

# Prevention of Slips, Trips and Falls in the Workplace

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## INFORMATION SHEET

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### 1 Introduction

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This short guide will help you to prevent slips, trips and falls in your workplace. Every year thousands of people are injured by slipping, tripping or falling and many are left with painful life long injuries. Falls can be fatal.

Slip, trip and fall accidents account for about 15% of all accidents reported to the HSA and are the second highest cause of accidents after manual handling.

These accidents are preventable and everybody has a role to play.

This short guide is an introduction to the subject and more technical details can be found in the reference documents at the end of the guide.

### 2 Nature of the Hazards

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Slips are caused by the presence of substances such as water, grease, oil, fats, soaps, granules, plastic sheets, packaging, leaves, ice etc deposited on the floor arising from the working conditions or in some cases the weather. Slip hazards can be found on both wet and dry surfaces.

Trips can be caused by such features as electric cables or compressed-air lines across walkways, curled-up or worn carpets, uneven floor surfaces and steps, or discarded work items.

Falls may be caused by slips or trips or when adjacent surfaces are at different levels leading to persons losing their balance because they had not anticipated the change in level. Slips or trips on stairs are particularly dangerous.

The hazards listed above are so ordinary and commonplace that people often accept them as part of normal living until they or someone close to them has an accident and is seriously hurt.

What can be done to prevent such unnecessary pain and suffering?

### 3 Strategy

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The starting point lies with everybody becoming aware of these hazards and taking appropriate action.

Management must take responsibility for controlling these hazards and must assign appropriate responsibilities to staff.

Clear policies should address what people need to do to identify and monitor slip, trip and fall hazards and the action to take once they identify a hazard.

Slips, trips and falls must be considered in the workplace hazard assessment that is required by law. This assessment should take account of the:

1. The type of hazard including how likely it is to occur
2. Characteristics of the workplace such as the nature and condition of floor surfaces, quality of lighting

3. Influence of the weather in relation to rain, frost, or leaves
4. Maintenance and cleaning procedures
5. Workplace users

Where workplaces are being modified or constructed there is an excellent opportunity to prevent slips and trips by selecting appropriate floor materials that are slip resistant and installed so as to minimise trip hazards.

### *3.1 Nature of the Hazard*

In some work areas such as certain food processing activities slip hazards may not always be completely avoidable and the control measures will need to assume the hazard is always present.

In other situations the floor surface may be non-slippery for most of the time but leaks from plant or bad weather may lead to the creation of a slip hazard. It only takes a small amount of liquid on a smooth floor to create a hazard. In these situations the immediate control measures will focus upon detection of liquids and the actions to be taken to remove the hazard or reduce it by the provision of warnings and cordoning off areas.

Permanent trip hazards should be removed as far as possible by such measures as the rerouting of pipes or cables, provision of more sockets to reduce long cable lengths, use of battery powered tools and the repair of uneven floor and stair surfaces.

A good housekeeping regime will go a long way to reduce intermittent hazards from badly stored or discarded items. Materials should never be left or stored on stairs.

Where changes in floor level cannot be avoided they should be clearly marked and the provision of handrails to control the movement of persons may be appropriate. Changes in level should not take people by surprise.

### *3.2 Characteristics of the Workplace*

It is better to eliminate slip hazards by choosing a suitable surface rather than depending on cleaning regimes to keep a floor safe. Building designers should ensure that the intended appearance of a building does not compromise the choice of inherently safer floor options.

Macro-rough surfaces (i.e. those that contain an aggregate) are recommended for areas that are expected to experience high levels of contamination. Floors that have hard particles throughout their thickness can maintain their slip resistance throughout their life but floors with a superficial layer of grit or slip resistant paint can become slippery as the layer is worn away.

Profiled floors (ridges or blisters) are sometimes used in areas subject to slip hazards but these can become slippery over time as the profile becomes worn and contaminants can be left trapped within the profiles.

Carpets or mats placed on smooth floors can pose both slip and trip hazards and, if used, should be securely fixed to the floor at their edges and at any joints.

The slip resistance of steps is improved by the fitting of nosings which protect the edge of the step from wear and help users to place their feet more accurately on it. Care has to be taken that the nosing itself does not constitute a hazard.

The design of stairways in buildings will need to take account of Technical Guidance Documents B (Fire Safety), K (Stairways, etc) and M (Access for People with Disabilities) produced by the Department of Environment, Heritage and Local Government.

Adequate lighting, including the avoidance of glare and shadows, is necessary to expose slip/trip hazards. Higher lighting levels are needed where older people are present.

Poorly sited or excessive signage can distract people who are then less likely to notice slip or trip hazards.

### 3.3 *The Weather*

Building entrances can become slippery due to the ingress of moisture, mud and debris in bad weather. Measures such as having a slightly higher internal air pressure in the vestibule or the provision of a suitably designed shelter or canopy above the entrance can reduce the ingress of rain. Another simple measure is the installation of doors that do not blow open in the wind.

Where matting is provided it should be aligned with the way pedestrians use the entrance. It should be laid immediately inside the door entrance and extend across the full width of the door. The existence of wet footprints beyond the entrance or matting is usually a sign that existing controls are not sufficient.

Where mats in mat-wells are prone to becoming waterlogged the provision of drainage holes should be considered.

### 3.4 *Maintenance and Cleaning Procedures*

Floor cleaning procedures should be incorporated in the operation and maintenance procedures for a company. The procedure should specify the methods and materials to be used as the use of the wrong cleaning method can increase the area of hazard and level of risk. The cleaning agent used should be suitable for the floor surface and the type of contamination encountered. A build-up of polish or detergent residues should be avoided.

The drying of floors after cleaning is most important for the control of slip hazards.

Staff should be informed, trained and supervised with regard to:

- ▲ Cleaning and drying floors
- ▲ Importance of dealing with spillages/leaks
- ▲ "Cleaning as you go"
- ▲ Reporting hazards as they arise and any equipment defects contributing to slip hazards or problems with the cleaning equipment itself
- ▲ Prompt incident reporting
- ▲ Use of suitable footwear

Cleaning should, where practical, be carried out when there are less people around.

Cleaning activity should be organised so as to provide dry paths through areas being cleaned. It is better to restrict access to areas that are being cleaned by the use of barriers rather than depending on the use of cones or signs alone.

Research has shown that forewarning people of a hazard can lead them to modifying their gait so as to anticipate the situation but attention must be paid to removing signs when the hazard has been dealt with; otherwise people will tend to ignore them if their experience tells them that the signs are always displayed irrespective of the conditions underfoot.

Where existing unsuitable floor surfaces are identified, the hazard can be reduced by controlling contamination, using mats, treating the surface or in some cases replacing it altogether with a safer material.

### 3.5 *Workspace Users*

Where there is control over access to the workspace, the risk of falls can be reduced by the introduction of a "sensible shoe" policy i.e. no high heels or loose fitting shoes.

Shoe soles should have deep cleating and a well defined tread pattern.

Safety footwear may not always be slip-resistant and purchasers should check that it is suitable for the conditions under which it is going to be used.

Slip resistant shoes will not remain so if they become worn or contaminated underfoot.

The risk of slipping whilst barefoot is often greater than when wearing shoes, this factor

needs to be taken into account in shower areas and in other tiled areas associated with swimming pools, etc

Disposable plastic overshoes can have poor resistance on smooth floors.

In other workspaces where there is general public access there will be greater dependence on the selection of floor material in combination with maintenance regimes to control slip, trip and fall hazards.

## 4 Measurement of Slip Resistance

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Surfaces with a high slip resistance should be used where there is a risk of water, oil or other slippery substances being present.

The key parameters of a walking surface are its dynamic coefficient of friction which can be measured by a pendulum test to give a slip resistance value and its surface roughness which can be measured by a roughness meter. The HSA recommend reference to "The Assessment of Floor Slip Resistance" by the UK Slip Resistance Group for a discussion of the technical aspects of conducting measurements. This emphasises that a floor surface should be assessed in relation to its use or likely use and the nature of any contaminant likely to be found there.

## 5 Legal Provisions

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The Safety, Health & Welfare at Work Act 2005, section 2 requires employers to ensure, so far as is reasonably practicable, the design, provision and maintenance of a workplace and its means of access, in a condition that is safe and without risk to health. Duties in respect of hazard identification, risk assessment and "safety statements" are set out in sections 19 and 20. Section 17 places a duty on those who design buildings or structures to ensure that they are safe and without risk to health.

The Safety, Health & Welfare (General Application) Regulations require that floors of rooms shall not have dangerous bumps, holes or slopes and that they be fixed, stable and not slippery.

## 6 References

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*The Safety, Health and Welfare at Work Act, 2005* available from Government Publications, and at the legislation section of [www.hsa.ie](http://www.hsa.ie)

*Safer Surfaces to Walk on, Reducing the Risk of Slipping*; CIRIA report no. C 652; purchase available through CIRIA website at <http://www.ciria.org/bookshopentrance.htm>

*BS 6263-2, Care and Maintenance of Floor Surfaces -Resilient Sheet and Floor Tiling*; available directly from the British Standards Institute at [www.bsonline.bsi-global.com](http://www.bsonline.bsi-global.com) or through the National Standards Authority of Ireland at [www.nsai.ie](http://www.nsai.ie)

Slips and Trips; the Importance of Floor Cleaning: UK HSE. There is much useful material on the HSE website at <http://www.hse.gov.uk/slips/index.htm>

*The Assessment of Floor Slip Resistance*; The UK Slip Resistance Group, information at [www.ukslipresistance.org.uk](http://www.ukslipresistance.org.uk)

*Technical Guidance Documents* (relating to the Building Regulations); The Department of Environment, Heritage and Local Government; [www.envron.ie](http://www.envron.ie)