Slip Resistance Guide

Introduction

Slip resistance is a key consideration when specifying for a commercial project. Environments like school canteens, office kitchens, bars, restaurants and hotel reception areas, are often the higher risk areas for slipping to occur. Understanding the different floor coverings that are available and how these can be used in different spaces is key.

It is well known that the risk of slipping is increased if a person walking from a clean dry surface unwittingly steps into an area that has been contaminated with water, oil, or grease. In busy commercial environments, a structured cleaning and maintenance approach is integral to preventing a slippery floor surface.

At Karndean Designflooring, we offer a range of flooring types in wood and stone Luxury Vinyl Tile (LVT) that have been defined by different slip ratings to guide you when choosing the right product for the space you're specifying in.

Reducing the risk

The Health and Safety Executive (HSE) recommends a hierarchy[1] to reduce risk, noting that prevention of contamination on the floor is the key consideration:

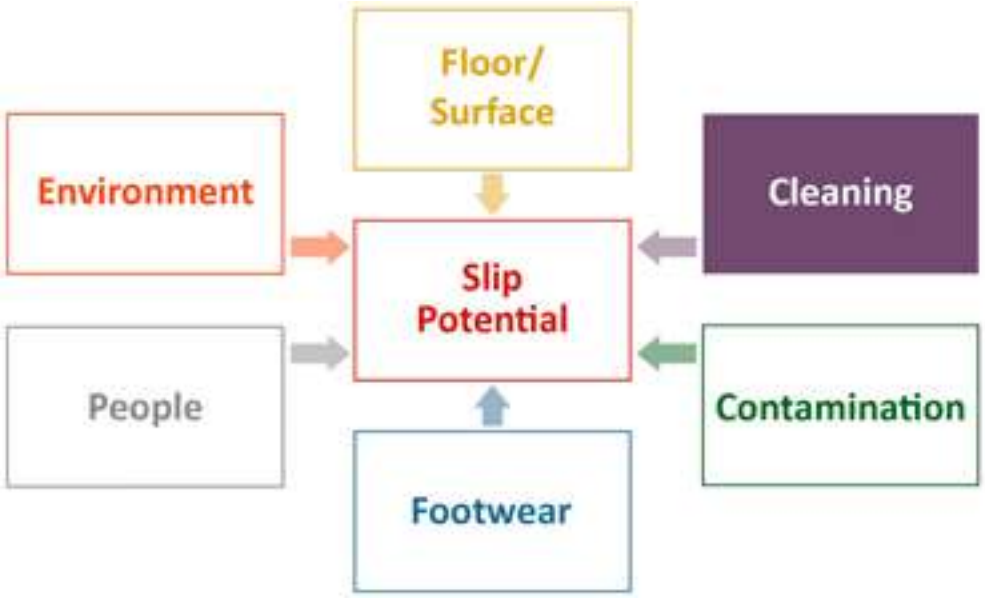
1: Prevent contamination getting onto the floor.

2: Control and contain contamination.

3: Eliminate adverse environmental conditions.

4: Improve floor conditions.

But whilst contamination is a key factor, there are instances where certain elements like footwear and behaviour are beyond the control of both the supplier and the proprietor[2].



△ Image courtesy of UK Slip Resistance Group

At Karndean, our team of commercial specification managers are on hand to help when selecting a floor appropriate to the setting.

Reclaimed Chestnut **EW21**

△▽■ Light Distressed Oak **VGW111T**

How are slip tests conducted in UK?

In the laboratory, tests are performed with the 'pendulum' in accordance with the test method BS 7976.

The pendulum is clad with a test rubber foot to mimic the sole of a shoe and this is swung into contact with the floor sample. The height that the pendulum arm is carried up the scale dictates the Pendulum Test Value (PTV). The pendulum test lends itself to on-site testing and is the instrument normally used.

△ Image courtesy of Knightcott Surface Solutions

UK Regulations

The Workplace (Health, Safety and Welfare) Regulations 1992[3] require floors to be 'suitable, in good condition and free from obstructions. People must be able to move around safely'.

However, there is no current binding legal requirement for specific levels of slip resistance of floors in UK. Instead, there is a set of guidelines published by the UK Slip Resistance Group, of which Karndean are active members.

These guidelines include a table of pendulum test values (PTV)*

Slip potential	PTV
High slip potential	0 - 24
Moderate slip potential	25 - 35
Low slip potential	36+

These ranges were derived from large studies of people walking over a variety of surfaces. Where values close to the boundaries are obtained, factors such as surface roughness figures are sometimes invoked to help decide one way or the other.

*These values apply to both wet and dry conditions. Until very recently laboratories certifying the slip resistance of floors tested the floor surface in three directions and reported an average against the above table. New guidance from the HSE means that they are now required to report the lowest value.

△ Image courtesy of UK Slip Resistance Group[4]

Other slip requirements that may be encountered in UK

The harmonised European Product Standards from the Construction Products Regulations[4] EN14041 which covers the mandatory CE marking of resilient floors requires that flooring products achieve at least 0.3 COF (coefficient of friction) to EN13893. This test is a dry test.

Occasionally UK architects will apply German standards DIN 51130 and stipulate an 'R rating'. These tests involve a person walking up and down a ramp[5] where the surface is the test floor contaminated with oil whilst the angle of inclination is increased. The range starts at R9 and ends at R13.

Very soon new test methods will be finalised in Europe which will include the pendulum test, a ramp test and a powered 'sled' test. Tests such as EN13845 are only applicable to safety floors.

△ Image courtesy of Lucideon

▽ ■ Dakota **LLT212**

Safety Floors

Specifying products classified as a 'safety floor' is often a consideration for commercial projects. Available in a sheet and more recently, tile format, safety floors do benefit from a high slip resistance classification, but when comparing to an LVT, the intricacies of pattern, texture and beveling inspired by timber and stone are often lost from the design.

It is important to note that slip resistance of any type of floor can be reduced by contamination and depending on the type of contamination, the floor has the potential to become slippery.

For a safety floor to comply with British and European standards for sustainability of slip resistance, large grits must be embedded in the wear layer.

This type of flooring is often difficult to keep clean. Dirt can get trapped around particles in the surface, which cannot easily be removed, resulting in the floor appearing dirty even after cleaning. In some cases, a high footfall can result in grits being kicked out leading to holes in the surface where dirt can accumulate.

If regular spills are likely, it is important to note that a standard safety floor will not act as a barrier to standing water, unless the product is supplied as a welded sheet.

The dilemma on whether to sacrifice the look of a product over its functionality is a serious consideration when specifying for a commercial environment. When faced with this concern, most LVT specifiers will select a product for their client that will offer excellent appearance and appearance retention. The floor installation should be designed to ensure that the product will be protected as much as possible from ingress of contamination. To support this, the commitment to implement an effective cleaning and maintenance regime will also be required to keep the floor looking and operating at its very best.

What can you do?

HSE provides the following summary:

- To prevent slips, prevent contamination getting onto the floor, or if that is not possible, control and contain the contamination to minimise the amount that gets onto the floor.
- Design changes and engineering solutions can be effective in reducing how much contamination reaches the floor.
- Contamination controls that rely on systems of work will only be effective if workers are properly trained and supervised.
- Cleaning will not stop contamination getting onto the floor, but if done correctly can effectively remove it.
- Well planned cleaning will not only have an effect on flooring appearance and hygiene but should also reduce the likelihood of slip accidents.
- Cleaning can introduce extra hazards if it is poorly planned.
- A cleaning regime is only as good as the people who implement it, the tools they use and the training and supervision they receive.

Fabrica **WP419** with DS10 3mm design strip

How can Karndean help?

- All of our tiles and planks are safe in clean dry conditions.
- All achieve 'greater than 36' in the dry.
- All achieve greater than 0.3 to the European CE mark standard.
- All achieve at least R10.
- Karndean can also offer advice on entrance mats. These are one of the main barriers for preventing dirt, water and other substances being walked in, reducing the risk of slip hazards and saving on maintenance costs. They should be of an appropriate type and size, ideally large enough for at least two paces with each foot. Even then they must be maintained regularly to maintain their effectiveness.

Additional considerations

- It should be remembered that contamination, use and wear can each affect the value.
- Extra care should be taken when cleaning and the floor area should be allowed to dry completely before use.
- During periods of very wet weather, it may be necessary to put down extra matting to prevent water being brought in from outside.
- Post installation surface dressings which can offer enhanced slip resistance in contaminated conditions are available from Karndean. These are essential for ramps which may become wet or contaminated in normal use.

For more information on how to employ a commercial cleaning and maintenance regime, visit:
karndean.com/commercialcleaning

To speak to your local commercial specification manager about selecting the appropriate floor for the environment you are specifying, call: 01386 820200 (ROI: 0165 69887) or email: info@karndean.co.uk

◁ ▷ ■ Washed Scandi Pine **KP132** with DS12 3mm design strip

References

1. Assessing slips the hierarchy of controls
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2. Assessing the slip resistance of flooring a technical information sheet HSE
   www.hse.gov.uk/pubns/geis2.htm

3. Workplace health, safety and welfare. Workplace (Health, Safety and Welfare) Regulations 1992. Approved Code of Practice and Guidance
   www.hse.gov.uk/pubns/books/l24.htm

4. Regulation (EU) No 305/2011 of the European Parliament and of the Council
   https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:088:0005:0043:EN:PDF

5. UK Slip Resistance Group
   https://ukslipresistance.org.uk/

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