

Slips, trips, falls and cleaners

Cleaners work in all industry sectors and workplaces, from hotels to hospitals and factories to farms. They work inside and outdoors, including in public areas. Often working at night or in the early morning, sometimes alone, cleaners are found in every setting and the work they do is essential.¹

Cleaners may either be employed directly, working in their employer's premises, or they may work in a location run by a third party. They may be employed by public services, private enterprises, or they may be self-employed. Cleaners may also be employed by a contractor, working at several locations over the course of a week. Contract, or industrial, cleaning is a multi-million Euro industry employing millions of workers across Europe.

Most cleaners are women and work part time. A significant proportion of workers come from ethnic minorities². Staff turnover is generally high, caused by a high level of temporary work and short fixed-term contracts³. Although these employment patterns can cause difficulties, harm to cleaning workers can and must be prevented.

About this E-Fact

Cleaners are best defined by task rather than as a sector or group. Common tasks are surface cleaning – mopping, dusting, vacuuming, polishing floors and work surfaces – and routine housekeeping. While cleaning work can include tasks such as window and street cleaning, the focus of this E-fact is on the prevention of harm to paid workers carrying out general cleaning.

This E-Fact is intended to inform employers, supervisors, workers and their representatives, particularly those in small and medium enterprises (SMEs), about the dangers involved in cleaning and how harm to cleaners can be prevented. It should be noted that as cleaners work in all types of workplace, it is not possible for all issues to be covered. Readers should check relevant legislation in their own Member State and, if in doubt, seek further assistance from appropriate bodies.

Floor cleaning is a key factor in controlling slips and trips by removing contamination from surfaces such as water, dust or oil, and removing obstacles and other tripping hazards from the floor. However, the activity of cleaning itself can expose the worker to the risk of slips, trips, and falls. For example, this may be from the trailing cables of cleaning machines, or from having to carry out work on wet floors⁴.



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How slips, trips and falls happen

A "slip" is defined as the slipping of one or both feet when the grip between the shoe and the floor is too low, while a trip is a sudden stop of the movement of the foot by an obstacle, with continued forward movement of the body.⁵

Slips, trips and falls may sound trivial, but sometimes they can have serious consequences, causing severe injuries such as broken bones or concussion. They are the most common cause of major injuries at work⁶. Data from Member States indicates that the most common types of accidents involving cleaners include slips and trips⁷, with many of these accidents involving broken bones. Studies have shown there are generally three times more slip than trip accidents⁸. Cleaners are also at risk of falling because they frequently use ladders, steps or are cleaning stairs. A proportion of slips and trips will lead to a complete loss of balance and a fall, causing serious injuries such as broken limbs, bruises, and head injuries. Some of these accidents can even result in the death of the worker from complications arising from injuries⁹. Cleaners also suffer from many musculoskeletal disorders (MSDs).^{10,11,12}

Slips

Slips happen when there is too little friction between footwear and the walking surface. A combination of the following factors will determine whether a slip accident may take place:

- type of flooring
- contamination on the floor such as water, oil or dust
- type and condition of the footwear
- environmental factors such as lighting
- capabilities of the individual who slips.

The vast majority of flooring surfaces have good slip resistance when they are clean and dry. But slip resistance is greatly affected by contamination. Tiny amounts of water will form a film between the sole of the shoe and the floor and, if the surface roughness of the floor is not able to break through this film, there will be no contact between footwear and flooring, making a slip likely to happen. As a general rule, if a floor is shiny reflective, it is likely to pose a high slip risk when it is wet. Some parts of the cleaning process can introduce this contamination; for example, wet mopping floors.

Trips

Trips may happen when your foot hits an object and, as a result, you lose balance. Tripping accidents, and whether the worker will fall if they trip, are caused by a combination of the following factors:

- changes in level or surface such as uneven walking surfaces



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- hazards such as trailing cables or cleaning buckets
- type of footwear
- environmental factors such as poor lighting
- capability of the individual who trips.

Studies have shown that changes in level of as little as 8 mm can potentially pose a hazard for the normal walking of fit healthy people^{13,14}. When you trip, the forward motion of the foot is stopped suddenly by an obstacle, such as a trailing cable, but your body continues its forward motion. You may be unable to recover your balance and, as a result, may fall forwards and typically injure your head, leg or wrist¹⁵.

Falls

Falls are usually the result of slips and trips. But falls also occur without slipping or tripping. There are two basic types of falls: same level falls and falls from heights. Falls can happen due to improper use of ladders and scaffolding.

Why are cleaners especially at risk to suffer from slip, trip and fall injuries?

Cleaners have to work with and on dirty floors, wet floors, different floor coverings and changes from wet to dry areas. Wet cleaning of floors forms a thin layer of cleaning solution on the floor, which may result in slippery conditions, not only for the public but also for cleaners. Floors contaminated with food (such as in the restaurant or food industry), oil or water spills are the greatest cause of slip and trip injuries^{16,17}, with cleaners who work in those areas also at a greater risk of suffering slip injury.

Cleaning different floor surfaces and the movement of workers between wet and dry areas – such as from a dry carpet to a wet vinyl floor – may cause slips. Moving on different work areas and leaving usual work areas is known to cause slip and trip accidents, but this is the normal working life for cleaners¹⁸: They work in very different conditions in many workplaces.

Cleaners often have no control on the orderliness of a workplace. The risk of a trip caused by objects dropped on the floor, trailing cables and such like is therefore high. Cleaners may also make their own trip hazards while using cleaning machines such as vacuum or buffing machines with power cables, or water buckets¹⁹.

Cleaners who work at night or early in the morning are more at risk of slip and trip injuries because their reactions and concentration levels fall at night²⁰. Some cleaners work after doing another full-time job, which increases fatigue and stress²¹. Working at night or early in the morning



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means working with artificial light, which - if it is poor, is one of the commonest causes of slips, trips and falls.

A characteristic of the cleaning sector in Europe is the dominance of women, in particular mature women. This group is known to be especially at risk of slip and trip injuries^{22,23}. Studies have shown that women in this age group are more likely to fall as a result of a slip or trip and that the injuries they sustain as a result are more likely to be serious²⁴.

The cleaning industry also employs a high proportion of workers from ethnic minorities and many migrant workers²⁵. The latter may work without adequately understanding the instructions of the trainer or employer²⁶. Above all, there is a tendency to ignore health and safety elements in low paid jobs such as cleaning²⁷.

Case studies

The United Kingdom's Health and Safety Executive (HSE) has published examples of increased slip hazards related to cleaning work²⁸.

Incorrect technique – increased risk

Health and safety managers at a busy railway station knew that spillages on their shiny new floor could cause slips if they were not dealt with immediately. Their solution was to employ a roving cleaner to patrol the station concourse. A spillage of water from the fresh flower stall was notified to the cleaner and he arrived at the scene quickly.

He parked his cleaning trolley about 10 metres from the spill. As he walked to the spillage water dripped from his mop. But the dripped water from his mop was just as likely to cause a slip accident as the spillage itself. Once he got to the spillage he wiped over the area and a bit further with his mop. Unfortunately this increased the size of the slip hazard because it was no longer a small spill everyone could see but a large area of wet, smooth floor.

Tiny, often almost invisible, amounts of water on a smooth floor can cause slips. He could have parked his trolley next to the spill and wiped it up with some absorbent material to leave the floor dry. The cleaning technique had not been well thought through. Training and supervision were inadequate.

Unsatisfactory cleaning performance probed

A cleaner in a food factory noticed that although a scrubber-drier was being used at a reasonable frequency, it was not removing the greasy contamination from the floor, leaving it slippery. The issue was reported to the cleaning supervisor who looked into the problem in more detail and found that the wrong concentration of detergent was being used. It had become the practice to use one capful of detergent in the scrubber-drier, which was



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far below the manufacturer's recommendation. In addition, the supervisor observed that there were some maintenance issues with the scrubber-drier – the squeegee was in a poor condition so it did not effectively remove water from the floor.

The scrubber-drier was repaired, preventative maintenance implemented and training provided for the cleaners. Once the manufacturer's recommended detergent concentration was used, there was a rapid improvement in the quality of the floor cleaning because the grease was now removed.

How to prevent slips trips and falls

If you are an employer, you are required to manage safety and health to prevent accidents. This involves identifying the problem areas, assessing the risks, setting priorities for action, taking decisions on what to do to prevent accidents, acting on them and checking if the steps you have taken have been effective.

Identifying problem areas is the first step. You should arrange regular workplace inspections and pay particular attention to the floor (surface or contamination), stairs (surface and handrail) and lighting.

Once a slip, trip or fall hazard is identified, it can be assessed for its level of risk and prioritised for action. Risk assessments correlate the likelihood of an incident occurring against the possible consequences of the incident²⁹

European directives transposed into law in every Member State set a hierarchy for preventive measures to be applied to prevent harm to workers. At the top of the hierarchy is eliminating the hazard at source (from the workplace). For example, this could include preventing contamination, changing from night to daytime work to reduce fatigue, installing more power outlets (so reducing the amount of trailing cables), levelling uneven floors or providing more slip-resistant surfaces.

If elimination is not possible, then you should substitute the hazard by replacing it with something less dangerous. For example, provide cable-free (battery powered) cleaning machines or use alternative methods such as dry-floor cleaning. This cleaning process reduces the use of water by using a microfibre mop. A damp or moistened mop is used for dirtier surfaces, but the mops are dampened in advance at the cleaning centre, so that neither water nor cleaning agents are brought to the workplace³⁰.

Some facilities have begun using a new mopping technique involving microfibre materials to clean floors. The density of the material enables it to hold six times its weight in water, making it more absorbent than a conventional, cotton loop mop. Also, the positively charged microfibre



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attracts dust (which has a negative charge) and the tiny fibres are able to penetrate the microscopic surface pores of most flooring materials. Microfibre mopping uses less water and disinfectant, resulting in fewer slips, trips and falls³¹.

Where you cannot prevent workers being put at risk, you should implement collective or organisational control measures such as separating hazards or limiting access to high-risk areas. You could use barriers or signs to keep other workers away from wet floors or organise cleaning tasks so that cleaners do not have to step on wet floors while cleaning.

If that is still not sufficient, you will have to apply personal control measures; for example, personal protective equipment such as slip-resistant footwear.

Record and document your findings. Monitoring and reviewing the process is crucial because new hazards can be introduced to the workplace by new equipment, different workers (changes in staff) and new requirements for cleaning (cleaning procedures). Control measures are only effective if they are followed as a matter of routine.

You can help to prevent slips, trips and falls, provided you keep in mind some rules:

- ensure your workers are familiar with their workplaces
- ensure your workers are well trained
- ensure that workplaces receive sufficient natural light and are equipped with artificial lighting that is sufficient to protect workers' safety and health
- check if you can change from night shifts to daytime cleaning
- ensure your workplace floors are fixed, stable and level and have no bumps, holes or slopes, and are not slippery
- ensure cleaning methods are suitable for the type of surface being cleaned
- provide safety signs where hazards cannot be avoided or adequately reduced by preventive measures and ensure signs are properly used
- provide personal protective equipment such as protective footwear that is appropriate for the risks involved and where they cannot be avoided by other means
- follow a general system to manage health and safety. This should include:
 - the assessment and prevention of risks
 - giving priority to collective measures to eliminate risks
 - providing information and training
 - consultation with employees and co-ordination on safety with contractors
- ensure systems of work are followed.



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Advice for workers

If you are a worker, your employer is primarily responsible for your health and safety, but you too have a duty to protect yourself and the people around you from accidents. Your employer has to provide adequate training for you and he must inspect regularly all areas of the workplace to identify and eliminate hazards. As a cleaner you can keep yourself and others safe if you keep in mind some rules:

- take your time and pay attention where you are going
- ensure you are well trained
- inspect your workplace before you start your work
- ensure you have appropriate lighting
- switch the light on before entering a room and before using stairs
- avoid wet cleaning and use dry cleaning where possible
- take care not to create additional slip or trip hazards while cleaning
- avoid causing trailing cables
- avoid working at heights; if this is not possible, use only ladders and steps
- inspect ladders before climbing; never climb on a shaky ladder or ladder with slippery rungs
- wear appropriate footwear
- mark spills and wet areas
- remove any obstructions
- do not carry equipment on stairs
- never hurry across a wet floor
- always step from a wet floor or carpet to a dry floor with caution.

Legislation

European directivesⁱ set minimum standards to protect workers. These have been transposed into the law of Member States. The most important of these is the framework directive (89/391/EEC). Workers have the right to work in a safe and healthy environment; employers have the responsibility for the health and safety of their workers. First and foremost, the employer has to conduct a risk assessment and inform and train the workers about the hazards and risks of their jobs and workplaces. The employer has to apply the necessary prevention measures and to appoint contact persons to deal with any problems. Workers and/or their representatives have to be consulted and should be allowed to take part in discussions on all questions relating to safety and health at work.

ⁱ Access to all EU legislation, including the directives referred to here in all official languages can be found at: <http://eur-lex.europa.eu>



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Workers also have duties: they have to perform their tasks in such a way that they do not put others at risk and they have to follow the safety rules and instructions and training of the employer.

The framework directive is supplemented by individual directives, of which the following may be relevant for the protection of workers from slips, trips and falls:

- Directive 89/654/EEC – the Workplace Directive covers minimum health and safety requirements for the workplace. It deals, among other things, with the floors, lighting and other danger areas;
- Directive 89/656/EEC – the Personal Protective Equipment (PPE) Directive sets minimum requirements for the assessment, selection and correct use of PPE;
- Directive 92/58/EC – the Safety Signs Directive lays down minimum requirements for the provision of safety and/or health signs at work. Signs must be provided where hazards cannot be avoided or adequately reduced by preventative measures;
- Directive 93/104/EC – the Working Time Directive covers minimum requirements for certain aspects of the organisation of working time connected with workers' health and safety.

Specific directives have been adopted to protect special groups of workers:

- Directive 92/85/EEC – provides specific protections for pregnant workers or women who have recently given birth;
- Directive 94/33/EC – the Young Workers Directive's main object is to prohibit the employment of children and ensure that employment of adolescents is strictly controlled;
- Directive 91/383/EEC – provides specific protection for temporary workers.

References

¹ European Federation of Cleaning Industries, *The Cleaning Industry in Europe*, An EFCI Survey Edition 2006 (Data 2003) <http://www.feni.be>

² European Federation of Cleaning Industries, *The Cleaning Industry in Europe*, An EFCI Survey Edition 2006 (Data 2003) <http://www.feni.be>

³ Mormont, M., *Institutional representativeness of trade unions and employers' organisations in the industrial cleaning sector*, Université Catholique de Louvain, Institut des Sciences du Travail, Project number VC/2003/0451, 146 pp. http://www.trav.ucl.ac.be/recherche/pdf%202002/2001%2012%20LPS_final.pdf

⁴ Health and Safety Executive, *What causes slips and trips*, 2007, <http://www.hse.gov.uk/slips/causes.htm>

⁵ Manning, D. P., 'Deaths and injuries caused by slipping, tripping and falling', *Ergonomics*, Vol. 26, No. 1, p. 3-9, 1983.

⁶ Health and Safety Executive, *Slips and trips in the healthcare services*, Health services sheet No. 2, 2003, <http://www.hse.gov.uk/pubns/hsis2.pdf>



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- ⁷ BG BAU (Berufsgenossenschaft der Bauwirtschaft), "Prävention kompakt – Gebäudereiniger", Berufsgenossenschaft der Bauwirtschaft, 2005, <http://www.gisbau.de/service/brosch/Gebaeudereiniger.pdf>
- ⁸ Loo-Morrey, M., *Trips Feasibility Study*, HSE research report, PS/03/05, 2003
- ⁹ European Agency for Safety and Health at Work, *Gender issues in safety and health at work – a review*, Report TE5103786ENC, p. 37, 2003
<http://osha.europa.eu/publications/reports/209>
- ¹⁰ Cabeças, J.M., Graça, L., Mendes, B., Gonçalves, M. *Condições de trabalho de empregados de limpeza em instalações de services*, ISHST - Instituto para a Segurança, Higiene e Saúde no Trabalho (Portuguese Institute for Occupational Health). Project report, 2005.
- ¹¹ Health and Safety Executive, *Are your workers at risk of a fall from height?*, 2007, <http://www.hse.gov.uk/cleaning/falls.htm>
- ¹² Health and Safety Executive, *Slips and trips in the healthcare services*, Health services sheet No. 2, 2003, <http://www.hse.gov.uk/pubns/hsis2.pdf>
- ¹³ Winter, D. A., 'Foot trajectory in human gait: a precise and multifactorial motor control task', *Physical Therapy*, Vol. 72, No. 1, p. 45 – 56, 1992.
- ¹⁴ Pijnappels, M., Bobbert, M. F., van Dieen, J. H., 'Change in Walking Pattern Caused by the Possibility of a Tripping Reaction', *Gait and Posture*, Vol. 14, p. 11 – 18, 2001.
- ¹⁵ Dickerty, N. *RIDDOR analysis of slip and trip accidents occurring in the food retail sector*, Risk Assessment Section Internal Report, 2001.
- ¹⁶ Health and Safety Executive, *Slips and trips in the healthcare services*, Health services sheet No. 2, 2003, <http://www.hse.gov.uk/pubns/hsis2.pdf>
- ¹⁷ Abbott, D. 'Caring for cleaners', *Health and Safety at Work*, reproduced with permission of LexisNexis, 2004, <http://www.enricosmog.com/resources/cleaners.pdf>
- ¹⁸ European Agency for Safety and Health at Work, 'Preventing accidents at work', *magazine*, No 4, p. 23-24, 2001a, http://osha.europa.eu/publications/magazine/4/?set_language=de
- ¹⁹ Health and Safety Executive, *Slips and trips in the healthcare services*, Health services sheet No. 2, 2003, <http://www.hse.gov.uk/pubns/hsis2.pdf>
- ²⁰ DAK-BGW, 'Arbeitsbedingungen und Gesundheit von Pflegekräften in der Bundesrepublik', DAK-BGW Krankenpfleregereport 2000, <http://www.dak.de/content/files/krpflrep.doc>
- ²¹ ILO, 'Gender issues - Transport and General Workers' Union guide to women's health & safety', *Safe work*, chapter 4: cleaning, 2003, http://www.ilo.org/public/english/protection/safework/gender/trade_union/
- ²² Norddeutsche Metall BG, 'Stolper und Rutschunfälle ausschließen', *Gesund + Sicher* No. 9, 2000, http://www.nmbg.de/files/54/Stolpern_Rutschen.pdf
- ²³ European Agency for Safety and Health at Work, 'How to Reduce Workplace Accidents', *Factsheet 20*, 2001b, http://osha.europa.eu/publications/factsheets/20/index.htm?set_language=en
- ²⁴ Manning, D. P., 'Deaths and injuries caused by slipping, tripping and falling', *Ergonomics*, Vol. 26, No. 1, p. 3-9, 1983.
- ²⁵ European Federation of Cleaning Industries (EFCI), *The cleaning industry in Europe: an EFCI survey, edition 2006* (Data 2003) <http://www.feni.be>



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²⁶ European foundation for the improvement of living and working conditions, 'Migrants in Europe face severe challenges', *Eurofound News* May 2007, <http://www.eurofound.europa.eu/press/eurofoundnews/2007/may/newsletter3.htm>

²⁷ Vogel, Laurent, 'The TUTB study on gender sensitivity in occupational safety and health: some results and their implications', in European Agency for Safety and Health at Work: *Mainstreaming gender into occupational safety and health*, Proceedings of a seminar organised in Brussels on the 15 June 2004, p.17, 2005, <http://osha.europa.eu/publications/reports/6805688>

²⁸ Health and Safety Executive, 'Slips and trips: the importance of floor cleaning', *HSE information sheet slips and trips 2*, 2005, <http://www.hse.gov.uk/pubns/web/slips02.pdf>

²⁹ Comcare, 'Slips trips and falls', Australian Government, rehabilitation and guide, 2004, http://www.comcare.gov.au/_data/assets/pdf_file/0020/677/OHS_34_slips_trips_falls_quick_ref_guide_jun04_v1.pdf

³⁰ European Agency for Health and Safety at Work, 'Dry floor cleaning', *Accident Prevention in Practice*, p. 23-24, 2001c http://osha.europa.eu/publications/reports/103/accidentprevention_en.pdf

³¹ Environmental Protection Agency, 'Using microfiber mops in hospitals', *Environmental Best Practices for Health Care Facilities*, 2002 http://www.ultramicrofibers.com/pdf/microfiber_mops_in_hospitals.pdf