



CONTROLLING MOVEMENT RISKS IN THE WORKPLACE (OSH004)

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HSE portal

For better HSE practice

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Module 1: Preventing slips and trips at work

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Slips and trips are common causes of injury at work. They can also lead to other types of serious accidents, for example falls from height.

1.1. Practical steps to prevent slips and trips accidents

There are many simple ways to control slips and trips risks and prevent accidents in the workplace. These ways include for example:

Stopping floors becoming contaminated by:

- Using entrance matting.
- Fixing leaks from machinery or buildings.
- Making sure plant and equipment are maintained.
- Designing tasks to minimize spillages.
- Planning pedestrian and vehicle routes to avoid contaminated areas.

Using the right cleaning methods by:

- Making sure that cleaning methods are effective for the type of floors.
- Avoiding the introduction of more slip or trip risks while cleaning is being done.
- Leaving smooth floors dry after cleaning or excluding pedestrians until the floor is dry.
- Removing spillages promptly.
- Having effective arrangements for both routine cleaning and dealing with spills.
- Using the appropriate detergent mixed at the correct concentration.

Considering the flooring and work environment by:

- Checking for loose, damaged and worn flooring and replacing them as needed.
- Making sure that floors likely to get wet or have spillages on them are of a type that does not become unduly slippery.
- Making sure lighting is sufficient and that slopes or steps are clearly visible.
- Keeping walkways and work areas clear of obstructions.

Getting the right footwear:

- Where floors cannot be kept clean and dry, slip-resistant footwear can help prevent slip accidents.
- Trial footwear first to make sure it is suitable for the environment and for those who will be wearing it, i.e. comfort and fit.
- If footwear is supplied as personal protective equipment (PPE), it must be supplied free of charge to employees.

Thinking about people and organisational factors by:

- Considering how work is organised and managed, e.g. to avoid rushing, overcrowding, trailing cables.
- Making sure employees are involved in the decisions that affect them, e.g. choice of PPE footwear or a change in cleaning methods.

1.2. What can employees do to prevent slips and trips?

In all workplaces:

- If an employee has an accident or a near miss, he/she must report it to the employer promptly, so the employer can use this information to prevent future accidents.
- If an employee sees a spillage, he/she must clean it up or make arrangements for it to be cleaned.
- Employees must report any damaged floors or mats.
- Employees must play their part and keep the workplace tidy.
- If an employee sees items on the floor where someone could trip over them, he/she should remove them or arrange for them to be removed or for the situation to be made safe.
- If employees are given PPE, they should wear it; look after it; report any faults or damage to the employer and make arrangements for a replacement.
- Employees must tell the employer about any work situation that they think is dangerous, or if they notice that something has gone wrong with their health and safety arrangements.

1.3. Sources of information on slips and trips risks

Information on slips and trips risks can be obtained from:

- Enforcement bodies such as the Health and Safety Executive (website: <http://www.hse.gov.uk>) and OSHA (website: <http://www.osha.gov>).
- Professional bodies such as IOSH (website: <http://www.iosh.com>) and IIRSM (website: <http://www.iirsm.org>).

1.4. Module quiz

Select the best answer for the questions below:

Q1: As a Camp Supervisor, which one of the following control measures will be important to you to prevent slips, particularly in the food preparation area?

- A) Placing entrance matting near doors.
- B) Maintaining sufficient lighting levels.
- C) Considering how work is organised and managed, e.g. to avoid rushing.
- D) Restricting access to those wearing slip-resistant footwear.

Q2: After conducting pendulum test, the Safety Engineer ended that the offices of a UK-based company are of moderate slip potential. Which one of the following pendulum test values (PTV) may be the result of his test?

- A) 24.
- B) 30.
- C) 37.
- D) 22.

Answers:

The correct answer for question one is D. Slip-resistant footwear is particularly important in areas where floors cannot be kept clean and dry like food preparation areas.

The correct answer for question two is B. According to (UKSRG, 2011) moderate slip potential floors have pendulum test values (PTV) values in the range of 25-35.

Answer to question two can be found in the 'Assessing the slip resistance of flooring' Health and Safety Executive information sheet available at:
<https://www.hse.gov.uk/pubns/geis2.pdf>.



Module 2: Workplace transport safety

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Workplace transport is any activity involving vehicles used in a workplace. Vehicles driven on public roads are excluded, except where the vehicle is being loaded or unloaded on a public road adjacent to a workplace.

Every year, there are too many accidents involving transport in the workplace and a considerable percentage of these accidents result in people being killed.

The main causes of injury are people falling off vehicles, or being struck or crushed by them.

To manage workplace transport effectively, there are three key areas to consider when carrying out your risk assessment:

- safe site (design and activity).
- safe vehicle.
- safe driver.

2.1. Safe site – design

Segregation:

Every site is different and likely to present different hazards and risks. However, a well-designed and maintained site with suitable segregation of vehicles and people will make workplace transport accidents less likely.

The most effective way of ensuring pedestrians and vehicles move safely around a workplace is to provide separate pedestrian and vehicle traffic routes. Where possible,

there should also be a one-way system as this will reduce the need for vehicles to reverse, and will help pedestrians and drivers.

Your circumstances might mean that complete segregation is not possible, so you would need to have clearly marked pedestrian and vehicle traffic routes, using measures such as barriers and signs.

There should be separate entrances and exits for vehicles and pedestrians, and vision panels should be installed on doors that open onto vehicle traffic routes.

Where pedestrian and vehicle traffic routes cross, they should be clearly marked using measures such as dropped kerbs, barriers, deterrent paving etc, to help direct pedestrians to the appropriate crossing points.

Traffic routes:

The general principles for safe traffic routes are as follows:

- Make sure they are wide enough for the safe movement of the largest vehicle.
- Ensure surfaces are suitable for the vehicles and pedestrians using them, e.g. firm, even and properly drained. Outdoor traffic routes should be similar to those required for public roads.
- Avoid steep slopes.
- Avoid sharp corners and blind bends.



- Keep them clear of obstructions.
- Make sure they are clearly marked and signposted.
- Keep them properly maintained.

Some parts of a workplace, such as cast-iron columns, storage racking, pipework and cables, are vulnerable to impact from vehicles and will need to be protected.

Temporary traffic routes:

Temporary workplaces, e.g. construction and forestry sites, often have routes for vehicles and pedestrians that change as work progresses. Where possible, these routes should comply with the same basic standards as for the permanent traffic routes listed previously.

Visibility:

Visibility should be good enough for drivers to see hazards, and pedestrians to see vehicles. Adequate visibility for drivers is related to vehicle speed and the distance needed to stop or change direction safely. Mirrors should be installed where sharp or blind bends cannot be avoided.

Speed:

Reducing vehicle speed is an important part of workplace transport safety. Fixed traffic control measures such as speed humps, chicanes and 'rumble strips' can reduce vehicle speed. It is important to select the most appropriate control as the wrong measure can increase risk by, for example, reducing vehicle stability.

Speed limits can also be used, but they need to be appropriate, properly enforced and, where possible, consistent across the site.

To assess an appropriate speed limit, the route layout and its usage should be considered. For example, lower speeds will be appropriate where pedestrians are present or where lift trucks and road-going vehicles share a traffic route.

Signs, signals and markings:

Signs for drivers and pedestrians in a workplace should be the same as those used on public roads, wherever a suitable sign exists.

They should be well positioned and kept clean. Where driving is likely to be carried out in the dark, illuminated or reflective signs should be used.

White road markings should be used to regulate traffic flow, and yellow markings should be used for parking. Wherever possible, such markings should be reflective and maintained regularly.

Lighting:

Every workplace should have suitable and sufficient lighting, particularly in areas where:

- vehicles manoeuvre, or pedestrians and vehicles circulate and cross
- loading and unloading takes place.

There should be no sudden changes in lighting levels which may lead to drivers being dazzled.

2.2. Safe site – activity

Reversing:

Around a quarter of all deaths involving vehicles at work occur as a result of reversing. It also results in considerable damage to vehicles, equipment and property.

The most effective way of reducing reversing incidents is to remove the need to reverse by, for example, using one-way systems. Where this is not possible, sites should be organised so that reversing is kept to a minimum. Where reversing is necessary, the following must be considered:

- Installing barriers to prevent vehicles entering pedestrian zones.
- Planning and clearly marking designated reversing areas.
- Keeping people away from reversing areas and operations.
- Using portable radios or similar communication systems.
- Increasing drivers' ability to see pedestrians.
- Installing equipment on vehicles to help the driver and pedestrians, eg reversing alarms, flashing beacons and proximity-sensing devices.

Signalling:

The job of banksmen (or signallers) is to guide drivers and make sure reversing areas are free of pedestrians. However, in some industries, such as quarrying, banksmen are rarely used due to the size of the vehicles involved.

Using banksmen implies ensuring that:

- only trained banksmen are used.
- they are clearly visible to drivers at all times.
- a clear and recognised system is adopted.
- they stand in a safe position throughout the reversing operation.

Parking:

Parking areas should be clearly indicated and there should be separate parking areas for commercial and private vehicles. There should also be designated areas where commercial vehicles can be loaded and unloaded.

When vehicles are parked, their parking brakes should always be applied. On most trailers disconnecting the emergency air line does not apply the trailer parking brake.

Drivers should never leave a vehicle unattended without ensuring both the vehicle and the trailer are securely braked, the engine is off and the key to the vehicle has been removed.

Where appropriate, trailer legs should be lowered to the ground.

Coupling and uncoupling:

Drivers and those who have overall control of sites (site operators) should make sure that coupling and uncoupling areas are well lit, with firm and level surfaces.

Drivers should be properly trained and have their work monitored by site operators to make sure they follow a safe system of work, involving the use of trailer and tractor unit parking brakes as appropriate.

Loading and unloading:

To minimise the risks to those involved in loading and unloading, information should be provided on the nature of the load and how it should be properly loaded, secured and unloaded. This information should accompany the load and be available to those involved in the loading, transportation and unloading activities.

The loading and unloading area should be:

- clear of traffic and people not involved in the activity.
- on level ground.
- segregated from other work areas.
- clear of overhead cables, pipes, or other obstructions.
- protected from bad weather where possible.

Vehicles and trailers must have their brakes applied and all stabilisers in the correct position before loading or unloading.

Throughout loading and unloading there should be a safe place where drivers can wait.

Measures must be taken to prevent vehicles being driven off during either loading or unloading at loading bays. These can include:

- traffic lights on loading bays.
- vehicle or trailer restraints.
- keeping keys in a safe place, e.g. with a 'custody' system.

Tipping:

To reduce incidents where vehicles overturn during tipping operations, site operators and drivers should co-operate with each other and make sure:

- tipping is carried out on level ground.
- the tractor unit and trailer of articulated vehicles are aligned.
- wheel stops are used where possible.
- the tailgate is released and secured before tipping.
- no pedestrians are in the tipping area.

- the vehicle is not left unattended and cab doors are closed.
- there are no overhead obstacles, such as power lines.

If loads stick during tipping:

- the vehicle should not be driven to free the load (the body should be lowered and then raised);
- drivers should not climb onto the raised tipper section to free the load.

Mechanical 'vibratory discharge systems' can help to free a stuck load.

Overturning:

To minimise vehicle overturns, site operators and drivers should consider:

- vehicle suitability.
- the condition and slope of the surface.
- the operating speed of the vehicle.
- traffic routes that avoid sharp bends.
- the nature and positioning of the load.

Drivers should be monitored to ensure they follow safe systems of work, e.g. they are wearing seat belts which should be used even if a roll-over protection system (ROPS) is fitted.

Sheeting:

To prevent falls from height when sheeting, these simple steps must be followed:

- the need to work at height should be avoided wherever possible, i.e. sheet from the ground.

- where work at height cannot be avoided, measures such as platforms with barriers to prevent falls must be used.
- if there is still a risk of a worker falling, personal protective equipment must be used to minimise both the distance and consequences in the event of a fall.

At each step, measures that protect everyone who is at risk (e.g. barriers) must be prioritized over measures that only protect the individual (e.g. fall-arrest systems).

The walkways of working platforms should be made of non-slip material

Housekeeping:

Traffic routes should be free from obstructions and kept clean. Signage should be cleaned and maintained so that it remains visible and effective.

2.3. Safe vehicle

Vehicles used in the workplace should be suitable for the purpose for which they are used.

The working environment in which a specific vehicle will be used and the suitability of that vehicle for the people using it should be carefully considered. Consulting with those who will use it is a key part of developing a vehicle specification.

Warning devices such as rotating beacons and reversing alarms are often fitted, and conspicuous painting and marking can be used to make a vehicle stand out to pedestrians.

Drivers should be able to see clearly around their vehicle, so measures such as CCTV and special mirrors must be considered where visibility is restricted.

Vehicles should be designed so that, wherever possible, those who use them can do their work from the ground. Where people have to work at height on vehicles, suitable means of safe access onto and around vehicles should be provided.

Maintenance:

Vehicles should be maintained in good working order so they remain mechanically sound, and any devices, such as flashing beacons, function properly. Vehicles such as lift trucks and those with tail lifts must be thoroughly examined by a competent person and reports kept.

Planned inspections are a vital part of preventative maintenance. These may include daily safety checks carried out by drivers and regular maintenance inspections based on time or mileage.

Drivers should be provided with a list of the daily checks to be signed off at the start of each shift. This should be monitored to ensure the checks are carried out properly.

2.4. Safe driver

Drivers should be competent to operate a vehicle safely and receive appropriate information, instruction and training for the vehicle they use. It is particularly important that younger or less experienced drivers are closely monitored following their training to ensure they work safely.

Competence:

Employers must consider the following:

- For new recruits: Recruitment and placement procedures should be in place to ensure all new drivers are competent.
- For existing employees: Ensuring that drivers have, and continue to have, the skills and experience needed to operate a vehicle safely. If the work changes, drivers should receive the necessary training to carry out the modified task safely.

Training:

Training requirements will depend on an individual's experience and the training they have previously received. Employer's risk assessment should help decide the level and amount of training a person requires.

In general, newly recruited drivers have the greatest training needs but there should also be a programme of reassessment for more experienced drivers.

It is important to assess the information provided by newly appointed drivers, particularly in relation to their training and experience. They should also be monitored on-site, to establish both their actual level of competence and any further training needs.

The employer should keep a training record for each driver. This will help to ensure the most appropriate person is allocated a particular task and identify those requiring refresher training.

There are special requirements for the training of lift truck drivers.

Fitness to operate:

A person's fitness to drive/operate a vehicle should be judged on an individual basis but the aim is to match the requirements of the task with the fitness and abilities of the driver/operator.

2.5. Sources of information on workplace transport safety

Information on workplace transport safety can be obtained from:

- Enforcement bodies such as the Health and Safety Executive (website: <http://www.hse.gov.uk>) and OSHA (website: <http://www.osha.gov>).
- Professional bodies such as IOSH (website: <http://www.iosh.com>) and IIRSM (website: <http://www.iirsm.org>).

2.6. Module quiz

Select the best answer for the questions below:

Q1: Your manager wants to know the most effective way of ensuring pedestrians and vehicles move safely around a workplace. What should you tell him?

- A) Marking pedestrian and vehicle traffic routes.
- B) Providing separate pedestrian and vehicle traffic routes.
- C) Having separate entrances and exits for vehicles and pedestrians.
- D) Installing vision panels on doors that open onto vehicle traffic routes.

Q2: How many fatal accidents were caused by moving vehicles in Great Britain in 2019/20?

- A) 15.
- B) 18.
- C) 11.
- D) 20.

Answers:

The correct answer for question one is B. Providing separate pedestrian and vehicle traffic routes is the most effective way of ensuring pedestrians and vehicles move safely around a workplace.

The correct answer for question two is D. 20 fatal accidents were caused by moving vehicles in Great Britain in 2019/20.

Answer to question two can be found in the Health and Safety Executive statistics page in the link below: <https://www.hse.gov.uk/statistics/fatals.htm>.