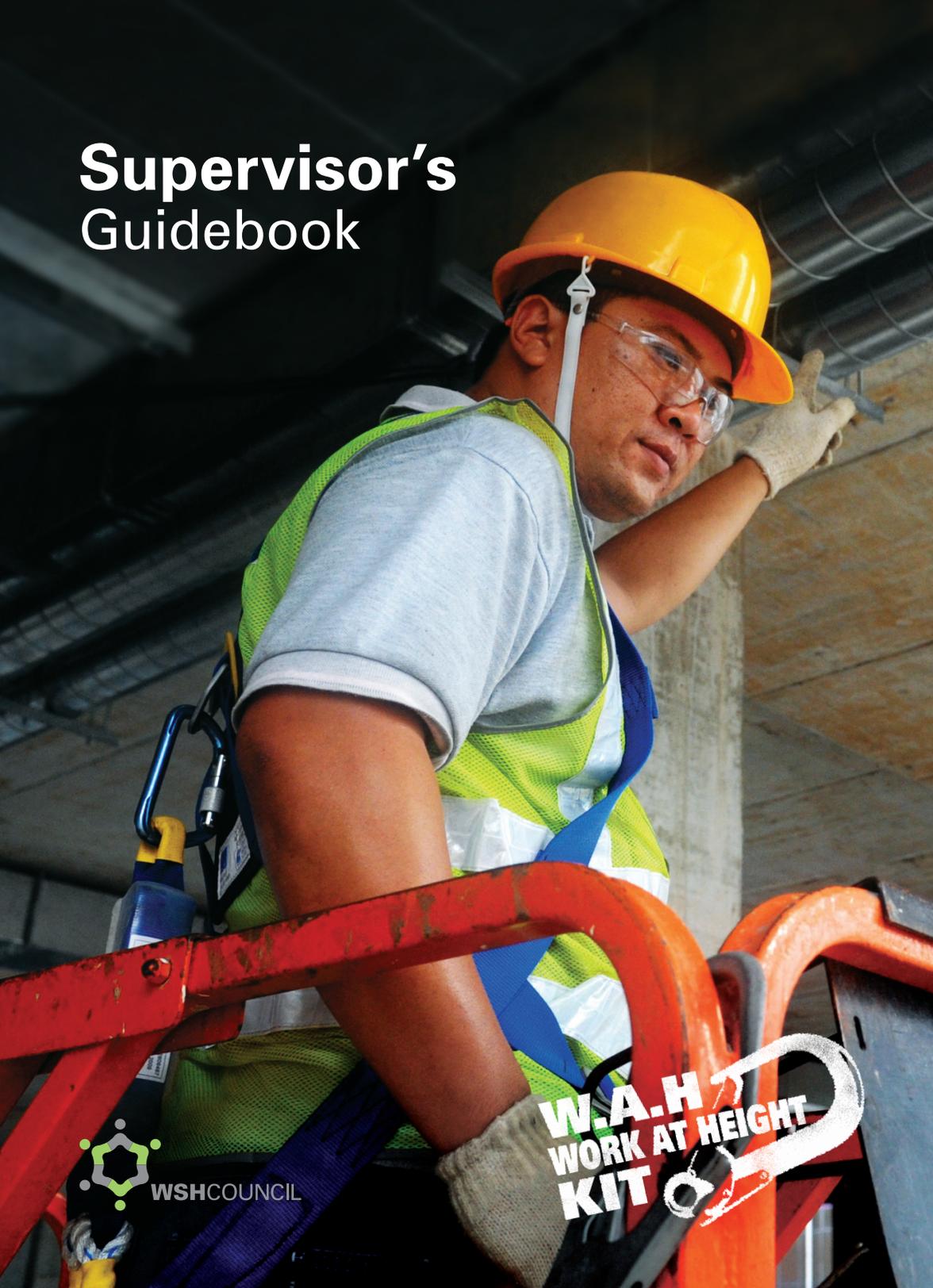


Supervisor's Guidebook



W.A.H
WORK AT HEIGHT
KIT

1. Introduction

Statistics have shown that 1 out of 3 fatalities at the workplace are attributed to workers falling from height. Many more workers sustain serious injuries as a result of falls from height every year.

With the increased need for work activities to be carried out at height, the exposure of workers to falling hazards also increases. This is especially so in the marine and construction sectors.

Investigation of past cases surfaced the following as contributing factors to falls from height:

- Unsafe work environments;
- The absence of risk assessment prior to work commencement;
- The absence of safe work procedures;
- Lack of proper supervision;
- Inadequate training; and
- Failure to observe safety rules and practices by workers.

Safe work procedures must be implemented to control the risks and tackle the contributing factors as inexperienced workers may not be capable of effectively identifying or avoiding hazards posed by an unsafe work environment.

2. Roles and Responsibilities of Supervisors in Workplace Safety

The main role of supervisors is to provide direct and close supervision of the tasks performed by the workers under them.

Supervisors are familiar with the work processes and with their experience, are best able to identify hazards at the workplace. As such, they are able to contribute significantly to the risk assessment process.

This should be followed by regular and thorough inspections which will enable supervisors to identify and manage potential hazards at the worksite.

Areas of inspection should include:

- The condition of working platforms;
- Open sides of buildings;
- Openings in the ground; and
- The general state of housekeeping at the site.

Incorporating basic guidelines into daily work routines is only the first step. These guidelines should then be clearly and regularly communicated to workers through platforms such as toolbox meetings.

Supervisors are also responsible for ensuring that their workers are properly trained in the required area of work and educated on the importance of maintaining a safe work environment.

Following which, they must ensure that safety rules and proper work procedures are adhered to without compromise.

Most importantly, supervisors should do their best to lead by example.



Supervisors can communicate safety guidelines to the workers during toolbox meetings.

3. Areas Requiring Special Attention

When working at height, the following have been identified as areas that require the special attention of supervisors. The list is not exhaustive and the items listed are not in any particular order of importance.

Common sources of hazards:

- Scaffolds;
- Floor and lift shaft openings;
- Ladders and stairs;
- Open sides of floors;
- Formworks; and
- Working platforms.

Common causes of falls from height:

(Physical environment)

- No proper hand hold or foot hold;
- Improperly erected scaffolds - metal, timber and gondola;
- Improperly constructed working platforms;
- Unguarded scaffolds or working platforms;
- Uncovered or un-barricaded floor openings;
- Defective ladders;
- Unguarded stairs;
- Poor housekeeping; and
- Poor lighting.

(Human factors)

- Lack of safe work procedures;
- Risk assessment not performed;
- Lack of training or worksite orientation of workers; and
- Failure to wear or anchor a safety belt or harness.



The worker is working on an improper working platform and the boards are not secured. The worker is also not wearing a safety harness.



The worker is working beyond an unguarded side without working platform. The worker is also not wearing a safety harness.

4. Fall Prevention Measures

Risk assessment

Risk assessment must be carried out before any work at height commences in order to identify any potential hazards. Safety measures can then be implemented to manage these hazards.

Before work commences, workers should be orientated with the safe work procedures and equipped with the necessary safety equipment. In addition, they should be trained and familiarised with the use of the safety equipment.

General safe work practices:

- Use scaffolds, working platforms and proper access points provided;
- Perform checks on equipment and tools before use;
- Carry out regular maintenance and inspection of equipment and tools; and
- Avoid overloading any equipment.



Equipment, such as scaffolds need to be checked and approved before use.



Equipment which are deemed unsafe for use, need to be labeled as such to prevent unauthorised usage.

- Ensure that both hands are kept free when climbing ladders;
- Avoid climbing or leaning over, or sitting on guardrails;
- Ensure that safety harnesses are properly strapped on and securely anchored;
- Wear safety harness (instead of safety belt) for worker's fall protection; and
- Ensure that the lanyard is of correct length for the height that the work is carried out.



Safety harnesses are to be worn properly and securely anchored.



Use proper access points.

Scaffolds and working platforms:

- Scaffolds should be properly erected;
- Working platforms should be properly constructed;
- Planks or boards forming the working platform should be properly secured;
- Working platforms should have guardrails and toe boards on all open sides; and
- Proper means of access and egress (such as ladders) must be provided/made available.



Working platform with guardrails and toeboards installed.



Proper means of access to scaffolds need to be provided.

Openings on floor surfaces

- Openings (such as manholes or gaps in the floor) should be properly covered or barricaded; and
- Warning signs to caution others must be displayed.



Barricade with fire extinguisher for lift shaft opening.



Guard-rails for a manhole opening.

Ladders and stairs

- In addition to ensuring that ladders are sturdy and in good condition; they must be secured in position before use; and
- Stairs should be fitted with handrails and kept free of objects that may cause trips and slips.



Stairs are fitted with handrails.



Handrails at open edges of stairway.

Open sides of floors and formworks

- Open sides of floors should be properly barricaded;
- Bricking of walls should follow closely with the casting of floor slabs;
- Warning signs to caution others must be clearly displayed;
- Standing on formworks should be prohibited; and
- Working platforms should be provided to facilitate the work being carried out.



Barricades for open sides.



Barricades for open sides, marked with tape for better visibility.

Housekeeping

Accidents are often caused by workers tripping over objects or slipping on slippery surfaces. A simple yet effective way of preventing such accidents is to carry out good housekeeping regularly. This not only brings about a safer and healthier work environment, it increases productivity and costs next to nothing.

Recommendations

- Plan for the proper disposal of debris before commencing work;
- Allocate sufficient storage space for building materials beforehand to avoid having to store these along staircases and passageways at a later stage;
- Continually review and modify housekeeping measures accordingly as work progresses and working conditions shift; and
- Regularly carry out cleaning, clearing and tidying up so as to keep the worksite safe and neat at all times.



Good housekeeping practices help reduce accidents due to tripping and falling hazards



Poor housekeeping presents tripping hazards, which may lead to falls from height.

Lighting

Inadequate lighting at a workplace can lead to serious consequences. It is necessary that a reasonable level of lighting at a worksite is maintained at all times.

Eliminating conditions of contrasting light at the worksite is just as crucial. Workers entering into dark areas right after being out in bright light, or vice versa, are at risk of falling and tripping due to temporary 'blindness'.

Recommendations

- Ensure proper lighting in dark areas such as stairwells; and
- Ensure that all hazard warning signs are clearly visible during both day and night.



The risk of tripping and falling is increased in dark areas.



Adequate lighting should be provided for dark areas.

5. Specific Areas of Work

Roofing and ceiling-works

The potential hazards present in both roofing and ceiling works are very similar and often result in two main accident types:

- Falls through roofs; and
- Falls from steep roofs.

Roofing materials are not sturdy enough to support the weight of a worker, even without any additional load being carried. Under no circumstances should a worker be allowed to tread directly on any type of roof surface, be it glass, plastic, acrylic or any other material. As a general guide, all roof surfaces should be considered fragile.

Recommendations

- Provide sufficient and suitable crawling boards or roof ladders where work is to be carried out;
- Assign only trained and qualified workers to carry out roofing works;
- Set up a safety mesh under the roof, install catch platforms or barriers at the edges in addition to employing the compulsory use of safety belts and securely anchored life lines to safeguard workers from falling through or off a roof;
- Construct proper walkways on or adjacent to the roof;
- Ensure that workers do not throw debris off from the roof;
- Put up signs at noticeable positions to warn workers against stepping onto the roof sheeting, such as along walkways, and at various access points to the roof;
- Provide proper working platforms and secure footholds for workmen to utilise;
- Ensure adequate lighting; and
- Put the necessary fall arresting or restraining devices in place, ensuring that secure lifelines and sufficient anchor points are available.



Never step directly onto fragile roofing material. It will not be able to support the weight of a worker and may collapse, as shown above.



Workers working at rooftop should wear safety harness securely anchored to a suitable anchorage point or static line. Crawl boards can make work safer as well.

Erection of steel structures

The erection of steel frames for multi-storey buildings and similar structures put workers at great risk of falling from heights. This calls for extra prudence and meticulous housekeeping to avoid trips and fatal falls.



Steel erection may result in workers having to work on high, narrow working surfaces.

Common hazards that steel workers are exposed to include:

- Slips and falls from both high and low levels;
- Being struck by falling objects such as tools and materials which are dropped from higher levels;
- Walking or bumping into objects at the worksite; and
- Eye injuries caused by flying objects, welding and other operations that entail burning.

Indirect causes of falling from height:

Workers hurry to complete tasks, paying less attention to safety and their surroundings.

As a result, workers end up in falls caused by:

- Walking or knocking into objects;
- Being struck by falling objects;
- Being struck by moving objects (e.g. steel member stringing from a crane or a sprung cable whipping through the air); or
- Electric shocks from live cables/wires.

Recommendations:

- Ensuring proper usage of personal protective equipment will help protect workers from injury or death due to falls from height; and
- Installing life lines, safety harnesses and safety nets will help minimise injury and the likelihood of a fatal accident even if falls from height do occur.

Marine works

Marine workers are predisposed to working in an unstable environment with unpredictable changes brought about by waves and tides. As such, operations such as the construction of wharves, marine piling operations, dredging and other seabed-related work, pose some unique concerns as follow:

- Drowning becomes a hazard when marine workers fall into the water;
- Workers tend to have the mentality that the ability to swim is enough to safeguard themselves against the possibility of drowning; and
- Fail to realise that the ability to swim is of no use if they are struck unconscious by an object before falling into the water.

Recommendations:

- Install proper gangways and railings to help prevent workers from falling into the water; and
- Ensure that workers who have to carry out work at heights such as pontoon piling work, use safety harnesses which are anchored onto secure life lines.



Working near the water's edge presents the additional risk of drowning, should workers fall.

6. Acknowledgements

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