

8.0 Floors

8.1 Floor Finishes

8.1.1 *General*

Floor finishes have an impact on various requirements of these Guidelines. Part D covers those aspects that affect Infection Control issues. This section (Part C) covers those aspects that affect Access, Mobility, Occupational Safety and Health.

The selection of floor finishes is very important. It has direct impact on the safety of patients, staff and visitors. The choice also has potential legal implications if not correctly addressed.

Fire safety compliance is also a special consideration. A 'duty of care' exists where professionals such as architects and interior designers are involved in the selection of products and responsibility must be addressed by purchasing officers and retailers/agents when purchasing replacement products. Floor finishes also have a direct impact on the whole of life costs of any building where cleaning and maintenance is concerned. This is especially true in a Hospital. Low capital cost may result in high whole of life costs.

8.1.2 *Balance of Considerations*

A number of issues should be considered and balanced when making the choice of floor finish. Designers are encouraged to investigate alternative materials and if necessary organize for realistic onsite tests before making major decisions. The following are general guides to making this decision.

8.1.3 *Movement of Objects*

The floor finishes chosen should make the movement of such objects as trolleys, bed trolleys and wheelchairs sufficiently easy to minimize the potential for back injury to staff.

The following should be considered when selecting floor finishes:

- Standard vinyl and similar products are the easiest materials for the movement of trolleys and wheelchairs
- Carpet, if used, should be direct stick, commercial density with short piles, preferably loop piles; a 90/10 or 80/20 wool/nylon mix is recommended
- Flocked carpet should be considered where the 'look and feel' of carpet is desired with the ease of movement over vinyl
- Many hospital staff consider that it is harder to move objects over cushioned vinyl. However, cushioned vinyl may still be preferred to standard vinyl for its sound absorption qualities.

8.1.4 *Noise Generation and Sound Absorption*

Carpet type finishes not only minimize noise generation, they also dampen the noise generated by other sources. Carpet is particularly effective in corridor areas outside patient bedrooms where a great deal of noise can be generated. This quality should be balanced against the ease of movement by trolleys, bed trolleys and wheelchairs.

Cushioned vinyl is also effective in minimizing noise generation but it does not dampen other noises as effectively as carpet.

Ceramic tiles, Terrazzo and similar hard surfaces generate noise from walking staff and visitors.

8.1.5 *Easy on the Foot*

Surfaces such as carpet and vinyl, both standard and cushioned are considered easy to stand on for long periods of time. Most OSH experts consider surfaces such as ceramic tiles and terrazzo too hard to stand on for more than a few hours. These are therefore not recommended in hospital work areas. However, they may be used in public areas such as foyers and courtyards.

Floor materials shall be easy to clean and have wear resistance appropriate for the location involved.

Floor finishes that are subject to traffic whilst wet such as showers and bathrooms, kitchens and similar work areas shall be capable of maintaining a nonslip surface.

Note: The same applies to dry floors subject to the presence of fine powder such as baby powder.

Floor finishes for staircases should be slip resistant and comply with fire safety requirements. Stone and terrazzo may be used, however, when wet, worn or poorly maintained these finishes may present a danger to staff and visitors from slips, trips and falls. Consideration may be given to application of proven, proprietary non-slip chemical or other treatments to the surface. If stone finish is to be used, an anti-slip strip is to be used.

8.2 Anti-Static/Conductive Flooring

A distinction must be made between anti-static and conductive flooring. Anti-static flooring reduces the risk of static occurring while conductive flooring absorbs the electrical charge. However, if rubber soled shoes are worn on conductive flooring the effect is negated.

In the past, anti-static flooring was required in Operating Rooms because of the use of flammable anesthetic agents. These types of anesthetics are no longer in use, so the requirement for this type of specialized flooring no longer applies.

In addition, anti-static flooring is expensive, both to install and maintain. Most public and staff areas do not pose a problem with respect to generation of an electrical charge. Where there is any possibility of such an event, for example a computer technician working inside a computer or a worker in a specialized micro-electronics laboratory, use is made of anti-static mats that more than adequately provide the necessary barrier.

If there are areas and rooms in which flammable anesthetic agents are stored or administered to patients, floors shall minimize combustion hazards arising from the medical use of flammable anesthetic agents

Conductive flooring may be omitted in anaesthetizing areas where flammable anesthetic agents will not be used and appropriate notices are permanently and conspicuously affixed to the wall in such areas and rooms. Otherwise, appropriate conductive flooring shall be provided.

In summary, anti-static or conductive flooring are not mandatory in any part of the hospital. Any special requirement may be noted specifically on the Project Brief.

8.3 Slip Resistance

Slip resistance is governed by the nature of the anticipated activity. In equating safety, consideration must be given to all the relevant variables; slip potential is a function of footwear, activities, gait, contamination, environment and other factors.

The choice of floor finish shall consider the slip resistance appropriate for different conditions. The following can be used as a guide:

- Standard vinyl is suitable for dry areas where patients and staff are expected to wear shoes (Standard – Dry)
- Standard Textured Vinyl is similar to standard vinyl but provides greater dry condition slip resistance (Standard/Slip resistant)
- Studded vinyl flooring balances slip resistance with ease of cleaning, and is suitable for wet areas such as patient showers where water, soap and body fat are present (Non-Slip)
- Safety vinyl flooring that suits wet areas without soap or body fat where trolley movement is also expected, such as CSSU Decontamination Areas and Dirty Utilities (Extra Non-Slip)
- Ceramic tiles can be used for Ensuites and Bathrooms, but not clinical areas requiring seamless finishes. Smaller ceramic tiles generally provided greater slip resistance. The best combination of slip resistance and easy cleaning is commonly referred to as 'Orange Peel'.

Stone and terrazzo are sometimes used in entrance foyer areas; however, on rainy days these finishes may present a danger to staff and visitors and in such circumstances proprietary non-slip chemical treatments shall be used to increase slip resistance.

Design considerations include:

- Floor finishes and floor finish characteristics (wear resistance and cleanability)
- The amount and type of expected traffic (vehicles, trolleys, people hurrying, elderly, disabled people with or without walking aids and children)
- Consequences of exposure to contaminants including environmental design factors (visibility issues and contamination minimization)
- Management policy and maintenance practiced (frequency, type and effectiveness of cleaning equipment)
- Compliance with Occupational Safety and Health requirements
- Special provision for slip hazards (guards and rails)
- Alternative information sources (use of contrasting colors, tactile indicators and warning signs).

8.4 Floor Joints

Thresholds and expansion joint covers shall be flush with the floor surface to facilitate the use of wheelchairs and trolleys. Expansion and seismic joints shall be constructed to resist passage of smoke.