Technical Bulletins

# Wet Concrete & Resin Toppings

Project timeframes are constantly being squeezed and laying resin floors on new concrete can create problems leading to premature failure.

**Concrete Shrinkage**
Newly laid concrete shrinks, this shrinkage largely occurs in the 14 days post installation and to a lesser extent for the following 14 days.
Resin floor toppings are almost always fully cured in 24 hours.

If applied early and without the correct surface preparation the concrete shrinking beneath a new resin floor topping can cause the latter to delaminate.

Adding specialised concrete shrinkage compensators to the concrete design mix can reduce the concrete shrinkage but can lead to incompatibility issues between the concrete and the new resin topping.

Wherever possible to gain maximum adhesion between the concrete and the resin topping no additives should be allowed and natural curing should be allowed to take place, however, if unavoidable additional preparation and priming may be required to ensure the resin topping is installed successfully, therefore thorough checking should be carried out with the allnex technical team prior to the use of any specialised additives.

Resin floor toppings can be laid in large seamless areas, to dimish the effect of the concrete shrinkage increasing the number of substrate control / movement joints effectively cutting the area of topping being installed will help ease the stress on a curing resin reducing the tension, reducing the risk of delamination.

**Concrete Water Content**
The general rule is that concrete requires to be dry to 75% RH or allowed to cure for 28 days prior to a resin floor topping installation, however, advances in technology will allow specialised systems to be installed on substrates with a high water content, (see table one below), consult the allnex technical team for advice.

The water in concrete is a less significant problem than concrete shrinkage described above, water can be reduce to low levels within the first 14 – 21 days if managed and protected from further weather or site based wettings.

If the installation program is tight then it is important to manage the specific areas with all parties to ensure the concrete has the best opportunity to meet the installation requirements.

- Keep the new concrete clear of all dust and debris clean and even sweep the area regularly.
- Do not use the area as a storage facility, a clear open surface will allow moisture to escape and the concrete to dry more rapidly.
- As soon as practical carry out surface preparation grinding or shot-blasting as required as this will remove the surface laitence and open the concrete surface again allowing more rapid moisture release.
- Site warming and heating is not necessary and is impractical, however, natural or forced cross air ventilation over a continuous period will very rapidly drop moisture levels.
- Closed cold, shaded rooms will dry exceeding slowly and should be avoided.

Concrete curing compounds will drastically retard the dry and make resin floor toppings difficult to lay.
They are used to hold water, obtain maximum strength from the concrete and to prevent excessive shrinkage.
Their uses can be valuable in the first 10 days of concrete curing but are largely redundant following.
Resin toppings can be laid over cure compounds however when used the concrete surface will require additional aggressive preparation techniques as soon as possible to ensure they are fully removed and cannot interfere with the bond of the concrete to the new topping. If possible a small trial installation and pull off test can be carried out to check compatibility and adequate adhesion is achieved.

It is very important, if the installation programme is tight, to have open and clear site meetings with all parties to elaborate to all concerned the requirements outlined above.

Laying on concrete less than a month old will always be risky due to the points above and the variable nature of the concrete, the laying conditions and the drying conditions.

Allnex recommend to always plan the concrete pours to ensure a month’s curing and drying time prior to the new floor installation.

| Possible Installation Options | | |
|---|---|---|
| **Days** | **Resin Floor Options** | **Preparation** |
| +2 – 7 days | Nuthane Polyurethane | Specialised Floor topping installation risky.<br>○ Use an engineered concrete screed.<br>○ Use Heavy shot-blast, to CSP 7+<br>○ Keep site surface clean<br>○ Employ cross ventilation for full two days before installation<br>○ Install substrate anchorage grooves at all topping termination points.<br>○ Increase the number of substrate movement / control joints. |
| 7+ - 14 | Nuthane Polyurethane<br>Supascreed<br>Surecote Epoxy | Floor topping installation management required.<br>○ Use an engineered concrete screed.<br>○ Use Heavy shot-blast, to CSP 7+<br>○ Keep site surface clean<br>○ Employ cross ventilation for full two days before installation<br>○ Install substrate anchorage grooves at all topping termination points.<br>○ Increase the number of substrate movement / control joints. |
| 14+ - 28 | Nuthane Polyurethane<br>Supascreed Epoxy<br>Surecote Epoxy | Specialised Floor Topping only.<br>○ Prepare as standard<br>○ Keep site surface clean<br>○ Employ cross ventilation for full two days before installation<br>○ Install substrate anchorage grooves at all topping termination points. |
| 28+ | Nuthane Polyurethane<br>Supascreed Epoxy<br>Sureshield Polyester<br>Terrazzite Polyester<br>Surchem VE Vinyl ester | Safe for all floor topping installations. |

Often the falls on existing concrete toppings need to be increased, allnex offer 3 STZ Prefill options to assist with these installations that can be last minuet and require the finish to be installed either monolithically or without delay.

Refer to STZ Prefill tech data for additional information.

| Prefill Overview | | | |
|---|---|---|---|
| **Material** | **Prefill Type and Overlay Time #1** | **Prefill Type and Overlay Time #2** | **Prefill type and Overlay Time #3** |
| Sureshield | Polyester Prefill Resin - 24hrs | Engineered Bagged Screed allnex screed 20+ - 28days | Engineered Concrete 28 days |
| Decorative Terrazzite | Polyester Prefill Resin - 24hrs | Engineered Bagged Screed allnex screed 20+ - 28days | Engineered Concrete 28 days |
| Architectural Terrazzite | Polyester Prefill Resin - 24hrs | Engineered Bagged Screed Aalnex screed 20+ - 28days | Engineered Concrete 28 days |
| Supascreed | Epoxy Prefill Resin - 24hrs | Engineered Bagged Screed allnex screed 20+ - 7 days | Engineered Concrete +7 days |
| Epoxy Traxite | Epoxy Prefill Resin - 24hrs | Engineered Bagged Screed allnex screed 20+ - 7 days | Engineered Concrete +7 days |
| Surechem VE | Polyester Prefill Resin - 24hrs | Engineered Bagged Screed allnex screed 20+ - 28days | Engineered Concrete 28 days |
| Surecote 200/500/500AR | Epoxy Prefill Resin - 24hrs | Engineered Bagged Screed allnex Screed 20+ - 7 days | Engineered Concrete 7+ days |
| Nuthane | Epoxy Prefill Resin - 24hrs | Engineered Bagged Screed allnex screed 20+ - 24 hrs | Engineered Concrete 2 days |

This advice is given in good faith, take great care when dealing with compressed project timelines and applications to wet, uncured concrete floors

For further advice or information do not hesitate to contact the allnex technical team.

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