

About Floors and Walking Surfaces

One of the most common causes of non-fatal major accidents at work is due to slipping. The purpose of this information note is to ensure that due consideration is given to the most appropriate floor surface finish during the design of new buildings or alterations and refurbishment of Fife Council properties.

Slips happen both internally in offices, depots and workshops on floor surfaces and externally on surfaces of walkways, during the process of construction works and during bad weather i.e. snow, ice or wet leaves on various walking surfaces.

Most floor surfaces are safe from slip risks when clean and dry. When surfaces have the potential for contamination by water, oil or dust, the design and specification should be such that it does not place anyone at risk of slipping. The specification of the floor and walking surface should always consider the activities undertaken and ensure that any potential contamination is identified. Design and specification of the floor finish must ensure that the floor and walking surface is the most appropriate for the activity in that area.

General considerations when designing and specifying floor finishes

A reasonably foreseeable risk of slipping exists in the following situations:

- Any area likely to get wet, dusty or oily e.g. kitchens, entrances, corridors, workshops and vehicle fuelling areas.
- at entrances, where water may be ‘walked-in’ from outside which could present a slip risk to employees and visitors. Suitable matting and/ or canopies should be incorporated into the entrance design.
- Ramps, raised platforms and other changes of level. These should be avoided, if they can’t they must be highlighted to ensure that they are visible.
- Stairs, which must have:
 - high visibility, non slip, square nosings on the step edges
 - a suitable handrail
 - step risers of equal height
 - step treads of equal depth

- Outside
 - Due to weather i.e. snow, ice or wet leaves on walking surfaces
 - Typically on construction sites, including scaffold and temporary surfaces.

Responsibilities of Designers and Specifiers

Those who design and specify floor and walking surfaces should be aware that Regulation 12 (2) of the Workplace (Health, Safety and Welfare) Regulations 1992 makes it a legal requirement that floors should not be slippery so as to cause someone to slip, trip or fall.

Lighting and glare

Avoid polished or highly reflective floor and wall surfaces which could create glare from natural or artificial light.

Lighting levels should not be too high to create glare, nor too low to create areas of deep shadow on pedestrian routes. Either could prevent pedestrians from seeing hazards on floors, stairs and uneven surfaces. CIBSE (the Chartered Institute of Building Services Engineers) produce a Code for Interior Lighting which gives lighting requirements for areas.

This is also replicated in BS EN 12464-1:2002 Light and lighting - Lighting of work places - Part 1: Indoor work places.

Slip potential

Manufacturers of flooring materials provide slip potential information using a variety of measurement data. The Health & Safety Executive recommend the use of either of the following measurements to determine slip potential:

(a) The Pendulum Test (SRV)

This measures the co-efficient of friction and thereby the resistance to slipping.



SRV – slip resistance value is a dynamic co-efficient of friction – results from a swinging pendulum measuring the resistance/ friction of the foot of the pendulum against the floor surface.

Pendulum Reading (SRV)	Potential for slip
0-24	High
25-35	Moderate
36-64	Low

Only suitably trained and competent specialists can carry out this type of assessment

(b) Slip Assessment Tool (SAT)

The second recommended measurement utilises a series of measurements of the surface roughness of the floor material using a small portable meter (typical example “Surtronic Duo” shown below). Several readings are taken in a prescribed manner then entered into the Health & Safety Executive’s Slip Assessment Tool (SAT) available at: <http://www.hse.gov.uk/slips/sat/index.htm>

SAT generates a ‘slip-risk’ classification which helps the user determine whether site conditions are likely to give rise to a high or low risk of slipping. The SAT produces a summary page containing all the data input for a particular assessment and a ‘score’ from 0 to 40+ where:

- 0 -- 20 indicates low slip risk
- 21 – 30 indicates medium slip risk
- 31 – 40 indicates significant slip risk
- over 40 indicates high slip risk



Typical surface roughness measuring instrument, the “Surtronic Duo”. Further information on instrumentation available at: [Assessing the slip resistance of flooring \(hse.gov.uk\)](http://www.hse.gov.uk/slips/sat/index.htm)

A separate guidance document [OHS-C-25.G1](#) provides further information on interpretation of the surface roughness meter using the HSE slip assessment tool (SAT).

Employees conducting floor surface slip assessments should also refer to OHS-C-25.G1. Further advice is available from the health, safety and wellbeing team.

Designers and specifiers procuring new flooring must have the right information to enable them to source products that are suitable for preventing slips. It is essential that they can be sure that the product description gives a good indication of how the flooring will perform in its intended use and the cleaning and maintenance requirements. Cleaning and maintenance procedures recommended by the manufacturer must be communicated to the nominated Manager for the building, and to local cleaning personnel.

Role of manufacturers and suppliers of flooring

Manufacturers and suppliers of floor finishes have a legal duty to ensure that their products are safe. They must also provide adequate information about the product and appropriate use.

Designers should ensure that they have sufficient information from manufacturers to allow an informed decision on the most suitable floor finish for the activity being undertaken.

Information provided by the manufacturer will relate to the product as supplied from the factory and does not allow for:

- Changes in the surface due to the construction or laying process e.g. mortar splashes , grinding or polishing
- Degradation of surface due to wear and poor maintenance.

These factors can significantly affect the actual resistance to slip. Some manufacturers will supply data referring to change in slip potential of the floor finish after prolonged use.

Manufacturers and Suppliers can help designers by facilitating trials of flooring samples in the workplace to help them identify the right products for their needs.

Monitoring suitability of surfaces

To ensure that the surface does not deteriorate, it may be necessary to check the slip resistance of surfaces at regular intervals once laid, ensuring the surfaces remain suitable for the activity being carried out. Changes in building use or activities being undertaken could have an impact on the suitability of the surface and should be considered during change of use of buildings and refurbishment projects.

Further Reading

- **Specifiers handbook for inclusive design: Internal floor finishes**

This Specifiers Handbook has been produced by the Centre For Accessible Environments and published by RIBA Publishing and provides a practical understanding of how to provide internal flooring that enables all users of all abilities to be safe as they navigate around the buildings they use. This is available from www.ribabookshops.com quoting ISBN 1-85946-255-3

- **CIRIA C652 Safer surfaces to walk on - Reducing the risk of slipping - new guidance**

If you need detailed and practical guidance on how to choose new flooring or improve existing floors and stairs in order to stop people from slipping, this document is for you. It is available as a priced hard copy from CIRIA Books but is also available in PDF format at no cost using the link [to CIRIA 'Safer Surfaces to Walk on etc \[PDF 22MB\]](#)

Other sources of sources of information are listed below.

- Corporate Health and Safety Guidance [OHS-C-25.G1](#) Measuring Floor Surface Roughness and Use of Slip Assessment Tool (SAT)
- HSE Guidance INDG225 Preventing slips and trips at work
- HSE Education Information Sheet No 2 (revised) – Preventing slips and trips in the education sector
- HSE Information Sheet Food Sheet no 6 – Slips and Trips: Summary guidance for the food industry
- HSE Information Sheet Slips & Trips 2: The importance of floor cleaning
- HSE Approved Code of Practice L144 Managing Health & Safety in Construction.
- CIBSE (Chartered Institute of Building Services Engineers) produces a Code for Interior Lighting which gives lighting requirements for working and pedestrian areas.
- BS EN 12464-1:2002 Light and lighting - Lighting of work places - Part 1: Indoor work place
- www.hse.gov.uk/slips