the LD10 has had time to dry.
5. LD10 must be stirred before use.
6. After application LD10 must be protected from rain until surface is dry.
7. After use, brushes should be cleaned in soapy water before the LD10 has had time to set. Dried LD10 may be removed with solvents (e.g. Paraffin or paint thinners).
8. LD10 should be kept in a dry place in temperatures between 5°C to 30°C (41°F to 86°F).
9. Part used containers of LD10 should be tightly re-sealed.
10. Unopened containers of LD10 have a storage life of one year minimum. If stored for long periods, containers should be regularly rolled.

Packing

1 Litre, 2.5 Litres, 5 Litres, 25 Litres and 200 Litres.
CUSTOMS CCCN Number 3209-10 00 1.

Health and Safety

See separate Health and Safety Data.
Alderprufe Membrane 20K

Description

Alderprufe Membrane 20K Self Adhesive consists of a central polyethylene core coated on both sides with 1.0mm of self adhesive elastomer bitumen compound. The upper bitumen surface is protected by a thin polyethylene film, the lower bitumen surface is protected by a water resistant siliconised release sheet.

Uses

Alderprufe Membrane 20K is recommended for use as a self adhesive waterproofing membrane for both vertical and horizontal work in tanking applications. Also for use as a waterproofing membrane on concrete decks, including roof garden systems.

Technical Details

- Bitumen thickness: 2.00mm
- Polyethylene core thickness: 0.09mm
- Elongation at break: in excess of 600%
- Roll width: 1000mm
- Roll length: 15m
- Roll weight: 33kg
- Overlap: 100mm

MECHANICAL PROPERTIES

- Tensile strength of joints tested to MOAT 27.
  - Unaged membrane: 110
  - Heat aged: 85
  - Water soak: 100mm

Water vapour transmission rate and transmission resistance at 75% Rh and 25°C are as follows:
- W.V. Transmission rate: 0.30 (GM/d²)
- W.V. Resistance: 684 (MNsg⁻¹)
- Puncture resistance: 122 (Max load IN⁻¹)

Tested to ASTM E154

Durability: At least the life of the building in which is is installed.

Storage

Alderprufe Membrane 20K must be stored in dry conditions under cover at a minimum temperature of 5°C and a maximum temperature of 30°C. Rolls must be stored on their sides, stacked no more than 5 high.

Surface Preparation

All surfaces should be smooth, clean and dry. Loosely adhering material or sharp protrusions should be removed by mechanical means. Vertical brickwork must be skimmed with sand/cement to provide an even surface. Concrete and render should be completely cured and dry.

Priming

All areas must be primed with Alderprufe Self Adhesive Tac Primer as below:

(i) Roll container well before use.

(ii) Apply at the rate of approximately 4-6 sq m per litre. Only apply to those areas to be covered with Alderprufe membrane within the next 4 hours. Allow to dry completely for a minimum of 1 hour. Keep free from dust.

(iii) On very porous surfaces use two coats.
Alderprufe Membrane 20K

**Application**

**OVERLAPS**

All overlaps must be 100mm. All angles and corners should be provided with a suitable fillet or splay and reinforced with a 300mm wide strip of Alderprufe Membrane equidistant across the previously primed area. When angles have been reinforced as above, the membrane should be applied as follows:

**Horizontal application**

Starting at the lowest point, unroll the first roll of membrane, one operator progressively removing the release sheet whilst another presses the membrane onto the surface with a broom, ensuring that no air is trapped between the membrane and the substrate. Before laying the next roll, lightly torch the upper polythene of the first sheet using a propane gas torch to expose the upper bitumen surface width of 100mm. Apply the subsequent rolls as described above. Where a vertical substrate already exists, turn the horizontal membrane up to a height of 200mm ready for linking to the vertical membrane. Ensure all joints are staggered. Roll overlaps to ensure good bonding. The horizontal membrane must be protected immediately after laying with a 25mm screed or other adequate protective system such as Backerboard HD.

**Vertical application**

Cut the membrane to the appropriate length, then, starting at the top, remove about 200mm of release sheet and bond the membrane firmly to the substrate. Remove the release sheet progressively pressing the membrane onto the primed surface. As with the horizontal membrane, lightly torch the upper surface of the laid sheet at overlaps to expose the bitumen before applying the next sheet. The vertical membrane must overlap the horizontal by a minimum 200mm. Roll all overlaps for good bonding. The upper edge of the membrane must be turned into a 20mm x 20mm chase and sealed with a suitable bitumen sealant. The membrane must be protected by a concrete or brick skin or adequate protection board as soon as possible prior to any backfilling.

**Precautions**

Alderprufe Membrane and Alderprufe Primer must not be applied when surface temperatures go below 5°C. When a brick skin is applied to the face of the vertical Alderprufe Membrane, care must be taken not to damage the membrane and a gap of 12mm should be left which is filled with sand/ cement mortar as work proceeds. Only sufficient Alderprufe Membrane should be laid as can be adequately protected as work proceeds. When edges of Alderprufe Membrane are left exposed for any length of time ensure that all edges are held in place by battens.

**Overlaps**

Alderprufe 20K allows all overlaps and joints to be heat welded for maximum security. This is only possible because of the membranes unique sandwich construction and should be referred to when considering specification.

**Typical Specification**

Waterproofing membrane shall be Alderprufe 20K, minimum thickness 2mm with a puncture resistance of 122N. All laps fully heat welded. Fixed strictly in accordance with manufacturers instructions as supplied. Alderburgh Ltd, Sladen Mill, Halifax Rd. Littleborough. 01706 374416.
Total impermeable waterproofing and drainage system for the protection of structures below ground

Two technically advanced products singularly

Combined, provides a unique three stage system without compromise

Simple, quick installation

Isolates structure from surrounding ground conditions

Unique fixing method allows for any subsequent backfill settlement without danger of damage to waterproofing layer

Drainage system replaces need for protection boards reducing material cost more efficient use of labour

There are many systems available for waterproofing structures and controlling drainage.
The Alderprufe Aquadrain system solves both these problems in joint application in a unique way. Combining technically improved waterproofing, protection and drainage capacity, isolating structures from surrounding ground conditions in a single joint application without compromising on installation.

Alderprufe 20K and Alderprufe Aquadrain are both technically advanced products designed to solve specific problems and are independently specified.

For full individual product data please refer to relevant data sheet.

When combined they provide the ideal solution to a specification requiring waterproofing and drainage control. A unique system giving the best of both fields.

Alderprufe Membrane 20K is a waterproofing membrane with unique properties because of its sandwich construction.

A1 - 1mm thick Self-Adhesive compound protected by a siliconised release paper prior to application.
A2 - Cross-Laminated rubberised polyethylene waterproof membrane.
A3 - 1mm thick Adhesive compound.
A4 - Thin polyethylene film protecting A3, heat removed to expose A3 prior to lapping membrane and applying Alderprufe Aqua-Geo-Drain.

Alderprufe Aquadrain - A two layer sheet drainage system - high impact resistance high drainage capacity.

D1 - Studded sheet providing drainage channel
D2 - Non-woven Geo textile membrane forming filter layer to prevent clogging of drain channels

Application

Alderprufe Membrane 20K is applied as per instructions - see separate data sheet.

The Alderprufe Aquadrain is cut to length - to be applied vertically in 1 metre wide strips.
Alderprufe Aquadrain System

With the gentle application of heat either from a gas torch or hot air gun the protective layer of polyethylene A4 on the outer surface of the membrane 20K is removed in a 1 Metre wide strip vertically.

This exposes the top layer of modified adhesive bitumen compound A3.

The first strip of Alderprufe Aquadrain is then applied to this adhesive surface and pressed firmly in place.

The second 1 metre wide strip of Alderprufe is then exposed and the Alderprufe Aquadrain is then applied in exactly the same way, taking care to tightly butt joint the core and overlap of the geotextile.

If terminating the Alderprufe Aquadrain before ground level care must be taken when applying the Aqua profile strip. Multi-stick double sided tape applied between the profile and the membrane 20K top surface being the ideal solution. If terminating above membrane, mechanically fix at top edge and finish with Aqua profile.

The Alderprufe Aquadrain must terminate over the top of the land drainage pipe installed in a suitable filter bed to allow water to be discharged into the drainage system.

Once in place backfilling with excavated material can be carried out, saving on graded material.

The Alderprufe Aquadrain acts as a protective layer when backfilling and minor settlement is accommodated by the unique sliding film allowing the drainage system to move with the settlement without fear of drag on the waterproofing membrane.

Two technically advanced products working independently and in perfect harmony to create possibly the best water control system available to isolate structures below ground.

Specification

Waterproofing and drainage control to be Alderprufe Aquadrain System applied and fixed strictly in accordance with manufacturers instructions as supplied by Alderburgh Ltd., Sladen Mill, Halifax Rd., Littleborough. Tel: 01706 374416

Health and Safety

There are no known safety hazards associated with the products used in this system. For further information please refer to separate Health and Safety Data.

Technical Service

Technical Staff are available to advise and assist the use of these products from drawing stage to site application. A list of approved applicators is also available from our sales office.
Precautions

If the system once applied is to be left exposed for any length of time before backfilling, the whole system must be temporarily supported. Only expose enough of the top layer (A3 in diagram) of adhesive compound as you intend covering with the Alderprufe Aquadrain in the same work period.

Membrane 20K
SELF ADHESIVE WATERPROOF MEMBRANE

Technical Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitumen thickness</td>
<td>2.00mm</td>
</tr>
<tr>
<td>Polyethylene core thickness</td>
<td>0.09mm</td>
</tr>
<tr>
<td>Elongation at break</td>
<td>in excess of 600°</td>
</tr>
<tr>
<td>Roll width</td>
<td>1mt</td>
</tr>
<tr>
<td>Roll length</td>
<td>15mt</td>
</tr>
<tr>
<td>Roll weight</td>
<td>36kg</td>
</tr>
<tr>
<td>Overlap</td>
<td>100mm</td>
</tr>
</tbody>
</table>

Mechanical Properties

Tensile strength of joints tested to MOAT 27.

- Unaged membrane: 110
- Heat aged: 85
- Water soak: 100

Water vapour transmission rate and transmission resistance at 75% RH and 25°C are as follows:

- W.V. Transmission rate: 0.30 (GMr⁻¹d⁻¹)
- W.V. Resistance: 684 (MNsg⁻¹)
- Puncture resistance: 122
- (Max load [N]) Tested to ASTM E154

Durability: At least the life of the building in which is installed.

Aquadrain
DRAINAGE SYSTEM

Product Description: Aquadrain
Material Of Studded Sheeting: High density Polyethylene
Material Of Geotextile: Polypropylene
Stud Height: app. 10mm
Roll size: 1mt x 25 mts
Pressure Resistance: app. 400 KN/m²
Drainage-capacity: app. 7lts/m²/sec
Air Volume between studs: app. 7.9 l/m²/sec
Temperature resistance: -30°C to +80°C
Chemical properties: resistant to chemicals resistant against root penetration, rot proof neutral to ground water
Alderprufe Membrane 15K

**Description**
Alderprufe 15K waterproofing membrane consists of a self bonding polymer modified bitumen which is covered on one side by a tough two ply cross laminated high density polythene film and protected on the other side by a release sheet which is removed prior to the bonding of the material on to a suitably primed substrate. Once the release sheet has been removed the membrane can be easily applied by roller pressure.

**Uses**
Alderprufe 15K is intended for use as a self bonding vertical or horizontal damp proof membrane in tanking ground structures subways and retaining walls.

**Technical Data**
- **Backing Thickness**: 0.10mm
- **Backing Type**: HDPE
- **Adhesive Thickness**: 1.40mm
- **Total Thickness**: 1.50mm
- **Width**: 1000mm
- **Length**: 15mts
- **Weight**: 1.7 kg/m²
- **Carton Size**: 260x260x1080mm
- **Carton Weight**: 27kg

**Mechanical Properties**
- **Membrane Strength**: BS 2782 Method 56N/cm 320
- **Elongation**: BS2782 Method 200% 320
- **Puncture Resistance**: ASTM E154 300N
- **Adhesion (1800 Peel)**: ASTM D1000 40N/cm

**Functional Data**
- **Water Vapour**: BS 3177 g/m²/24h 0.23
- **Permeability**: MN/s/g 892
- **Vapour Resistance**: MOAT 5.1.4 Nil
- **Water Penetration**: MOAT 5.1.6(70°C) Nil
- **% Joint**: MOAT %
- **Dimensional Stability**: MOAT -0.1
- **Longitudinal Stability**: MOAT -0.2

**Surface Preparation**
All surfaces should be smooth, clean and dry. Loosely adhering material and sharp protrusions should be removed by mechanical means.

**Priming**
All vertical surfaces should be primed using Membrane Primer. Priming should be carried out as follows:
(i) Roll can well before use.
(ii) apply at the rate of approximately 7m²/L. Allow to dry for at least 1 hour until touch dry. Keep free from dust.
(iii) On very porous surfaces, use two coats of primer.

**Application**
Internal angles must always be provided with an Alderprufe fillet then after priming as previously described a 300mm wide reinforced strip of Alderprufe 15K must be applied with 150mm on either side of the centre of the fillet.
Alderprufe Membrane 15K

External angles or corners must be provided with a 25mm x 25mm splay and this covered with a 300mm wide strip of Alderprufe applied equidistant from the centre of the splay.

The first strip should be laid such that the selvedge is placed to accept the edge of the following strip, with each subsequent strip laid in the same way. The protection paper should be removed from the selvedge before bonding the overlap joint.

Horizontal membrane should preferably be laid prior to the application of the vertical membrane, adequately protected from damage by a minimum 25mm screed, with the membrane bonded to the vertical surface at least 200mm above the top of the screed so that the vertical Alderprufe can be overlaid.

If it is not possible to apply the screed over the DPM before the application of the vertical membrane, full and adequate protection must be given to the horizontal membrane to prevent damage.

Vertical membrane - cut off the appropriate length of membrane, then starting at the top of the area to be waterproofed, peel off at least 200mm of release sheet and bond the Alderprufe firmly to the surface, tucking the end of the material into the appropriate DPC or chase. Gradually peel off the remainder of the release sheet downwards, at the same time rolling the material against the surface until the bottom of the wall is reached. At the base, the vertical membrane must overlap the horizontal membrane by at least 100mm.

All subsequent sheets must overlap the preceding sheet by 50mm at the edges onto the selvedge strip and by 100mm at ends. Overlaps must be thoroughly rolled to ensure adequate bonding.

Backfilling on vertical applications where an abrasive backfill is to be used the Alderprufe membrane should be protected by a concrete outer skin, brick skin or Backerboard HD protection board, the latter being held in place by multi-stik adhesive tape.

Precautions

Alderprufe 15K and membrane Tac Primer must not be applied when surface temperature of the substrate falls below 5°C.

When a brick-skin is applied to the face of the vertical Alderprufe 15K, care must be taken not to damage the membrane and a gap of 12mm should be left which is filled with sand/cement mortar as work proceeds.

Only sufficient Alderprufe 15K should be laid which can be protected as work proceeds.

When areas of Alderprufe 15K are left exposed for any length of time ensure that all edges are held in place by battens.

Alderprufe 15K

Alderprufe 15K employs a unique feature of a selvedge. This consists of a 50mm wide strip of a high performance bitumen polymer adhesive on one side of the membrane. This is protected by a release coated plastic which is removed immediately prior to application of the overlapping sheet.

The selvedge provides a clear indicator of the minimum overlap that must be achieved to ensure effective sealing of the joints and ensures by virtue of the adhesive to adhesive contact a very high performance seal.

Specification


For further information on Backerboard 501 Protection Board and Multi Stik - see separate, respective data sheets
Alderprufe Membrane 30K

3mm thickness
High elasticity
Heavy duty water retaining applications
Waterproofer for roof gardens and podiums
5 ply sandwich construction

Surface Preparation

All surfaces should be smooth, clean and dry. Loosely adhering material or sharp protrusions should be removed by mechanical means. Vertical brickwork must be skimmed with sand/cement to provide an even surface. Concrete and renders should be completely cured and dry.

Priming

When loose laying only those areas to which Alderprufe 30K is to be torch welded must be primed as below.

Application

Overlaps. All overlaps must be 100mm. All angles and corners should be provided with a suitable fillet or splay and reinforced by torch welding a 300mm reinforcing strip equidistant across the previously primed area and apply pre-formed details in corners. When the angles have been reinforced as above, the horizontal membrane should be laid as follows:

HORIZONTAL APPLICATION
(i) Unroll the Alderprufe 30K. Set out first roll as required. End and side laps to be torch welded to reinforcing strip and carried up to the top of the fillet.
(ii) subsequent rolls should be set out with staggered end laps. Each roll should be rolled back half way, then rolled forward, torch welding the overlap. Then repeat for second half of the roll.

Technical Data

Bitumen thickness 4mm
Polyester central core 0.09mm
Elongation at break in excess of 300%
Roll width 1000mm
Roll length 8 metres
Roll weight 36kg
Overlap 100mm
Water Penetration/Joint Nil %

The use of factory formed details is always recommended in line with good building practice. If the puncture of the membrane system by service entries or steelworks cannot be avoided, these areas should be sealed with propriety factory formed units specified by name in the bill pages.

Features:
- Factory formed for security
- Guaranteed Waterproof
- Ease of application
- Completely compatible with all membranes
- No risk in application
- Avoids relying on skilled applicator
- Electronically tested welded joints
- Massive labour savings in application

Durability
Alderprufe 30K, when fully protected and subjected to normal service conditions, will provide an effective barrier to the transmission of water and water vapour for the lifetime of the structure in which they are incorporated. Properly applied, these membranes achieve archive status in accordance with BS 8102.

Precautions
Alderprufe bitumen membranes and Tac Primer must not be applied where surface temperature of substrate falls below 5°C. Only sufficient Alderprufe membrane should be laid that can be protected as work proceeds. Great care should be taken during torch welding not to damage the membrane by over-torching.

Health and Safety
A separate Health & Safety Data sheet is available upon request.

Specification
Backerboard HD

Description
Backerboard HD is a premoulded board for use as a protection against backfill for below ground walls and pressures formed by horizontal multi level slabs.

Advantages
Permanent: Long life, even when exposed to saturated conditions, economical in use.
Preformed: Easily handled, avoids the need for screed to masonry protection.
Cold Applied: Avoids messy, hot application.
Quick To Use: Avoids using wet trades, not labour or weather dependant.
Avoids Delays: Applied immediately after waterproofing membrane laid and inspected.
Economical: Protection thickness reduces depth of excavation.
Robust: Resists penetration of abrasive backfilling materials and accidental damage.

Basic Uses
Backerboard HD is a tough durable material used as a protection course for membrane waterproofing materials. Backerboard HD will stand up through all phases of construction. Backerboard HD withstands the shock of backfill operation and normal on site foot traffic. Backerboard HD protects the membrane from construction abuse and harmful puncture by rock and aggregate during backfilling operations and at the time of later settlement. Backerboard HD is economical and convenient to use in areas involving foundation walls and between slab construction such as parking garage decks, planter boxes, pools, kitchens, showers, plaza decks, roof terraces, tunnels and promenade decks. Backerboard HD is not intended as a water proofing material though it has water proofing qualities. Backerboard HD is basically a protection course to be independently specified in the architectural specification.

Compatibility
Backerboard HD is fully compatible with and is used in conjunction with built-up damp-proofing and water-proofing membranes, liquid membrane water-proofing systems, butyl rubber sheeting, asphalt, saturated mopping felts, polyvinylchloride sheeting, neoprene, asphalt cut-backs, fibreglass membrane, the new one and two part coal tar modified urethane and coal tar modified polysulfide liquid membrane systems and Bentonite GCL Lines.

Application
Backerboard HD should be installed continuously over the water proofing membrane and can be cut easily with a Stanley knife to fit snugly over all areas.

For Horizontal Surfaces: Butt the Backerboard 501 sheets together. If necessary cut the sheets to fit all intersections and protrusions. Use Aluminium Flashing tape to seal the joints or Backerboard Sealing tape.

For Vertical Surfaces: Butt the sheets and hold temporarily in place until backfill is accomplished using multistik double sided tape and battens where necessary.

Backfilling
Backfilling against vertical walls should be done within 48 hours after installing Backerboard HD. For horizontal applications, the water proofing and Backerboard HD should be installed just prior to the installation of the wearing surface. Backfilling should be done with care and backfill material should not be dropped against Backerboard HD in such a manner that it could drag the sheet down as it drops.

Storage
Keep sheets stored on pallets, placed on a level surface, and stacked to a maximum of two pallets high.

Suggested Specification
Protection board shall be Backerboard HD in thickness as supplied by Alderburgh Ltd. Protection board shall be semi rigid. Backerboard HD shall be applied to form a continuous protective layer over the water proofing membrane. All edges should be butted tightly and all intersecting surfaces cut to fit.
Backerboard HD

Technical Data

<table>
<thead>
<tr>
<th>Tested Property</th>
<th>Tested Method</th>
<th>Minimum Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (mm)</td>
<td>ASTM D 751/1593/5199</td>
<td>2.5mm</td>
</tr>
<tr>
<td>Density (g/cm³)</td>
<td>ASTM D 792/1505</td>
<td>0.94mm</td>
</tr>
<tr>
<td>Tensile Properties (Each direction)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strength at break (N/mm)</td>
<td>ASTM D638 Type IV</td>
<td></td>
</tr>
<tr>
<td>Strength at yield (N/mm)</td>
<td>Gauge Length per</td>
<td>71</td>
</tr>
<tr>
<td>Elongation at break (%)</td>
<td>NSF Std 54</td>
<td>560</td>
</tr>
<tr>
<td>Elongation at yield (%)</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Tear Resistance (N)</td>
<td>ASTM D1004</td>
<td>334</td>
</tr>
<tr>
<td>Puncture Resistance (N)</td>
<td>FTMS 101. Method 2065</td>
<td>579</td>
</tr>
<tr>
<td>Environmental Stress Crack Resistance (Hours)</td>
<td>ASTM D1693, Cond.B</td>
<td>1500</td>
</tr>
</tbody>
</table>

Reference Property

| Low Temperature Brittleness 'C'             | ASTM D746, Cond.B              | <-77          |
| Water Absorption % wt change               | ASTM D570                      | <0.01         |
| Moisture Vapour Transmission, g/m² day     | ASTM E96                       | <0.001        |
| Dimensional Stability (each direction) %   | ASTM D1204, 100°C,1hr          | <0.001        |

Description

Alderprufe Tac Primer is a cold applied, bituminous solution containing fast drying solvents and wetting agents, designed to penetrate and seal porous surfaces prior to the application of covering materials. Conforms to BS code of practice 144: Part 3: 1970 and BS 3416 Type 11.

Specifying

Alderprufe Tac Primer or should be specified by name and used as detailed.

Application

Surfaces should be free of dirt, dust and loose debris. This primer may be applied to damp but not wet surfaces. On metal surfaces, all loose rust should be removed using a wire bristled brush. Metal surfaces showing advanced signs of corrosion should initially be treated with a rust inhibitor. apply the primer evenly across the surface in one generous coating. This primer is resistant to normal rainfall within 20-30 minutes of application.

NOTE: In order to comply with BS code of practice 144: Part 3: clause 4.6.1, it is essential to ensure that the priming coat has dried and is free of all volatiles when priming concrete or screeded surfaces. A safe drying margin of 2 hours should be allowed to ensure this.

Uses

This product is a fast drying penetration primer designed to seal porous substrates and encourage the adhesion of self adhesive membranes and tapes. It may be applied successfully to a wide range of surfaces; Metals, mild steel, zinc, lead, concrete, asbestos cement, slate and light weight concrete screeds.

Product Data

- **Cover Capacity**: varies according to the porosity of the surface.
  - Metal Surface: - 6 - 12m² per litre.
  - Concrete: - 6 - 8m² per litre.
  - Lt-weight concrete screeds and asbestos cement: - 3.5 - 5m² per litre.
- **Specific Gravity**: 0.89 - 0.01.
- **Solids content**: 45 2% by weight.
- **Flash Point**: -34°C (94°F).
- **Colour**: Black
- **Thinning/Cleaning**: Use white spirit or paraffin to clean brushes, tools and spillages.
- **Storage**: Store in a cool, dry place, away from extremes of temperature.
- **Pack Sizes**: 5 litre, 25 litre and 200 litre containers.
- **Shelf Life**: Indefinite in undamaged, tightly sealed containers.

Health and Safety

Separate Health and Safety Data Sheet available.
**Typical Details**

**External tanking with Aquadrain**

- Aquadrain bonded to Alderprufe 20K Membrane
- Alderprufe 20K
- Tac Primer
- Water Bar 200mm or Bentonite stop
- 50mm cement/sand screed
- Alderprufe 30K
- Alderprufe reinforcing strip in corner
- Alderprufe 30K HD
- Alderprufe primer
- Hardcore
- Blinding

**Internal tanking floor wall junction**

- 40mm cavity filled with mortar as work proceeds
- Alderprufe 20K
- Tac Primer
- Aldercourse DPC
- Alderprufe reinforcing strip
- Backerboard protection board
- Alderprufe 30K
- Alderprufe 15K 20K
- Alderprufe reinforcing strip in corner
- Backerboard
- Blinding
- Hardcore
Alderprufe Bentonite GCL

- Versatile sealing applications with different GCL types and natural sodium bentonite
- Can reduce construction costs by replacing compacted clay
- Robust geotextiles encapsulate and contain the bentonite
- Withstands differential settlement
- Uniform peel strength provides multi-directional shear strength
- Thermal Lock process increases internal shear strength and interface friction angles
- Self-sealing overlaps available
- Installation advantages with 4.85m wide rolls
- ISO 9001 certified
- Quick and easy to install

<table>
<thead>
<tr>
<th>Application</th>
<th>Alderprufe GCL</th>
<th>GCL 5000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyke and dam barrier</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>River and canal liner (underwater installation)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Retention pond</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Landfill caps or covers</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Landfill base seal</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Reclamation of contaminated sites</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Groundwater/ Environmental protection</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Infrastructure sealing system</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Storm water retention pond</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Basement waterproofing</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Special remarks
- all overlaps self sealing
- interface shear angles up to approx. 18.4° (3:1)*
- robust cover and carrier geotextiles

Geosynthetic Clay Liners are manufactured hydraulic barriers consisting of natural sodium bentonite and geotextiles. The uniform and direction independent shear stress transfer is created by needlepunching and then thermal locking all layers together. GCLs are used mainly as a replacement of thick, difficult to build, compacted clay liners.

*Higher interface friction angles are possible. The specific design values must be determined with project specific shear tests

Hydraulic conductivity of prehydrated GCLs tested against various liquids with a normal stress of approx. 1m cover soil and hydraulic gradients between i = 30 and 200.

Hydraulic conductivity for different GCLs with gradients up to i = 500.
Geosynthetic Clay Liners

Values | Test Method | Test Frequency | Value |
--- | --- | --- | --- |
Montmorillonite content | XRD | yearly | approx 90% |
Montmorillonite content | Methylentblue Test, VDG P 69 | every 50 t * | ≥ 300 mg/g |
Water content | DIN 18121 (5h, 105°C) | every 50 t * | ≤ 15% |
Water absorption | DIN 18132 (24h) | every 50 t * | ≥ 600% |
Free swell index | ASTM-D 5890 | every 50 t * | ≥ 25 ml |
Fluid loss | ASTM-D 5891 | every 50 t * | ≤ 15 ml |

Sealing of foundation piles

1.) Soil.
2.) Optional lean concrete with the function to level the surface on which Alderprufe® Bentonite GCL 5000 is installed.
3.) Alderprufe® Bentonite GCL 5000.
4.) Pre-swollen sodium bentonite around pile.
5.) Optional concrete top-blinding protection layer.
6.) Reinforced concrete pile cap.
7.) Steel reinforcement for e.g. connection wall
8.) Alderprufe waterstop.
9.) Concrete wall.

Sealing of foundation piles

The area around the foundation piles to be sealed must be completely clean and free from any surface irregularities. This surrounding area is then covered with sodium bentonite (4.) A pre-trimmed Alderprufe® panel is then slipped over the protruding steel reinforcement pile or is laid against the pile. It might be necessary to pull Alderprufe® up the pile. Alternatively a waterproofing slurry (10.) might be recommended.

It is important to check that no unsealed areas remain around the pile. Over the Alderprufe® paste covered area, another micro liner or an accurately re-trimmed membrane panel fixed with nails to the lower layer should be placed to protect the pre-hydrated sodium bentonite layer (4.) from possible wash-out caused by the pouring of fresh concrete.

Alderprufe GCL 5000

<table>
<thead>
<tr>
<th>QC frequency [m²]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimension</strong></td>
</tr>
<tr>
<td>width x length</td>
</tr>
<tr>
<td>4.85m x 40m</td>
</tr>
<tr>
<td>Mass per unit area, cover nonwoven DIN EN 965</td>
</tr>
<tr>
<td>300 g/m²</td>
</tr>
<tr>
<td>1,300</td>
</tr>
<tr>
<td>Mass per unit area, bentonite layer DIN EN 965</td>
</tr>
<tr>
<td>4,200 g/m² + 800 g/m² (powder)</td>
</tr>
<tr>
<td>800</td>
</tr>
<tr>
<td>Mass per unit area, carrier geotextile DIN EN 965</td>
</tr>
<tr>
<td>200 g/m²</td>
</tr>
<tr>
<td>3,000</td>
</tr>
<tr>
<td>Mass per unit area, total product DIN EN 965</td>
</tr>
<tr>
<td>5,500 g/m²</td>
</tr>
<tr>
<td>800</td>
</tr>
<tr>
<td>Raw material geotextiles PP</td>
</tr>
<tr>
<td>*</td>
</tr>
<tr>
<td>Max. tensile strength long./transv. DIN EN ISO 10319</td>
</tr>
<tr>
<td>20kN/m / 11kN/m</td>
</tr>
<tr>
<td>6,500/13,000</td>
</tr>
<tr>
<td>Elongation at break long./transv. DIN EN ISO 10319</td>
</tr>
<tr>
<td>10% / 5%</td>
</tr>
<tr>
<td>6,500/13,000</td>
</tr>
<tr>
<td>Peel strength DIN EN ISO 10319</td>
</tr>
<tr>
<td>≥ 60N / 10cm</td>
</tr>
<tr>
<td>3,000</td>
</tr>
<tr>
<td>Peel strength ASTM-D-6496</td>
</tr>
<tr>
<td>≥ 360N/m</td>
</tr>
<tr>
<td>3,000</td>
</tr>
<tr>
<td>Puncture force DIN EN ISO 10326</td>
</tr>
<tr>
<td>2,500N</td>
</tr>
<tr>
<td>50,000</td>
</tr>
<tr>
<td>k-value DIN 18130 &amp; ASTM-D-5887</td>
</tr>
<tr>
<td>≤ 5.0 x 10⁻¹⁰m/s</td>
</tr>
<tr>
<td>22,000</td>
</tr>
<tr>
<td>Permittivity DIN 18130</td>
</tr>
<tr>
<td>≤ 5.0 x 10⁻¹⁵/s</td>
</tr>
<tr>
<td>22,000</td>
</tr>
</tbody>
</table>

* Frequently tested at our facility during quality assurance
Alderprufe Bentonite GCL

Examples of interface shear values between different geosynthetics and soil. The indicated approximate values result from over 15 years of project experience. The specific design values must be determined on a project by project basis and follow as close as possible on-site conditions.

<table>
<thead>
<tr>
<th>GCL cover nonwoven</th>
<th>19°</th>
<th>25°</th>
<th>11°</th>
<th>18°</th>
<th>25°</th>
<th>30°</th>
<th>29°</th>
<th>32°</th>
<th>26°</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCL nonwoven impregnated with bentonite</td>
<td>18°</td>
<td>22°</td>
<td>10°</td>
<td>15°</td>
<td>22°</td>
<td>25°</td>
<td>28°</td>
<td>30°</td>
<td>25°</td>
</tr>
<tr>
<td>GCL Thermal Lock carrier nonwoven</td>
<td>27°</td>
<td>-</td>
<td>11°</td>
<td>17°</td>
<td>22°</td>
<td>27°</td>
<td>27°</td>
<td>30°</td>
<td>-</td>
</tr>
<tr>
<td>GCL Thermal Lock carrier woven</td>
<td>28°</td>
<td>-</td>
<td>11°</td>
<td>17°</td>
<td>20°</td>
<td>25°</td>
<td>26°</td>
<td>28°</td>
<td>-</td>
</tr>
</tbody>
</table>

GCL with a peel strength of 60N / 10 cm achieves at confining stress of 80kN/m² (24 h prehydrated under 80 kN/m²) an internal shear stress of approx. 70kN/m², with a peel strength of 100N/10 cm even approx. 80kN/m²

Sealing of reinforced concrete floor slabs

1.) Compacted and level subsoil.
2.) Optional lean concrete blinding layer, thickness variable from 40 to 60 mm, as an alternative to lean concrete a sand or gravel layer may be used.
3.) Alderprufe® Bentonite GCL 5000.
4.) Optional lean concrete top-blinding protection layer, thickness variable from 40 to 60 mm, useful as a surface site traffic.
5.) Reinforced concrete base slab.

Installation against a shutter

1.) Compacted and level subsoil.
2.) Optional lean concrete blinding layer, thickness variable from 40 to 60 mm, as an alternative to lean concrete a sand or gravel layer may be used.
3.) Sodium bentonite or approved fillet.
4.) Alderprufe® Bentonite GCL 5000.
5.) Optional concrete blinding protection layer.
6.) Shuttering.
7.) Reinforced concrete slab.
8.) Nails.
**Geosynthetic Clay Liners**

**Installation on vertical walls**

1.) Compacted and level subsoil.
2.) Optional lean concrete blinding layer, thickness variable from 40 to 60 mm, as an alternative to lean concrete a sand or gravel layer may be used.
3.) **Alderprufe** Bentonite GCL 5000.
4.) Optional concrete protection layer, for load distribution and support of the reinforcement in a thickness, variable from 40 to 60 mm, useful to facilitate site traffic.
5.) Reinforced concrete base.
6.) **Alderprufe** waterstop.
7.) Vertical wall.

**Sealing of vertical walls against retaining structures**

1.) Optional lean concrete blinding layer.
2.) **Alderprufe** Bentonite GCL 5000.
3.) Optional concrete protection layer.
4.) Reinforced slab.
5.) **Alderprufe** waterstop.
6.) Concrete wall.
7.) Retaining structure e.g. shotcrete
8.) Soil.

**Making of a horizontal expansion joint**

1.) Soil.
2.) Optional lean concrete blinding layer, on which **Alderprufe** Bentonite GCL 5000 is laid.
3.) Double-layered **Alderprufe** Bentonite GCL 5000.
4.) Optional concrete layer for protection of **Alderprufe** Bentonite GCL 5000.
5.) **Alderprufe** Bentonite GCL 5000, which has been put up and protrudes into the joint area.
6.) Strip of **Alderprufe** Bentonite GCL 5000.
7.) Base plate/ foundation plate.
8.) Waterbar.
9.) Polystyrene

**Alderprufe waterstop**

1.) Soil.
2.) Optional lean concrete blinding layer.
3.) **Alderprufe** Bentonite GCL 5000.
4.) Concrete wall.
5.) Penetration.
6.) **Alderprufe** waterstop
All Alderburgh products are manufactured to the highest quality, being subject to rigid quality control. However, the company cannot control conditions of application and use of its products, thus any warranty, written or implied, is given in good faith for materials only. Alderburgh Ltd will not accept any responsibility for damage or injury arising from storage handling, misapplication or misuse of its products. All transactions are subject to our standard condition of sale, copies of which are available on request.