

Specification Sheet No

TDS
10

Description

MOISTURE
IN SCREEDS

Date

MARCH
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TECHNICAL DATA SHEET

It is common today to have screeds which, when tested, have moisture content too high to safely install vinyl flooring without the risk of it coming loose.

Moisture is measured as a percentage in relative humidity (RH) and generally 75% RH or below is acceptable.

As a rule, **power floated (or steel trowel) finishes** to screeds tend to slow the drying process, as they close the pores of the screed on the surface thereby slowing the evaporation of residual moisture present in the cement mix. You can also run the risk of over floating the surface which tends to bring the no-fines to the surface, which form a skin on the surface giving a smooth hard finish of maybe 1-2 mm. Underneath, however the screed could be suspect, and may be much softer and somewhat crumbly. This can be a risk in heavy traffic areas especially where there is wheeled traffic.

Although a screed may look good and dry, it is critical to test for both moisture and quality below the surface to avoid any costly screed failures at a later stage.

Wood float finishes today are uncommon. They tend to leave a more porous surface which would allow for quicker drying of the screed and usually may only require a blinding or filling coat of screed leveller which simply closes the pores to give you a flat, smooth surface.

If there is a plastic damp course (as there should be) below the screed base, then it only dries upward in one direction and will naturally take longer and is influenced by temperature, ventilation, and humidity.

NB: Moisture is very prevalent in older buildings(pre-1970's) as no DPM was used in their construction.

Adhesives used to glue down vinyl flooring are largely water based and although they set off in a relative short space of time, their bond strengthens over a curing period that can be several days or even weeks. If, early in this curing process the adhesive is subjected to additional water rising in the screed, it may re-emulsify and cause the flooring to lift. There are several ways to decrease the drying time in screeds. It is an option to grind the surface (especially power floated screeds) which slightly opens the pores of the screed and aids the evaporation. Good ventilation is essential and industrial heaters and/or humidifiers can be used. In the event of difficulty with drying the surface, it would be wise to use surface applied damp proof membranes to protect the adhesive bond.

In addition, if the area where the building is to be erected is suspected of having a lot of underground moisture or if it is on a slope, it is wise to design drainage in such a way that the building is protected from running water by taking it around or away from the building. There are many types of damp proof membranes, but cement based, and epoxy-based moisture proofing products are most common. The amount of moisture or RH is important in terms of obtaining or using the right product, with the necessary guarantees, for water vapour coming through the screed and in some cases, where there is no damp-proof layer below the floor or walls. In below ground installations, there may even be hydrostatic pressure that the surface applied damp sealer must withstand. It is therefore important to check with the manufacturer of the product that it will handle the situation effectively.

There are several accepted methods of testing for moisture. The most important feature is to test down to at least 40% below the surface, as moisture evaporates as it reaches the surface. When the surface only is tested, one can get a

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slightly false reading. Even with the surface test methods such as the liquid test it is important that the top skin of the screed is broken or even better, that you drill down at least 40mm and test the dust being brought to the surface as this is the only way that you can be sure what is happening below the surface. Finally, it is important to document both the test method and the result so that all parties concerned are aware of the moisture content as it is likely to affect both the adhesion and the adhesive even though the floor sheeting will largely be un-affected by moisture. It is the bond to the screed that will suffer and once affected, it is a difficult problem to solve without re-laying the whole floor once the moisture problem has been addressed.

WAGNER RH%	ROMUS/TRAMEX	PROTIMETER	
	2	4	IDEAL MOISTURE
	2.5	8	(it is recommended that you drill 40% into the subfloor to obtain an accurate moisture reading)
70	3	12	
75	3.5	16	CAUTION
	4	20	
	5	22	DAMP-BEWARE
80	6	24	
80-99	7	26	
	8	27	
	9	28	WET-DANGER
	10	29	
	11	30	

The best RH tester is a Protimeter or a Wagner meter that measures moisture 40% into the slab. This will give you an accurate reading of the level of moisture in your screed. The long probes on these meters allow for holes to be drilled into the screed and moisture can be checked down to 50mm.

The required level on a Protimeter is 18 or below and on the Wagner meter reads 75% RH or below, so any figure above this is too wet.

Any electronic measurement showing too much moisture should be taken as a no go. Any reading which indicates that the screed is dry enough to lay on, should be verified and measurements taken at 40% depth of the

screed in various locations to ensure that rising moisture will not accumulate under the flooring and break down the adhesive. The test method, and readings should be recorded and put on file.

We maintain that the Protimeter/Wagner is the best of the electronic moisture testers, because it enables the testing of moisture at different screed depths, has been calibrated to allow for the effect of residual salts on the readings and is simple to use. However, any equipment used must be used in accordance with the manufacturers' instructions.

In cases where equipment is not available for moisture testing, the following procedure can be reliably used to give indication of moisture in floor screeds.

1. The floor surface must be drilled to at least 50mm to expose cement area below the top of the screed, put a few drops of Polyflor "moisture test liquid" on the dust that comes from the drilling.

The liquid will turn "pink" if there is moisture coming through or out of the screed surface. The darker the colour the wetter the screed or the more moisture carry through.

2. In many cases with a power floated screed surface, the 'test liquid' will not react unless the surface is drilled, and the dust tested.

3. In addition, to be certain, a good procedure is to securely tape a piece of "thick" black plastic onto the screed in two or three places, leave these for about 72 hours – then lift the plastic, if there is condensation against the plastic this is a sure indication of moisture vapour coming through or out of the screed.

However, to be safe even if there is no condensation, the surface should be drilled and tested as described in point 1 and this will again indicate if there is moisture vapour coming out or through the screed.

The above procedures are old fashioned tried and tested methods that can be easily done by anyone. The test liquid is available from our Technical Department in Edenvale.