



Specifying Safe Floors in the Food & Drinks Industry

The health and safety credentials of a food and beverage processing facility's floor affects not only the integrity of the produce and the reputation of the company but it can also be the difference between an unsafe, unproductive, unsightly plant and a fully optimised factory with a pleasant working environment.

This whitepaper will consider several of the key ways in which polyurethane flooring systems can avoid unwanted bacteria build up and contamination concerns while simultaneously streamlining the crucial cleaning regime and reducing the risk of costly accidents.

Slip Resistance

An industrial complex needs to build health and safety into the fabric of the facility and with food processing locations this often means enhancing traction underfoot so as to reduce the risk of falls in what can often be a wet and slippery working environment.

The level of required slip resistance will differ across the facility, as the floors in the food manufacturing and preparation zones will be exposed to spillages, liquids and chemicals that won't be present in the staff breakout rooms, reception area and corridors.

Polyurethane flooring systems are available in a variety of textures and can be graded with aggregates to provide a range of slip resistance levels to choose from. This choice means that specifiers can select a solution that takes into account the amount and type of spillages that the floor is likely to experience in a certain area.

The risk management considerations in wet service conditions are obviously more critical than drier areas and the slip resistance of the floor should be tested after installation and then at regular intervals under service conditions to ensure that it is meeting the necessary standard.



The cleanability of the floor needs to be weighed up in relation to the slip resistance, as while a more coarsely textured surface will help to avoid falls it will also make it more difficult to keep the area clean. A compromise will need to be made in areas that require both slip resistance and ease of cleaning to arrive at the most suitable surface.



TIP:
Make sure drainage is laid to a fall to avoid the pooling of water.

Stainless Steel Drainage

Alongside a slip resistant finish, other flooring elements such as drainage can work to actively minimise the risk of trips and falls, facilitating the fast and effective removal of excess liquid and slippery contaminants from the area.

This is an important flooring component, required to meet national standards. The Food Safety & Hygiene (England) Regulations 2013 explicitly state that floors must “allow adequate surface drainage”. To meet this criteria easily cleanable stainless steel drainage can be incorporated into a polyurethane floor finish.

When designing the drainage system the floor needs to be laid to a fall. This avoids the water pooling and means that waste liquid flows in the right direction. The seamless nature of polyurethane floors is also a drainage advantage, as the unwanted water, liquids, oils and greases won't be impeded from moving towards the drainage channel.

An expansion joint needs to be installed on either side of a drainage channel, as the stainless steel drain's coefficient of movement will differ to that of the floor finish. Without this expansion joint the two materials will struggle to expand and contract next to each other when faced with temperature fluctuations and a crack could appear along the edge of the drainage channel. A crack here could lead to many problems from contamination build up to water ingress that could break down the concrete.

Cleaning

Instigating a thorough and regular cleaning routine is the first line of defence for many food and beverage plants against harmful bacteria and dangerous pathogens – which if left unchecked could find their way onto manufacturing equipment, sensitive surfaces, staff, wheeled equipment moving around the site and the food itself.

Should this happen then not only does it pose a serious health risk to the end user but the site's owner or operator could face crippling litigation costs and irreparable damage to the brand's credibility.

However even an intensive cleaning process is not enough on its own – as the materials used to build the site may not be able to withstand the hot water, harsh chemicals and regular friction that are essential to a meticulous cleaning cycle.

For example unprotected concrete in food and beverage processing facilities is prone to bacterial penetration, especially as it becomes porous over time and after exposure to chemicals, impacts, wear and frequent hot water wash downs.

Polyurethane floor finishes, such as the Flowfresh range from Flowcrete UK, are highly suitable for food and beverage sites in need of a robust flooring solution that will be able to work with the cleaning regime to maintain a hygienic working environment.

The seamless and impervious nature of a polyurethane finish means that dirt, bacteria, mould spores and contaminants won't be absorbed into the

finish or get stuck in hard to clean cracks in the floor's surface. Instead they will be quickly washed out of the area before becoming a sanitation concern.

Coving

A 90° angle between the floor and the wall is not only inadvisable in a food and beverage facility, but because it makes the floor's edge so difficult to clean it is illegal.

The Food Safety & Hygiene (England) Regulations 2013 state, "the junction between walls and floors or floors and fixed equipment should be covered" to create a seamless and easily cleanable transition between the floor and the wall.

Without this smooth and continuous interface between the two surfaces then contaminants can easily get trapped in the gap and accumulate out of the reach of the cleaning team's efforts.

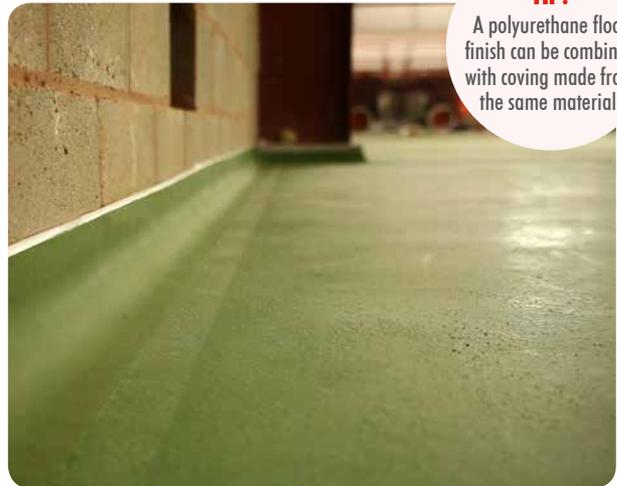
Flowfresh can be supplied with coving made from the same polyurethane material to ensure that this crucial aspect of the floor's design is made from the same hardwearing, antibacterial and long-lasting system as the floor itself. As the two systems will share the same coefficient of expansion this method also avoids having to install an expansion joint between the floor and coving. Both products are also independently rebated into the concrete.

An expansion joint will be required between the wall panel and the coved skirting to avoid a hairline crack appearing, as these two systems will expand and contract at different rates.

To avoid a 90° angle between the coving and wall, a coved skirting detail or 'bird's beak' made from stainless steel or plastic creates an easily cleanable 45° angle at the coving's top. A bead of silicone applied above the bird's beak completes the system.

Signage and Colour Zoning

A food and beverage manufacturing site's operational activity could pose a number of safety problems from



TIP:

A polyurethane floor finish can be combined with coving made from the same material.

dangerous equipment, hot ovens, boiling oils, storing strong chemicals and many more potentially harmful elements of the working day that can't be avoided.

A full hazard assessment can highlight the potential safety and contamination threats. This information can be used to create a floor plan that helps staff and visitors navigate safely around these risks. Clearly marked out pathways on the floor show where it is safe to walk, while bright signage can be used to draw attention to potentially dangerous aspects of the site.

Colourful zoning plans can help avoid cross-contamination by differentiating various areas of the site - for example in plants where ingredients such as peanuts may be used in one area but should not be carried across into another.

This is an especially vital consideration for facilities that need to separate high care from low care environments, such as cooked and raw meat areas. Sites where this is a concern are required to implement strict procedures to ensure that the movement of staff does not carry unwanted microbes from one space into another.

Having floors in bright, contrasting colours is a great way to make a visual statement about the differences between the rooms, for example all raw meat areas can be in a hazard-red colour while the cooked meat areas are a vivid green.



This will constantly remind anyone on-site about the hygiene considerations of the environment they are in or moving between.

Using the design flexibility of polyurethane floors to achieve this means that the colours, words, lines and symbols won't fade over time and will continue to assist safe navigation around the facility despite years of use and wear.

Wall Coatings

The walls within food and beverage processing and packaging sites need to exhibit similar properties to the floor, as it is important that they maintain an unsoiled surface that does not harbour dirt, grime, mould or bacteria.

A water based hygienic wall coating is ideal for this application. Flowcrete UK's Peran WW wall coating has been utilised by high-profile producers, distributors and retailers such as Linzer's Bakery, Gate

Gourmet and ASDA, to ensure smooth and sanitary walls that helps the on-site cleaning regime to keep the area contaminant free.

Specifying Safety

Specifying a floor area that meets all of a facility's safety requirements means, in reality, identifying a selection of different systems that will have to work together to ensure that the site meets all the necessary health and safety standards.

Choosing elements that will fail when subject to the rigours of a production environment or when put together with certain materials will have a serious impact on the site's health and safety credentials.

Flowcrete UK has pooled together a package of high-quality systems, including antimicrobial enhanced polyurethane flooring, efficient stainless steel drainage, hygienic coving, smooth wall coatings and a single component floor joint hybrid sealant. This package not only provides developers with a tried-and-tested solution but it means that they can source every element of the floor from one supplier and with one point of contact. This streamlines an otherwise complex process, reducing hassle and avoiding errors creeping into the specification procedure.

This guide has been produced to provide an overview of how a correctly specified floor can enhance a food and beverage production facility's health and safety credentials.

Detailed recommendations and advice are available from our dedicated network of regional technical and sales representatives.

For more information on resin flooring solutions for Food & Beverage environments, please visit our website at www.flowcrete.co.uk

