

# Supervisor's Guidebook for the Marine Industries





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# 1. Introduction

Statistics for the marine industry over the past years have shown that more than 30% of fatalities at the workplace were attributed to workers falling from height. Many more workers sustain serious injuries as a result of falls from height every year.

With an 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 sector.

## **Investigation of past cases highlighted these contributing factors to falls from height**

- unsafe work environments;
- absence of risk assessment prior to starting work;
- absence of safe work procedures (SWPs);
- lack of proper supervision;
- inadequate training; and
- failure to observe safety rules and practices by workers.

SWPs 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 the Workplace

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, they are in the best position 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 decks;
- manhole openings in the ground; and
- the general state of housekeeping at the site.

Incorporating basic safety 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 workers during toolbox meetings.**

# 3. Areas Requiring Special Attention

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

## Common sources of hazards

- scaffolds
- manholes/ butterworth openings
- ladders and stairs
- open sides of decks
- hatch covers
- working platforms

## Common causes of falls from height

### Physical environment

- no proper hand hold or foot hold
- improperly erected scaffolds
- improperly constructed working platforms
- unguarded scaffolds or working platforms
- uncovered or unbarricaded manhole openings
- defective ladders
- unguarded sides
- poor housekeeping
- poor lighting

### Human factors

- lack of safe work procedures
- risk assessment not performed
- lack of training for workers
- failure to wear or anchor a restraint belt or safety harness
- lack of SWPs



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



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

# 4. Fall Prevention Measures

## Risk assessment

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

Before work starts, workers should be oriented with SWPs and equipped with the necessary safety equipment. In addition, they should be trained and familiar 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.
- Avoid overloading any equipment.
- Ensure that both hands are kept free when climbing ladders.
- Avoid climbing, leaning over, or sitting on guardrails.
- Ensure that safety harnesses are properly strapped on and securely anchored.
- Wear safety harness (instead of restraint belt) for workers' fall protection.
- Ensure that the lanyard is of correct length for the height that the work is carried out.



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



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



Safety harnesses have to be worn properly and they have to be securely anchored.

## 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.
- Proper means of access and egress (such as ladders) must be provided or made available.



Use proper access points.



Working platform with guardrails and toeboards installed.



Proper means of access to scaffolds need to be provided.

## Openings on decks

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



Guardrails for manhole openings.



## Ladders and stairs

- In addition to ensuring that ladders are sturdy and in good condition, they must be secured in position before use.
- 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 decks and platforms

- Open sides of decks and platforms should be properly barricaded.
- Warning signs to caution others must be clearly displayed.
- Working platforms should be provided to facilitate the work being carried out.



Barricades for open sides.

## Mezzanine Floors

- Mezzanine floors should be barricaded and a safe means of access should be provided.
- Adequate work area should also be allocated.



Mezzanine floors with no barricades.

## 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 proper disposal of debris before commencing work.
- Allocate sufficient storage space for materials beforehand to avoid having to store these along passageways at a later stage.
- Continually review and modify housekeeping measures accordingly as work progresses and working conditions shift.
- Regular tidying up, cleaning and clearing help 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 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 that there is proper lighting in dark areas such as stairwells.
- Ensure that all hazard warning signs are clearly visible during day and night.



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



Adequate lighting should be provided for dark areas.

## Erection of steel structures

The erection of steel panels 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.

### Common hazards that steel workers are exposed to

They include:

- slips and falls from 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 hurrying to complete tasks pay less attention to safety and their surroundings. As a result, they 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

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



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

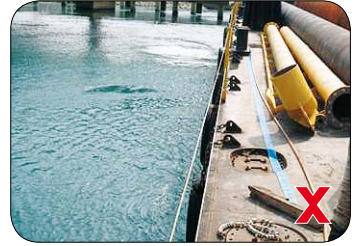
## Work over waters

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.

- 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.
- Failure 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.
- 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.

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