

# PUDLO RENDERSEAL INSTALLATION MANUAL

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## Introduction

PUDLO Waterproofing Systems has been at the forefront of protecting structures from water ingress for over 140 years. To expand on our widely used Type B (structural integral) concrete, we launched our first successful membrane system (Type A) in 2016. Since then, PUDLO has launched several waterproofing membranes, PUDLO TS TR & TF Membrane, PUDLO Self Seal, PUDLO GB Reinforced, PUDLO Liquid Tank / Liquid GB as well as PUDLO GP Ultra+ / Ultra Seal / Ultra Tank which is the first of its kind in the UK to provide protection from both gas and water, in accordance with BS 8485:2015. 2018 saw the launch of PUDLO Renderseal a Type A cementitious slurry which provides protection against positive and negative water pressure in below ground applications.

PUDLO Renderseal is a vapour permeable system i.e. it allows the passage of water vapour. Vapour pressure charts show that vapours (in most circumstances) move water out of the basement towards the ground.

## PUDLO Renderseal

*PUDLO Renderseal* is a BBA approved Type A cementitious, ready-mixed surface waterproofer which can be applied to different surfaces for a variety of applications. *PUDLO Renderseal* also has excellent resistance to carbonation. The purpose of this guide is to ensure the end user gains a good understanding of not only how the product works, but how the system is installed.

## Surface preparation

For the product to achieve optimal performance, the first step is to make sure the surface preparation has been carried out in accordance with this installation manual and the product TDS. Surface preparation is the most important step.

All concrete (PUDLO or not) must have a clean and well keyed surface to ensure that the material will bond to the substrate. For waterproofing it is important

that any structural defects and unacceptable conditions are reported to structural engineer and remediated first.

- Step 1 - Remove all laitance, releasing agents, curing compound (if not totally absorbed) and make sure any loose particles are removed. Loose particles can be removed by wire brushing, pressure washing or wet/dry sandblasting. In the event water leaks are migrating through the concrete, this must be treated with PS 3min Rapid Mortar in accordance with product data sheet and confirmation by PUDLO Waterproofing Systems.
- Step 2 - All loose and under compacted concrete must be broken back to sound concrete and replaced with either PS Concrete Repair (dry) or PS 3min Rapid Mortar (if water migration present).

## Watering the surface

Prior to application of PUDLO Renderseal, all surfaces must be washed down / pre-watered with clean water. The surface must be pre-watered several times, ensuring the concrete is saturated. When PUDLO Renderseal is applied, the surface should be damp but not wet. It is important that all surface water be removed.

## Product application

PUDLO Renderseal can be applied in three different ways. These are

- Brush
- Trowel
- Spray

Each application has its own requirements which are discussed in detail below

## Brush

*PUDLO Renderseal* can be applied using a suitable brush (mason's brush). Method of application should be done in a slow controlled manner ensuring the total surface area is covered. When applying by brush, it is important that the end user starts from the bottom and works their way up vertically. All cavities in the concrete must be filled to remove any trapped air.

PUDLO Renderseal is applied in one or two layers (as specified). In the event two layers are required, it is recommended that the second layer of PUDLO Renderseal is applied whilst the first layer is still damp on the surface. Waiting time before applying the second coat is approximately 2-4 hours (climate conditions dependent) such as humidity, temperature, and ambient temperature.

It is important that the first layer is not damaged by the second layer of application. If the first layer is damaged, it must be removed, and surface preparation carried out again with base layer applied once more.

### Trowel

If trowelling PUDLO Renderseal, it is important a scratch coat is applied with a steel trowel for maximum adhesion to the substrate and, just as with the application, worked from bottom upwards in a controlled manner. All cavities (air holes) must be filled. The application for trowel applied is the same as for brush applied. However, in addition, the first layer must be textured slightly using a wallpaper brush whilst PUDLO Renderseal is still in its plastic state. This will ensure optimal adhesion between the two trowelled layers.

### Spray application

Application of PUDLO Renderseal by spraying the material is a robust approach and provides consistent coverage across the face of the material. The amount of material and air must be adjustable, for optimum results. Installation of the material must be carried out by a fully trained / competent operative. When spraying, it is important that the nozzle diameter is approximately 6mm with compressor performance at least 5bar pressure, delivering 500l/min.

When spraying PUDLO Renderseal, the first application should be applied in a circular motion with nozzle held at 90 degrees to the substrate. Distance between the nozzle and the surface will depend on the spray gun and compressed air that is used. Once applied, the material should then be quickly levelled with a suitable trowel which will even out the surface and increase adhesion to the substrate. PUDLO Renderseal is applied in one or two layers (as specified). In the event two layers are required, it is recommended that the second layer of PUDLO Renderseal is applied whilst the first layer is still damp on the surface. Waiting time before applying the second coat is approximately 2-4 hours depending on climate conditions such as humidity, temperature, and ambient temperature

The final layer can be left as a spray finish or a smooth finish with a trowel. Spray finishes will provide an orange peel texture which is easy to clean.

### Coverage/Layers

Type of water impact	Recommended overall application rate	Total layer thickness (approx.)
Pressureless water	3-4kg/m <sup>2</sup>	1.5 - 2mm
Water under pressure	4-6 kg/m <sup>2</sup> (depending on water pressure)	2 - 3mm
Ground Moisture	3kg/m <sup>2</sup>	1.5mm

- Minimum layer thickness per layer = 1.5mm
- Maximum layer thickness per layer = 2.0mm
- Maximum layer thickness in total = 5.0mm

## Curing methods

PUDLO Renderseal is a cement-based product and therefore must be treated in the same way as ordinary concrete regarding curing and protection of the system. Setting / hardening of the material will depend on temperature and humidity conditions. It is important that PUDLO Renderseal is kept damp for at least 5 days and protected from direct sunlight and sheltered by the wind. If required, plastic sheeting / wet mats or moist sand is acceptable to be placed over the material, as it is curing

## Limitations

- PUDLO Renderseal should not be applied in temperatures below 5°C
- Curing compounds must not be applied to the material
- The material must be protected from the rain in the first 24 hours following application
- Protect from frost for 5 days by covering with insulation mats, if required

## Finishings

### Painted surfaces

Surfaces which are being coated or painted must be left open to cure for a minimum period of four weeks. Decorative coverings over the tanking system should be sufficiently vapour-permeable to prevent build-up of humidity. If not done, interstitial condensation could occur within the plaster layer supporting the decoration. This will result in bubbling / peeling of the paint. Gloss paints should not be applied directly on top of PUDLO Renderseal, only use water-based emulsions in basements. Matt emulsions have a lower binder / pigment ratio and a high vapour permeability which means that residual moisture in new plaster can escape. Note: if the paint is suitable for use over new damp plaster, it is also suitable for use over PUDLO Renderseal.

When plaster / render finish is required on top of PUDLO Renderseal, it is important to apply a thin and rough sand and cement in the final layer when it has reached its initial set. If this is not practical, carefully clean and wash down the hardened finish of PUDLO Renderseal and apply the appropriate bonding agent prior to rendering.

Spaces below ground are prone to condensation and will occur on the coolest surface which is usually the PUDLO Renderseal coating and where condensation could affect gypsum-based plasters. It is recommended that refurbishment plaster is used over the PUDLO Renderseal before applying any finishing plasters. If a finishing plaster is applied directly over PUDLO Renderseal, steps must be taken to ensure condensation will not pose problems.

*Note - PUDLO Waterproofing Systems is not responsible for designing / providing advice on the inside space. Grade 3 environments (in accordance with BS8102:2009) must be designed by an architect and/or other suitably qualified professionals.*

## Backfilling

If backfilling against the material, please do so with care ensuring the membrane layer is not damaged. Sharp objects should not touch the coating layer. In the event this is not possible, PUDLO Waterproofing Systems recommends installing protection boards prior to backfilling

## Existing structures / Grade 3 environments

Grade 3 environments for below ground structures in accordance with BS8102:2009 dictates that no damp or water ingress is acceptable. In order to achieve this, a suitable waterproofing solution must be applied within the existing structure and inside space humidity / moisture controlled.

To ensure a basement is fit for purpose, the following needs to be managed:

- Control of water / moisture in the building structure
- Control of relative humidity
- Control of temperature

Any moisture penetration of the building must be stopped. This can be achieved by applying PUDLO Renderseal as a waterproof coating to the inside of both the walls and floors. Following the installation of the waterproofing / damp-proofing work, the air needs to be conditioned and circulated to ensure the relative humidity falls within acceptable levels. This is achieved by providing adequate ventilation or via an efficient air-conditioning system. If this is not done, moisture introduced into the basement by people, electrical appliances i.e. kettles or instant boiling water taps, etc, will allow the humidity to increase which will result in concentrations exceeding acceptable levels.

### Water-retaining structures

In accordance with industry standards, the following points are to be followed by water

industry operatives for retaining structures:

- All surfaces to be cleaned with drinking water - includes ceilings, walls, slabs, columns, stairs
- Do not use high pressure
- Remove all cleaning water
- Disinfect all internal surfaces with approved disinfectants
- Remove all disinfectants

Filling of water tanks is to be carried out in accordance with industry standards / design codes. PUDLO Waterproofing Systems have no specific testing criteria for water retaining structures. PUDLO Waterproofing Systems will, however, require access to the concrete for inspection during the water-testing stage to check the concrete for any defects i.e. cracks, etc.

Once the above has been carried out and PUDLO Renderseal has been applied to the surface and left exposed for a minimum of 14 days, only then can water tanks be filled. If earlier filling is required, doing so may be considered after not less than 7 days have passed, provided that PUDLO Renderseal has been thoroughly checked for hardness.

### PUDLO Renderseal with PUDLO Liquid Render

PUDLO Render when mixed with PUDLO Liquid Render becomes a flexible system which is suitable for applications where minor cracking may occur on the substrate (typically up to 0.8mm). When applying PUDLO Renderseal with PUDLO Liquid it is important that all cracks and defects are sealed from ingress of water. Between each coat of the elastic system we recommend PUDLO Render Strip is embedded across all construction joints.

### Coverage / Layers (with PUDLO Liquid Render)

Type of water impact	Recommended overall application rate	Total layer thickness (approx.)
Pressureless water	2.5 - 3.5kg/m <sup>2</sup>	1.5 - 2mm (number of layers 1-2)
Water under pressure	3.5 - 5.5 kg/m <sup>2</sup> (depending on water pressure)	2 - 3mm

- Shake PUDLO Liquid Render well
- Mix 25kg of PUDLO Renderseal with 10kg of PUDLO Liquid Render in a clean container for at least 3minutes. Ensure mix is lump free and of a homogeneous consistency. Use a high-speed mechanical mixer

### Limited Warranty

**PUDLO Renderseal** should only be installed once the site ground conditions are suitable to receive the waterproofing product. **PUDLO Renderseal** is designed to be used on most substrates and is NOT designed to waterproof against movement / expansion joints. 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 Renderseal**.