

❖ Preventing slips, trips and falls under 2 metres



Preventing slips, trips and falls under 2 metres

This checklist and guidance may help employers eliminate or reduce the risks of slips, trips and falls under 2 metres.

The problem

Slips, trips and falls under 2 metres in internal and external workplaces.

The risks

Slips, trips and falls can place employees at risk of musculoskeletal disorders (MSDs). MSDs include sprains, strains, fractures and soft-tissue injuries. They can occur suddenly or develop over time. More information about MSDs is available in WorkSafe's **Hazardous manual handling compliance code**.

Legal duties

Employers have a duty under the **Occupational Health and Safety Act 2004** (OHS Act) to provide and maintain a working environment that is safe and without risks to health, so far as reasonably practicable. This obligation requires employers to eliminate risks to health and safety, so far as reasonably practicable. If it is not reasonably practicable to eliminate risks, employers must reduce those risks, so far as reasonably practicable.

Consultation

Employers must also consult with employees and any health and safety representatives (HSRs), so far as reasonably practicable, when identifying risks and providing risk controls. Consultation should include discussions about how employees will perform their work, making sure that risk controls do not create new hazards. WorkSafe has **guidance on consultation**, including consultation with HSRs.

Slips, trips and falls checklist

The following checklist may help employers meet their legal duties to eliminate or reduce the risks associated with slips, trips and falls under 2 metres.

WorkSafe has separate guidance which explains the risks of working at heights above 2 metres, including **A guide to falls prevention**, **The prevention of falls in general construction compliance code** and the **Prevention of falls in housing construction compliance code**.

Use the following checklist to:

- assess the risks associated with slips, trips and falls under 2 metres
- list possible solutions
- implement solutions

Consult with any HSRs when assessing the tasks and introducing risk control measures. Where possible, make sure consultation involves employees who do the tasks.

Risk control measures

The checklist provides general guidelines only. You must control any risk you find, so far as reasonably practicable. As well, arrange for regular workplace inspections, paying particular attention to:

- floors, stairs and lighting
- housekeeping, including general cleanliness and cleaning methods
- variations in conditions according to time of day and year. For example, rain, cloudy days or night/day
- personal protective equipment (PPE)

Keep a copy for your records

Employers should print, complete and retain a copy of the checklist for their records.

Checklist

Workplace location	Date of assessment
Assessment completed by	Work area management representative
Work area HSR	Others, for example, employees, consultants etc.

Slips

The following information describes common hazards associated with slips in workplaces and suggests risk control measures that may help employers eliminate or reduce risk of slips in the workplace.

Common slip hazards

Check off any slipping hazards present in the workplace. If you find risk of an injury due to a slip, you must control that risk, so far as reasonably practicable.

Inappropriate floor surfaces. For example, deep carpet in high-use trolley areas, surfaces that become slippery when wet, expanded mesh flooring or steps	☐
Wet floors from cleaning during work hours	☐
Spills on floors. For example, food and liquids in meals areas, spilled products, spills and leaks around oil reservoirs, ingredients or chemical granules, machinery spills or metal shavings, oil stains in undercover car parks	☐
Sudden changes in floor surfaces. For example, from carpeted showroom to polished timber storeroom, sheet vinyl counter area to tiled kitchen, concrete workshop to terrazzo office, loose granular outdoor ground surfaces to steel decking	☐
Growths on floor surfaces. For example, moss on external pathways, mould on laundry or bathroom floors	☐
Inappropriate footwear. For example, wearing high-heel shoes on stepladders when accessing stock in shops or wearing leather-sole shoes in a freezer	☐
Steep ramps	☐
Others. Provide details	☐

Solutions

The following solutions may help employers to eliminate or reduce the risk of slips in the workplace. Check off control measures already implemented in the workplace. Implement controls not already in place, so far as reasonably practicable.

Install floor surfaces that reduce risks of slips from water and other liquids, grease or dust on the floor	☐
Clean floors outside working hours	☐
Use slip-resistant products on stair treads, ramps and other hazardous walking or working surfaces	☐
Put anti-slip mats at entrances	☐
Eliminate leaks	☐

Use drip pans and guards where spills might occur	☐
Clean machinery spills according to the spilled product's safety data sheet (SDS)	☐
Have systems in place to reduce risks when changing products that can spill and create hazards	☐
Regularly clean and maintain floor and outdoor surfaces	☐
Install suitable drainage	☐
Choose floor surfaces that ensure non-slip conditions when moving from one floor surface to another	☐
Treat floor surfaces to create slip resistance	☐
Keep outdoor surfaces free of leaves, mud, clippings, paper and gravel and remove moss, mould or slime	☐
Ensure employees wear suitable footwear appropriate to the task	☐
Ensure ramp gradients do not exceed 1:8	☐
Ensure ramps are slip-resistant with foot grips or textured surfaces	☐
Ensure employees are aware that pushing or pulling trolleys can increase slip risks	☐
Provide appropriate trolleys and training	☐
Provide handrails and midrails as well as kickrails at least 100mm high on both sides of ramps to prevent trolleys running off edges	☐

Trips

The following information describes common hazards associated with trips in workplaces and suggests risk control measures that may help employers eliminate or reduce the risk of trips in the workplace.

Common trip hazards

Check off any trip hazards present in the workplace. If you find risk of an injury due to a trip, you must control that risk, so far as reasonably practicable.

Damaged floors, including broken tiles and worn floor coverings	☐
Uneven floor surfaces	☐
Poorly marked or unexpected changes in floor or ground levels	☐
Poorly maintained access routes	☐
Uneven or loose paving	☐
Poorly maintained footpaths and garden edges	☐
Equipment and goods stored in aisles and walkways	☐
Personal items stored around workstations. For example, handbags, briefcases, backpacks, gym bags	☐
Low obstacles where employees walk. For example, empty pallets, items protruding from the floor, extension cords	☐
Untidy work areas	☐

Loading docks. For example, the height difference between the loading dock and floor of a truck, the gap between the loading dock and a truck, slippery and uneven metal dock plates	☐
Unsuitable matting. For example, flattened cardboard cartons, mats with turned-up edges, unsecured mats at entrances, loose floor mats	☐
Steps and stairs	☐
Steps or stairs with different riser heights or tread depths	☐
Poor lighting, particularly on steps and stairs	☐
Lack of handrails on steps and stairs	☐
Employees slipping when entering or exiting vehicles. For example, truck cabins, forklifts, ride-on mowers, mobile cleaning equipment	☐
Grates and covers over floor openings	☐
Pets and animals	☐
Others. Provide details	☐

Solutions

The following solutions may help employers to eliminate or reduce the risk of trips in the workplace. Check off control measures already implemented in the workplace. Implement controls not already in place, so far as reasonably practicable.

Regularly review and maintain damaged or uneven floor surfaces	☐
Regularly review and maintain external access areas	☐
Provide dedicated storage areas for items such as cleaning goods, trolleys and equipment	☐
Provide adequate storage racks	☐
Do not block walkways	☐
Ensure aisles and passageways are free from clutter at all times	☐
Provide lockers or storage for personal items	☐
Remove or establish barriers around low obstacles	☐
Ensure appropriate cleaning procedures	☐
Remove or guard items that may catch clothing	☐
Use dock levellers or bridge plates when transferring materials from docks and trucks	☐
Ensure metal dock plates have grip surfaces and that dock plate edges are smooth with no sag	☐
Use slip-resistant mats	☐
Ensure slip-resistant door mats are secure or large enough to remain in place	☐
Use a non-slip bullnose finish on steep or slippery steps and stairs	☐
Ensure steep stairways are only for secondary access and have sturdy handrails both sides	☐

Ensure steps and stairs have adequate foot space, even tread and riser dimensions and suitable radius on nosing	☐
Provide handrails on steps and stairs	☐
Ensure vehicle cabins have steps and handgrips which provide 3 points of contact for hands and feet at all times	☐
Ensure vehicle steps are non-slip with adequate foot space	☐
Ensure vehicle handgrips allow people to use a power grip	☐
If lighting is inadequate on steps and stairs, increase lighting and highlight stair nosing	☐
Ensure landings have sufficient space for doors to fully open without striking anybody	☐
Eliminate isolated low steps, if practicable	☐
Highlight isolated low steps	☐
Ensure employees do not carry loads by hand on stairs. If not possible, ensure the load is small and light enough to carry in one hand to the side of the body	☐
Use lifts where possible	☐
Use only stair-climbing trolleys on stairs	☐
Provide ramps	☐
Install barriers to separate pedestrians from mobile plant and vehicles	☐
Ensure permanent aisles, passageways and emergency exits are appropriately and clearly marked	☐
Ensure safe clearance for walking in aisles where powered mechanical handling equipment operates	☐
Ensure sufficient headroom for the length of aisles and walkways	☐
Repair and maintain damaged grates or covers	☐
Ensure grates or covers do not require employees to alter walking patterns to step over them	☐
Treat the surface of grates or covers to improve their slip resistance	☐
Ensure pets and animals are secured or isolated. For example, have owners lock pets away when employees are working at domestic premises	☐

Falls

The following information describes common hazards associated with falls under 2 metres in workplaces and suggests risk controls that may help employers eliminate or reduce the risk of falls under 2 metres.

Part 3.3 of the **Occupational Health and Safety Regulations 2017** (OHS Regulations) applies when there is a risk of a fall of more than 2 metres. WorkSafe has guidance which explains the risks of working at heights above 2 metres, including **A guide to falls prevention**, **The prevention of falls in general construction compliance code** and the **Prevention of falls in housing construction compliance code**.

Common fall hazards

Check off any fall hazards present in the workplace. If you find risk of an injury due to a fall, you must control that risk, so far as reasonably practicable.

Using inappropriate step stools. For example, using chairs and overturned milk crates or other crates as step stools	☐
Damaged chairs or seats	☐
Using chairs with standard castors on vinyl floors	☐
High stools without foot rings or a place to support feet	☐
Unstable high stools or high chairs	☐
Office chairs with a base that has fewer than 5 points in contact with the floor	☐
Situations where it is necessary to jump or step down to lower levels	☐
Unstable or inappropriate ladders or steps. For example, chairs used as ladders, straight ladders used on smooth surfaces, straight ladders used to reach stock	☐
Using ladders as work platforms	☐
Using ladders or steps incorrectly. For example, reaching too far to either side, standing on the top rung, using ladders on uneven floor surfaces, using an unsecured rung ladder	☐
Others. Provide details	☐

Solutions

The following controls may help employers to eliminate or reduce the risk of falls under 2 metres. Check off control measures already implemented in the workplace. Implement controls not already in place, so far as reasonably practicable.

Remove and replace or repair damaged chairs	☐
On floors that have smooth, hard surfaces such as concrete timber or vinyl, use only chairs that have glides or castors with brakes	☐
Use chairs with standard castors only on carpeted surfaces	☐
Ensure employees use adjustable chairs with 5-point bases for tasks that require prolonged sitting	☐
Ensure high stools have foot rings	☐
Ensure stock, materials or displays are not stacked above shoulder height	☐
Ensure employees use appropriate ladders, steps or stairs to climb or move down levels	☐
Ensure ladders and steps are stable or secured when in use	☐

Ensure ladders or steps are well maintained and have non-slip feet and treads in good condition	☐
Ensure employees use ladders correctly	☐
Ensure people on ladders do not carry items and that small items are suspended in a tool belt	☐
Use a forklift or other mechanical lifting device to place large items into storage	☐
Ensure the tops of ladders are securely attached to a secure structure	☐
Ensure makeshift materials are not used to stabilise ladders on uneven floors	☐

Environmental conditions

Once it is determined there is a risk of MSD, employers must consider whether environmental conditions increase the risk. Environmental conditions include:

- vibration
- heat
- humidity
- cold and wind
- slippery and uneven floor surfaces
- obstructions
- poor lighting

Environmental conditions can increase the risk of an MSD by affecting employees' muscles, nerves and blood vessels and increasing fatigue.

The following information outlines common hazards associated with slips, trips and falls in workplaces due to environmental conditions and offers solutions which may help employers.

Common environmental hazards

Check off any environmental conditions present in the workplace. If you find risk of an injury due to an environmental hazard, you must control that risk, so far as reasonably practicable.

Poorly lit work areas and walkways	☐
Sudden changes in lighting levels between areas	☐
Badly directed lighting	☐
Working in cold rooms or freezers	☐
Working in wet conditions. For example, a plant nursery	☐
Working in hot or humid conditions. For example, a smoke house	☐
Others. Provide details	☐

Solutions

The following solutions may help employers to eliminate or reduce the risk of environmental conditions causing slips, trips and falls under 2 metres. Check off control measures already implemented in the workplace. Implement controls not already in place, so far as reasonably practicable.

Use appropriate lighting levels, for example, 80 to 240 lux, for general areas such as loading bays and areas not regularly in use	☐
Provide graduated lighting between areas	☐
Ensure vehicles stop and that drivers have adapted to lighting levels before they enter areas where there may be pedestrians	☐
Ensure pedestrians cannot enter vehicle traffic areas if the pedestrians have not adapted to lighting levels	☐
Direct lighting so it does not create distracting shadows on steps, stairs or other walking surfaces	☐
Ensure the direction of lighting does not make it difficult for pedestrians and mobile equipment operators to see	☐
Check employees are not exposed to environmental conditions that may affect their behaviour or performance. For example, heat, cold, chemicals or electricity	☐

Risk management

The occupational health and safety (OHS) risk management process helps employers to eliminate or reduce the risk of MSDs associated with hazardous manual handling, so far as reasonably practicable. The risk management process involves hazard identification, risk assessment, risk control measures and monitoring, reviewing and, where necessary, revising risk control measures.

Effective management of health and safety hazards also involves training, consultation, documentation of health and safety activities and regular review of the management system. For more information about risk management, see WorkSafe's guidance, **Controlling OHS hazards and risks**.

Systems

Systems to help employers eliminate or reduce the risk of trips, slips and falls under 2 metres include:

- identifying the risk of slips, trips and falls under 2 metres and putting risk control measures in place, in consultation with employees and their HSRs
- providing reporting processes so safety issues can be identified and controlled as soon as possible
- scheduling and recording regular inspections and maintenance of all areas of the workplace and all equipment
- providing employees with information, instruction, training and supervision in relation to work procedures and the use of equipment and aids

Floor types, characteristics and applications

The following information describes different floor types, their characteristics and common applications. The information may help employers choose the most appropriate floor surfaces to control the risk of slips, trips and falls under 2 metres in their workplace.

Concrete

Characteristics

Rounded aggregate can be slippery when concrete wears. Interior surface is often sealed to prevent dusting and absorption of liquids but this can increase slipperiness.

Application

Suitable for external pathways, factory and warehouse floors. Slip resistance depends on finish and wear. Use angular aggregate for pathways.

Terrazzo

Characteristics

Gives good appearance and wears well but can be slippery when wet, when excess polish is used or when dusty.

Application

Suitable for office foyers and pedestrian areas in shopping centres. Lay in place in panels separated by metal strips.

Quarry tiles and ceramic tiles

Characteristics

Low water absorption and good resistance to chemicals. Slippery in wet conditions if smooth but can be moulded with aggregate or profiles to improve slip resistance. Cleaning may require special cleaning equipment such as high-pressure water spray because a build-up of grease or dirt can make the tiles ineffective.

Application

Suitable for kitchens where hot spills might occur, shower rooms, toilets and similar. Requires frequent cleaning.

Glazed ceramic tiles

Characteristics

Slippery when wet, particularly with soapy water. Some slip-resistance treatments available but it is preferable not to install glazed ceramic tiles on floors.

Application

Bathrooms and toilets.

Vinyl tiles and sheet

Characteristics

Easy to clean. Use sheet form where washing is required to avoid water getting under tiles. Slippery when wet, particularly if polished, however slip-resistance vinyl with moulded aggregates is available.

Application

Suitable for light industrial environments, corridors, hospital wards. Not suitable where hot spills are likely.

Cork

Characteristics

Must be sealed to prevent absorption of oil and water but likely to be slippery when wet.

Application

Suitable for light industry, small kitchens, lecture rooms, standing mats. Softer than vinyl.

Timber

Characteristics

Needs to be sealed to prevent absorption of oil and water. Can be slippery when wet if highly glossed or polished.

Application

Suitable for meeting halls, gymnasiums, older factories and offices.

Steel plate

Characteristics

Tends to be slippery when wet or oily, particularly when worn.

Application

Suitable for factory areas with very heavy traffic or to span openings in floors. Usually has a raised pattern, for example, chequer plate, which provides some slip resistance but may cause problems with moving trolleys, pallet jacks or other wheeled mechanical aids.

Rubber

Characteristics

Less effective in wet conditions. Must be fixed down well at the edges and at joins or will cause a tripping hazard.

Application

Suitable for ramps and areas requiring extra slip resistance, and for stair treads. Usually has a round stud pattern.

Plastic matting

Characteristics

Interlocking PVC extrusions give good drainage and slip resistance. Hose down or steam clean.

Application

Suitable for bathrooms, standing mats.

Carpet

Characteristics

Carpet has shorter life than a hard floor surface but it can be a cost-effective solution in many cases. Installation should be wall-to-wall to avoid the hazard of tripping on edges. When used in small local areas, such as entrances, it should be installed in a recess in the floor.

Application

Suitable for corridors, offices and areas where quiet is a high priority and spills unlikely. However, carpets of synthetic materials may be used in entrance areas to absorb water and dirt, exterior areas and bathrooms.

Fibreglass grating

Characteristics

This product can have grit particles moulded into the upper surface to provide very good slip resistance. Fluids quickly drain away.

Application

Suitable for factory areas where fluids are unavoidable, and for overhead platforms and walkways.

Floor treatments

Floors need greater friction or adhesion to increase their slip resistance. Slip-resistant footwear is one strategy, treating the floor is another.

If an existing floor creates a risk and it is too expensive to install new flooring, it is possible to apply a floor treatment. The cost of treatment varies considerably and it is a good idea to do a cost analysis, particularly if the treatment does not significantly improve the quality of the floor.

Successful treatments are those that substantially increase the surface roughness of the flooring. The surface may not look as attractive following treatment and cleaning methods may need to change.

For wet conditions, flooring material or treatment should continue up the walls to at least 75mm. The continuation between the floor and the wall should be rounded to prevent fluids getting under the edges. This will reduce cleaning and drying time.

Make sure sheet flooring, such as vinyl, is welded to prevent water seeping through and to allow more thorough cleaning.

Types of treatments

Mild etch

Applicable to ceramic tiles, granite, terrazzo, clay pavers and vinyl. May increase slip resistance but the tile may still be too slippery, particularly with soapy water.

Strong acid etches

Applicable to concrete. Should make surface suitable for slip resistance with water but not with oil.

Adhesive strips

Applicable to all flooring: Mineral-coated adhesive strips are useful for localised slip hazards such as stair treads and ramps. However, they wear quickly and should be considered a temporary solution or be replaced regularly.

Abrasive blasting

Applicable to concrete, ceramic tiles, granite, marble, terrazzo, clay pavers and steel plate. Oil can still make the surface slippery.

Grinding

Applicable to concrete, ceramic tiles, granite, marble, terrazzo and clay pavers. This treatment can create a rougher surface, so it could be used to give slip resistance under oily conditions.

Grinding with diamond saw

Applicable to concrete, ceramic tiles, granite, marble, terrazzo and clay pavers.

For example, grooves 2-3 mm deep, spaced at 7-10 mm, would give slip resistance under oily conditions. Loss of the sealed surface could lead to staining.

Coating

Applicable to concrete, clay pavers, steel plate and timber. A range of base materials is used, including acrylics, flexible polymers, polyester resin, vinyl ester resin and epoxy resin. For the best slip resistance, the coatings will include aggregate such as rubber particles, silica sands and silicon carbide granules. These treatments can be tailored to the application, depending on the level of chemical, traffic or slip resistance needed. With the right aggregate, slip resistance under oily conditions is possible.

Further information

A guide to falls prevention

Compliance code: Prevention of falls in general construction

Compliance code: Prevention of falls in housing construction

Occupational Health and Safety Act 2004

Occupational Health and Safety Regulations 2017

Occupational health and safety - your legal duties

Consultation

Controlling OHS hazards and risks

Hazardous manual handling compliance code