



## Hydrothane – All Grades

### Preparation & Finishing Details

Whatever the flooring system the correct preparation of the substrate is vital to ensure successful installation and this is especially true for Polyurethane Screeds, such as Hydrothane. Only experienced applicators trained in the use of polyurethane screeds should be used to install the range of Hydrothane floor screeds.

Conren's Technical and Site Survey Departments offer consultation on individual project requirements and ensure that the appropriate method of preparation is selected. However, this guide has been designed to highlight some of the main planning and installation details that must be taken into account.

#### IMPORTANT FACTORS - SUBSTRATES

Consideration must be given to the age and condition of the substrate. Hydrothane screeds can be laid on to a variety of substrates including concrete, polymer modified sand/cement screeds, previously installed Hydrothane floors, granolithic concrete, cementitious terrazzo surfaces, mild steel and exterior grade plywood (25mm marine ply).

However, some substrates are not suitable to receive the Hydrothane screed which include un-reinforced sand/cement screeds, galvanized and stainless steel, copper or aluminium, asphalt/bitumen, smooth/non porous bricks, ceramic tiles, magnesite, concrete blocks and wood (with the exception of 25mm exterior grade marine plywood).

Concrete bases and screeds should be constructed in accordance with good engineering practices and to **BS8204 part 1:1987 code of practice for concrete and screeds to receive in-situ flooring**. Note: Hydrothane screed is not designed to improve the tolerances or flatness levels in the substrate. Appropriate tolerances should be achieved in the substrate prior to the application of the Hydrothane screed.

#### SITE CONDITIONS & STORAGE - GENERAL

The ideal storage temperature for the Hydrothane screed components is 16 – 22°C. This is also the optimum temperature range for mixing, laying and curing of the screed.

It is important that all the components of the Hydrothane screed, including primer systems to be used, are stored under cover in a dry area. The components should be raised clear of the floor to avoid any risk of cold/water affecting the components and rendering them unusable. In addition, it is critical that the base and hardener components are not allowed to freeze.

Do not expose the Hydrothane screed components to direct sunlight or heat sources. If the components have been affected by intense heat then this may lead to application inconsistencies.

Kept under optimum storage conditions, the Hydrothane screed shelf life is: -

Base & Hardener	-	12 months
Aggregate & Pigment packs	-	9 months

#### SITE CONDITIONS & STORAGE – COLD TEMPERATURES

If site temperatures fall below 16°C it is important to note the following: -

- All grades of Hydrothane screed will become difficult to apply, consequently laying rates are reduced.
- In practice, it can be necessary to heat the material to aid application. If heating is required it is preferable to keep the material in a heated room or "tent" this ensures an even temperature is realised. If this is not practical, portable heating is recommended in the mixing area. All components should be heated and monitored with a temperature probe, with care being taken to avoid uneven temperatures throughout the heated material.

#### SITE CONDITIONS & STORAGE – HOT TEMPERATURES

When temperatures during application are expected to rise above 28°C some form of air conditioned storage is recommended. Keeping the material below this temperature will reduce the risk of flash setting with the optimum maximum laying temperature is 22°C.

Do not install Hydrothane screeds in direct sunlight or on very hot substrates, e.g. after using hot compressed gas for substrate contamination removal. Sufficient time must be allowed for the substrate to cool before application commences.

#### SITE CONDITIONS & STORAGE – SAFETY NOTES

If moisture enters the container of the Hardener component it will chemically react with the contents, producing Carbon Dioxide (CO<sub>2</sub>) gas. If this occurs, do not replace the lids of the respective containers concerned as this may lead to a dangerous excessive pressure build up which can cause the container to rupture. Please see the Hydrothane MSDS for full details.

#### PREPARATION & GENERAL REQUIREMENTS

It is important that Hydrothane screeds are laid on substrates which have sufficient strength i.e. 1.5 N/mm<sup>2</sup>. Applying Hydrothane screeds to inferior strength substrates may result in the system not performing to expectations, particularly in areas subjected to heavy use. To establish the substrate strength a pull-off / tensile strength test can be carried out (for further advice on test methods please refer to the Technical Department).

Additives sometimes used in concrete / screeds (such as waterproofing agents) should not be used without prior consultation with Conren's Technical Department to ensure compatibility with Hydrothane screeds. Newly laid screeds should be finished with a plastic or wooden float (not steel) in order to avoid excessive surface laitance.

#### SURFACE PREPARATION - CONCRETE

It is essential that the substrate surfaces are correctly prepared prior to application. Surface laitance must be removed by mechanical methods (acid etching is not suitable) before Hydrothane screed is applied to avoid the risk of delamination. All substrates must be sound and free from contamination with oil, grease, chemical spills or existing coatings and any other matter. All contamination must be removed before the application of Hydrothane screeds.

## PREPARATION & GENERAL REQUIREMENTS CONT...

Suitable methods of removing contamination include enclosed vacuum shot blasting (Blastrac, or similar equipment), concrete surface planer, grit blasting, drum sander, ultra high pressure water blasting, hot compressed gas burning. In some situations flame spalling may be satisfactory.

The use of air-impact hammers (scabblers) may also be used providing that care is taken not to damage the sub-floor. In addition, a surface grinder can be suitable but it is important to avoid polishing the substrate during its use. NOTE : High impact preparation methods may cause internal fracture of the concrete matrix and a subsequent reduction in strength.

In all cases the concrete/screed must be vacuumed to remove dust, must not be damp and the surface should be visibly dry. If atmospheric condensation is occurring or likely to occur before the final cure is obtained – DO NOT COMMENCE APPLICATION. In addition, if propane heaters are being used in cold conditions, care should be taken as these heaters can often cause condensation to occur.

### SURFACE PREPARATION - STEEL

When applying Hydrothane screeds to steelwork the surface should be cleaned to a bright metal finish by either by grinding or by shotblasting to S.A. 2.5 to ensure all paint, grease or rust is removed. Welding metal edges to the steel plates will help protect the edges of the Hydrothane screed.

### SURFACE PREPARATION – WOOD (25mm Exterior Grade Marine Ply Only)

Timber surfaces should be sanded to a clean base and free from dust oil or grease. Boards must be securely fixed at 50cm centres and the joints covered with polyester cloth or reinforcing scrim. The timber must be dry before applying Hydrothane screeds.

### SURFACE PREPARATION – PREVIOUSLY LAID HYDROTHANE SCREEDS

Providing the existing Hydrothane screed is sound, remains well bonded and free from any chemical contamination or degradation, a shotblaster, drum sander or scarifier can be used to prepare the surface. All dust must be vacuumed off prior to the installing the new Hydrothane system.

## PLANNING THE INSTALLATION

It is necessary to plan and mark out bay lines prior to installation noting the following:-

- Day joints and, in some instances, bay lines will show in the finished floor. Wherever possible these should be positioned so that they will be hidden by plant to be installed on the floor. The position of these joints should be agreed with the client prior to the installation of Hydrothane.
- Bay widths should not exceed 5m, as this can lead to excessive trowelling resulting in an inferior finish.
- Bay lengths are determined by the area to be applied between breaks. This depends on the type of Hydrothane screed, size of the laying team, mixing equipment and the installation temperature.
- Bay lines should be straight and formed with polyethylene-film-coated timber strips, slightly thicker than the proposed installation thickness, or marked with a chalk line and cut back from the previous days laying.
- As a visual aid to achieving the correct thickness and a level floor, the area to be covered by individual mixes can be marked by chalk lines on the substrate.

## PRIMING

Prepared substrates should be primed prior to the application of Hydrothane screeds. Priming ensures a good bond between the substrate and Hydrothane screed, whilst going some way in helping to eliminate the risk of air displacement from the concrete which can cause pinholes and blisters in the finish. New concrete should give a Protimeter reading of less than 75% RH. If the reading is above 75% RH, Conren's WD Aquatect water vapour suppressant primer should be used. WD Aquatect is also required in the absence of a suitable DPM. Hydrothane screeds, although effectively impermeable to liquids, must not be used as a substitute for a vapour barrier. For further information please refer to Conren's Technical Services Department.

## MIXING & APPLICATION

Please refer to the individual datasheets for the various grades of Hydrothane for details on correct mixing and application techniques.

## SUBSTRATE IMPERFECTIONS

Holes or cracks greater than 25mm deep should be filled with Conren FS Screed or filled with a composition of Hydrothane infill and bulked out with 6-10mm dry pea gravel, it is important that any irregularities are addressed prior to priming the substrate. Hydrothane will be able to fill smaller irregularities during the screed application.

## EXPANSION JOINTS

It is imperative that any expansion and crack induced joints formed in the substrate floor must be carried through the Hydrothane screed. It is important when forming expansion joints around columns and equipment that a minimum 50mm radius corner is installed. This avoids the risk of stress-creating angles. Expansion joints should also be formed in areas which may be subjected to vibrational or thermal movement such as;

- Drainage channels & gully's
- Boundaries between different flooring materials
- Load supporting columns set within the floor
- Areas around ovens – it is also good practice to lay heat deflecting tiles under the ovens
- Freezers and Cold Rooms – It is recommended that bays have an aspect ratio as close to one as possible. In may be necessary to install additional joints in cases where the concrete floor is not laid on to an insulating layer.

## COVE DETAILING

Coves should be formed in Hydrothane CG. Large radius coves should be formed in fine concrete to the same standard as the screed before application of the Hydrothane coving mortar.

## FALLS

Falls should be formed in the concrete/screed in accordance with good building practice. Alternatively Hydrothane screed can be itself bulked out with 6-10mm pea gravel and used to form falls or fill deep holes. Ensure sufficient aggregate is added to prevent excessive resin bleeding.

- Hydrothane HD can be laid to falls not exceeding 1:20
- Hydrothane HDT can be laid to falls not exceeding 1:20
- Hydrothane MF can be laid to falls not exceeding 1:80

## EDGE DETAILS

To minimize the risk from shrinkage and temperature changes, it is advisable that at the point where there are free edges to the Hydrothane, extra anchorage should be provided to help distribute any thermal or mechanical stresses. Typical areas include doorways, around plinths and columns, along channels, at perimeter edges and expansion joints.

Using a diamond cutting wheel (depth and width of one and a half times the thickness of the Hydrothane screed) a groove should be cut in the substrate. This also reduces the possibility of liquid seepage under the Hydrothane screed which could otherwise affect the bond to the substrate.

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