Guidance to Prevent Slips, Trips & Falls

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1. Scope of this guidance

Slips, trips and falls are the largest cause of accidents in the UK cement manufacturing industry. A Working Group examined a number of these accidents and identified the causes set out in Appendix 1. To reduce the risk of future slips, trips and falls, the Working Group make;

- Recommendations that must be included within site plans, where applicable.
- Provide guidance that companies are strongly advised to consider when drawing up site plans.

The recommendations and guidance are primarily targeted at the industry's own employees, but there will be circumstances where they will be applicable to contractors. Falls from height are not covered.

A slip, trip and fall hazard in the cement industry

2. New plant / installations

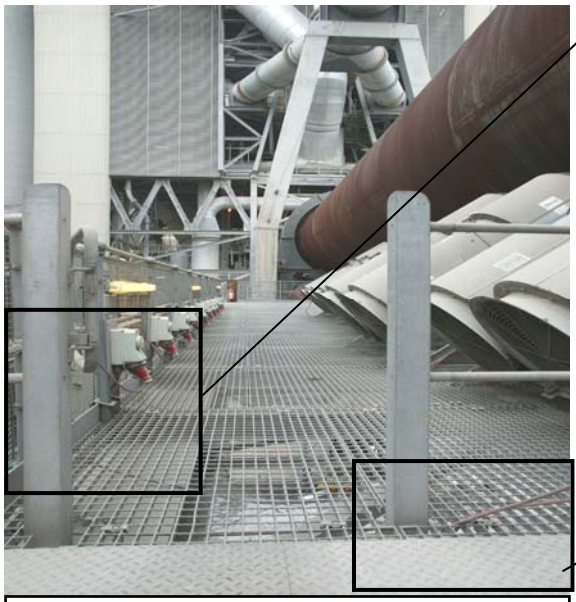
When installing or building new equipment/plant, e.g. cement transport or clinker transport systems; cement companies should take account of the following:

Recommendations:

- Designers shall follow the appropriate health and safety standard or regulation. These include HSE, HSC and EN Standards, the Construction, Design & Management Regulations 1994 and the Building Regulations (currently 2000, as amended) to reduce the hazards that cause slips, trips and falls.
- A risk assessment or HAZOP (Hazard & Operability Study: A study designed to identify potential hazards and operability problems caused by deviations from design intent) must be carried out.
- Local consultation must be held with safety committees, engineering departments and employees who will work in the area or with the new equipment.
- Choose only suitable floor surface, ensure lighting is sufficient, properly plan pedestrian and traffic routes and avoid overcrowding.
- Emergency lighting must be provided in any room where persons at work are specially exposed to danger in the event of lighting failure. It should also be considered elsewhere.

Guidance:

- Consideration should be given to the position of site services such as power points and compressed air points, so that when maintenance takes place it is not necessary, for example, for cables and air hoses to cross walkways, as demonstrated below.
- Walkways should be constructed of non-slip material e.g. open grating.
- Lighting should be suitable and sufficient.
- Access to and egress from walkways should be safe. Particular thought should be given to the design of mobile walkways.



✓ Cables routed under the walkway

3. Maintenance

All work equipment must be maintained in an efficient state, efficient working order and in good repair. Maintenance provision should be judged according to statutory minimum intervals (where applicable) in parallel to site/task specific risk assessments. This should be supported by a maintenance log that is kept up to date.

Recommendations:

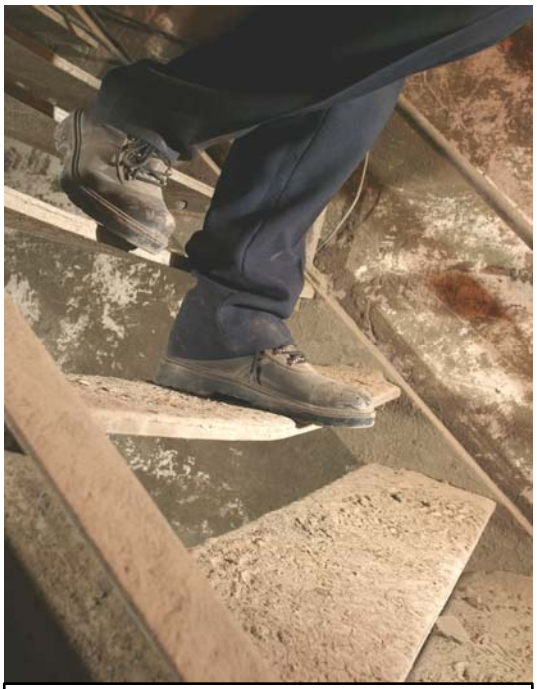
- Area and local/task specific risk assessments must be undertaken. These must be reviewed when there are is reason to suspect they are no longer valid or where there has been a significant change. In addition, reviews should be undertaken when there has been an incident or at least annually.
- An inspection scheme must be put in place that covers the whole site.
- A system must be put in place for reporting and rectifying hazards caused by defects that would lead to slips, trips and falls. E.g. oil spills.

Oil spill and badly maintained walkway.

- Walkways must be kept in good condition and be free from potholes, uneven surfaces and cracks.
- Walkways must be provided with effective drainage, particularly at ground level where oil/ water may accumulate.
- An inspection scheme must be put in place to ensure that the steps on drivers cabs are not worn.
- Leaks must be repaired promptly.
- Replace, repair or clean lights before illumination becomes too low for safe work.

Guidance:

- Non slip surfaces should be considered where appropriate on walkways.
- Signage should be in place to warn of hazards.
- Equipment must be maintained in good condition so as to prevent spillages i.e. chutes, scrapers and skirts on conveyors, cement mill liner bolts and lids.
- Stair treads must be maintained in good condition.



Worn stair treads lead to slips, trips and falls.

- Lighting for walkways must be adequate and maintained in a good condition.
- Planned preventative maintenance schemes should be put in place.
- Where there is a change in level, improve lighting and add high visible tread nosing.
- If there is a change in slope, improve visibility and consider hand rails/floor marking.

4. Housekeeping

Poor housekeeping is one of the main contributors to slip, trip and fall injuries. Appendix 2 sets out the main issues surrounding housekeeping.

Recommendations:

- Tasks will not be deemed complete until either all scrap & spillage is cleaned up or the area has been isolated and arrangements made to clear the area.
- A working practice risk assessment and work instruction must identify that the area must be kept clear during and after the task.
- All wastes generated must be disposed of in the correct environmental storage facility.
- An inspection scheme must be put in place.
- Items must not be stored on walkways, even for short periods.

Old pipe sections/fittings left blocking walkway. Similar junk left behind after maintenance work was completed, caused an accident for a contractor.

- Work areas must be kept tidy and if obstructions cannot be moved , warning signs or barriers must be put in place.
- Cleaning methods and equipment must be suitable for the type of surface being treated.
- Smooth floors should not be left wet.
- Employees should be trained in the use of any safety equipment and cleaning equipment provided.

Guidance:

- When carrying out work that requires the use of power tools or hoses, all efforts should be made to keep walkways clear, such as routing cables over or under walkways.
- Consideration should be given to giving areas of the plant to an owner, who has responsibility for keeping that area clean. A record should consequently be kept of who is responsible for what arrangements. Details should be made clear to everyone.

Pile of material at foot of stairwell causing a hazard. This material should have been cleared up. Also how hot is this material?

- Equipment and facilities should always be available to clean up and dispose of waste.
- Reporting schemes should be in place with a means of closing out actions.
- Training should be in place to highlight the importance of good housekeeping.

5. Behavioural safety

Although there are many physical aspects that contribute to slips trips and falls, unsafe behaviour either directly or indirectly contributes to the majority of accidents.

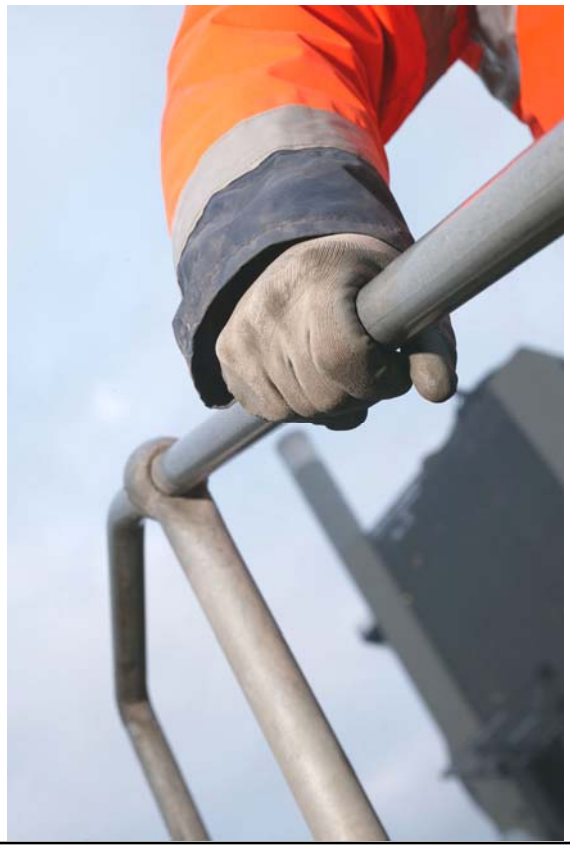
Somebody else's problem? Behaviour is the key factor in preventing accidents.

Recommendations:

- Behavioural safety programs should be modified to cover the issues identified in Appendix 3 and should extend to contractors as well as employees.
- Each operating company shall put in place a training programme for the identification of hazards associated with slips, trips and falls.
- Each operating company shall ensure that all employees, contractors and visitors follow company site safety rules.
- Management shall demonstrate visible leadership on safety in all decisions that are made.
- Every task must have a risk assessment in place.

Guidance:

- There should be an audit scheme in place to monitor employee behaviour and promote a safety culture.
- The audit scheme should be able to identify trends in unsafe behaviour so that actions can be taken to rectify it.
- There should be a training program that covers hazard awareness and behavioural safety.
- Managers should not walk past unsafe behaviour.
- When climbing or descending stairs, handrails must be used where they are available for use.



✓ Proper use of handrails would prevent a number of slips, trips and falls in the cement industry every year.

- Drivers should be reminded of safe methods of descending from their cab.
- Ensure that employees use the correct footwear that is in good condition.

6. Inspections

Keeping plant, equipment and the site in good condition is key to preventing slips trips and falls. Inspections are therefore important in order for this to be maintained. The Provision and Use of Work Equipment Regulations 1998 require that all equipment is inspected after installation and/or before use for the first time or after assembly at the new site location and then subsequent to this that it is inspected at suitable intervals and each time that exceptional circumstances could jeopardise the safety of the equipment**.**

Recommendations:

- A system must be put in place to ensure appropriate inspections are carried out.
- There must be a process in place to ensure that actions identified by inspections are tracked and closed out.

Guidance:

- The inspection scheme should be a program that covers the whole site.
- The inspection could include a checklist of hazards that are being looked for.
- There should be a process of prioritising actions.
- Inspections should involve managers, employees and employee representatives.
- There should be a process in place to audit the scheme.

7. Hazard reporting

Employee involvement is critical and that can be promoted by encouraging reporting of hazards. HSE note that for every major injury caused by a slip or tumble, there will be about 40 cases resulting in no injury. Employees should be asked to identify areas on site that they think are a slipping or tripping risk.

Recommendations:

- Each site must put in place a hazard reporting system. Near misses should also be covered.
- A process should be put in place to monitor the close out of actions / improvements from the hazards that are reported.

Here an employee works around a hazard; effective reporting and remediation schemes should be in place that encourage the reporting of hazards.

Guidance:

- The process for identifying hazards and closing out actions should be simple.
- It is important that any reporting system has a robust close out process otherwise employees will lose faith in the process.
- It is important that persons who identify hazards receive feedback on actions taken.
- Responsibility should be given to identified individuals to close out actions.
- It is important to encourage the person who identifies a hazard to take action themselves if they are able to e.g. removing a cable from a walkway.

8. What the law says (in the UK)

The **Health and Safety at Work etc Act 1974** (HSWA) requires employers to ensure the health and safety of all employees and anyone who may be affected by their work. This includes taking measures to control slips, trips and fall risks.

Employees must not endanger themselves or others and must use any safety equipment provided.

The Management of Health and Safety at Work Regulations 1999 build on the HSWA and include duties on employers to assess risks and where necessary take action to safeguard health and safety. The regulations require employers to carry out a suitable and sufficient assessment of the risks for all work activities for the purpose of deciding what measures are necessary for safety.

A hierarchy of control measures is set out that has legal status. Schedule 1 of the regulations sets out the following principles of prevention;

(a) avoiding risks;

(b) evaluating the risks which cannot be avoided;

(c) combating the risks at source;

(d) adapting the work to the individual, especially as regards the design of workplaces, the choice of work equipment and the choice of working and production methods, with a view, in particular, to alleviating monotonous work and work at a predetermined work-rate and to reducing their effect on health;

(e) adapting to technical progress;

(f) replacing the dangerous by the non-dangerous or the less dangerous;

(g) developing a coherent overall prevention policy which covers technology, organisation of work, working conditions, social relationships and the influence of factors relating to the working environment;

(h) giving collective protective measures priority over individual protective measures; and

(i) giving appropriate instructions to employees.

Local/task specific risk assessments should be the norm in addition to area specific risk assessments. It is important that the Working Group recommendations are considered as part of the overall risk assessment. This will allow any health and safety conflicts that might arise from the recommendations, e.g. because of a higher priority risk, to be resolved at the local level.

Ultimately companies and sites are responsible for the nature and scope of the controls that need to be implemented based on their health and safety policy and in particular the site specific risk assessment.

The Workplace (Health, Safety and Welfare) Regulations 1992 extend to all areas of the workplace including corridors, staircases, roads, lobbies, rooms, loading bays and so forth. The regulations apply to all aspects of the workplace including segregation of pedestrians/traffic, windows, and ventilation etc; but the areas that are of particular relevance to slips, trip and falls include;

Maintenance and cleaning (including equipment): efficient state, efficient working order, suitable maintenance systems.

Lighting: suitable & sufficient, natural light where possible, emergency lighting if specially exposed to danger.

Cleanliness and waste materials: sufficiently clean and capable of being kept clean, no accumulation of waste materials.

Condition of floors & traffic routes (pedestrian & vehicle): suitable for purpose, no hole or slope,/not slippery or uneven (so as to avoid exposure to risk), effective drainage, free from obstructions that might cause slip, trip or falls, suitable & sufficient handrails.

The Provision and Use of Work Equipment Regulations 1998 (PUWER) require risks to people's health and safety, from equipment that they use at work, to be prevented or controlled. An additional set of regulations also apply to lifting equipment and operations. The regulations require

that equipment is suitable for intended use, safe for use, maintained in a safe condition and inspected to ensure this remains the case, used by appropriately trained & informed people and accompanied by suitable safety measures.

Of particular relevance to the maintenance and inspection sections of this guidance are the following requirements. Every employer is obliged to maintain work equipment in an efficient state, in efficient working order and in good repair. Maintenance logs should be kept up to date. Essentially all equipment should be inspected after installation and/or before use for the first time or after assembly at the new site location and then subsequent to this that it is inspected at suitable intervals and each time that exceptional circumstances could jeopardise the safety of the equipment.

The Construction (Design and Management) Regulations 1994 are an essential tool for architects and engineers to comply with UK legal requirements for health and safety risk assessments in construction.

The Building Regulations 2000 (as amended) ensure the health and safety of people in and around all types of building. They also provide for energy conservation and access to and use of buildings.

9. Further information & guidance

1. HSG 155 HSE slips and trips guidance for employers on identifying hazards & controlling risk.
2. INDG 225 HSE guidance on preventing slips and trips at work.
3. HSE case studies and other guidance, including 1& 2 above can be found at the following web address: www.hse.gov.uk/slips/information.htm
4. The Management of Health and Safety at Work Regulations 1999: www.opsi.gov.uk/si/si1999/19993242.htm

   HSC 13 HSE guide on health & safety regulation: www.hse.gov.uk/pubns/hsc13.pdf
5. Workplace (Health, Safety and Welfare) Regulations 1992. www.opsi.gov.uk/si/si1992/Uksi_19923004_en_1.htm

   INDG 244 HSE short guide for managers; www.hse.gov.uk/pubns/indg244.pdf
6. The Provision and use of Work Equipment Regulations 1998. http://www.opsi.gov.uk/si/si1998/19982306.htm

   INDG 291 HSE Simple Guide: www.hse.gov.uk/pubns/indg291.pdf
7. Health and Safety at Work etc Act 1974.

10. Appendix 1: Causes of slips, trips and falls in the cement industry

The BCA Working Group examined the slip, trip and fall accidents that have occurred in the UK cement industry and identified the following causes.

Bad Maintenance

Uneven Surfaces

Inappropriate Footwear

Lighting

Weather Conditions

Lack of Concentration

Lack of Safe System of Work (Management Systems, Risk assessments)

Unfamiliar with Site, i.e. shutdowns

Access and Egress, i.e. into mobile walkways

Apathy

Costs (Although many of the hazards could have been rectified at very low cost)

Trailing Leads, Cables and Pipes

Inappropriate Surfaces

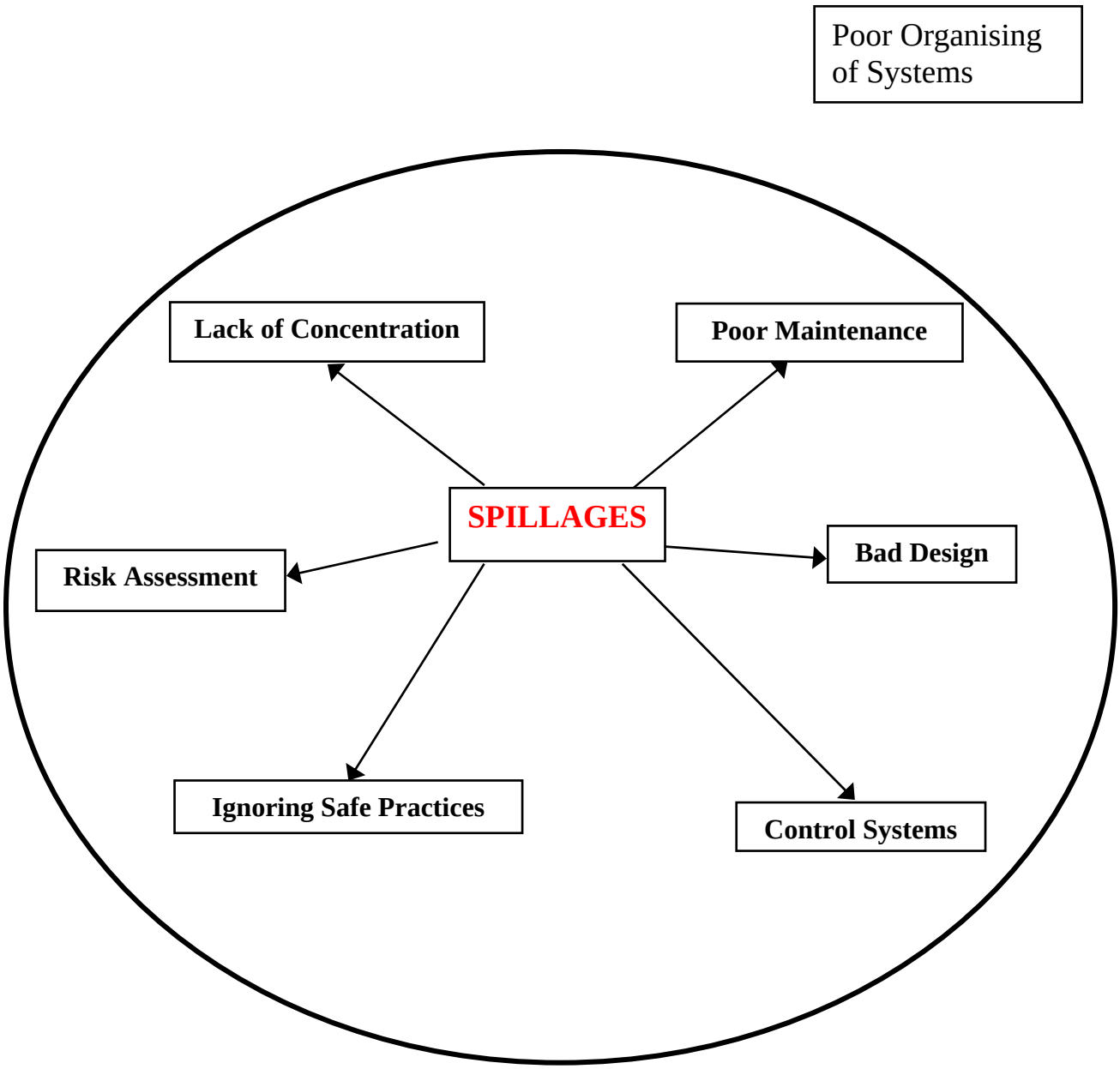
Lack of Awareness of Surrounds

Environmental Emissions

Working Conditions – Spillages

- Poor Design – Area / Equipment
- Pressures / Urgency
- Condition of Stairs
- Ignoring Safe Practice

10. Appendix 2: Housekeeping



10. Appendix 3: Behavioural safety