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Slips and Trips:

The essential guide to prevention

Don't trip up - fulfilling your safety obligation as a building owner/designer



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Information drawn from guidance
documents produced by HSE

SLIPS AND TRIPS

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THE FACTS



THE GROWING AWARENESS



Health and safety is now fast becoming as high as profitability on most organisations' priority lists. There are several reasons why. As a society we're better educated to the many positive effects that a healthy working environment has on us not least of which is improved productivity. We're also acutely aware of the cost implications of poor health and safety, from lost man hours due to injuries to every MD's nightmare - the compensation claim. Add to this the fact that company directors can face prosecution for not implementing the correct health and safety measures and it's easy to understand why everyone's responsibilities, from building designers to facility managers, are high on the agenda.

Of all the accidents that occur in the UK, slips and trips are the most common. With common sense design and specification, you have the power to change it!

“Health and Safety
is the cornerstone of
a civilised society”

**BILL CALLAGHAN, FORMER CHAIR
OF HSE**

THE STATISTICS

Forming over a third of reported major injuries, slips and trips have a lot to answer for. According to the Health and Safety Executive, slips and trips:

- are the single most common cause of major injury in UK workplaces
- cause over 10 000 major injuries each year
- cost employers over £500 million each year
- cost the health service £512 million each year
- cause 55% of all accidents in education

Further information on accident statistics can be found by visiting the Altro website at www.altro.com or the HSE website at www.hse.gov.uk/slips

SLIPS AND TRIPS IN A COMPENSATION CULTURE

In *Ellis Vs Bristol City Council*, 2007, the Claimant was employed as a carer at a home for the elderly run by the Defendant. The Claimant slipped on a spillage of urine on the main corridor. The Defendant was aware of this slip risk as there had previously been accidents caused by this hazard. The Defendant had a good cleaning and inspection system, plus warning notices and two non-slip mats positioned in the worst hit areas.

This recent Court of Appeal decision imposes a greater demand on employers by extending the ambit of strict liability under the Workplace (Health, Safety and Welfare) Regulations 1992.

The decision in *Ellis Vs Bristol City Council* goes further than previous case law, finding that an employer must not only assess the construction of floors and traffic routes but also any transient substance which lies upon them on a regular basis.



Compensation claims are increasing and, unfortunately for the tax-payer, it looks like compensation culture is here to stay.



TEACHER WINS CHIP SLIP CASE

A maths teacher is awarded £55,000 compensation after slipping on a chip outside her school canteen

BBC NEWS ONLINE, MAY '05

Helping to perpetuate this phenomenon, personal injury claims often make the news.

Aileen Gilmour vs East Renfrewshire Council “chip slip” case was a fair and genuine claim. The ramp on which Ms Gilmour slipped was deemed in contravention of two key areas of the Workplace Regulation 1992. In essence, the slippery surface of the ramp made it unsuitable for use in a walkway. The case prompted many Local Authorities in Scotland to review their procedures and to install safety flooring - a wise response. But if proactive measures had been taken in the design and specification of the area’s facilities this unfortunate incident may never have occurred. It’s for this reason that the guidelines on design and specification have changed (see page 11).

TIME TO MAKE A DIFFERENCE

**What are we obliged
to do by law**

As an employer

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As a designer

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What are the Mandatory Requirements?

AS AN EMPLOYER...

What does the law require the employer to do to reduce the potential of slips and trips?

Slips and trips continue to be the most common cause of major injury at work and remain a priority for HSE. Under the Management of Health and Safety at Work Regulations: 1999, the employer has a duty to assess the risks to their employees and others and to identify and put into place the necessary measures to reduce the risks to the required level.

Refer to www.hse.gov.uk for a copy of the regulations.

Preventing slips and trips accidents is a legal requirement. The main underpinning legislation which applies is the Health and Safety at Work Act: 1974 (HSWA) - Employer's duty to their employees and others. Duties under HSWA are qualified by so far as is reasonably practicable (SFAIRP) – what does this mean? Many slip and trip control measures are not costly to apply and are therefore reasonably practicable.

Some examples include:

- Choosing a floor appropriate to the working environment
- Preventing contamination that could increase slipperiness
- Ensuring spillages are managed as they happen
- Ensuring the correct cleaning regime is in place
- Lighting potentially hazardous areas properly



“The law requires that floors must not be slippery, so they put people’s safety at risk”
HSE – “ASSESSING THE SLIP RESISTANCE OF FLOORING”

Visit www.opsi.gov.uk for a copy of the datasheet.



THE LAW – HOW DOES IT AFFECT YOU?

AS A DESIGNER...

The client, specifier and supplier all have a role to play.

The Legal Duty to Build Safety into a Design*

From April 2007, the designer has a legal duty to ensure the safety of people using their buildings. The designer must:

- “Make clients aware of their duties”
- “Give due regard to health and safety in design work”
- “Provide adequate information about the health and safety risk of the design to those who need it”
- “Co-operate with the planning supervisor and, where appropriate other designers involved in the project”

*Construction (Design and Management) Regulations 2007

The extension of the law requests that the specifier should “avoid foreseeable risks to the health and safety of any person using a structure designed as a workplace.” (Up to 2007 the designer was obliged to avoid safety risks in building, structural maintenance and demolition). Designing buildings to avoid the risk of slips and trips is therefore an important obligation, covered by UK law. The avoidance of expensive alterations for the client is another key consideration. But compliance with legislation doesn’t have to mean compromise on appearance. Altro safety floors provide the perfect solution offering sustainability and cleanability without sacrificing their attractive appearance.

FIRST STOP-RISK ASSESSMENT

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RISK

For more details on risk assessment, refer to the CIRIA publication "Safer surfaces to walk on – reducing the risk of slipping", CIRIA, 2006



WHAT IS RISK ASSESSMENT?

Risk assessment is a careful systematic examination of the things which could cause harm to people and an evaluation of whether the controls in place are sufficient to prevent accidents.

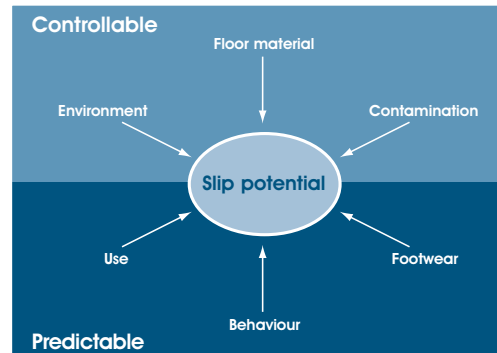
5 STEPS

ASSESSMENT NEEDS AN ACTION PLAN!

The 5 steps to successful risk assessment:

- Identify the hazards
- Decide who may be harmed and how
- Evaluate the risks and decide if the existing precautions are adequate
- Record the significant findings
- Review the assessment periodically

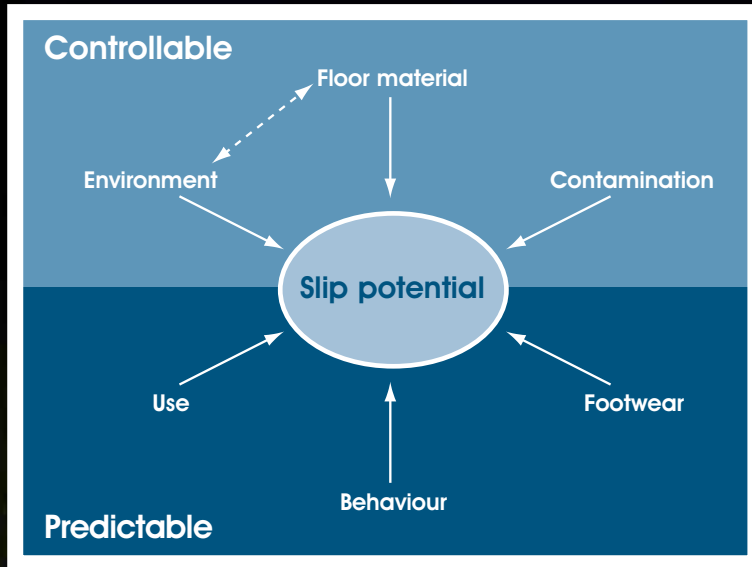
THE FACTORS TO CONSIDER WHEN ASSESSING POTENTIAL SLIP AND TRIP HAZARDS



This risk assessment of flooring, guidelines for specific building parts and the standards for conformance are recommended in "Internal Floor Finishes", Specifiers' handbook for inclusive design, Sep. '06.

RIBA, RIBA PUBLISHING

ENVIRONMENT AND FLOORS



Risk Assessment

Every factor in your slip and trip risk assessment will affect your flooring assessment and vice versa.

Cleaning & Floors

- The importance of regular cleaning (e.g. to remove grease)
- The timing of the cleaning regime (when is the floor wet?)

Environment & Floors

- Outside to inside contamination potential
- Adequate barrier matting
- Spillage potential

You also need to consider other environmental factors, such as poor lighting or glare, noise and other distractions.

There are specific guidelines for different environments:

In Education

HSE Education Information Sheet:

“Ensure consideration is given to eliminating slip and trip risks during the design stage of the changes - for example, installation of a slip resistant floor”

In classroom areas:

“Provide coat hooks / racks for drying wet clothing – consider siting such areas on specialist anti-slip flooring as even drips of rain water on smooth surfaces can be enough to result in slips”

In the NHS:

- 54% of major injuries in healthcare come from slips or trips and in 2007/8 cost society £72.4 million, many of these injuries result in broken bones!
- NHS Guidance, HTM61 on Flooring – refers to use of the Slip Potential Model and use of flooring with minimum slip resistance value (SRV) of 36, as outlined in detail in the CIRIA publication "Safer surfaces to walk on – reducing the risk of slipping", CIRIA, 2006
- Safety Action Notice has been produced in Scotland concerning the use of smooth flooring

Further information on health service accident statistics can be found by visiting the Altro website at www.altro.com or the HSE website at www.hse.gov.uk/slips. There are additional datasheets covering other sectors, also at the HSE website www.hse.gov.uk.



MAKE THE FLOOR THE PRIORITY -

How the slipperiness of a floor can change

Even a floor with little grip may pose no threat in perfect physical conditions. However in many environments conditions can change having a marked effect on the slipperiness of a floor. From a drink spilled in a corridor to a fine powder-like flour, conditions can change - Remember Ellis vs Bristol City Council page 7.

THE DANGER AREA FOR SLIPS

The floor surface in any environment is vital to the successful reduction of slips. If you can minimise risk in this area you are well on your way to creating an accident-free zone.

A floor's slipperiness depends on many factors - floor material, wear, degree of contamination, cleaning arrangements, footwear type, people's tasks, etc. Not every factor will be significant in every case, but a structured consideration of all these factors should be the basis for a slips risk assessment.

Things to be aware of when assessing the potential slipperiness of floors:

- leaks, spills and splashes of liquids & solids
- wet processes
- rain, mud
- unsuitable entrance matting
- sloping surfaces
- wet floors following cleaning
- unsuitable footwear for floors
- unsuitable floors
- dust and other dry contaminants
- leaking roofs or condensation from pipework

View the following pages to find out how slipperiness is measured.

PRECISION ASSESSMENT OF SLIPPERINESS

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THE HSE APPROACH

The HSE Health & Safety Laboratory has developed a reliable method of measuring slip risk based on the results of two separate tests.



Pendulum

The 'pendulum' coefficient of friction test is based on a swinging, dummy heel (using a standardised rubber soling sample) which sweeps over a set area of flooring in a controlled manner. The slipperiness of the floor has a direct and measurable effect on the pendulum value given (known as the 'slip resistance value', 'pendulum test value' or 'British pendulum number').



Surface microroughness meter

An indication of slipperiness may be simply obtained by measuring the surface roughness of flooring materials. This test uses a microroughness meter which measures in Rz microroughness values.



For more information on these tests for slipperiness view “Assessing the slip resistance of flooring” datasheet – available to download from www.hse.gov.uk

In most circumstances, both pendulum CoF and surface microroughness readings are required to give an accurate indicator of floor surface slipperiness. Results should be interpreted using the information in Tables 1 and 2.

Table 1
Potential for slip classification, based on pendulum test values.

Pendulum value	Slip risk
0 - 24	High
25 - 35	Moderate
36+	Low

The minimum HSE guideline for slip resistance in potential wet areas (water contamination) is a pendulum measurement of 36 or above.

Table 2
Potential for slip classification, based on Rz microroughness values (application for water-wet, low activity pedestrian areas).

Rz surface roughness (microns)	Potential for slip
Below 10	High
10 or above (but below 20)	Moderate
20 or above	Low

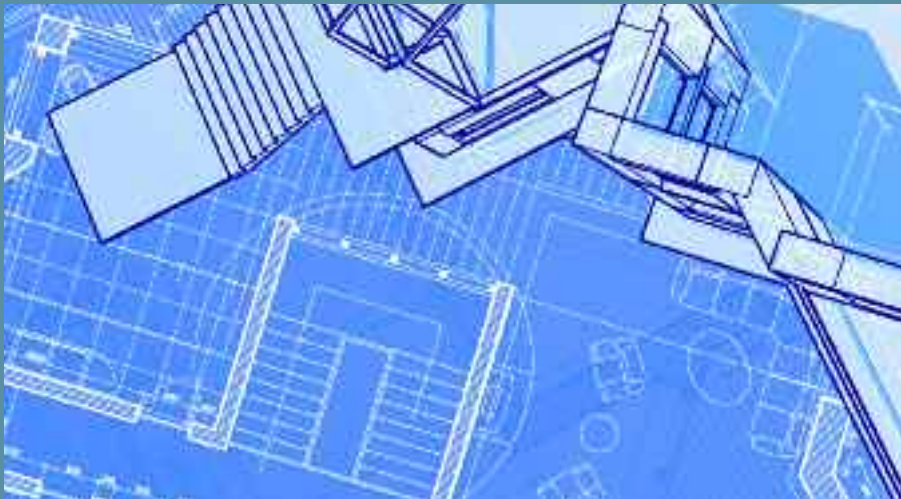
A surface roughness of 20 microns or above also implies low slip risk.

TESTS TO BE AWARE OF (AND TO UNDERSTAND THEIR LIMITATIONS)

With sled-tests, some floors produced better readings when wet than when dry! This finding is backed by the HSE which says :

Laboratory-based assessments have strongly suggested that several tests currently available (particularly those based on 'sled-type' principles) can produce misleading data in wet conditions

REF: "ASSESSING THE SLIP RESISTANCE OF FLOORING", HSE, MAR '07



**'As New' floor -
measurements can
become obsolete in weeks.**

Many floors have a factory-finished coating which will wear off in a few weeks to leave a far more slippery surface.

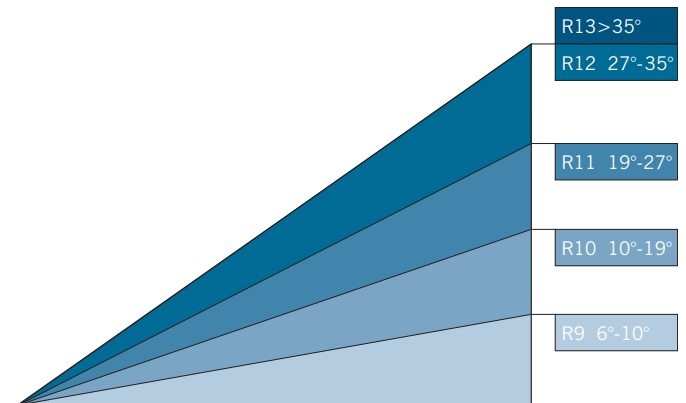
RAMPTEST



The ramp test (DIN 51130) is widely used outside the UK and its 'R' values are quoted by most flooring companies. While the ramp test is a useful measure (R9-R13 are based on angle measurements on a ramp where the operator stands in oil), it cannot be replicated on site.

A commonly held misconception is that R9 is relatively high. In fact, this is the lowest value in the 'R' scale with a slip angle of only 6%.

In the ramp test, a trained operator wearing controlled commercial footwear walks on an inclined surface contaminated with oil. The Health and Safety Laboratory does not recommend this standard, as oil is not the most common of workplace contaminants, and the test cannot be used on site to assess changes to the initial surface properties following installation and subsequent wear.



ASSESSING THE RISK: A TOOL TO HELP

The HSE Slips Assessment Tool (SAT)

To help you complete your risk assessment, the HSE and HSL have developed a tool designed to help users risk-assess slip hazards in their workplace. The SAT is made up of two parts: a computer programme - which can be downloaded from the HSE Slips and trips website www.hse.gov.uk/slips - and a roughness meter (for example, one of those shown on page 18).



When used together they will allow you to produce a quantitative estimate of the slip risk on different types of floor.

To use the tool you will need to collect detailed information about the working area to be assessed, ie what material the floor is made from and what type of cleaning system is used. You will also need data such as type and amount of floor contamination. For a true estimate you will also need to take a series of measurements of floor microroughness at a test location using a small hand held roughness meter.

ASSESSING RISK

On completion, the user will gain a 'slip risk classification' for the floor. This gives an accurate indication as to the potential for slip. SAT is designed to assist in the decision making process when considering the risk of slipping in a defined area.

However, it should not be relied upon when considering the performance of the flooring alone. In this instance pendulum test data should be sought from the flooring manufacturer.

A useful feature of the SAT is that you can change the variables you have entered to see what might lower the slip risk. For example, you may find that changing the variable of the cleaning regime may result in the slip risk decreasing.

The SAT is a very useful tool to help familiarise you with common slip resistance test methods.

THE HSE IS ENFORCING THE LAW ON SLIPS AND TRIPS

HSE continues to work with stakeholders who can affect the success of slip and trip prevention in the workplace, including:

- Architects and designers, RIBA
- Manufacturers/suppliers of floors and footwear
- Contract cleaning associations
- Employers in most sectors of employment
- Workers in most sectors
- Employer organisations and trade associations, e.g CBI, BRC
- Trade unions, e.g. AMACUS, UNISON, GMB
- Health and safety professional bodies, e.g. CIEH, IOSH, ROSPA
- HSE and Local Authority inspectors

In all types of building HSE inspectors will be reporting on whether or not floor surfaces meet appropriate levels of slip resistance - especially in areas that can become wet or greasy through walked in water or spillages (reception areas, cafe kitchens, toilets etc.)

For more information visit www.hse.gov.uk

Shattered Lives Campaign

The Shattered Lives Campaign is helping raise awareness, provide guidance and help employers and employees take action towards reducing the risk of a slip, trip or fall at work.

The campaign targets sectors with high levels of slips and trips including health and social care, education, catering and hospitality, food manufacturing, food retail, building and plant maintenance and construction.

The HSE provide an online eLearning tool STEP (Slips and Trips eLearning Package) to enable businesses to assess and manage slip and trip hazards.

For full details, please visit the website at www.hse.gov.uk/shatteredlives.index



Because slips and trips impact so heavily on the success of the Revitalising Targets (one slip or trip accident occurs every three minutes) the HSE is making a concerted effort in this specific area.

With its budget of £2 million, The Health and Safety Commission Slip and Trip Programme will, “Use all available levers to achieve a culture change in the way industry views Health and Safety in these areas.” This is being achieved through a combination of facilities’ inspections, communication and education.

GOOD LOOKS AND LOW MAINTENANCE WITH A LIFETIME OF SLIP RESISTANCE

Who better to talk to about safety floors than the inventor and world leader in safety floor technology. Altro have spent over 50 years continually improving the performance and designs of our safety floors. All of our safety flooring exceeds the minimum slip resistance standards of the HSE and aims to meet all other international Health and Safety standards. In fact Altro are a member of the UK Slip Resistance Group, working with the HSE and British Standards Institution to develop accurate assessment of slipperiness of walkway surfaces.

We offer solutions for all indoor environments and conditions e.g. enhanced slip resistance for wet, barefoot areas and areas prone to greasiness.

And, as an increased safety and quality measure, all Altro safety floors include AltroSan – a bacteriostat which helps prevent the growth of MRSA, VRE and other unwelcome organisms.

All Altro safety floors for shod traffic are tested with the HSE recommended 'pendulum test' and have a coefficient of friction value of no less than 36. All Altro safety products are designed so that their slip resistance is maintained throughout the life of the product – a feature normally backed by a full warranty!



THE FUTURE IS SAFER WITH ALTRO

Altro connects the worlds of safety and aesthetics. In the past specifiers and designers were reluctant to use traditional safety flooring in high visibility areas. But the new Altro ranges don't have the all over sparkle common to most safety flooring and will enhance any design.

Altro safety flooring is also easy to clean and maintain allowing your design scheme to be safe and cost effective at the same time.

Thanks to Altro, the inventor of the safety floor, there is a new generation of safety flooring products. With our unique developments in cleanability and colour retention, you can now achieve an attractive finish whilst reducing the risk of slip accidents in all vulnerable environments.

With ranges like Altro Timbersafe™ II, Altro Suprema™ and Altro Mirica™ you can rest assured that you will satisfy your duty of care with floors that stay looking good for years – even in high traffic areas like receptions and corridors.



THE SIX KEY POINTS TO REMEMBER ABOUT SLIPS AND TRIPS

KEY

Take positive action today. Request the Altro product portfolio to view the world's leading ranges of safety floors or contact us to discuss a project that may require a safety flooring solution.

call: 01462 707 600

e-mail: enquiries@altro.com

explore: www.altro.com



POINTS

1. Slip accidents are a major problem which can be addressed by putting simple measures in place.
2. These measures are required by law and should form part of normal risk assessment procedures.
3. The law places a duty on designers and architects to build safety into the design of workplaces for use by the public.
4. The law requires that floors must not be slippery, so as to expose any person to a risk to their safety.
5. Slip hazards are not solely confined to wet areas.
6. All Altro safety flooring complies with minimum HSE guidelines for slip resistance. With correct maintenance programmes, the slip resistance of the flooring should last the lifetime of the product.

Altro have produced a RIBA and CPD Certificate Service accredited Slips and Trips CPD. 'How to reduce risk of slipping' covers good design practice, legal obligations and new guidelines, a model for risk assessment, product selection, testing and standards.

For further information, please visit our website at www.altro.com

REFERENCES

Health & Safety at Work etc. Act 1974

Ellis Vs Bristol City Council, 2007

Workplace (Health Safety & Welfare) Regulations 1992

Management of Health & Safety at Work Regulations 1999

Construction (Design and Management) Regulations April 2007

"Assessing the Slip Resistance of Flooring", HSE, MAR '07

"Controlling Slips and Trips Risks at Work", HSE Presentation

NHS Guidance, HTM61 on Flooring

"Teacher Wins Slip Trip Case" - (BBC News Online, May '05)

www.hse.gov.uk

"Internal Floor Finishes" Specifiers handbook for inclusive design (Sep. '06) RIBA Publishing

"Safer surfaces to walk on - reducing the risk of slipping", CIRIA, 2006

SUSTAINABILITY—

Altro are recognised as the flooring industry's market leader and we've already taken great strides towards creating a sustainable business. However, we acknowledge, there is still a lot of hard work to do. With this in mind, we've identified 6 key steps that will improve our social, economic and environmental performance.

**For more information please visit
www.altro6steps.com**



Product Development



Recycling



Carbon Footprint



Energy Saving



Waste Reduction



Social Responsibility



Notes

Take positive action today. Request the Altro product portfolio to view the world's leading ranges of safety floors or contact us to discuss a project that may require a safety flooring solution.

call: 01462 707 600

e-mail: enquiries@altro.com www.altro.com



As part of the 6 Steps programme, Altro are taking part in Recofloor: the vinyl take-back scheme. Waste vinyl collected under the scheme is being recycled and diverted from landfill. For more information, please visit www.altro.com

THE SUNDAY TIMES



BEST GREEN
COMPANIES

2009



A+ BRE Generic Green Guide Rating for Safety Flooring, full details available at www.thegreenguide.org.uk



a l t r o

the future is safer with altro

Altro Limited, Works Road, Letchworth Garden City, Hertfordshire SG6 1NW.
tel: 01462 707 600 fax: 01462 707 504 e-mail: enquiries@altro.com www.altro.com

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