Technical Bulletins

Troubleshooting

A. Coves
allnex resin floor toppings provide excellent concrete and environmental protection, some of these installations are in complex environments where a floor to wall cove is required, products such as Sureshield and Surechem VE, Supascreed and Nuthane will perform well in these environments.
Refer to allnex separate cove technical bulletin for installation and troubleshooting details.

B. Topping Delamination
In almost all cases this is due to poor surface preparation.
Utilising modern methods of preparation, shot-blasting, diamond grinding, followed by industrial vacuuming there should be no excuse for poor preparation.
In some cases delamination can be caused by using incompatible products leading to no inter-coat adhesion or installing follow on coatings outside the maximum re-coat time frames of the previous or base coat also leading to a no inter-coat adhesion.
Rarely but of note, coating over a “dusty” or “friable” surface will also lead to poor adhesion at the bond line which could later manifest itself as delamination.

C. Blisters in Floor Toppings
There are a variety of reasons for floor topping blisters: wet concrete, contaminated substrates, inadequate filler loadings, use of wrong mix ratios, application in direct sunlight, low temperatures leading to long cure times and consequent opportunities for blistering, application during strongly rising ambient temperatures, ambient temperatures leading to outgassing of substrates, excessively thick films applied in one coat that will not release solvent or gasses, excessively fast surface curing leading to “skinning”.

D. Blisters in Floor Coatings - Moisture
In addition to the previous section. Coatings are may be susceptible to substrate outgassing. (i.e. water vapour release forming bubbles.) This is normally controlled by priming or double priming and application in a consistent temperature environment.

E. Surface Scratching
This is normally controlled by product selection. Choose a product that has the most abrasion resistance for the environment. Aggregate filled topping are more abrasion resistant than thin coatings. All products will scratch if subjected to extremes. See allnex product section guide or talk to a member of our technical team for the right advice.

F. Chemical Attack
This is normally controlled by product selection, allnex resin systems are selected for their performance. It is very important to choose a product that will resist the anticipated chemicals in use within the environment. Chemical attack is a factor of the chemical, its concentration, temperature and length of exposure. Some coatings are used as sacrificial protective surfaces and regular maintenance will be required. e.g. bund linings.

G. Thermal Shocking
This refers to the expansion and contraction of the topping due to rapid changes in temperature, leading to differential movement between the topping and the substrate resulting in delaminating cracking or crazing. This is very difficult to prevent other than with the use of environmental controls and good product choice. Products applied (in a zone of significant thermal variations) to a well prepared substrate with an aggressive surface profile will perform better than those applied to smooth substrates due to the increase in mechanical key.

H. Non Slip
In the first instance ensure the specification addresses correct non-slip requirements for the environment. allnex offer a range of surface profiles in a range of surface products.
Constant trafficking will overtime reduce non slip profiles and this may happen quicker in some areas due to traffic flow, e.g. doorways.

Designed non slip aggregates must be held in place by correctly following installation procedures, larger aggregates require thicker binder coats.
Dragging heavy, hard and sharp edged objects across a floor repeated will rapidly reduce the non-slip surface.
In some circumstances the non-slip finish may be too aggressive for the area of use this can only be controlled by correct specification.
Contamination, dirt, grease, oil build up will make a non-slip finishes appear slippery, cleaning in these areas is essential.
There is always a trade-off between nonslip and cleanability which the owners must be made aware off prior to installation.
Compliance issues are paramount relating to hygiene and safe working environments therefore the floor surface must be specified correctly before installation.
allnex can offer resurfacing solutions without the need for full existing removal as required.
Traxite

I. Incorrect Direction of Falls
Falls to drains are very important to create floors that self-dry and do not promote standing water essential in hygienic situations.
Falls of 1:50 are needed for these hygienic self-dry draining floors.
Generally floor topping follow the contours of the concrete substrate therefore all falls and levels should be incorporated into the concrete.
If the concrete is found to be incorrect then allnex can provide post concrete installation STZ Prefill options to rectify the problem, however these should be costed and agreed prior to any topping installation as prefill volumes can be high leading to expensive installations.

J. Impact Chipping
This is normally controlled by product selection. Choose a product that has the most impact resistance for the environment. Thicker Aggregate filled topping are more impact resistant than thin coatings.
All products will chip if subjected to extremes. See allnex product section guide.
Thicker toppings are more durable then thin film coatings.

K. Surface Whitening
The effect is very unpredictable and is dependent on concrete slab moisture content as well as the installation environment.
Caused by a premature exposure of the freshly and uncured resin system surface to moisture and or condensation.
Applicators should take note of dew points, temperature, rainfall and water ingress during the application stages.
Whitening can also be exacerbated by application of resin systems at low temperatures and in damp conditions, the use of faster curing hardeners should be considered for these situations.
Whitening may happen in isolation on parts of floors where cold air from chillers and freezers escapes out across a floor while the coating is still curing.

Whitening, sometimes called blooming, can occur in clear finishes, many clear coatings on concrete have a film thickness limit for this reason.
It is the effect of condensation on the underside of the clear film, it occurs when the clear film is thick enough (excessive coats) to be impervious and rising moisture condenses or effects the curing topcoat the finish coat can go white in patches or can become fully opaque.
Generally this is often a permanent effect however sometimes it may be remedied with a careful flame, hot air or light solvent wipe.

L. Surface Staining
See chemical attack. Long term exposure to chemicals will always lead to some form of surface staining.
An interrupted floor finish will hide surface staining better than a uniform single colour finish. E.g. Terraflake, Traxite.
Surface staining usually does not affect the overall performance of the topping system, prompt cleaning of spills is essential to reduce the risk of surface staining.
Allnex use the MAD designation to describe staining: Marked, Attacked or Destroyed, only the latter is deemed a failure.

M. Cracking / Crazing
Well-designed flooring systems do not crack or craze of their own accord.
Cracks in concrete and other substrates will almost always reflect into the topping unless managed.
Deflection and movement of floor substrates will almost always result in topping cracking.
The installation of well-placed flexible joints will reduce this.

Other reasons for cracking may be: too rapid curing, exposure to high heat during curing, incompatible

systems, too thick an application, coating outside recommended recoat timeframes.

Ridge lines in coats: These are often over cracks in concrete.
The concrete will move with seasonal or temperature variations underneath the coating, this movement may be very small, in this case a "ridge" of the coating may become visible.
If the concrete movement is too much, then the coating will crack.
Generally it is not possible for a coating, bonded to concrete, to resist concrete crack movement.

N. Trowel and Roller Marks
Hand applied toppings will always present with trowel marks.
Choose skilled contractors to minimise the effect, this also applies to roller applied coatings.

O. Softness of Film
Almost always a result on inadequate mixing, the use of incorrect mix ratios or the use of wet ingredients and could be the entire floor area or in patches.
If variations exist and it is confirmed one batch has been used then mix to mix proportioning is most likely to blame.
Liquid floor coatings are made in large batches and it is not likely that variations occur within a batch. In this way contractors should always record batch numbers used on a job.
Almost all industrial toppings are two to three component and contractors QA procedures should ensure 100% continuity of mixing.
Softness of film can also occur in very low temperature curing conditions.

P. Finish Cleanability
Cleanability is a factor of the environment and product selection, see allnex “cleaning & maintenance” technical bulletin for reference.
Non-slip finishes will need brush cleaning rather than mopping only.

Q. Pin Holes
Pin Holes, bubbles and other defects are a surface tension effect of the substrate.
Correct surface preparation, cleaning and priming will usually eliminate these effects.
See Blisters in Floor Toppings above.
Pin Holes should not be confused with dust contamination that looks like pinholes, a quick check by inspecting the floor through a magnifying glass will determine if the fault is clear and spherical, generally a pin hole or black/brown and irregularly shaped generally dust.

R. Cleanability of Aggregated Surfaces
There is always a conflict between cleanability and non-slip, specify the correct product and surface profile for the project based upon the client requirements.

S. Rejections
Certain substances present either on the floor surface or in the atmosphere / environment can cause incompatibility between coating layers. This incompatibility causes a coating to draw away leaving a dish shaped area measuring up to 50mm in diameter, often called “fisheyes.” This coating imperfection is the most difficult to anticipate and treat.
Common substances which cause rejections are, Silicon’s, from old polish, glass cleaning sealants, waxes, oils, any type of water repellents or concrete cure hardeners even solvents used in cleaning wipes may cause surface defects..
“Fisheyeing” may also be caused by applying a thin film solvent coating too thickly, two thin even coats are better than one heavy application.
Applying a solvent coating over a solvent free coating before the solvent free has fully cured may also lead to a surface problem, the solvent in the finish coat can react with the solvent free materials underneath creating the rejection.
Sanding dust particles may also cause incompatibility and surface defects.

T. Gloss variations
Gloss variations are usually application variations.
A coating will provide a specific surface effect or gloss based on a design film thickness. If the coating is applied at thin applications (higher Lt/m²) the gloss will be lower, likewise thick films often become higher in gloss.
Coatings that are applied in different film thicknesses across the floor will usually have a variety of gloss.
Contractors must develop methods to ensure even applications of coatings, wet film gauges exist to determine film thickness during application.

U. Bonding to old or damaged concrete or old coatings.
This is generally not recommended.
There are a number of modern methods of old coating removal and concrete surface preparation,

however it may be a client's choice as they may accepted cracking and local bond failure. i.e. flaking floors.
As this is pre-accepted then it cannot really be termed failure.

V. Dirt shows on the floor
Plain coloured floor finishes will often show dirt specs. Dirt, dust, lint etc may show as white on a dark colour. With a black floor lint and dust will show badly. Likewise on a white floor dirt specs will show badly. Dark or light floors are very difficult to maintain in a clean fashion. An interrupted floor, e.g. flake flooring, is a very good compromise to maintain good looks.

W. Colour Variation, Colour Separation
There is always a high chance of colour differences between coloured batches, applicators should note batch numbers and use natural breaks or box blending to manage different batch installations.
To counter the above effects we try to recommend that different batches of material are used for base coats but single batches or box blended materials are used for finish coats.
There will also be a high chance of colour differences between factory made and tinted on site product, these differences are less noticeable in dark colours but can be very noticeable in lighter colours.
Colour variation/separation can occur if the coating is applied unevenly, thicker areas of coating will appear darker than thinner areas.
Environmental conditions can effect roll on coating colours, areas exposed to direct sunlight or a breeze will cure quicker than areas in shade or areas without good air flow, this speed of cure can affect the final colour, also areas subjected to higher levels of humidity will cure differently from areas of low humidity.
Thinning coatings that are normally applied at 100% solids may also be an issue. if possible use specific designed products. E.g. Surecote 200 for full 100% solids coatings, Terratuff for solvented coatings.

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

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