

A construction site at dusk or dawn, featuring a large concrete pump truck with a long, articulated boom extending over a rebar grid. In the foreground, a worker in a white hard hat and safety vest is partially visible on the right. The background shows a building under construction with various scaffolding and equipment.

PUDLO Membrane BW Installation Guide



Part of the DBGroup

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PUDLO Membrane BW

1. Introduction

PUDLO Membrane BW is fully BBA certified and complies with building regulations.

This manual contains all the relevant information for the installation of PUDLO Membrane BW for in-situ applications under basement slabs, property line walls and backfilled walls. This manual does not cover the applications for pre-cast concrete, shotcrete applications or masonry blockwork. For these applications please contact PUDLO Waterproofing Systems.

2. The Membrane System

The sealing technology of PUDLO Membrane BW is comprised of two simple elements:

1. Natural sodium bentonite as the sealing material.
2. Geotextiles which encapsulate and contain the bentonite.

Sodium bentonite is a naturally occurring material which is formed from volcanic ash. Sodium bentonite is stable and provides long term performance. The special property of natural sodium bentonite is its ability to swell when it encounters water (especially ground water). Sodium bentonite provides safe sealing of reinforced concrete structures. When the sodium bentonite meets water, the bentonite transforms from a clay texture, to a gel-like substance.

When concrete is poured against PUDLO Membrane BW, a strong mechanical bond is created. The mechanical bond will hold PUDLO Membrane BW in place. Should any ground settlement occur, the membrane fully bonds to the concrete, stopping water migration between the waterproofing layer and the concrete.

PUDLO Membrane BW is designed for below-ground waterproofing applications where the product is confined and under compression. PUDLO Membrane BW should not be installed in standing water or over ice. If the ground water contains strong acids, alkalis or is of a conductivity (2,500 $\mu\text{mhos/cm}$ or greater), water

samples should be submitted for compatibility testing. PUDLO Membrane BW is not designed for waterproofing expansion joints. For specialist movement joint applications where PUDLO Membrane BW is being used, please contact PUDLO to discuss further.

PUDLO Membrane BW requires a minimum 150mm thick reinforced concrete.

3. Product

Note: If this is the first time installing the PUDLO Membrane BW system, please contact PUDLO for clarification on the installation.

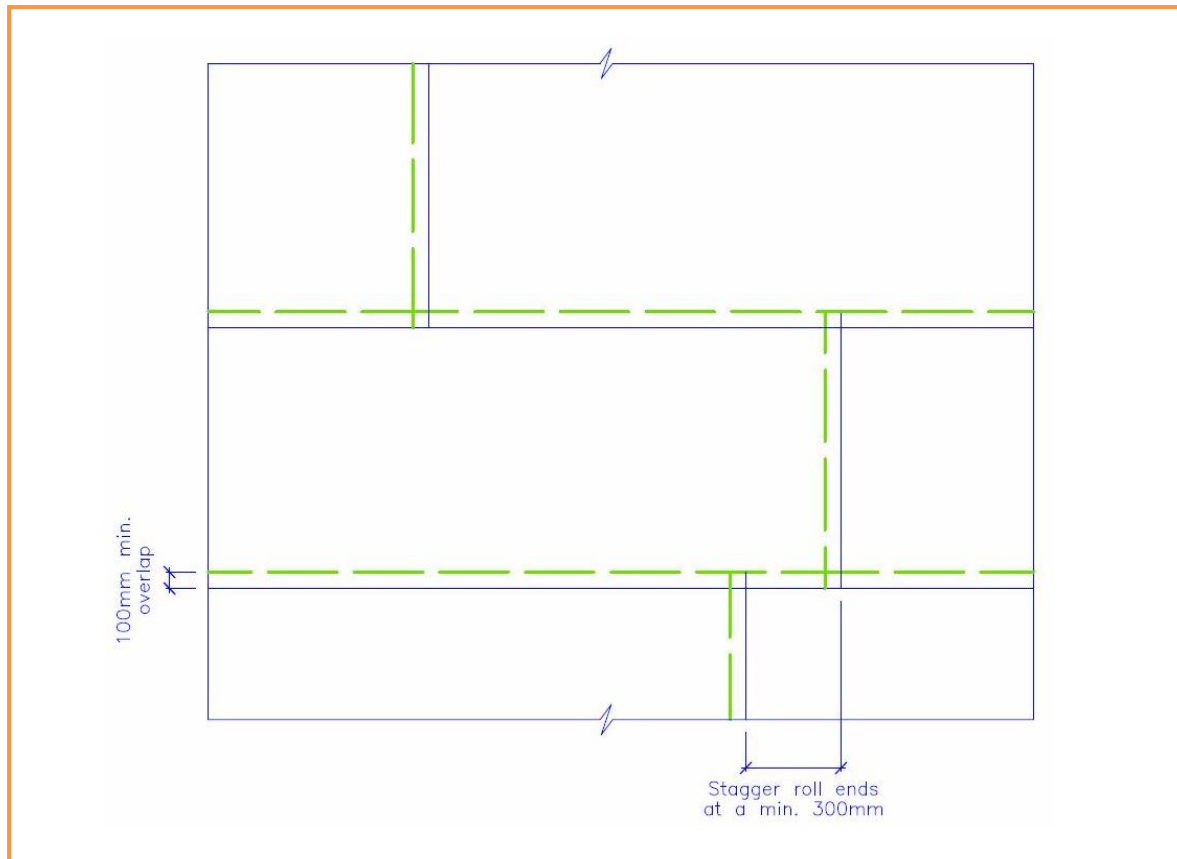
PUDLO Membrane BW can be installed over properly prepared substrates, i.e. concrete, earth, sand or crushed stone. Earth and sand substrates should be compacted to a minimum 85% modified proctor density. Crushed stones should be no larger than 19mm and free from any sharp deflections and pockets.

PUDLO Membrane BW is installed with the dark grey (woven) geotextile side up (see image below).



Slab Construction

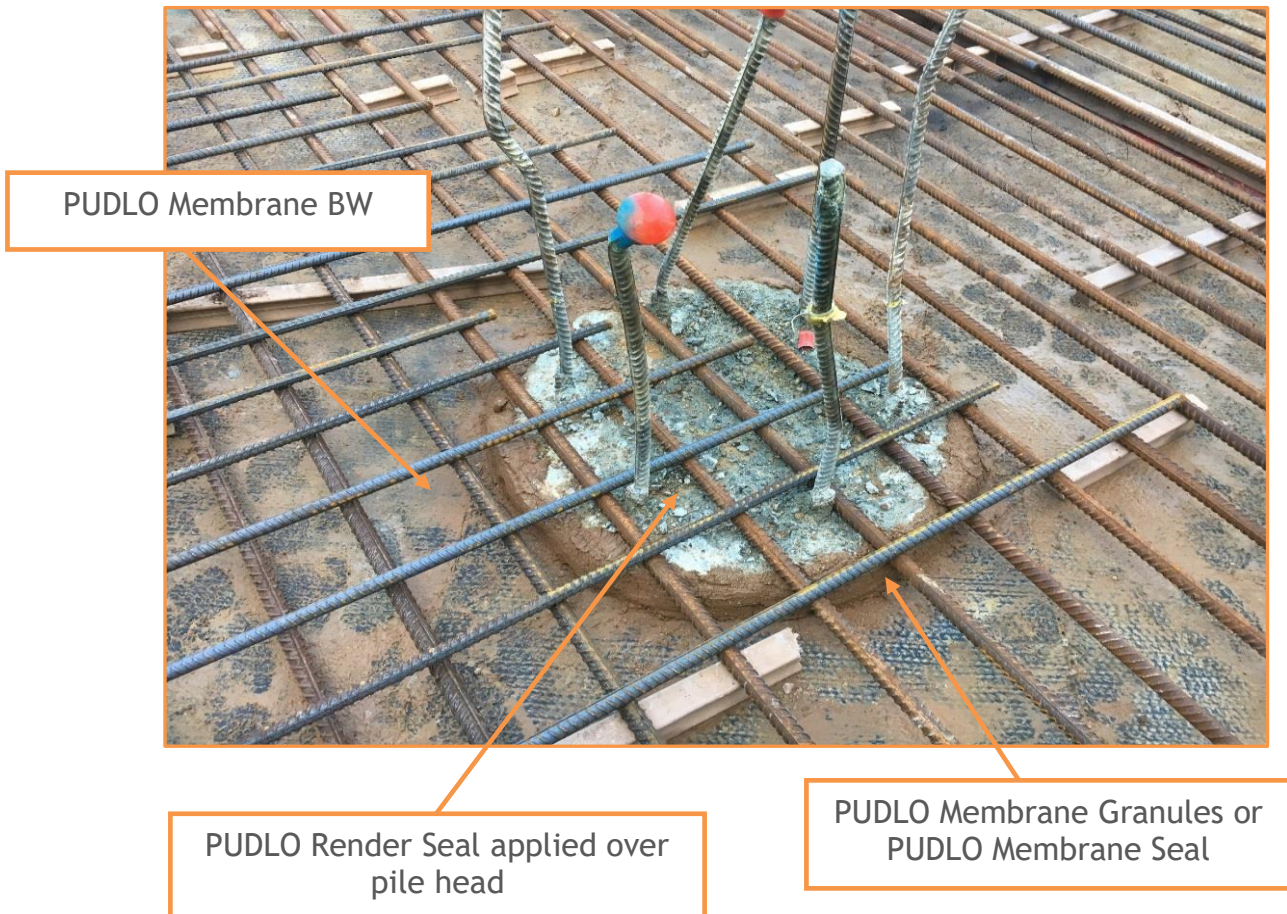
When the first piece of membrane has been installed, all subsequent overlap edges require a minimum of a 100mm overlap and sheet ends should be staggered at a minimum of 300mm. Edges can be nailed or stapled down to prevent displacement during concrete placement. Nailing through PUDLO Membrane BW is acceptable due to its self-healing capabilities. Below is an image showing membrane overlaps:



If the concrete base is poured in sections, PUDLO Membrane BW should extend a minimum of 300mm beyond the slab edge. This allows for the membrane to be properly overlapped (see below).

Pile Heads

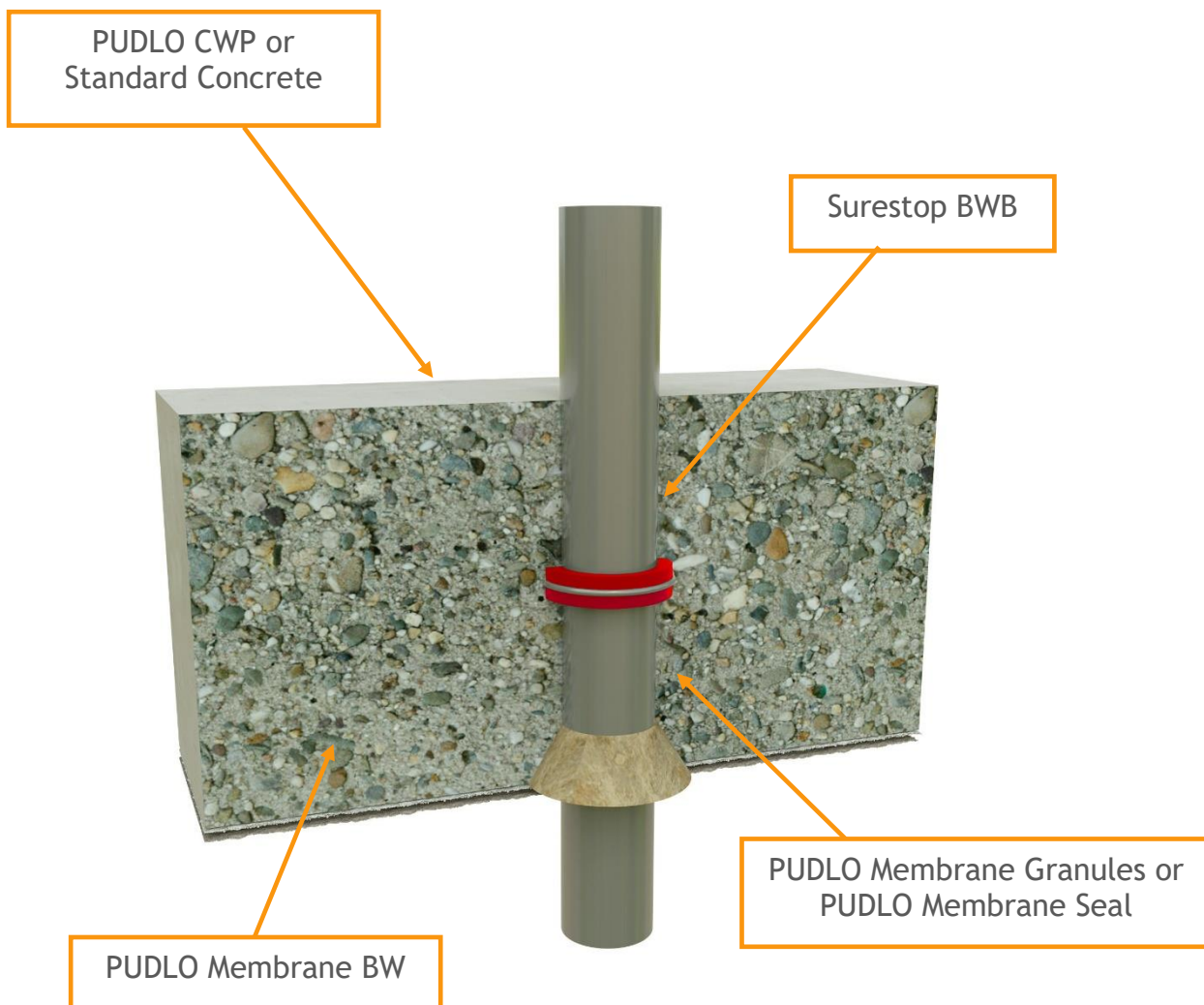
PUDLO Membrane BW is not typically installed over pile caps. To seal pile heads, the membrane is cut to fit over the profile diameter and sealed with a fillet of PUDLO Membrane Granules or PUDLO Membrane Seal. To seal the top of the pile, a cementitious liquid-applied system can then be applied to stop water ingress from passing through the pile head.

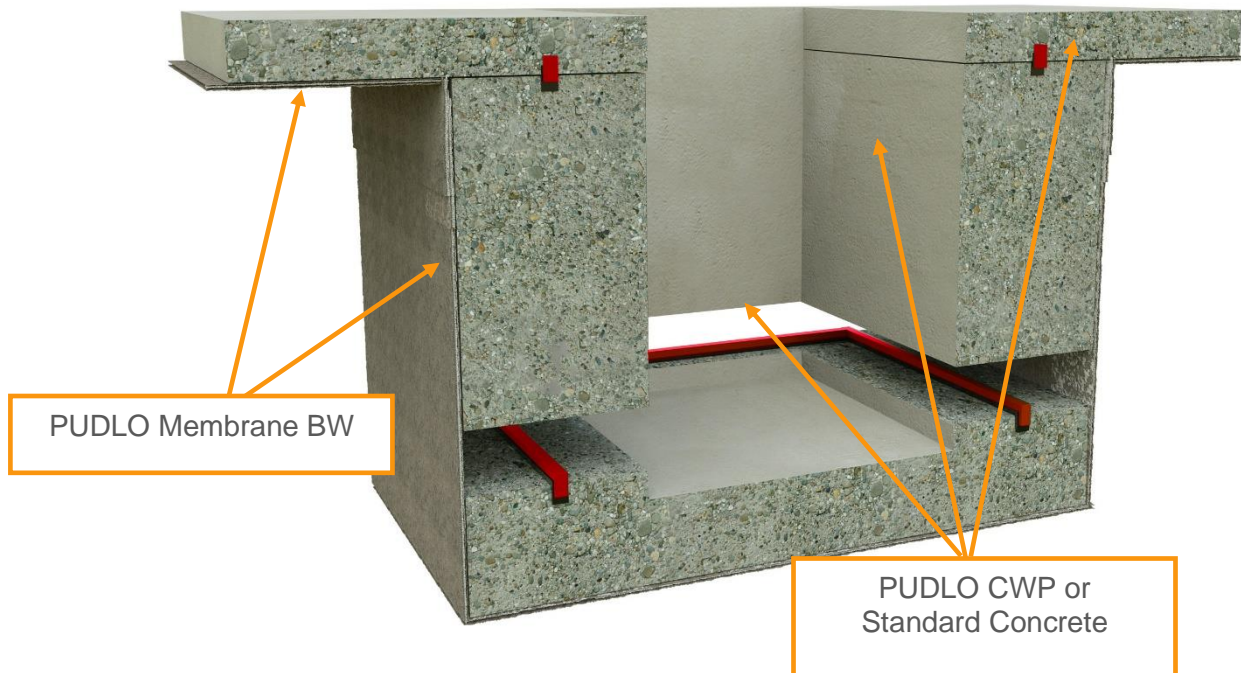


Service Penetrations

To effectively seal pipe penetrations (both in slabs and liner walls), PUDLO Membrane BW must be cut and fitted as closely as possible to the service penetration. PUDLO Membrane Granules or PUDLO Membrane Seal should then extend up the penetration by about 38mm and extend onto the PUDLO Membrane BW.

In the event that congested penetrations are present, it may be practical to cut a piece of PUDLO Membrane BW and fit around each penetration, wet up PUDLO Membrane Granules to a minimum 6mm thick, around the penetrations, covering the entire substrate area. Congested penetrations may result in an exclusion from the PUDLO warranty, so it is paramount that you contact PUDLO at the earliest opportunity to discuss. These could be sealed by means of resin injection by a third-party specialist contractor.





PUDLO Membrane BW should be placed on vertical surfaces, on the substrate below the lift pit base to form a continuous seal around the lift pit box. If the vertical soil is smooth and stable, then the *PUDLO Membrane BW* may be installed directly against the soil.

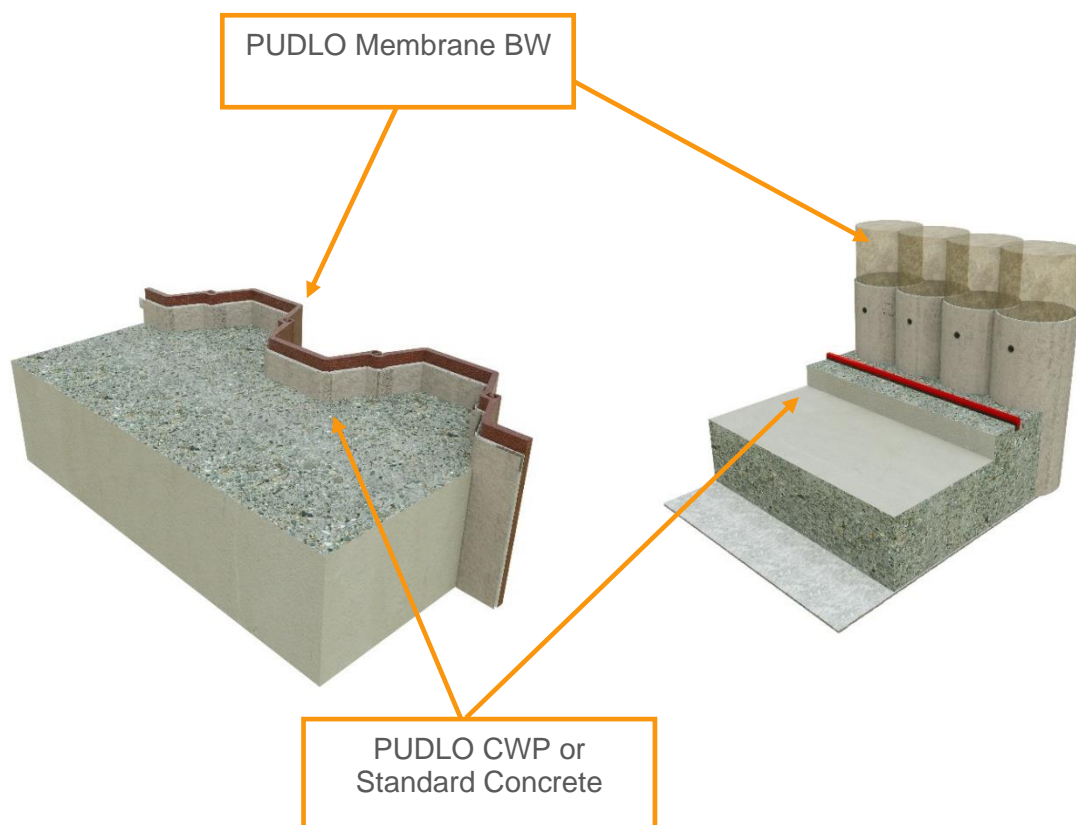
Sheet, Contiguous or Secant Piling

PUDLO Membrane BW can be used in all vertical steel sheet piling, contiguous piling and secant piling applications. For fixing vertically, the membrane can be punctured with fixings as the membrane has self-healing capabilities. There are 2 methods of applying the membrane:

1. PUDLO Membrane BW can be applied to follow the profile of the piles. There is no need to fill any voids unless these are relatively large. This can be done by applying grout or cementitious grout.

Or

2. 12mm plywood may be fixed to the sheet piling to create a flat surface upon which the PUDLO Membrane BW may be fastened. All void spaces between the plywood and sheet piling must be filled with compacted earth or concrete.



4. PUDLO Self Seal

PUDLO Self Seal (waterproofing only) is a self-adhesive, high performance, cold applied waterproof (and gas) membrane which is manufactured from tough HDPE film and a layer of rubber-modified bitumen adhesive. The product can be used as a damp-proof and waterproof membrane.

PUDLO Self Seal comes with added benefits. The advance backing film gives improved technical performance on tear and tensile strength, as well as good conformability for site application. *PUDLO Self Seal* lap joints are easily installed using the bitumen to bitumen zip strip. Both systems provide an excellent bond to the substrate.

Application

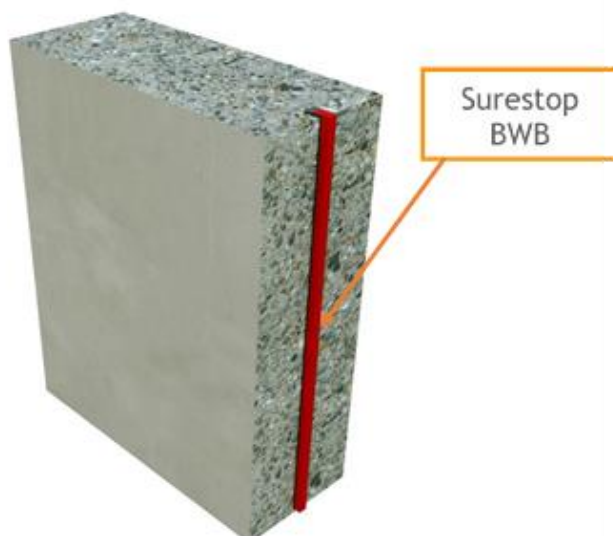
Prior to installation of the *PUDLO Self Seal*, it is important that the concrete is clear from any excess dirt and debris. These latent components can be removed by brushing or washing down (allowing for drying time).

PUDLO Self Seal Primer is then mixed on-site (in accordance with data sheet) and applied directly to the concrete, prior to the *PUDLO Self Seal* being applied. *PUDLO Self Seal* should be applied, allowing 100mm for edge laps and 150mm for end laps.

PUDLO Self Seal system is typically installed when the *PUDLO Membrane BW* terminates just below ground level - *PUDLO Self Seal* will transition the complete waterproof system right up to the DPC level. An example of this can be seen on the detail below:
(Full drawing detail available on request).

5. Surestop BWB

Surestop BWB is a red hydrophilic strip made of natural sodium bentonite for sealing of construction joints in cast-in place concrete. *Surestop BWB* expands over its original dry volume, upon contact with water, to form a positive seal.



Surestop BWB is supplied in 25mm x 20mm x 5m coils, in boxes (6 x 5 metre rolls per box). For fixing instructions please refer to:

Surestop BWB BBA certificate
Surestop BWB product data sheet
The PUDLO System Concrete Standards & Best Practice literature
Typical Details (available on request from your Technical Manager or PUDLO Site Support Team representative)



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Limited Warranty

PUDLO Membrane BW should only be installed once the site ground conditions are suitable to receive the waterproofing product. PUDLO Membrane BW is designed to be used on most substrates. Please consult PUDLO for special installation guidelines. The information and data contained herein is believed to be accurate and reliable. Specifications and other information contained within this 'guide' supersede all previously printed material and is subject to change without prior notice. Manufacturer's warranty of the installed system is available. Please contact PUDLO for terms and limitations. All goods sold by the seller are warranted to be free from defects in material and workmanship. The warranty is in lieu of and excludes all other warranties not expressly set forth herein. Seller shall not be liable for incidental or consequential losses, damages or expenses, directly or indirectly arising from the sale, handling or use of goods, or from any other cause relating thereto, and seller's liability hereunder in any case is expressly limited to the replacement (in the form originally shipped) of goods not complying with this agreement or at seller's election, to the repayment of, or crediting buyer with, an amount equal to the purchase price of such goods, whether such claims are for breach of warranty or negligence. Any claim by buyer with reference to the goods sold hereunder for any cause shall be deemed waived by buyer unless submitted to seller in writing within 30 days from the date buyer discovered or should have discovered any claimed breach. Materials should be inspected and tested by purchaser prior to their use if product quality is subject to verification after shipment. Performance guarantees are normally supplied by the applicator of the PUDLO Membrane BW