GUIDE TO THE SPECIFICATION AND APPLICATION OF SYNTHETIC RESIN FLOORING

CONTENTS

1 INTRODUCTION

This Guide is based on the collective experience of FeRFA members who have been designing and applying Synthetic Resin Flooring since the earliest development of such resins in the 1960's.

In separate sections the Guide gives recommendations for the classification, for the design, for substrate preparation, for the application and for the inspection and testing of the Synthetic Resin Flooring. Its scope includes all floorings based on liquid synthetic resin binders, in which curing takes place by chemical reaction of the resin components, applied to a direct finished concrete slab or screed or to an existing concrete floor.

The terminology 'resin' is derived from the epoxy resin on which the first resin floorings were based. Many different types of chemicals are now used to manufacture resin floorings but the one common feature is that a polymerisation or 'curing reaction' takes place in situ to produce the final synthetic resin finish. Synthetic resin flooring is available in a wide range of thickness from thin floor seals to heavy duty industrial protection. The resulting flooring can provide a seamless surface with greatly enhanced performance compared to the concrete base on which it is applied.

The main advantages of synthetic resin floorings can be summarised as follows:

a) strong permanent bond to the concrete base

b) excellent resistance to a wide spectrum of aggressive chemicals

c) impermeable to liquids

d) increased toughness, durability, resilience, and resistance to impact or abrasion

e) hygienic and easily cleaned surfaces

f) greater resistance to cracking

g) low applied thickness

h) rapid installation and curing with minimum disruption to normal operations

This document is the basis for the new British Standard Code of Practice for Synthetic Resin Floorings BS 8204-6.

2 SYNTHETIC RESIN FLOORINGS

2.1 General

For all synthetic resin flooring products the setting reaction, by which the initially liquid components are converted into a strong tough polymer, begins only when the base resin and the reactive hardener are intimately mixed. To obtain the optimum results these components must be blended in the precise proportions needed for the chemical reaction to occur and mixing must be thorough to ensure the final product is homogeneous and uniform in properties.

Optimum performance is assured by the use either of pre-batched components or the precise proportioning of the components on site from bulk supplies. Since it is imperative that the chemical balance is not upset no attempt should be made to use sub-divided packs of pre-batched components, nor to blend in other materials such as diluents or aggregates.

Many synthetic resin flooring systems may also incorporate separate primers and/or surface seals. These must be applied strictly in accordance with the manufacturer's recommendations in order to achieve maximum bond between each application.

2.2 Synthetic resin types

A variety of different types of synthetic resin systems are available which can form the binder of a flooring system. These include typically epoxy, polyurethane and methacrylate resins.

Different resin types give different combinations of application characteristics and in-service performance and the considerations which affect the selection of a particular type are described in the design section.

2.3 Classification of Synthetic Resin Flooring types

Synthetic resin floorings can be divided into different types varying in thickness and surface finish:

TYPE	NAME	DESCRIPTION	DUTY	TYPICAL THICKNESS
1	Floor seal	Applied in two or more coats. Generally solvent or water borne.	LD	up to 150 µm
2	Floor coating	Applied in two or more coats. Generally solvent free.	LD/MD	150 µm to 300 µm
3	High build Floor coating	Applied in two or more coats. Generally solvent free.	MD	300 µm to 1000 µm
4	Multi-layer flooring	Aggregate dressed systems based on multiple layers of floor coatings or flow-applied floorings, often described as 'sandwich' systems.	MD/HD	> 2 mm
5	Flow applied flooring	Often referred to as 'self-smoothing' or 'self-levelling' flooring and having a smooth surface.	MD/HD	2 mm to 3 mm
6	Resin screed flooring	Trowel-finished, heavily filled systems, generally incorporating a surface seal coat to minimize porosity.	MD/HD	> 4 mm
7	Heavy duty flowable flooring	Having a smooth surface.	HD/VHD	4 mm to 6 mm
8	Heavy duty Resin flooring	Trowel-finished, aggregate filled systems effectively impervious throughout their thickness.	VHD	> 6 mm

LD (Light duty) — light foot traffic, occasional rubber tyred vehicles
MD (Medium duty) — regular foot traffic, frequent fork lift truck traffic, occasional hard plastic-wheeled trolleys,
HD (Heavy duty) — constant fork lift truck traffic, hard plastic wheeled trolleys, some impact
VHD (Very heavy duty) — severe heavily loaded traffic and impact

In general terms these categories of flooring are listed in ascending order of durability. However the actual life in a particular installation will depend on the product formulation used, the quality of the substrate and the degree of severity of the service conditions. Please refer to FeRFA "Guide to the Selection of Synthetic Resin Floors (ISBN 0 9538020 3 5) for further information on the features and characteristics of the floor types.

Some of these categories of flooring may be produced with special decorative effects by the incorporation of coloured particles or flakes in the surface. Terrazzo-like finishes (ground exposed aggregate) may be produced from certain trowel-applied floorings of Types 5 and 8. Slip resistant or anti-static/conductive versions of all these categories may also be available.

2.4 Sustainability

Resin flooring does not present an environmental hazard when laid, the components react together, chemically change and become inert. A number of resin based components are now classified as hazardous in the "wet state". The Product Safety Data Sheet defines the hazards and the *operating* requirements to minimise them. All users of hazardous materials need to take the requirements from the Safety Data Sheet and produce a COSHH assessment (Control of Substances Hazardous to Health). This advises them of the hazards and details what the operators need to do to protect themselves, other personnel in the vicinity and the environment.

Life Cycle Assessment (LCA) is a tool to assess the potential environmental impact of a product or system at all stages in their life cycle. A study undertaken to compare the Life Cycle Assessment of resin flooring against other flooring systems has revealed that the major environmental burden originates from the manufacturing of the product particularly the derivation of the resin components from petroleum oil.

The relative contributions to the life cycle costs will depend on the anticipated working life of the floor after installation. Synthetic resin flooring is extremely tough and durable and can have a life expectancy in excess of 20 years when specified and installed correctly. In such cases the major share of the life cycle costs will be for regular cleaning and maintenance, which would apply for all types of flooring, but be less for resin flooring because of their superior performance characteristics. In addition they can generally be refurbished by overcoating with a lower thickness than applied originally.

3 EXCHANGE OF INFORMATION AND TIME SCHEDULE

3.1 General

Consultations and exchange of information between all parties concerned with the building operations should be arranged so that each has full knowledge of the particulars of the flooring work and be able to co-operate in producing the conditions required to complete a satisfactory job.

Some of the items listed in 3.3, 3.4 and 3.5 may need additional precautions or procedures and responsibility for these should be determined in advance of the work.

3.2 Selection of flooring to be applied

It is essential that, in the design and construction stages, there should be full consultation with the manufacturer of the flooring product and/or the specialist flooring contractor to ensure that the product to be selected is entirely suited for the conditions both during application and in subsequent service. Consideration should therefore be given to whichever of the following are applicable:

a) intended use of the synthetic resin flooring including the type, extent and frequency of trafficking;

b) type of loading, static or dynamic, and severity of impact;

c) details of all chemicals, including those used for cleaning or sterilising, which could come into contact with the floor, and extent, frequency and temperature of spillage;

d) temperatures that the flooring is required to withstand in normal service or as part of the cleaning operations and whether exposure is by radiant or conductive heat or by direct contact;

e) colour, uniformity and retention, aesthetics and decorative effects

f) extent to which the flooring will be exposed to direct sunlight or ultra-violet light;

g) compliance with hygiene or food industry requirements;

h) special requirements, such as slip resistance or static controlled characteristics;

i) expected life of the flooring;

j) thickness of flooring to be installed;

k) time available for the application and curing of the flooring;

l) age, specification where known and nature of the base, including information about any previous use of the floor which could affect adhesion, and any preparatory treatment required.

m) health & safety and environmental issues during application and in service

3.3 Information to be provided to the flooring contractor

All relevant information should be provided in good time to those responsible for installing the flooring and to others whose work could be affected, including whichever of the following are applicable:

a) description, situation and address of site and means of access;

b) those conditions of contract which could practically affect this particular work;

c) location and area of flooring to be installed;

d) finished floor level, falls and maximum permissible departure from datum in each location;

e) class of surface regularity of the finished flooring;

f) type of damp-proofing and insulation if present;

g) type and thickness of any levelling screed proposed, and whether any curing compound is to be applied;

h) type of finish of concrete base or screed;

i) any work consequent upon services passing through the floor;

j) treatment of joints;

k) treatment of channels;

l) treatment of skirtings and kerbs;

m) treatment of junctions with adjacent floorings and doorway thresholds;

n) any special requirements related to underfloor heating;

o) the timing of the introduction of heating in the building;

p) date for the completion of the base or concrete screed to receive the flooring;

q) dates for the start and completion of various sections of the floor;

r) details of any compliance testing required;

s) any potential restrictions on working hours;

t) any limitations on installation due to production or other activities.

3.4 Information to be provided by the flooring contractor

The flooring contractor should provide in good time to those responsible for the building, details of the conditions needed for the installation of the flooring, including whichever of the following are applicable:

a) the extent of weatherproof areas to be provided for storage of raw materials and mixing of the flooring product and whether any temperature control is necessary;

b) ambient temperature requirements in the area where the flooring is to be installed;

c) power and lighting requirements to facilitate the laying operation;

d) protective screening to isolate the working area from adjacent facilities;

e) minimum time intervals after the flooring is installed before allowing foot traffic, vehicular traffic and water or chemical exposure respectively;

f) protection necessary for the flooring between installation and final handover

3.5 Time schedule

Allowances should be made for the following:

a) curing and drying of the base concrete, fine concrete screed, and/or polymer-modified cementitious levelling screed, when applicable;

b) time between commencement and completion of work;

c) period of curing and protection of the completed flooring from damage by other trades, including restriction of access.

4 DESIGN

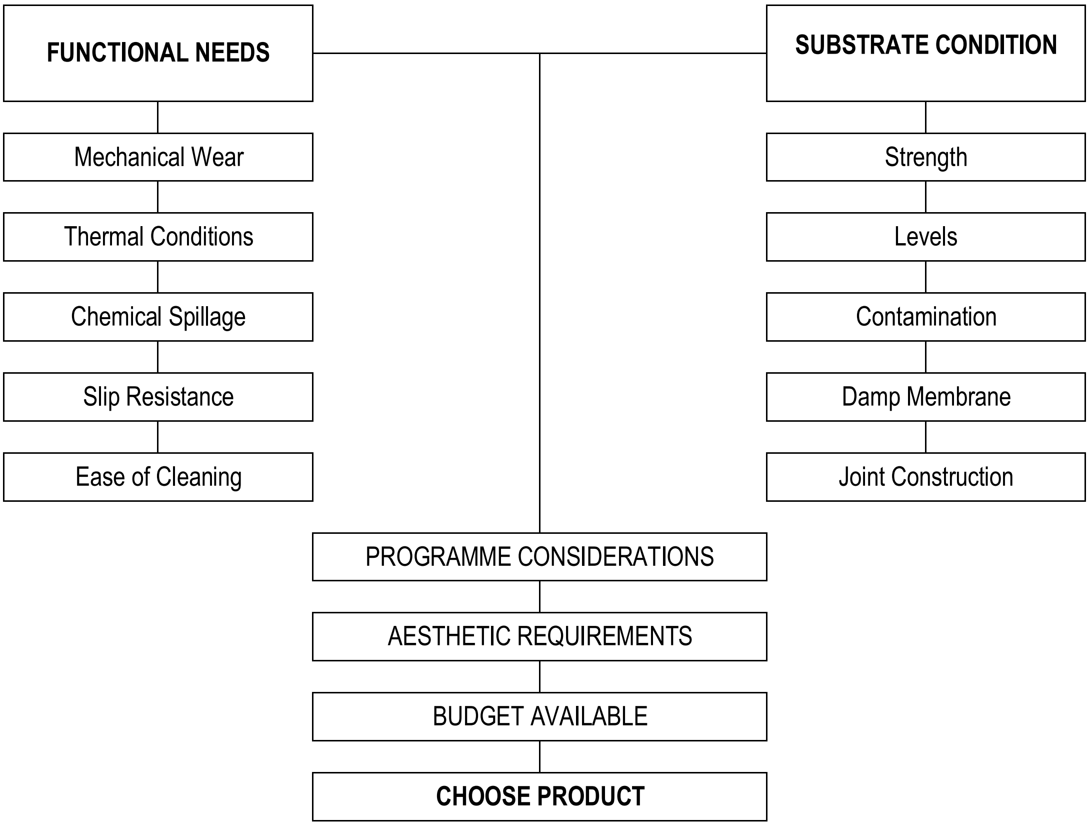
4.1 Selection Parameters

Factors influencing the selection of a flooring system include:

- type and degree of traffic
- temperatures to which flooring will be exposed
- nature and duration of any chemical contact with the floor
- wet or dry service conditions
- slip resistance requirements
- ease of cleaning (including hygiene requirements)
- moisture content of the substrate
- time available for application and cure of the flooring
- prevailing site conditions at time of installation
- cost

The most appropriate flooring for any situation will depend upon the particular conditions to which it will be subjected, and the choice should be made in discussions between all the interested parties, including client, designer, contractor and supplier. It is not possible to provide a simple guide as to where to use different flooring types, since so many parameters can affect the decision for a particular situation.

SPECIFICATION FRAMEWORK



4.2 Durability

In very general terms the service life will be proportional to the applied thickness of the synthetic resin flooring. However many operational factors will directly affect the performance including the severity of trafficking (wheel type and loading), the frequency and efficiency of cleaning, mechanical handling abuse and impact, etc. In most industrial facilities there will be a variety of situations for each of which a different type of synthetic resin flooring will be most appropriate. Conversely there will be areas where some types are completely inappropriate.

Generally Types 1 to 3 are suitable only for pedestrian or commercial use or the lighter industrial situation. Where there is regular or heavy fork lift truck traffic the thicker floorings of types 4 and above will be the most suitable. For the heaviest usage, particularly where there is the possibility of significant impact damage, then floorings of types 7 and 8 will be appropriate.

Premature failure of the coatings of types 1 to 3 can occur if grit or metal swarf is not cleaned away and is then ground into the surface under the action of traffic. A thicker type of flooring would then be required.

4.3 Surface smoothness and slip resistance

The finished flooring should be allowed to cure according to the manufacturer's instructions. These generally require 1 to 3 days at 15 - 20°C before allowing significant use by traffic and 3 to 7 days at 15 - 20°C before wet cleaning, allowing contact with chemicals, or heavy trafficking.

Some resin floorings, particularly those based on methyl methacrylate resins (MMA) can cure very much faster to achieve full performance in a matter of hours. This makes them suitable for fast-track projects or applications at freezing temperatures, for example in cold stores.

Adequate curing should always be allowed before wet testing the flooring for drainage or ponding.

As a general rule, the smoother and less porous a floor surface, the easier it is to keep clean. However, whilst resin-based flooring can be formulated to produce smooth, non-porous surfaces with excellent slip resistance under dry conditions, the surface may have to be textured if it is to have adequate slip resistance under contaminated conditions.

The heavier the likely build up of contaminants, the coarser the surface texture has to be to retain the required level of slip resistance. However coarse textured surfaces are more difficult to clean, so where both slip resistance and ease of cleaning are important, a compromise must be made. Flooring should be selected with sufficient texture to suit specific working conditions and hygiene standards, and a programme of frequent effective cleaning must be set in place. Apart from the selection of the flooring, the use in particularly wet areas of special footwear with slip resistant soles can be beneficial in allowing a smoother floor finish to be adopted. In such situations a slip resistance value in the wet of not less than 33 may be deemed acceptable.

Please refer to FeRFA Guidance Note No 1: Assessing the slip resistance of resin floors. ISBN 0 9538020 2 7

4.4 Chemical resistance

Well formulated and correctly applied synthetic resin floorings have proved an effective method of protecting concrete substrates sensitive to attack from aggressive spillages. However the thinner types 1 to 3 are not generally recommended for this purpose because the continuity of the protective layer is susceptible to small defects in application or to impact damage in service.

Whilst no floor finish is completely resistant to prolonged contact with high concentrations of all possible chemical types and combinations, selected synthetic resin floorings are resistant to many of the chemicals and products found in normal industrial service situations. In practice prolonged contact with large quantities of the most aggressive chemicals is unlikely because of the health hazard likely to be involved.

By attention to floor design, eg provision of adequate drainage and maintenance of good housekeeping standards, excellent service life can be achieved under conditions of highly aggressive chemical spillage. Because of the wide variety of chemical products used in industry and the diversity of synthetic resin floorings it is not practicable to provide a simple guide to chemical resistance. Advice should be sought from the manufacturer or contractor based on their experience in similar locations or on laboratory testing.

Resistance to particular chemicals does not exclude the possibility of surface staining. Some chemicals may cause discoloration of the flooring surface without affecting the service integrity and durability of the flooring material. If aesthetic appearance is a major requirement, it is essential that the user should establish whether the proposed flooring will be resistant to staining as well as chemical attack in the particular environment.

The manufacturer or contractor in deciding which product to recommend for a particular situation will require information on:

- chemical constituents and concentration of likely spillage
- temperature of the spillage
- quantity and frequency of the spillage
- presence of water and procedures for emergency wash-down
- regular cleaning procedures
- falls, drainage and sumps to be provided

Please refer to FeRFA Guidance Note No 3: Chemical Resistance to Resin Flooring. ISBN 0 9538020 6 X

4.5 Colour and UV resistance

Synthetic resin flooring is generally selected for use because of specific performance requirements that other floorings cannot attain. As a consequence the range of colours available has traditionally been limited because of the availability of pigments with the required level of chemical resistance. However there is an increasing trend for lighter and brighter colours to be required in order to improve the general working environment. The colour of the flooring then becomes more critical and the normal precautions associated with coloured products should be taken.

The flooring product should be used in strict batch rotation to avoid the inevitable minor variations in shade resulting from batch manufacture. In addition, slight variations in colour may result from variations in ambient conditions and application techniques.

Care should be taken in selection of the flooring in areas where the surface will be exposed to strong sunlight or to ultra-violet radiation. Some pigments and synthetic resin binders, being organic in nature will discolour on prolonged exposure. If aesthetic appearance is a major requirement then the flooring system should be chosen accordingly.

4.6 Static controlled

Static controlled grades of resin flooring are available in Types 3 to 8 (coatings, self-smoothing and trowel applied screeds). It is important for the specifier to understand that there is a wide range of products and properties available and to select the system that best meets the requirements for the working environment as a whole and to not treat the individual elements in isolation. Colour should be discussed with the flooring manufacturer, as there may be certain colour limitations on anti-static flooring due to the darkening effect of carbon.

Please refer to FeRFA Guidance Note No 4: Static Controlled Flooring ISBN 0 9538020 7 8.

4.7 Temperature resistance

Most synthetic resin floorings have relatively low Heat Distortion Temperatures (HDT), generally between 50 and 100°C, much lower than ceramic tiles or concrete floors. In practice certain synthetic resin floorings have proved capable of withstanding considerably higher temperatures than their HDT through attention to formulation, application and floor design. Generally synthetic resin flooring should not be directly exposed to temperatures exceeding 100°C.

The resistance of a synthetic resin floor to heat will depend on a number of factors:

a) nature and type of heat source. Due to the low heat capacity of air and the relatively slow changes in temperature caused by convected and radiant heat, dry heat is normally only a problem in extreme conditions, eg close to oven doors. Liquids in contact with floors give a much higher heat transfer and therefore pose more of a risk.

   Particular care should be taken in the design of the flooring where extreme temperature variations are likely, such as in cold stores and areas around ovens or furnaces. The movement of these areas in relation to the surrounding floor must be carefully considered and appropriate joints installed.

   Where direct radiant heat is anticipated such as the surrounds to oven doors it may be necessary to install a more heat resistant flooring such as ceramic tiling in the immediate vicinity but again the need for a movement joint between such an area and the main flooring needs to be assessed.

b) duration of contact with the floor. This will depend on the overall design of the installation. Thus with a minimum fall to drains of 1.5% a considerable volume of hot liquid spillage would be needed to raise the floor temperature above the HDT of the product. Wherever possible, known bulk discharge should be piped direct to the drains. Where this is not possible, floors regularly subjected to discharge of large volumes of hot liquids can be protected by the installation of cooling sprays. Such a cold water curtain not only cools the floor but dilutes any aggressive spillage to safer levels.

c) rate of change of temperature. With slow changes in temperature, the stresses transmitted to the bond line due to differential expansion between the synthetic resin flooring and the substrate may usually be accommodated. However as lower flooring thickness allows rapid heat transfer through to the bond line rapid changes of temperature may cause failure if the substrate has not been adequately prepared to ensure maximum adhesion.

   Prolonged exposure to high temperatures may lead to a degree of post cure resulting in the product becoming more brittle or less flexible, and in the worst cases inducing shrinkage stresses within the product leading to cracking or detachment.

d) steam cleaning. A combination of softening and subsequent damage may be caused by misuse of high temperature pressure cleaning equipment. On the more heavily filled resin floorings of Type 8, when applied at a thickness of 9 mm or more, steam cleaning can be satisfactorily carried out provided care is taken to ensure that the steam lance is not allowed to discharge on one place at one time for too long. However for thin layer flow applied flooring, modern cleaning and sterilising agents and machines are generally more cost effective than steam cleaning.

4.8 Taint

Correctly formulated and fully cured synthetic resin floorings should be entirely satisfactory for use in the proximity of food stuffs. However this cannot be taken to imply that these floorings are suitable for direct contact with unwrapped foodstuffs.

Generally the critical period when tainting is likely to be problematic is during the application of the floor system and also within the ensuing cure period. During these time periods all food stuffs should be removed from the work area and particular care taken to ensure contaminated air from the work area is not discharged towards areas where foodstuffs are stored.

Synthetic resin floor products can be formulated with low volatility and/or low toxicity components so reducing potential taint problems. When foodstuffs are to remain within the application work area, independent certification should be provided for all products specified within the system. Such documentation should clearly define the suitability of the product in the wet, semi-cured and fully cured states.

4.9 Curing conditions

The finished flooring should be allowed to cure according to the manufacturer's instructions. These generally require 1 to 3 days at 15 - 20°C before allowing significant use by traffic and 3 to 7 days at 15 - 20°C before wet cleaning, allowing contact with chemicals, or heavy trafficking.

Some resin floorings, particularly those based on methyl methacrylate resins (MMA) can cure very much faster to achieve full performance in a matter of hours. This makes them suitable for fast-track projects or applications at freezing temperatures, for example in cold stores.

Adequate curing should always be allowed before wet testing the flooring for drainage or ponding.

At site temperatures below 10°C cure times will be substantially increased unless some form of external heating is used. In considering curing conditions it must be recognised that the concrete slab temperature will generally be lower than the air temperature, often by as much as 10°C, and this will govern the rate of cure.

Another relevant factor may be the ambient relative humidity. Floor seals of Type 1 which are water based will require a relative humidity of less than 85% if they are to through-cure satisfactorily.

As a general rule, synthetic resin floorings should not be applied unless both air and slab temperatures are greater than 5°C and rising. Condensation onto the surface of the synthetic resin flooring as it cures may cause 'blooming', a permanent clouding of the surface, and this will be exacerbated if the slab is colder than the air temperature.

Where time constraints apply, the manufacturer should be consulted about the selection of the synthetic resin flooring, in order to ensure that the flooring can cure sufficiently before it needs to be brought into service.

4.10 Damp proof membranes

4.10.1 In new construction, for concrete bases in contact with the ground, a damp proof membrane should have been incorporated into the slab design, in accordance with the requirements of CP 102.

4.10.2 In existing buildings without a functioning damp proof membrane, the following should be considered:

a) installation of a membrane followed by a new unbonded concrete screed. The thickness of the screed should be in accordance with the requirements of BS 8204-1. Alternatively an unbonded polymer-modified cementitious screed may be used.

b) application of a surface-applied membrane: the compatibility of membrane, flooring material and any levelling material must then be established. Systems vary in their resistance to osmotic blistering, and this aspect must be discussed in each situation with the flooring manufacturer.

c) certain purpose-designed resin floorings are able to tolerate high levels of moisture in the concrete slab.

d) Hydrostatic pressure may, under certain circumstances, cause failure between the flooring and the substrate. Where this is likely to occur, such as in areas where the ground water table is higher than the substrate, and where external tanking has not been applied, pressure relief must be provided, eg by directed drainage.

Please refer to FeRFA Guidance Note No 5: The Effective Use of Surface Damp Proof Membranes ISBN 0953802086

4.11 Surface regularity

4.11.1 General

Because of their method of application, installed synthetic resin floorings will inevitably follow the profile of the underlying substrate. The agreed standards for flatness, regularity and conformity to datum plane should therefore be provided in the base concrete or levelling screed. When upgrading existing floors, the means of obtaining the required levels and flatness need to be agreed in advance.

Surface regularity or flatness is a measure of the deviation of a floor surface from a parallel plane over a large area, as well as over small local areas.

The datum plane for the majority of floors will be horizontal but, on occasions, sloping. In the latter case, departure from datum should be measured from the sloping plane.

4.11.2 Surface regularity

The class or category of surface regularity required for a floor surface will depend upon the use of the floor. Insistence on a higher tolerance than necessary will result in unnecessary higher costs and this should be borne in mind in selecting a surface regularity standard.

The straightedge method given in BS 8204-1 is generally satisfactory for the majority of floor uses and the designer should specify one of the classes of local surface regularity given in Table 1.

Table 1: Classification of surface regularity for wearing surfaces of normal and high standard flooring		
Class	Maximum permissible departure from a 2 m straightedge laid in contact with the floor (mm)	Application
SR1	3	High standard: special floors
SR2	5	Normal standard: normal use in commercial and industrial buildings
SR3	10	Utility standard: other floors, where surface regularity is less critical

Where the straightedge method of specification is used it will be necessary for the various interested parties in a contract to agree the sampling rate for testing the floor to check conformity, before the flooring is installed. This will include the number and locations of positions where the surface regularity is to be checked.

In service, the suitability of a floor surface in terms of surface regularity is governed by its radius of curvature and changes in height over short distances. It is recognised that the simple straightedge method of specifying floor surface regularity does not take into account the 'waviness' or rate of change in elevation of a floor over any specified length. The method is therefore only suitable for floors finished by conventional finishing techniques that will produce a smoothly undulating surface rather than an irregular 'washboard' finish.

Where a very high degree of accuracy is required, e.g. for high level racking, the recommendations of the Concrete Society Technical Report 34 should be adopted for specifying the base concrete.

The difference in height across any joints in the concrete base should be less than 1 mm with no abrupt changes in level. Because of the relatively low thicknesses of the synthetic resin flooring it is essential that any significant differences in height across the joints in the concrete base or fine concrete screed are ground flat before the flooring is to be applied.

4.12 Falls

A synthetic resin floor particularly one with a coarse surface texture will not drain water or liquid effluent satisfactorily unless sufficient falls are introduced. A minimum slope of 1 in 80 should be specified to produce a free draining floor, however a textured surface may require a higher slope in order to allow free draining. Greater slopes than 1 in 60 may lead to problems of slumping if the eventual finish is to be flow-applied.

4.13 Joints

With modern large pour construction methods a compromise should be reached over the number of joints designed into the floor. It is good practice to minimise the number of joints to maintain as far as possible a seamless surface that will be easy to maintain.

The spacing of movement joints must be determined by the design of the subfloor. All live movement joints in the subfloor must be carried through the synthetic resin flooring. Methods for forming such joints are shown in Figure 1.

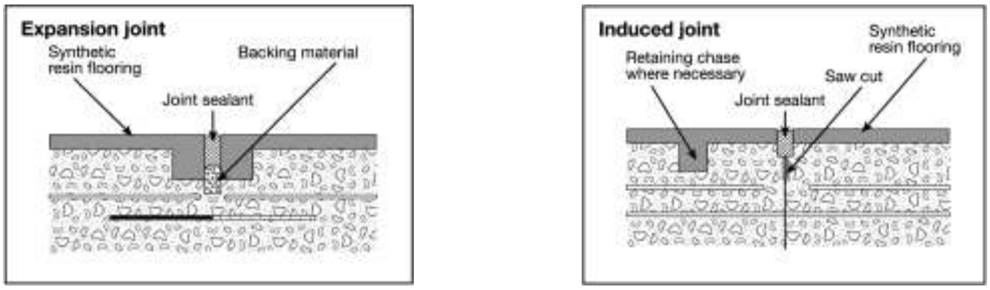


Figure 1: Movement joints

In all instances the necessity for movement joints and their type and positioning should be agreed at the design stage between all parties concerned.

4.14 Edge detail

To avoid feather edges, a toe-in joint should be provided wherever the thicker synthetic resin floorings of types 6 to 8 have to finish level with an existing floor or around the outside perimeter of the area or at day work joints. Figure 2 shows a typical detail. This is normally achieved by casting a chase when placing fresh concrete or by cutting a chase in existing concrete with a concrete saw and breaking out with a percussion hammer. For heavy traffic this chase may typically be equal to the thickness of the flooring in depth and twice the thickness of the flooring in width, e.g. for a flooring of thickness 5 mm, the chase cross-section should be 10 mm wide and 5 mm deep. With flow applied floorings of types 4 and 5 it is normally sufficient to provide a single concrete saw cut up to 5 mm deep into which the flooring should flow, to terminate at the edge. Floorings of types 1 to 3 may not require a special edge detail.

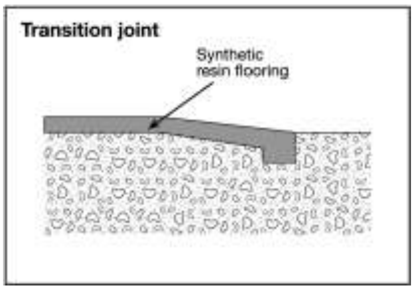


Fig 2: Typical toe-in joint

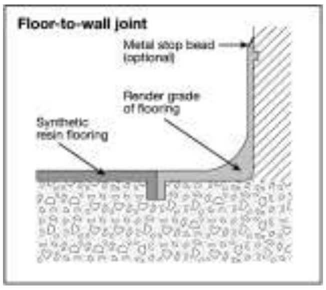


Fig 3: Typical skirting detail

4.15 Channels

Channels are normally incorporated in floor systems to carry liquids such as spillages and washing water to suitable drains. Suitable falls should be installed to ensure this is the case. By the very nature of their purpose and design channels may be subject to more stringent and diverse chemical duty than the individual floor areas from which they receive their contents.

Channel design detail can take a variety of forms and in new installations should be designed in conjunction with the specialist contractor taking into account the nature of the flooring product to be used.

A commonly used detail is a preformed stainless steel channel. These are subject to differential movement and should have a flexible joint between the flooring and the channel.

In aggressive environments an alternative approach is to line drainage channels with the floor topping in order to maintain a monolithic surface, so avoiding joints in vulnerable areas.

4.16 Coved skirtings and kerbs

Figure 3 shows a typical method of terminating the flooring at perimeters, upstands, columns, etc. Such details incorporate a vertical grade of the flooring product that may have a slightly different visual appearance.

Simple skirting details may be extended to related situations such as kerbs or plinths.

4.17 Service penetrations

Although not desirable, in some circumstances services may be required to pass through the flooring surface. A suitable method of achieving this is to have a protective sleeve cast into the base concrete. This sleeve permits the services to pass through without direct contact with the flooring. This is particularly important if the services include pipes carrying liquid at temperatures other than ambient. The sleeve also acts as an upstand to prevent liquids flowing down through the floor.

4.18 Stairs

Flooring to the treads can be formed from each of the different classes of synthetic resin flooring. For the risers special vertical product grades are necessary. The structural concrete should have been formed to the precise profile of the stairs less the thickness of the flooring. Before commencing application of the flooring the surfaces of the treads and risers should be prepared as given in 7.2 for new bases or in 7.3 for old bases.

5 PREPARATION OF CONCRETE BASES AND FINE CONCRETE SCREEDS

5.1 General

From the point of view of structural design of the substrate, whether it be slab or screed, the sole function of the synthetic resin flooring is to provide a protective finish. The substrate should therefore be designed independently of the flooring to withstand all structural, thermal and mechanical stresses and loads which will occur during service. It should remain stable whilst protected by the synthetic resin flooring and be provided with all necessary expansion, contraction and crack inducement joints to enable it to do so. Failure of the substrate to remain stable will invariably affect stability of the finish. In particular, cracking of the substrate, however caused, is likely to reflect in the finish.

The surface strength of the base concrete or fine concrete or polymer-modified cementitious screed should be sufficient to restrain any stresses which occur during the setting and hardening of the synthetic resin flooring.

The surface strength of the concrete base or screed may be assessed using a rebound hammer in accordance with BS EN 12504-2: 2001. This method has the benefit of allowing a rapid evaluation of large areas with a greater number of point tests than the pull-off method. For all classes of synthetic resin flooring the rebound hammer readings should generally be above 25, but a lower reading may be acceptable if the surface tensile strength of the concrete or screed exceeds 1.5 mPa. Assessment of the hardness or strength of a concrete base surface with a rebound hammer should only be made at locations having a smooth and clean surface.

Alternatively the surface tensile strength of the base concrete or fine concrete screed may be determined by the pull-off method given in BS EN 13892-8, and should normally exceed 1.5 N/mm^2.

The substrate needs to be finished with a strong even surface and laid to such falls as necessary. Synthetic resin floorings are relatively thin and cannot in most instances economically alter levels or correct badly-laid substrates.

In coatings or flow-applied systems, there is an inevitable tendency for the finish to mirror imperfections in the substrate. Permissible tolerances for surface regularity of the substrate must therefore be closer than with alternative thicker floorings.

5.2 New concrete bases and fine concrete screeds

A direct finished base slab, or fine concrete screed, should be designed and constructed as described in BS 8204-1 and laid to falls as necessary. The concrete should not contain a water repellent admixture. All services should be within the base concrete or screed and not allowed to penetrate into the synthetic resin flooring.

Unmodified sand/cement screeds and anhydrite based screeds are unsuitable to receive synthetic resin floorings, but a polymer-modified cementitious screed, designed in accordance with BS 8204-3, or a fine concrete will generally be acceptable subject to the approval of the product supplier.

The base should be a minimum of Grade RC30 of BS 8500-2: 2002.

The concrete and laying technique used should also achieve the surface strengths given in 5.1, before the flooring is laid.

Certain synthetic resin flooring systems are tolerant of significant moisture levels in the concrete base. In the absence of specific recommendations by the manufacturer, the base should have a relative humidity at the surface of not more than 75% when measured by the test method described in BS 8203. However, certain synthetic resin flooring systems are tolerant of higher moisture levels in the concrete base.

For those floorings that are moisture sensitive during application, it is necessary to ensure that sufficient of the water used in the construction of the base is eliminated. After the curing of the concrete it is essential that the excess water be allowed to evaporate. The time for this to happen should be taken into account at the planning stage. Estimated drying times are necessarily only approximate as drying is influenced by ambient conditions, concrete quality, thickness, surface conditions and method of curing. In practice it has been found that even under good drying conditions, concrete bases 150 mm thick can take more than a year to dry from one face only. Moderate and heavy use of power-float and power-trowel finishing methods further delay drying. Suspended concrete slabs cast on permanent metal decking or other impermeable materials will have similar drying times to those laid over damp-proof membranes. The use of curing membranes will effectively prevent drying out until removed.

Where levelling screeds are applied over new concrete, account should be taken of the time needed to dry the total thickness of base and levelling screed. Levelling screeds may consist of fine concrete to BS 8204-1, or polymer modified cementitious levelling screeds to BS 8204-3, or cement based pumpable self-smoothing screeds to BS 8204-7. In the case of pumpable self smoothing screeds, those based on calcium sulfate are generally unsuitable because of their instability in wet conditions.

The surface regularity of the base, when assessed by the method given in BS 8204-1: Annex A, should match the requirement for the finished flooring.

Surface preparation is a most vital aspect of Synthetic Resin Flooring application. Inadequate preparation will lead to loss of adhesion and failure.

The laitance on in-situ bases and any surface sealer or curing membrane should be entirely removed by suitable mechanised equipment, e.g. shot-blasting, planing or grinding, to expose cleanly the coarse aggregate. For the thinner synthetic resin floorings of Types 1-5, grinding or light contained shot-blasting is preferred, so that the profile does not reflect in the finish. Percussive scabbling is not recommended because it weakens the underlying substrate.

The surfaces of precast units should be left as cast and should be thoroughly washed and cleaned, e.g. by wire brushing, to remove all adhering dirt. The use of contained abrasive blasting equipment is more suitable than mechanical scabbling which could damage the precast units.

After surface preparation all loose debris and dirt should be removed by vacuum equipment. The preparation operations should be delayed until shortly before the flooring is to be laid to avoid the risk of fresh contamination or further accumulation of dirt.

5.3 Old concrete bases

All surface contamination, e.g. oil, paint and rubber, should be removed and adequate mechanical preparation carried out to achieve a sound and stable surface with exposed coarse aggregate.

Existing floor paints should be removed by mechanical abrasion or contained shot-blasting. With heavily compacted oil or grease deposits, the bulk of the contamination should first be removed mechanically, by steam cleaning, or by biological treatment. In cases of severe contamination, specialist advice should be sought. All residual contamination should then be removed by high pressure water blasting followed by the immediate application of a penetrating primer.

Where oil or grease contamination has been severe or of long duration none of these methods may prove satisfactory in preparing the base to allow full bonding of the synthetic resin flooring. In such cases removal of the affected base would be necessary followed by reinstatement with new concrete or by levelling screeds.

When clear of all surface contamination, the concrete should be prepared mechanically to remove all laitance and expose a fresh surface.

The concrete surface should be abraded or impacted by mechanical means to remove the uppermost cement matrix. This can be achieved using appropriate proprietary equipment for grinding, planing or shot blasting preferably with integral vacuum containment. Percussive scabbling is unsuitable.

Prior to applying the flooring a close visual examination should be made to verify cleanliness, soundness of the surface and freedom from soft deleterious materials such as lignite and iron pyrites. Any weak or suspect concrete or repair patches must be removed. When mechanical preparation is complete, all dust and debris should be removed from the area and disposed of in accordance with local regulations.

Acid etching of the concrete is not recommended as a preparation technique partly because of the implications for Health & Safety but also because the concrete surface is left saturated with water and calcareous salts which may ultimately lead to debonding or osmotic blistering

5.4 Other substrates

Comparable procedures are available for other substrates such as timber or metal surfaces, but the flooring manufacturer's instructions for surface preparation and priming should be strictly followed.

6 WORK ON SITE

6.1 Storage

6.1.1 Fillers (including any pigments) and aggregates

Bags of fillers, aggregates or other powdered components should be kept dry and stored in a weatherproof building. If the floor is concrete, the bags should be stacked on pallets away from walls. Fillers and aggregates should preferably be kept at 15 - 20 ºC to ensure that the resultant flooring mix has the correct application characteristics.

6.1.2 Resin and Hardener components

The containers of resin and hardener should be stored in a weatherproof building maintained at 15-20°C, unless the manufacturer has stipulated other storage conditions for the stated shelf life. Products having a low flash point will need purpose designed storage to meet local regulations. Storage should be arranged so that consignments can be used in order of batch number. It is important that labels do not become detached from their containers.

The flooring products should be used in strict batch rotation. Individual areas or rooms should be treated with product from a single batch to avoid the inevitable minor variations in shade resulting from batch manufacture, otherwise matched batches should be used to minimize these variations.

6.2 Preparation of base slab, fine concrete screed or polymer-modified screed

The base or screed should be prepared in accordance with section 5.

6.3 Protection of base slab, fine concrete screed or polymer modified screed against damage and/or contamination

Care should be taken that during the hardening and curing of the base slab or screed it does not suffer mechanical damage or become contaminated with grease, oil etc. If such problems do arise the slab or screed should be treated as for old concrete bases (see 5.3).

6.4 Mixing

6.4.1 General

All products should be supplied in pre-measured units in the correct proportions ready for mixing or the precise proportioning of the components on site from bulk supplies and must be accompanied by an adequate and documented quality control procedure.

The usable or working life of the mixed product will depend upon the initial temperature of the individual components and on the volume being mixed. Most resin reactions are exothermic, ie heat is generated during the setting process, and in bulk the mixed product will become very hot which in turn will shorten the working life. Manufacturers' literature should give an accurate indication of the pot life of the properly mixed product at one or more temperatures. As a rough guide, a 10°C rise in temperature will halve the pot life and a 10°C fall will double the pot life. However it is not advisable to mix and lay resin products outside of the range 10-25°C unless the product has been specially designed to be used for a wider temperature range.

If the mixing area is not adjacent to the laying area an appropriate allowance for the time to transfer the mixed material should be made to ensure an adequate open time.

6.4.2 Mixing unfilled systems

Liquid systems such as primers or Type 1 Seals or Coatings of Types 2 and 3 are generally supplied as one or two component products the components being mobile liquids. The two components should be thoroughly blended together using a mechanical mixer to form a homogenous mix. It is important to ensure that any material adhering to the sides and bottom of the mixing vessel is also thoroughly mixed in. For the majority of products the two components can be mixed using a slow speed (200-500 rpm) drill fitted with a mixing paddle, taking care not to entrain excessive air in the mix. Where one or both of the components have low flash point then the mixing drill must have a flameproof motor or be pneumatically powered.

6.4.3 Mixing filled systems

All products should be mixed mechanically, following the procedures recommended by the manufacturer. Some Flow applied floorings of Type 4 may be mixed using a heavy duty slow speed drill (200-500 rpm) drill fitted with a mixing paddle. But, generally forced action mixers of the rotating pan, paddle or trough type should be used for all flow applied and trowel applied screeds of Types 4-7. Free fall mixers are not recommended because there is insufficient shear action to disperse all the dry materials.

The liquid components should first be thoroughly mixed together and then the fillers and/or aggregates should be added gradually whilst continuing the mixing action. After all the fillers and/or aggregates have been added, sufficient mixing time must be allowed to ensure thorough 'wetting' out of the fillers and/or aggregates by the resin. Excessively vigorous mixing should be avoided as this can lead to undesirable air entrainment. Care should be taken to ensure that any material adhering to the sides, bottom and corners of the mixer is thoroughly blended in.

6.5 Laying Resin Flooring

6.5.1 Priming the substrate

A primer should be selected which is appropriate for the nature and moisture content of the substrate. After mixing the components of the primer together, it should be applied as soon as possible after mixing, and within its pot life, to the prepared substrate. The primer should be applied evenly with a stiff brush, lambswool roller or by tight trowelling. The substrate should be completely wetted by the primer and maximum penetration into the substrate is essential. Full saturation of the surface is desirable but pooling of the primer should be avoided.

For porous or open textured surfaces, a second coat of primer is often necessary to achieve full saturation and so minimise pin hole defects in the finish: it is a wise precaution to provide for this in terms of material consumption and timing. Alternatively the use of an initial scratch coat may be beneficial on porous or rough concrete prior to applying the resin flooring.

The working area of substrate which can be coated with the primer prior to the laying of the flooring will depend on the open time of the primer. This information should be provided by the manufacturer. The primed area should always be kept free of contamination in the period until the flooring is applied.

Unless otherwise specified by the manufacturer, primers for flooring Types 4, 5 and 7 should be applied and allowed to reach a tack-free state prior to application of the flooring. The primer may incorporate a light scatter of dry graded aggregate, applied whilst the primer is still wet, in order to assist in the application of the flooring.

Primers for Type 6 flooring should only be allowed to reach a semi-set (tacky) state prior to application of the flooring.

In general, primers should not be permitted to cure for more than 48 hours at 15-20°C before application of the flooring. If this time is exceeded, further mechanical preparation may be necessary followed by application of a further primer coat.

6.5.2 Resin Coatings (Types 1-3)

These coatings are usually applied by brush or roller in two or more coats, as recommended by the manufacturer. Typically the first coat is allowed to cure for 16-24 hours until it is just tack-free before the second coat is applied.

6.5.3 Flow applied systems (Types 5 & 7)

These compositions are designed to flow out readily in order to provide a smooth surface. They are applied by spreading evenly over the surface, using a serrated trowel, pin rake or squeegee. This is immediately followed by rolling with a spiked roller to release any entrapped air and assist in smoothing out. The use of the spiked roller on areas that are starting to thicken or are partially set should be avoided. The quality of surface finish achieved with flow applied systems is particularly temperature sensitive and the manufacturer's recommendations in terms of minimum air and slab temperatures should be strictly adhered to.

6.5.4 Multi-layer flooring (Type 4)

These products are normally made using combinations of floor coatings (Types 2-3) or flow-applied flooring (Type 5) with intermediate aggregate scatter. They should be applied strictly in accordance with the manufacturer's instructions and the relevant clauses above.

6.5.5 Trowel-Applied Resin Flooring (Types 6 & 8)

The mixed product should be spread out over the primed substrate, either by trowel or screed box, or between screeding laths or bars to ensure a uniform thickness overall. The screed should be well consolidated in order to obtain the optimum properties from the end product. A uniform finish should be obtained using a steel trowel. The trowel should be kept clean at all times by using a minimum amount of cleaning solvent or water as advised by the manufacturer

Because the flooring is hand finished, there will inevitably be slight variations in surface appearance resulting from the trowelling. A skilled operative will keep these variations to a minimum so that the overall performance of the flooring will be unaffected.

Trowel-applied resin flooring provides a durable slip resistant floor surface for most applications. However if a more hygienic surface is required, it may be necessary to seal the surface of a Type 6 flooring using a one or two coat application of a compatible resin sealer, much of which is absorbed into the trowel applied flooring. This may be either a solvent-free or solvent-containing system applied by brush, squeegee or roller after the screed has cured sufficiently. Alternatively an impervious screed of Type 8 should be used which would not require a surface seal.

6.5.6 Reinforcement

In exceptional circumstances reinforcement, such as fibreglass cloth, may be included in the flooring system to minimise problems from cracks or bay joints in the substrate. After applying the primer, a thin layer of the resin flooring is applied and the fibreglass is rolled into it, overlapping the fabric at joins by at least 50 mm. The final layer of resin flooring is then applied before the first layer has fully hardened.

6.5.7 Curing the flooring

The finished flooring should be allowed to cure according to the manufacturers' instructions. These generally require 1-3 days at 15-20°C before trafficking and 3-7 days before wet cleaning, allowing contact with chemicals, or heavy trafficking. At site temperatures below 10°C these times will be substantially increased. The climate above the uncured resin floor should be maintained at least 3°C above the dew point or below 75% relative humidity to reduce the risk of 'blooming' on the floor finish.

Some resin floorings, particularly those based on methyl methacrylate resins (MMA) can cure very much faster to achieve full performance in a matter of hours.

Adequate curing should always be allowed before wet testing the flooring for drainage or ponding.

7 OSMOSIS

7.1 Osmotic blistering

In a few cases severe blistering of thin synthetic resin floorings occurs between 3 months and two years after laying. These blisters commonly vary in size from a few mm in diameter up to 100 mm, with heights up to 15 mm. When drilled into or otherwise broken the blisters are found to contain an aqueous liquid under very high pressure. The mechanism of their formation is not fully understood but it is assumed because of their physical state that they are caused by a process of osmosis. Blistering which occurs soon after the flooring is installed is unlikely to be caused by osmosis and is more likely to result from water contained in the structure.

Osmotic blisters only occur with thinner synthetic resin floorings, resin coatings and flow applied systems, up to about 6 mm in thickness. The problem has not been observed with trowel applied resin floorings probably because of their higher resistance to deformation and greater lateral permeability.

Please refer to FeRFA Guidance Note No 2: Osmosis in Resin Flooring ISBN 0 9538020 5 1

7.2 Prevention

Because the mechanism is not fully understood it is not possible to be specific about the steps which should be taken to avoid osmotic blistering. However it is considered good practice to take the following steps in order to minimise the risk.

a) in new construction ensure the base concrete has low soluble salts by avoiding poorly washed aggregates and by curing the concrete well immediately after laying to prevent premature surface drying out;

b) allow the concrete to dry out thoroughly after curing, preferably for a minimum of 21 days;

c) by the use of mechanical rather than chemical means of preparing the concrete surface. In particular by avoiding the use of acid etching;

d) by avoiding washing the concrete surface with detergent solutions as part of the preparation procedure;

e) by the complete removal of all contamination from existing floors: this may prove very difficult where the concrete has been saturated for long periods with water soluble materials;

f) any levelling screeds should preferably be polymer-modified to minimise permeability and salt migration;

g) by the use of water vapour permeable floorings;

h) by the use of solvent-free primers rather than water-borne systems, under impervious resin floorings;

j) by ensuring that the synthetic resin flooring is precisely proportioned, either by weight or volume as specified by the product manufacturer.

7.3 Repair

Where osmosis has occurred, techniques which have proved successful in preventing the problem re-appearing, after cutting out the affected area and mechanically cleaning the exposed concrete, include:

a) double application of a penetrating primer to the base to ensure complete coverage and maximum adhesion of the replaced flooring;

b) replacing with a trowel applied flooring (Types 6 or 8) at a thickness of at least 6 mm;

8 HEALTH AND SAFETY PRECAUTIONS

When mixing and/or laying synthetic resin floorings, precautions should be taken as follows.

a) Before starting any operations the manufacturer's Materials Safety Data Sheets for all the flooring products to be applied should be studied and all recommendations followed in addition to those listed here.

b) A comprehensive Risk Assessment should be carried out of the whole operation in relation to those engaged in the work and those likely to be affected in adjacent areas. Where appropriate a Permit to Work scheme should be established.

c) Appropriate protective clothing should be worn to prevent all contact of the products with the skin. Gloves resistant to the synthetic resins should be worn at all times. Goggles or full face shields are recommended to be worn during mixing or at any time when splashing is a risk.

d) It is good practice to apply an appropriate barrier cream on exposed skin at the beginning of each working session.

e) Any splashes of product on the skin should be washed off using soap and water or preferably a proprietary resin-removing cream. Cleaning solvent should never be used on the skin since it de-fats the surface and aids deeper penetration of the contamination.

f) Any splashes of the product in the eye should be treated immediately by washing with copious amounts of water. Medical treatment should then be sought taking full product details so that correct medication can be supplied.

g) Appropriate exhaust ventilation should be considered for any confined areas where the flooring product is to be mixed or applied.

h) Smoking should not be allowed in the vicinity nor the consumption of food or drink.

j) Some synthetic resin flooring products, eg methacrylates, contain highly flammable components. No sources of ignition should be allowed in the vicinity and flameproof exhaust extraction must be provided during mixing, application and cure.

9 INSPECTION AND TESTING OF FLOORING

9.1 Inspection

The works should be inspected during progress and after completion, special attention being paid to the following:

a) quality and preparation of the base (see 5);

b) levels and surface regularity of the base (see 4.10);

c) ambient conditions throughout the application stages (see 6.5.7)

d) priming of the base (see 6.5.1);

e) mixing of the synthetic resin flooring (see 6.4);

f) applied thickness of the flooring;

e) levels and surface regularity (see 9.3)

f) sealing, if any (see 6.5.5);

g) curing (see 6.5.7).

9.2 Testing

At the appropriate time after laying the flooring, tests may be carried out for:

a) surface regularity (see 9.3);

The following additional tests are normally made only when the quality of the flooring is in dispute and there are specified performance requirements:

b) adhesion of the flooring to the base (see 9.4);

c) slip resistance (see 9.5).

9.3 Surface regularity

If the finished flooring is required to be tested by the straight edge method described in BS 8204-1, the surface regularity should be within the limit given in Table 1 for the appropriate class specified.

The number of measurements required to check surface regularity should be agreed between the parties concerned bearing in mind the standard required and the likely time and costs involved.

Where specification for flatness is in accordance with the Concrete Society Technical Report 34: 1988, conformity should be as required in the Report.

9.4 Adhesion of the flooring to the base

9.4.1 General

Resin flooring is designed to adhere very strongly to concrete and adhesive failure usually only arises from some form of substrate contamination. In cases of doubt, the adhesion between the flooring and the base may be quickly examined by tapping the surface, e.g. with a rod or a hammer, a hollow sound indicating lack of adhesion, or hollowness in the substrate. Tests to check the adhesion of a flooring to its base should be made as late as possible in a construction programme when the resin flooring will be fully cured. Any areas of flooring that are considered to be unsatisfactory should be treated by resin injection of isolated areas if appropriate, or by isolating the area concerned by saw cutting, followed by removing and re-laying the affected flooring. When removing an area of flooring, care should be taken to minimise any disturbance to the bonding of the adjacent parts of the floor.

9.4.2 Quantitative test method

The preferred method of testing the adhesion of the flooring to the base is given in BS EN 13892-8. When tested by this method, a bond strength in excess of 1.5 N/mm^2 is usually satisfactory.

9.5 Slip resistance

If the slip resistance is in dispute, the floor should be tested in accordance with the method described in BS 7976-2.

The pendulum test value (PTV) should be not less than 40. In situations where ease of cleaning is more critical than slip resistance and/or where all who use or are likely to use the floor will wear specially provided slip resistant boots or shoes, pendulum test values in the wet of not less than 33 may be deemed acceptable.

10 MAINTENANCE

It is important that good housekeeping standards are established and maintained appropriate for the type of resin flooring. In order to ensure the flooring is kept in a hygienic condition, without long term damage being caused, close liaison is needed between the client and the flooring manufacturer to identify the most appropriate procedure for regular and thorough cleaning of the flooring. Generally a mechanical scrubber with wet vacuum is the most suitable. Washing with mop and bucket is not recommended.

Where hygiene levels are required to be high, eg in food preparation areas, a bactericide solution should be used, and pressure washing at a temperature of 60-80 °C is advisable. However, steam cleaning may be required in order to meet with the individual client's requirements.

In the event of the spillage of corrosive chemicals, the surface should be cleaned as soon as possible. If this is not done repairs to the floor may be needed to prevent the damage spreading.

Any mechanical damage to the floor surface should also be repaired at the earliest opportunity to prevent liquids penetrating to the bond line and causing lateral failure.

Please refer to FeRFA Guidance Note No 6: Guide to Cleaning Resin Floors ISBN 0 9538020 9 4

11 REFERENCES AND FURTHER READING

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12. GLOSSARY OF TERMS

Terms commonly used in relation to Synthetic Resin Flooring:

base:	building element that provides the support for a screed or flooring.
direct finished base slab:	base slab that is suitably finished to receive the flooring to be applied directly without the need for a levelling screed.
flooring:	uppermost fixed layer of a floor that is designed to provide a wearing surface.
joint:	formed discontinuity in either the whole or part of the thickness of a screed or slab.
levelling screed:	fine concrete or polymer-modified cementitious layer applied to a base and suitably finished at a designated level to receive the flooring.
screed:	layer of material laid in situ, directly onto a base, to obtain one or more of the following purposes: - to obtain a defined level - to carry the final flooring - to provide a wearing surface
self-levelling:	capacity of a freshly applied screed material to spread out unaided to form a flat horizontal surface.
self-smoothing:	capacity of freshly applied screed material to form naturally a smooth surface.
solvent:	a fluid, volatile under ambient conditions, used to reduce the viscosity of a synthetic resin flooring material to aid application.
solvent-free:	a composition containing no more than 5% by mass of a solvent.
surface dressing:	a scatter of fine aggregate or other particulate material spread evenly into the surface of a synthetic resin flooring while it is still mobile.
synthetic resin:	a reactive organic polymeric binder for a flooring system comprising one or more components which react in situ at ambient temperature.
water-borne:	a composition containing a proportion of water to aid mixing and application, but which takes no part in the setting reaction and substantially evaporates from the flooring product.
wearing screed:	upper layer of screed used as a final floor.