Flowcrete
for the world at your feet

WHITEPAPER

FACTORS TO CONSIDER WHEN SPECIFYING FLOORING IN HEALTHCARE ENVIRONMENTS

An overview of floor specification considerations for healthcare facilities.

www.flowcreteaustralia.com.au

WHITEPAPER

Flowcrete
for the world at your feet

Contact the Flooring Specialist
+61 7 3205 7115 (Brisbane)
+61 2 4648 0397 (Sydney)
australia@flowcrete.com

Factors to Consider when Specifying Flooring in Healthcare Environements

Polygiene
Safer to Touch

Flooring within healthcare facilities has to take into account a long list of complex considerations to meet the often conflicting demands of sanitation, construction, budget and aesthetics.

Hard, resilient and soft floor coverings all have a role to play within a hospital, however in many rooms particular coatings will be much more effective than others. From the reception rooms, surgeries, toilets, kitchens and back of house areas, it is important to analyse the levels of imperviousness, smoothness, slip-resistance, fire hazard properties and dirt control that is required within that setting to identify the ideal flooring solution.

Avoiding Surface Contamination

Designing effective infection control practises into the structure and daily operations of a healthcare facility is imperative. Floor finishes are an integral part of the overall infection control risk management strategy as well as the associated legislative and accredited obligations.

The New South Wales Health Infection Control Policy rates areas into four groups, from 'very high' to 'low/minimal', to categorise the level of risk that can stem from inadequate cleaning. These can be use to guide flooring selection to ensure that the most high risk areas are prioritised as the easiest to clean. These categories may change during outbreaks of disease so bear in mind that the floor might need to withstand more intense cleaning during this time than would be the norm.

Government regulations advise a smooth, impervious surface in treatment rooms and any area where there is the likelihood of patient contact or spillages of blood and bodily fluids. The hardwearing and gap-free nature of resin solutions fulfils these criteria, as the level, impermeable finish it creates will not harbour dirt and germs and contaminants can be quickly and easily removed from the area.

Polyurethane solutions can even be specified that have antimicrobial additives incorporated within the system's resin matrix to actively target bacteria on the surface of the floor. The Flowfresh range achieves this by having the antimicrobial agent Polygiene® homogeneously distributed throughout the finish, this additive uses natural silver ions to destroy bacteria on the surface of the floor.

Textile finishes may provide a more comforting environment than hard floor coatings, however they may be unsuitable for areas with a high soiling rate and that will require infection control management. Significant sources of soiling to be aware of include foot traffic, incontinent patients, dropped food, liquids and gum. If such soiling is not quickly removed it will accelerate wear, with finishes that have a thin wear layer deteriorating especially quickly.

Skirtings and coving are an important aspect of the floor's design, as without it bacteria and pathogens can accumulate in the gap between the floor and wall.

Skirtings in clinical areas should be 150mm high to reduce damage from cleaning and wheeled equipment. In areas where damage to the wall may compromise infection control, such as in operating suites, the use of a higher skirting or wall protection strips is advisable, while in non-clinical areas a minimum of 100mm is visually less institutional and should be suitable for most cleaning equipment.

Coving created by running the floor system up the wall in one continuous flow can be used in all areas where hygiene and easy cleaning is vital, as it provides a smooth transition between horizontal and vertical surfaces.

Durability Factors

A hospital's on-site demands mean that the floors have to be able to cope with a long list of factors without failing and becoming an unsightly and unhygienic surface.

Not only does every area of the site need to be optimised for hygiene but the site's developers also need to consider the chemicals, heavy equipment, level of foot traffic and aesthetic demands of each part of the complex to ensure that the interior consistently meets these criteria.

Undertaking a thorough life cycle costing is essential to understand what the floor will need to withstand and how long you can expect it to last for, which are both important hygiene and budgetary concerns.

By installing a thick, durable system with a higher initial cost, money can be saved in the long term by avoiding complex maintenance regimes, frequent repairs and early refurbishments as well as any compensation costs that stem from the inevitable organisational disruption of fixing a faulty finish. Instead the facility's floor budget can divide the cost of a more expensive but long-lasting floor into many years of reliable service.

Key factors to take into account during a life cycle costing include:

- The frequency, techniques and equipment to maintain the floor and whether this is acceptable for the working hours (especially if 24/7).
- Monitoring to ensure the safe removal of contamination.
- Appropriate cleaning techniques that don't constitute an infection control risk.
- Disruption or disturbance caused to occupants and on-site activities.
- Patient population and their movement around the site. This includes the footwear they are likely to be wearing (heels for example).
- The high levels of friction created when moving heavy equipment (mobile x-ray units for example) or equipment which moves on certain wheel types can both damage unsuitable flooring.
- Disinfectants are a crucial part of any sanitation regime, the floor must be able to withstand frequent exposure to such chemicals.

Many healthcare facilities will have a mixture of interspersed room types, where this is the case it is beneficial to apply the finish that facilitates the most efficient overall maintenance regime to avoid a patchwork of different coatings and maintenance processes.

Health & Safety

Floor sanitation is not the only health and safety factor that needs to be considered when specifying flooring, as many aspects of the floor can influence the likelihood of slips, trips and falls.

These types of injuries are covered under the Occupational Health and Safety (OHS) legislation, which states that floors should be designed to be safe and maintained to minimise risks.

Floor finishes that enhance traction underfoot can be used in areas likely to be wet or slippery.

Healthcare sites can incorporate anti-slip aggregates into resin floor systems to provide extra grip underfoot. In areas where still water is likely to be present during normal daily operations and where standard footwear is being worn it is advisable to install a friction filled non-profiled material with macro-roughness (roughness comprising an aggregate).

The slip resistance of a floor can be ascertained through tests such as the Wet Pendulum test to check that the finish meets the system's stated anti-slip properties. The floors non-slip potential should be checked over time, as wear, contamination and cleaning can all make a surface slipperier than it should be.

Effective drainage and the removal of water is not only important for sanitation, but it will also remove a dangerous slip hazard. Impermeable surfaces with coving make it easy to clear water, spillages and unwanted liquid out of the area before it can become either a hygiene or slip risk.

Bright, light reflective surfaces will help those moving around the site to see where they are going. This will also make any dropped contaminants easily visible, which will help pedestrians to avoid stepping in them and also helps staff to identify spots in need of cleaning.

Each person's cognitive senses, motor skills and personal situation can influence the risk of slips and falls. The most vulnerable groups include the aged, children and the disabled, elderly people are at a particularly high-risk as any falls could cause further complications. Any change of floor surface should be clearly identified to reduce the chance of tripping.

In acute mental health facilities and high security areas, a risk can arise if the floor finish is damaged, removed or misused, therefore tough floors which can avoid this situation from occurring are advantageous.

Colour & Demarcation

The colour and pattern of the floor should be carefully considered during the design stage, as they can provide healthcare facilities with practical and aesthetic benefits.

A bright, interesting and attractive interior that does not feel 'institutional' can help to create a calming environment that ultimately helps the healing process by reducing the patient's stress levels.

Decorative finishes don't just need to look good – but they've got to look good over long periods of time and despite the site's intensive, complex activities. Floors that reduce staining and marking will help to retain the intended feel-good effect of the floor.

Colours can also be used for functional purposes, such as by designating different zones and by creating navigational signage that helps patients find their way around the building and also assists staff to move around the hospital complex via the most efficient routes.

The same colours and patterns should not be applied across every department, for example a multi-tonal floor with shiny flakes in the finish might work for the reception, but in an operating room the floor needs a sharp visual contrast to allow for the easy identification of small dropped items. Inappropriate patterning can also create a risk for some patients by causing disorientation, dizziness and by impeding movement – all obviously unwanted outcomes.

Some materials, particularly textile finishes, may require early replacement due to deterioration in appearance (ugly out) before the end of their functional life. Compare the aesthetic potential of more robust flooring materials to determine if a similar appearance that lasts for a longer period of time can be attained.

Environmental Aspects

Indoor Air Quality (IAQ) can be significantly affected by the choice of flooring material. When sourcing the floor it is important to know if there are any chemical contaminants that could have a detrimental effect on the IAQ.

Volatile Organic Compounds (VOCs) are one of the main substances to be aware of, as they are a popular construction ingredient and yet exposure to these compounds can constitute a significant health risk. To safeguard the air quality, floor products should be low-VOC emitting, non-toxic and chemically inert.

The Australian Paint Approval Scheme is responsible for testing coatings and certifying whether or not they contain too many toxic substances, such as VOCs, as determined in its environmental and health and safety guidelines.

Unsanitary floor finishes that harbour bacteria, moulds and pollens can also have a detrimental IAQ effect.

Zoning and Fit for Purpose Floors

The Room Data Sheets (RDS) compiled for the NSW Health Strategic Business and Development Branch identifies 50 different types of rooms and the recommended floor finishes that should be used in each area.

These sheets identify seamless resin coatings as a useful solution that can be utilised across multiple areas of a healthcare facility, including the food preparation rooms, hygiene and storage areas, laboratories and clean rooms, workshops, chemical storage and plant rooms. Specialist resin systems can also be specified for use in car parks and locations subject to exceptionally corrosive chemicals.

This functionality stems from the fact that these epoxy, polyurethane, methyl methacrylate and acrylic based floors can be installed in a variety of thicknesses to meet the on-site impact, traffic, chemical, temperature and hygiene concerns.

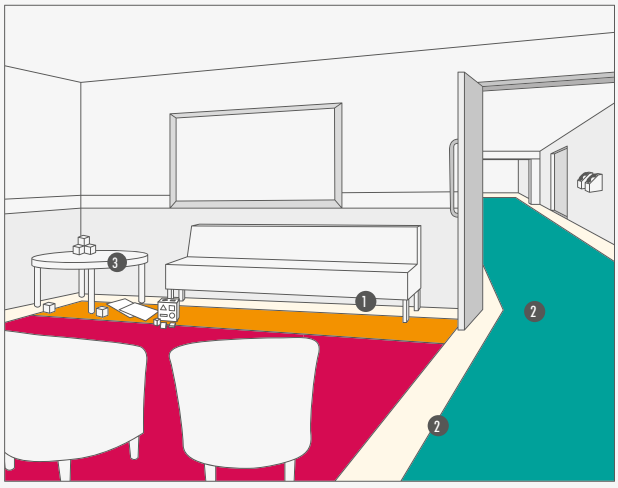
Vinyl sheet is likewise identified as a resilient finish and has traditionally been one of the most popular flooring materials in healthcare facilities. The main argument against it is that it can create an institutional atmosphere that may negate a calm, stress-free ambiance.

Both rubber and linoleum finishes can be used in similar locations to vinyl sheet thanks to the functionality that they can provide and the customisable options that are available.

Linoleum however is not recommended for areas with intensive cleaning and disinfecting regimes such as operating theatres and procedure rooms or for places that require enhanced slip resistance. Public and 'shopfront' areas such as high volume traffic public concourses can make use of terrazzo flooring systems that provide hard, durable, cost effective and easily cleaned surfaces.

Cementitious toppings are identified as ideal for fire stairs, walkways, general back of house and external areas. The slip resistance, porosity and hygienic credentials of this material can be tailored to meet the area's needs by adjusting the mix, admixtures, surface treatment and with an applied finish. This system can also easily be graded for drainage.

Soft textile finishes can be used in the most low-intensity areas, such as patient areas with a low soiling risk, staff meeting rooms and offices.



1 WAITING AREAS
Flowfast Kristalina
Cranberry

2 WALKWAYS AND CORRIDORS
Flowfast Kristalina
Peacock
Flowfast Terrosso
Da Vinci

3 CHILDREN'S PLAY AREAS
Flowfast Kristalina
Clementine

TREATMENT ROOMS
Flowfast Terrosso
Van Gogh

OPERATING THEATRES
Flowfast Terrosso
Matisse

CAR PARKS
Deckshield ED & ID
Light Blue

FIGURE 1: *Flooring Throughout the Hospital Environment*

Coatings like this such as carpets are good for creating a home-like environment, however they can quickly lose appearance quality when subject to high levels of public use and the microbial survival count is higher in carpet compared to smooth, impervious surfaces.

Specification Process

When going through the floor specification stage of any healthcare facility the architects and developers should consult the suppliers and manufacturers of the materials they are considering to ascertain whether or not the systems will be able to meet the stringent infection control, aesthetic and longevity demands.

An unsuccessful design or the selection of a floor that is not 'fit for purpose' can result in costly and disruptive replacement work that can adversely affect the site's ability to maintain a sanitised and medically efficient facility.

Once the ideal solution has been chosen then the developer needs to ensure that a highly trained and licensed applicator is taken on to apply the coating, as even the most suitable material can quickly fail or disappoint if incorrectly installed.

The flooring manufacturer will also be able to supply the facility manager and cleaning managers with an in-depth guide to how the floor should be maintained so as to get the most usage out of it. Failing to properly follow this advice can lead to a number of floor failures, from unsanitary cracks and gaps to discolouration and poor slip resistance levels.

This guide has been produced to give an overview of floor specification considerations for healthcare facilities.

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

For more information on Flowcrete's specialist flooring solutions, get in touch with the team today…

www.flowcreteaustralia.com.au
"Flowcrete Group Ltd"
www.flowcreteaustralia.com.au/our-news
allthingsflooring.com
@flowcrete_aust
youtube.com/flowcretetv
australia@flowcrete.com
+61 7 3205 7715
slideshare.net/flowcrete