Safe and Hygienic Resin Flooring Systems for the Healthcare Market

a report by
Nick Wright

Managing Director, Resdev Limited

Today's high-performance resin flooring systems offer significant benefits for the hospital and healthcare market in terms of price, performance and flexibility. This article looks at how the many options offered by resin flooring systems can be best utilised in this environment.

When specifying flooring systems for applications within the hospital and healthcare markets, four specific criteria come into play: hygiene, safety, durability and price.

Today's high-performance resin flooring systems, developed utilising both epoxy and polyurethane formulations, create hard-wearing and impervious surfaces that are resistant to chemical spillage, high temperatures and aggressive cleaning and can be formulated to offer antistatic properties, offering the perfect solution for even the most demanding hospital and healthcare environments.

Already widely used in industrial, commercial and leisure applications worldwide, these robust and attractive flooring options combine resilience, durability and practicality in use with a growing choice of aesthetic options, offering purpose-designed finishes for every area of the hospital.

These range from decorative quartzes and terrazzos suitable for lobbies, mezzanines and other public spaces through to certified antistatic grades for operating theatres, radiography and other sensitive areas. Special grades are also available for areas subject to tougher wear and wet processing such as kitchens, boiler rooms, canteens and laundry rooms.

Of particular importance for the hospital and general healthcare market is the hygiene angle, which is most easily managed with the choice of a resin flooring system over more traditional alternatives. All options guarantee an attractive, seamless, easily cleaned and hygienic finish that will not support microbial growth. Resin flooring systems are already commonly specified for food processing and clean room environments.

Add to this the enormous range of choice in terms of colours, finishes and slip-resistant options, combined with anticipated lifespans well in excess of 15 years, and the resin floor constitutes an increasingly attractive option for the hospital environment.

Cleaning Made Easy

Already widely used in the food preparation industry, where current standards demand stringent levels of cleanliness and hygiene, the heavier grades of resin flooring are ideally suited to aggressive steam-cleaning methods. Liquid epoxy self-levelling systems clean well with scrubbing machines, and the seamless nature of the product adds to the ultimate cleanability, eliminating problems that may be experienced with tiles, carpets and vinyls where 'pockets' can lead to the accumulation of dirt or organic matter.

Antistatic Performance

Resin flooring systems are also available in a wide range of antistatic grades, developed for use in sensitive areas where build-up of static can present a risk of explosion or damage to sensitive electronics. These materials incorporate conductive components within the basic formulations, in line with the requirements of British Standard (BS) 2050: 1978,[1] providing intrinsically safe and durable solutions.

Slip-resistant Safety

Resin flooring systems have been developed to incorporate standard levels of slip resistance, thereby providing a safe and secure surface underfoot under normal conditions. In wet areas or areas that may be subject to fluid spillages, individual formulations incorporating varying aggregate materials may be specified, or the surface may be textured to promote added slip resistance for extra safety.

1. *BS 2050: 1978: Specifications for electrical resistance of conducting and antistatic products made from flexible polymeric material.*

Non-taint Performance

Correctly formulated and cured resin flooring systems are entirely satisfactory for use in the proximity of foodstuffs. Special formulations include low volatility and/or low toxicity options specifically designed for these applications.

Many products have Camden & Chorleywood Food Research Association (CCFRA) reports to underline their suitability for use in the food environment.

Ideal for Corridors

Flow-applied resin flooring systems provide the perfect solution for passageways, link routes and other corridors subject to constant wheeled and foot traffic. Available in a wide range of finishes and attractive colourways to harmonise with interior design preferences, these durable floorings guarantee a long-term solution, combining excellent aesthetic and cosmetic appearance with high levels of resistance to abrasion, impact and spillage. Seamless finishes make them easy to clean, avoiding pockets of dirt and contamination and further raising standards of hygiene.

Flexible Flooring

For areas such as mezzanines where the sub-floor may be subject to movement, a more flexible finish can enable the floor to retain its integrity. Resin flooring systems incorporate a selection of flexible options, from floor seals through to flow-applied heavy-duty floorings, providing sufficient flexibility to accommodate movement in raised floorings or softer sub-floors. This flexibility makes the product of particular durability for mixed usage.

Decorative Options

The design and formulation of resin flooring systems has seen significant developments over the course of the past five years, introducing a growing range of decorative options to meet the changing needs of the specifier market.

Today, even the most basic flooring finishes can be used achieve an excellent aesthetic finish, through to the more advanced epoxy and polyurethane resins formulated to achieve both true and mock terrazzo effects.

Application techniques are also flexible and malleable enough to reflect design and interior décor concepts, and are often used to incorporate individual logos, safety information or even traffic and public information.

All decorative resin flooring systems retain their essential performance characteristics, including seamless finishes, slip resistance, ease of cleaning and ultimate wear resistance.

Swift and Simple Repair

Resin systems are both fast and easy to repair, although localised damage to floor areas should be addressed at the earliest possible opportunity to prevent liquids penetrating to the bond line and causing lateral failure. There is a wide range of highly successful 'patch repair' options currently on the market, including coatings, compounds and fillers, many of which are developed by the companies that specialise in the development and manufacture of the original resin flooring systems. These materials are both easy to use and durable *in situ*.

Choosing the Right Resin System

The key to achieving flooring surfaces that are inherently safe and 'fit for purpose' for the hospital and healthcare market lies in correct specification prior to installation, based on a range of parameters including proposed environments, desired longevity, traffic levels and hygiene regulations.

Consultation at all stages between the manufacturer of the flooring product and the specialist contractor who is installing the product is vital in order to ensure that the selected flooring system is entirely suited to the intended service.

In a drive to improve awareness and quality of specification, the Resin Flooring Association (FeRFA) – the only trade organisation exclusively representing manufacturers and installers of resin floors – has compiled a detailed and comprehensive document dealing with all aspects of the specification and laying process.

The *FeRFA Guide* is an authoritative document based on the content of BS 8204-6: 2001,[2] which has set the tone not only in the UK but also much further afield because of FeRFA's input to European legislation. The objective of the *FeRFA Guide* is to set out a definitive means of identifying the best flooring for any particular application, and to ensure that this is applied in the correct manner, dealing with all aspects of the specification and laying processes.

The *FeRFA Guide* effectively classifies resin floorings into eight types, with each type representing a class of properties and durability of flooring finish. The different types are appropriate for use in differing applications and environments, providing information that forms the cornerstone of accurate specification for the future.

Type 1 – Floor Seal

Applied in two coats to give a dry film thickness of up to 100 microns, and generally solvent or water borne.

Type 2 – Floor Coating

Applied in two or more coats at a dry film thickness of up to 100 microns per coat. Generally solvent-free or water borne.

Type 3 – High Build Floor Coating

Applied in two or more coats to give a final thickness of 300 to 1,000 microns and generally solvent-free.

Type 4 – Multilayer Flooring

Multiple layers of floor coating for flow-applied flooring with aggregate dressing, having a thickness greater than 2mm and often described as 'sandwich' systems.

Type 5 – Flow-applied Flooring

Applied between 2mm and 3mm in thickness, often

referred to as self-smoothing or self-levelling flooring; has a smooth surface or may be given a surface dressing.

Type 6 – Screed Flooring

Heavily filled trowel-finished systems applied at a thickness greater than 4mm, generally incorporating a surface seal cost to minimise porosity.

Type 7 – Heavy-duty Flowable Flooring

Aggregate-filled and applied between 4mm and 6mm in thickness, having a smooth surface or given a surface dressing.

Type 8 – Heavy-duty Screed Flooring

Trowel-finished, aggregate-filled systems applied at a thickness of 6mm+, effectively impervious throughout the structure.

In general terms, the service life of the floor is directly proportional to the applied thickness of the product itself. However, operational factors may significantly influence performance, including traffic levels (foot and wheeled) and cleaning processes.

Types 1 to 3 are normally suitable for pedestrian or commercial use. Where there is regular passage of wheeled traffic, the thicker floorings of Types 4 and upwards will be the most suitable. For particularly heavy usage and in areas subject to impact damage, Types 7 and 8 will provide the best solution.

Designed for Longevity

The design of the sub-floor will determine the need for additional design elements such as movement joints. Toe-in joints will be specified where thicker

2. *BS 8204-6: 2001: Screeds, bases and in-situ floorings: synthetic resin floorings. Code of practice.*

resin floorings must finish level with an existing floor or around the outside perimeter. Where spillages may occur, channels will be incorporated to carry these to suitable drains, and falls will be installed to facilitate this.

Where floors are terminated at perimeters, upstands and columns, coved skirtings and kerbs may be installed, incorporating vertical grades of the selected flooring materials.

By paying careful attention to floor design and specification, providing adequate drainage where required and maintaining good housekeeping standards, resin flooring systems will provide an excellent solution for the hospital and healthcare market, achieving extended service life and offering a wide range of attractive design choices to complement interior décor. ■

Contact Information

Resdev Limited
Pumaflor House, Ainleys Industrial Estate
Elland
W.Yorks HX5 9JP
England
Tel: (44) 1422 379131
Fax: (44) 1422 370943
http://www.resdev.co.uk
e-Mail: info@resdev.co.uk