FALL PREVENTION PLAN



REPLACEMENT OF TERMINAL 3 MAIN BUILDING CHILLER PLANT, TERMINAL 3 AIR HANDLING STATIONS AND AIR HANDLING UNITS AND LIFE-CYCLE MAINTENANCE OF THESE EQUIPMENT AT CHANGI AIRPORT

PREPARED BY: WSHC	MOHAMMAD ALFI	SIGNATURE	DATE: 01/10/2025
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A. Statement of Company Policy

Fall Prevention Policy
CBM Solutions Pte Ltd is committed to providing a safe work environment for its employees and preventing occupational injuries due to falls.

Fall Prevention forms an integral part of our commitment towards a safe work environment. At any time when a worker is exposed to a falling hazard, there will be procedures and equipment to reduce and/or eliminate the hazard of falling from heights.

Fall Prevention shall be achieved through the hierarchy of controls that will involve all levels of management, supervisory and field personnel. This hierarchy shall be: identification of hazards; elimination of hazards through elimination, substitution, engineering (design) and procedural practices; control and mitigation of hazards through prevention and restraint systems and finally the use of fall arrest. It is the responsibility of all staff to ensure that all personnel working in our projects are fully aware of the hazards prevailing to working at heights in the workplace and that safety regulations are strictly adhered to by all.

To achieve this, the management is committed to the following:

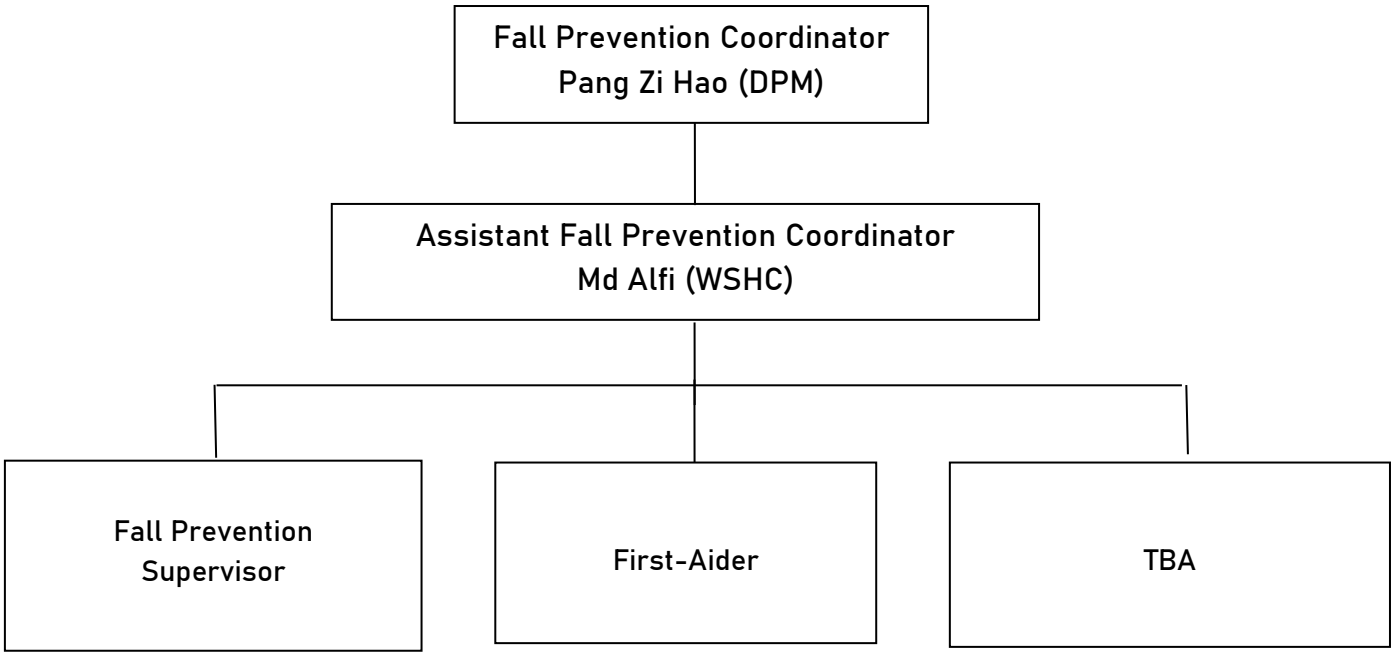
- Commitment by the management to seek continual improvement on work methods so as to eliminate if not to reduce the risk of working at heights.
- Comply with current applicable legal requirements and relevant code of practices relating to working at heights.
- Comply with current applicable legal requirements and relevant code of practices relating to working at heights.
- To prevent and eliminate all unsafe acts and practices with regards to working at heights throughout the duration of our projects.
- Ensure that no workmen will be assigned to carry out work at heights unless necessary and that they are competently trained to work safely at heights.
- Ensure that the policy is understood, implemented and maintained at all levels of the site.
- Review the policy yearly or amend as and when necessary

Management Signature: _____ Date: 1/10/25

Mr Teo Hwee Yean
(Chief Executive Officer, CBM Solutions)

FALL PREVENTION WORKING COMMITTEE
ORGANISATION CHART

PROJECT:
REPLACEMENT OF TERMINAL 3 MAIN BUILDING CHILLER PLANT, TERMINAL 3 AIR HANDLING STATIONS AND AIR HANDLING UNITS AND LIFE-CYCLE MAINTENANCE OF THESE EQUIPMENT AT CHANGI AIRPORT



B. Roles and Responsibilities

EMPLOYER (CONTRACTOR)
a) To provide fall protection to affected employees & to ensure that all employees understand and adhere to the procedures of this plan.

EMPLOYEE
a) To bring to management's attention any unsafe or hazardous conditions or practices that may cause injury to either themselves or any other employees.

SITE SUPERVISOR
a) Check & Ensure the workers are fully equipped with appropriate fall protection for working at height before start of work.

SAFETY PERSONNEL
a) Conduct routine safety checks for all work at height activities;
b) Correcting any unsafe practices or conditions immediately;
c) Trained all employees and supervisors in recognizing fall hazards and the use of fall protection systems;
d) Maintain records of employees training, equipment issue and fall protection systems used at site.
e) Investigate and documented all incidents that result in employees' injury.

C. HAZARD IDENTIFICATION & RISK ASSESSMENT

1. RISK MANAGEMENT is a key component of the new safety and health management framework underpinned by the new Workplace Safety and Health Act (WSHA) that came into effect from 1 Mar 06. The Act aims to reduce risks at source by making stakeholders accountable for managing the risks they create.

2. The Workplace Safety and Health (Risk Management) Regulation 2006 came into operation on 1st Sep 06. Under this regulation, risk management duties are imposed on every employer, self-employed person and principal (including contractor and sub-contractor). These parties must take all reasonably practicable measures to ensure that the workplace is safe and without risks to very person within its premises. Where contractors and suppliers undertake work for their customers, they must take all reasonably practicable measures to eliminate any risk that may be posed by their machinery, equipment or hazardous substances.

3. Contractors and suppliers must also provide information of any machinery, equipment or hazardous substances to their customers who may require this information to conduct risk assessment in their workplaces. For example, contractors and suppliers should provide manual of operations, manuals of maintenance, safety data sheet etc.

RISK MANAGEMENT

4. Risk Management entails the following:
    - ✓ Risk assessment of any work activity or trade
    - ✓ Control and monitoring of such risks
    - ✓ Communicating these risks to all persons involved

RISK ASSESSMENT

5. Risk assessment is an integral part of risk management. It is the process of:
    a. Identifying and analysing safety and health hazards associated with work;
    b. Assessing the risks involved;
    c. Prioritising measures to control the hazards and reduce the risks.
    - ➢ Every workplace shall conduct risk assessments for all routine and non-routine work undertaken.

RISK ASSESSMENT GUIDELINES

6. A three-step process for Risk Assessment is adopted.
   The three steps are:
    1. Hazard Identification
    2. Risk Evaluation
    3. Risk Control

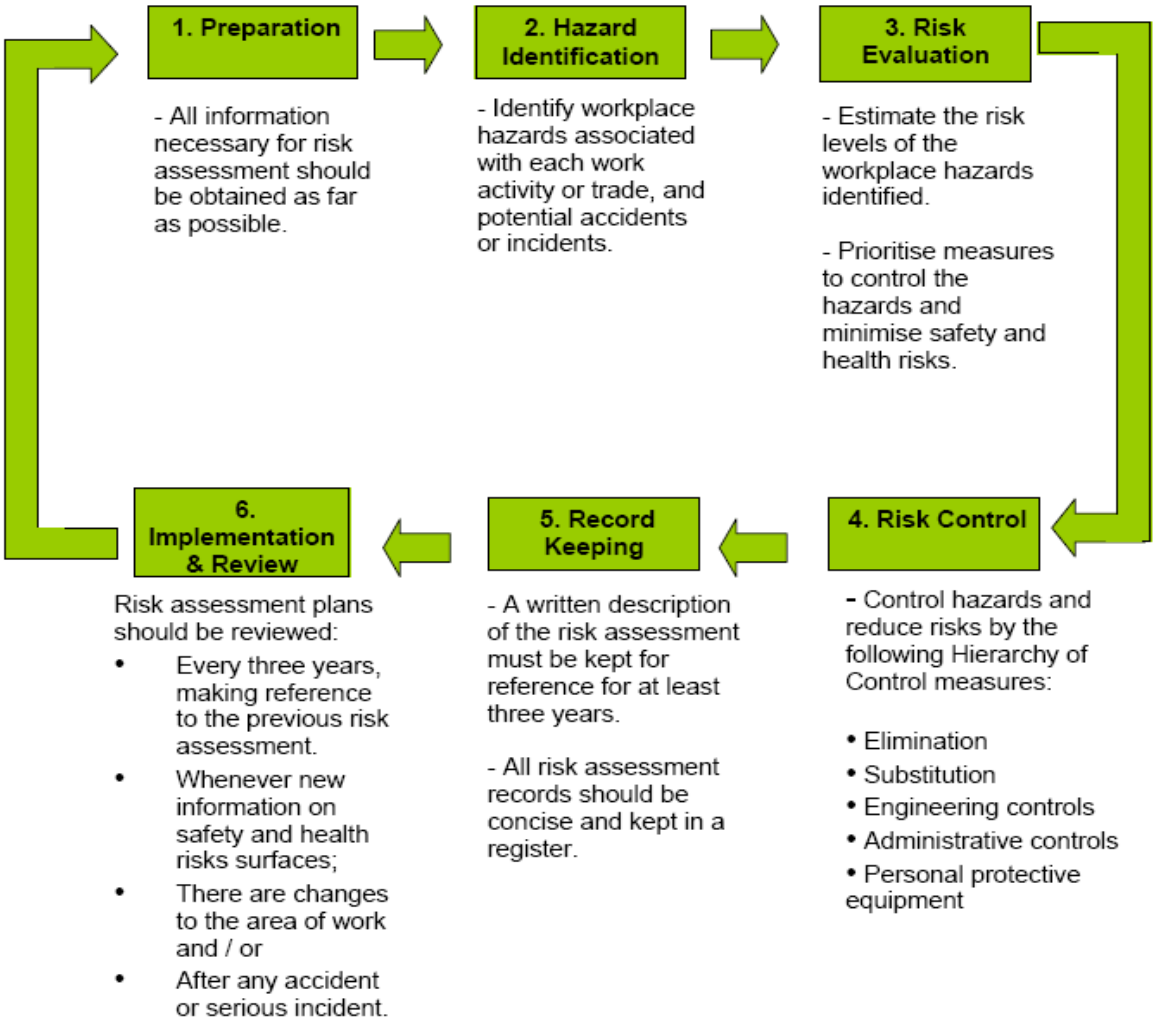
- ➢ Applying these basic principles of risk assessment will help meet the obligations under the legislation, OSH and Company Safety Management System.
- ➢ An Activity-Based risk assessment process was adopted to conduct the Hazard Identification & Risk Assessment (HIRA) of critical routine and non-routine activities only.

DEFINITIONS

7. In this register, the definition of the terms used are as follows:
    a. Hazard – anything with the potential to cause bodily injury, and includes any physical, chemical, biological, mechanical, electrical or ergonomic effect.
    b. Risk – the likelihood that a hazard will cause a specific bodily injury to any person. More specifically, it is the likelihood of accidents or ill-health occurring at work and the consequences of such occurrences
    c. Risk Assessment – the process of evaluating the probability and consequences of injury or illness arising from exposure to an identified hazard, and determining the appropriate measures for risk control.
    d. Routine Activities – Activities that are carried out or occur as part of the planned / scheduled operations.
    e. Non-routine Activities – Activities that are unplanned / not scheduled in the operations.

f. RISK ASSESSMENT PROCESS

1. The following diagram depicts the steps in conducting the risk assessment of critical routine and non-routine activities.



Critical Routine & Non-routine Activities

2. Annex A list the critical routine and non-routine activities within Vehicles and Equipment Division.

Hazard Identification

3. Hazard Identification is perhaps the most important step in risk assessment because hazards can only be controlled if they are identified. Hazard Identification involves identifying the hazards associated with the activity of each process and type of potential accidents or incidents. During this phase, the aim is to spot hazards, brainstorm on all the possible types of accidents and ill health that can happen due to the hazard, and identify the persons that can be victims of the accident or ill health.

Risk Evaluation

4. Risk evaluation consists of:
    a. Identifying the existing risk control measures;
    b. Assessing the potential severity of the hazards;
    c. Determining the likelihood of occurrence and
    d. Assessing the risk level based on the severity and likelihood.

5. Risk evaluation is the process of estimating the risk levels for the hazards and their acceptability. This is used as a basis for prioritising actions to control these hazards and minimise safety and health risks.

Existing risk control

6. The presence of existing control measures should first be identified for individual activity for each process. By considering the effectiveness of the existing controls and the consequences of their failure, the risk of the activity can be assessed.

7. Examples of risk control measures include engineering controls, safe work procedures and personal protective equipment.

8. Risk is made up of two parts:
    a. Expected SEVERITY of the hazard; and
    b. LIKELIHOOD of the occurrence of the accident / incident or ill health considering the existing risk controls.

Severity of Hazard

9. Severity is the degree or extent of injury or harm caused by the hazards, or as a result of an accident. The severity is classified into three categories as Minor, Moderate and Major. These are described in Table 1.

Table 1 - Severity categories and description

Severity	Description
Minor	No injury, injury or ill-health requiring first aid treatment only (includes minor cuts and bruises, irritation, ill-health with temporary discomfort)
Moderate	Injury requiring medical treatment or ill-health leading to disability (Includes lacerations, burns, sprains, minor fractures, dermatitis, deafness, work-related upper limb disorders)

Major	Fatal, serious injury or life-threatening occupational disease (Includes amputations, major fractures, multiple injuries, occupational cancer, acute poisoning and fatal diseases)

10. As the severity of the hazard refers to the intrinsic or inherent nature of the adverse effect (e.g. cancer, amputation, or fatal injury) that may result from the hazard, it does not depend on the controls in place. Therefore, in assigning the severity level, the existing controls should not be taken into account.

Likelihood of Occurrence

11. Likelihood of occurrence of an accident or incident or ill health is also classified into three categories as Remote, Occasional and Frequent. These are described in Table 2.

Table 2 - Likelihood categories and description

Likelihood	Description
Remote	Not likely to occur
Occasional	Possible or known to occur
Frequent	Common and repeating occurrence

12. To minimise the subjectivity of estimating likelihood, in addition to looking at existing controls, the following sources of information should be considered:

    a. Past incident and accident records
    b. Industry practice and experience
    c. Relevant published literature

Risk level

13. Once the severity and likelihood have been established, the risk level can be determined. One approach is to use the following 3 X 3 matrix. The risk level may be classified as low, medium or high and is at the intersection of the severity row and the likelihood column.

14. To determine the risk level, select the appropriate row for Severity and the appropriate column for Likelihood; the cell where they intersect indicates the Risk Level. For example, if the Severity is Moderate and the Likelihood is Occasional, the Risk Level is Medium Risk.

Risk Matrix to Determine Risk Level

Evaluation Criteria for determination Of Risk Prioritisation Number (RPN)					
Likelihood Severity	Rare (1)	Remote (2)	Occasional (3)	Frequent (4)	Almost Certain (5)
Catastrophic (5)	5	10	15	20	25
Major (4)	4	8	12	16	20
Moderate (3)	3	6	9	12	15
Minor (2)	2	4	6	8	10
Negligible (1)	1	2	3	4	5

Low Risk (Acceptable)	Green Zone	• No additional risk control measures needed • Regular review and monitoring of hazard needed to ensure that risk level is accurate and not increase over time.
Medium Risk (Tolerable)	Yellow Zone	• Careful evaluation needed to ensure that risk level is as low as reasonably practicable (ALARP). • Interim risk control measure such as administration & PPE may be implemented while longer term measures are established. • Management review before work commences.
High Risk (Not Acceptable)	Red Zone	• Must be reduce to at least Medium Risk before work commences. • Risk control measures should not be overly dependent on PPE. • If practicable, to be eliminated before commencement. • Management review required work commences.

Scoring Guide line For Severity

SEVERITY OF HARM

Scoring Guidelines for Severity		
Level	Severity	Description
5	Catastrophic	Fatal, fatal diseases or multiple injuries.
4	Major	Serious injury or life-threatening occupational disease (include amputations, major fractures, multiple injuries, occupational cancer, acute poisoning).
3	Moderate	Injury requiring medical treatment or ill-health leading to disability (includes lacerations, burns, sprains, minor factures, dermatitis, deafness, work-related upper limb disorder).
2	Minor	Injury or ill health requiring first aid only (include minor cuts and bruises, irritation, ill health with temporary discomfort).
1	Negligible	Not likely to cause injury or ill health.

LIKELIHOOD OF OCCURRENCE

Scoring Guidelines for Likelihood		
Level	Likelihood	Description
5	Almost Certain	Continual or repeating experience.
4	Frequent	Common occurrence.
3	Occasional	Possible or known to occur.
2	Remote	Not likely to occur under normal circumstance.
1	Rare	Not expected to occur but still possible.

15. It is essential for risks to be eliminated or reduced “at source”. If a risk cannot be controlled completely by engineering measures, it is necessary to protect the employees by administrative control or personal protection.

16. The control of hazards and reduction of risks can be accomplished by following the Hierarchy of Control measures below. These control measures are not usually mutually exclusive e.g. engineering controls can be implemented together with administrative controls like training and safe work procedures.

17. List for completed Hazard Identification and Risk Assessment for the Work At Height Activities;

- Working at External Scaffold
- Working on Tower Scaffold
- Working on Mobile Tower Scaffold
- Working using of Platform Ladder
- Working at Building Edge
- Access to & Egress from elevated work areas
- Working on boom lift and scissor lift
- Working near to floor opening area
- Working on building platform grating

D. Control Measures/Methods

a. Elimination

Elimination of hazards refers to the total removal of the hazards and hence effectively making all the identified possible accidents and ill health impossible. This is a permanent solution and should be attempted in the first instance. If the hazard is removed, all the other management controls, such as workplace monitoring and surveillance, training, safety auditing, and record keeping will no longer be required.

b. Substitution

This involves replacing the hazard by one that presents a lower risk. E.g. asbestos can be substituted with non-asbestos materials. A water-based paint can be used instead of a solvent-based paint.

c. Engineering Controls

Engineering controls are physical means that limit the hazard. These include structural changes to the work environment or work processes, erecting a barrier to interrupt the transmission path between the worker and the hazard. E.g. isolation or containment of hazards, application of machine guards and manual handling devices.

d. Administrative Controls

These reduce or eliminate exposure to a hazard by adherence to procedures or instructions. Documentation should emphasise all the steps to be taken and the controls to be used in carrying out the activity safely. E.g. Implementation of permit-to-work systems and scheduling of incompatible works; OSH training.

e. Personal Protective Equipment (PPE)

This should be used only as a last resort, after all other control measures have been considered, or as a short term contingency during maintenance / repair or as an additional protective measure. The success of this control is dependent on the protective equipment being chosen correctly, as well as fitted correctly and worn at all times when required by employees.

IMPLEMENTATION AND REVIEW

1. The results of risk assessment must be approved and endorsed by the Project Director. The recommended risk control measures shall be implemented as soon as possible.

2. Regular review of the risk assessment plan is critical. While the HIRA is required to reviewed every three years, a review should take place whenever:

    1. Whenever new information on safety and health risks surfaces;
    2. There are changes to the area of work and / or
    3. After any accident or serious incident.

3. The risk assessment team, comprising of the Project Managers, Head of Department and Safety Officer, shall undertake the same three steps (hazard identification, risk evaluation, and risk control) when conducting a risk assessment review.

4. Regular auditing shall be conducted to ensure that risk control measures have been implemented and are functioning effectively.

RECORD KEEPING

5. A written description of the risk assessment shall be kept for reference for three years. The Risk Assessment Form can be used for risk assessment and recording. All risk assessment records should be concise and kept in a register.

FALL CONTROL MEASURES

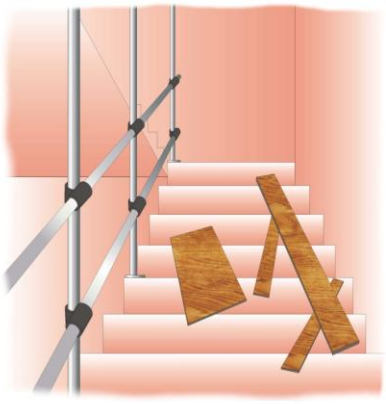
Objective:

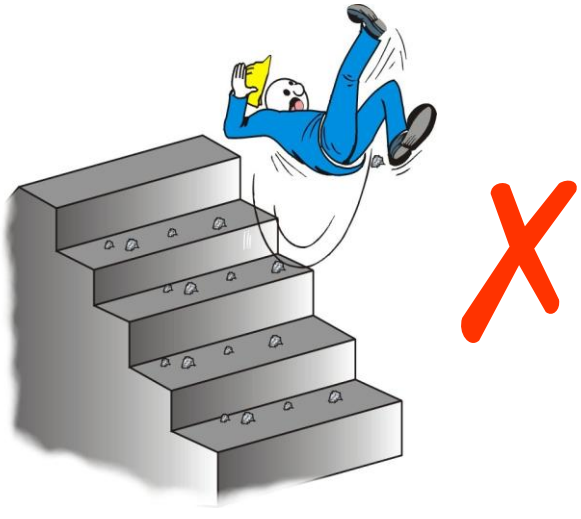
To ensure provision of a safe means of Access and egress for people to get to and move around the work area.

Access to and Egress from Work Areas;

In providing safe and proper access to, egress from a work area shall provide as follow:

- By Installation of fixed work platforms, walkways and stairways;
- Use of temporary work platforms such as scaffolds
- Clear from obstruction; (Fig 1.1 & 1.2)
- Free from Grease, debris and sharp protruding objects on material work surfaces; (Fig 1.1 & 1.2)
- Provision of adequate natural or artificial lighting to all access ways (Fig 1.3)
- Adequate clearance of obstructions so that persons are able to move easily to and from the workplace; and
- Location and space required for any equipment or materials used or being temporarily stored
- Providing of Safety signage & direction
- Free or protected with floor opening (As in Fig 1.4, 1.5 & 1.6)

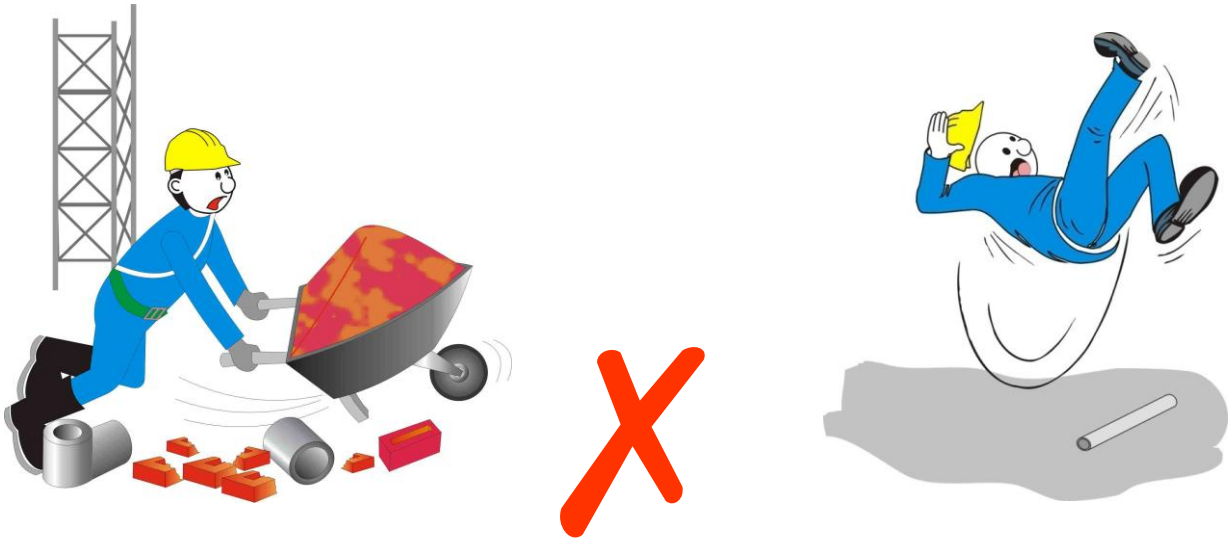




- Poor housekeeping cause tripping & slipping hazards. Keep your work area clean & tidy.

Fig 1.1

DO'S and DON'TS - Housekeeping Safety



Poor housekeeping may cause trip and fall



Do not obstruct access way and remove all obstacles

Fig 1.2

Always ensure that there is sufficient light to work & Access.

DO NOT WORK IN THE DARK!

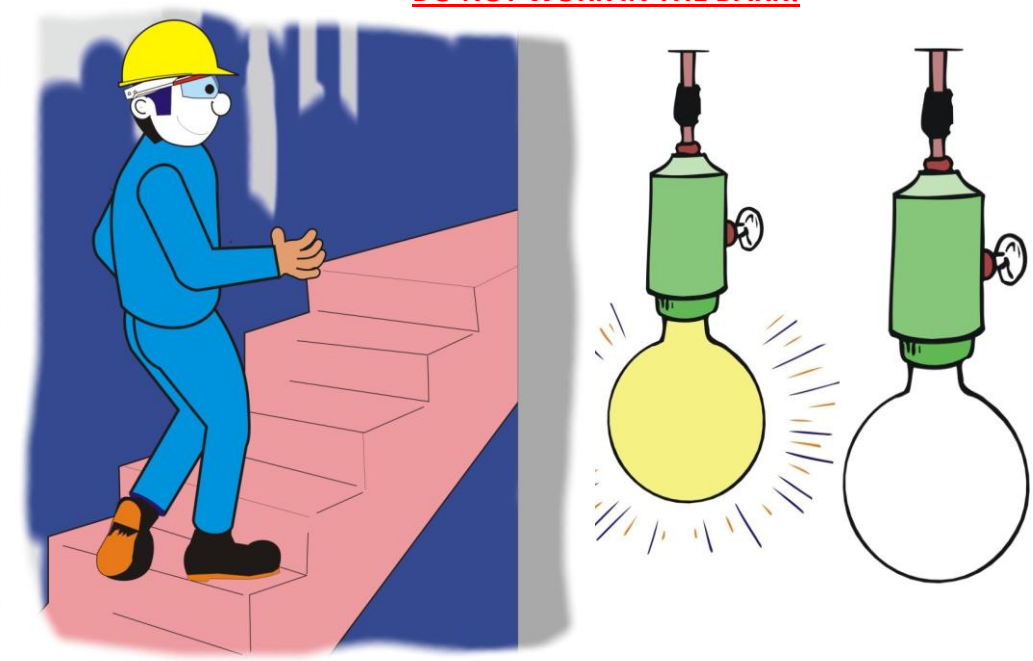
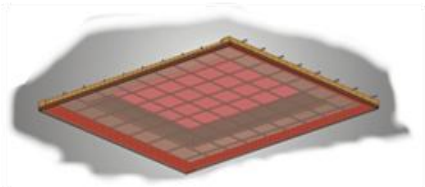


Fig 1.3

FALL PROTECTION - Floor Openings

- Do not leave open holes unprotected. Report to the site safety department immediately to have it covered.





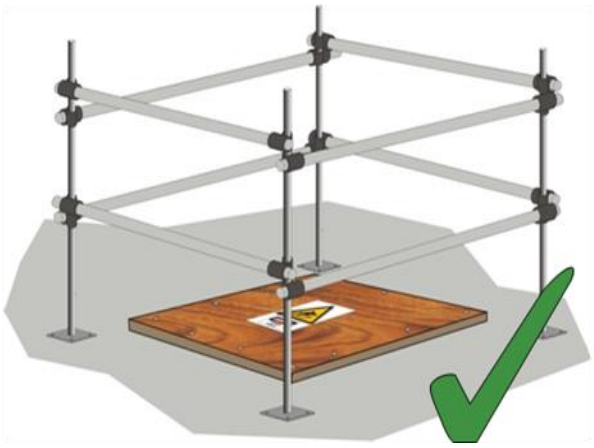


Fig 1.4

Similarly, if there is a possibility of materials falling through an opening on the floor, The opening must be boxed up (cover).

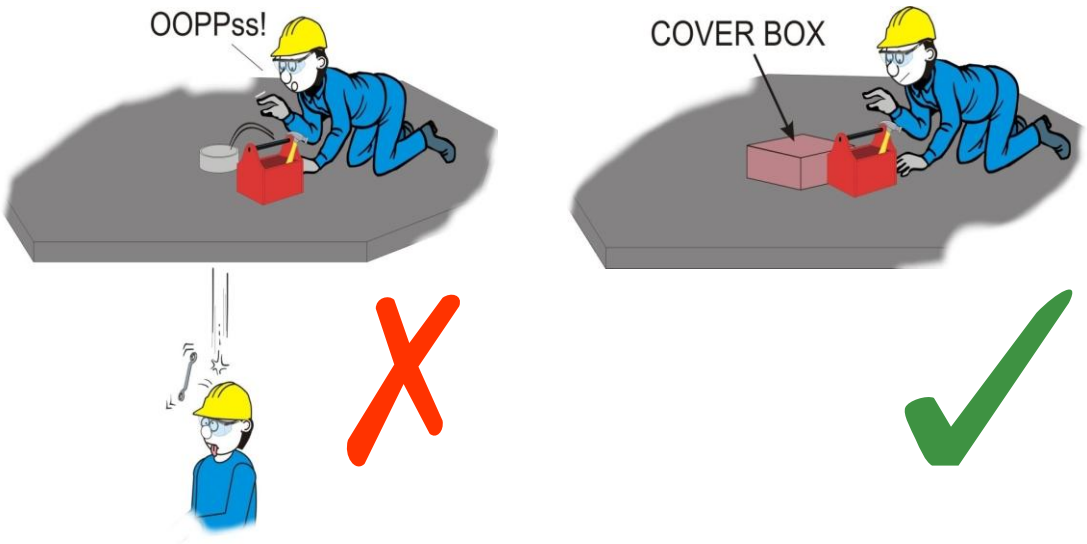
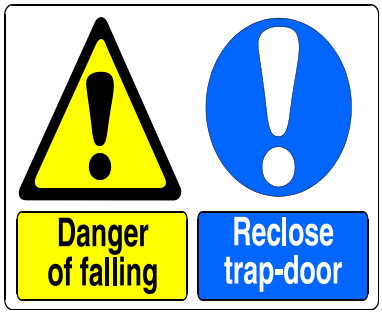


Fig 1.5

FALL PROTECTION - Floor Openings

- For bigger openings, the requirement is a barricade with side netting and toe-boards. The side netting will prevent site personnel or materials from falling through it.



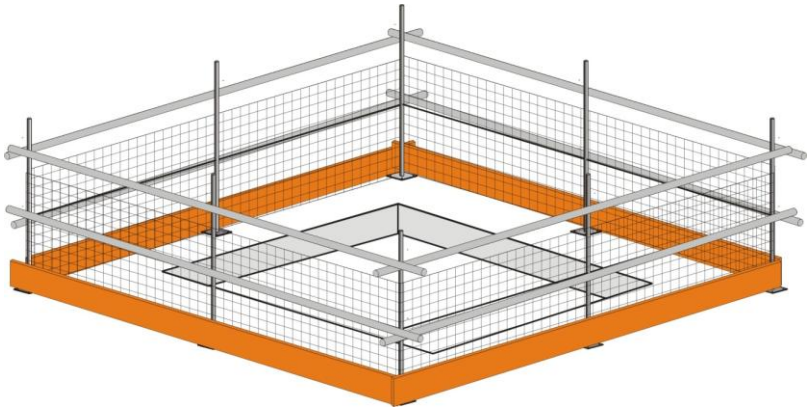


Fig 1.6

FALL CONTROL MEASURES

EDGE PROTECTION

Objective:
To ensure edge protection to reduce the risk of a person from falling from open sides.

- All edge protection must be provided for walkway, staircase, ramp, wall and landing or whenever a person is at risk of falling from open sides at worksite Fig 2.1 & Fig 2.2.

- Edge protections are generally constructed by tube and fitting (GI pipes system) at a level of at least 1.1m at height above work surface with mid rail not greater than 600mm apart and toe-board secured from floor to the vertical tube support.
  Fig 2.3
  (The protection would be able to withstand the impact of person from falling).

- Edge protection for material receiving platform would be protected with steel guard welded at both side of platform and adequate Safety chains at front side of the platform. (If Any)

  As for temporary and advance guards for scaffold erector –
  (Refer to Approved Scaffold Contractors Safe Work Procedure)

FALL PROTECTION - Wall Openings

Where there is a potential of someone falling through a wall opening, the opening must be covered.

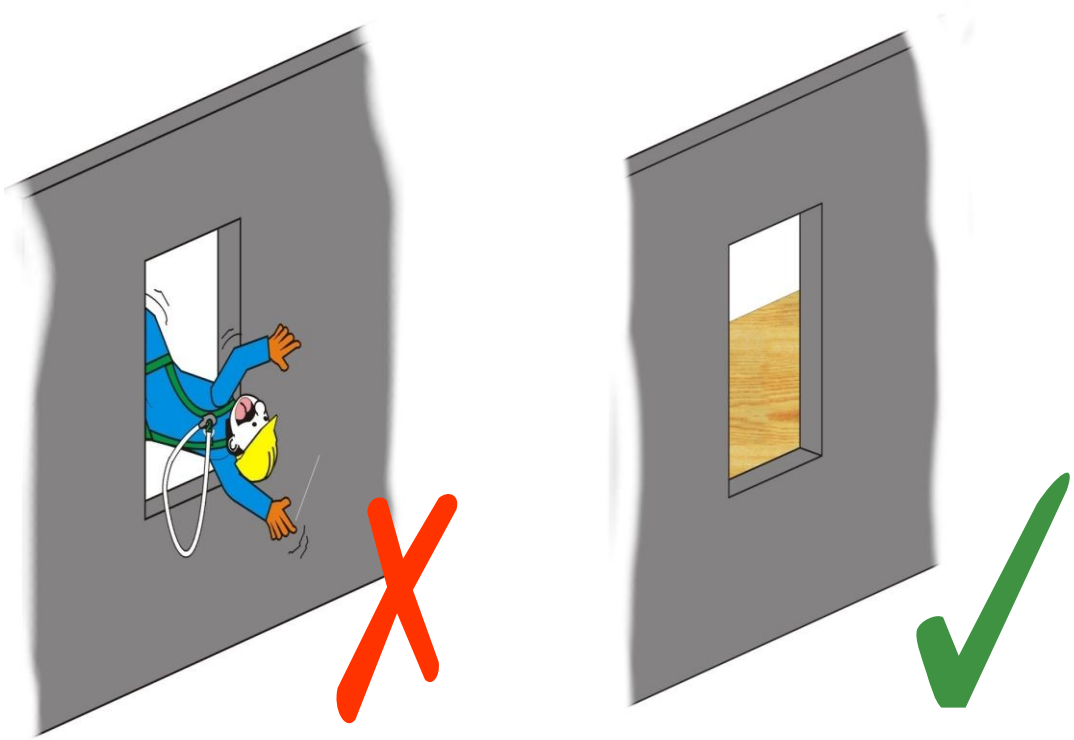
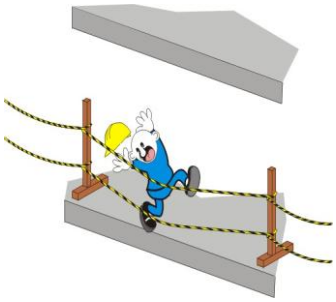


Fig 2.1

- Do not used red and white tape, cables, timbers or ropes as barricades where it involved height and openings.









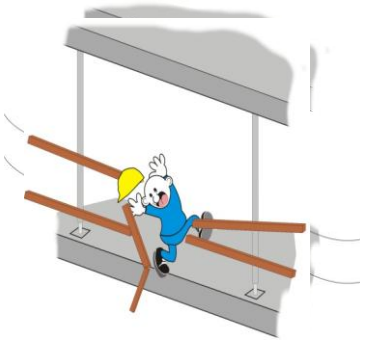


Fig 2.2

- Only tubular pipes which are able to withstand **100 kg/f** are allowed to be used as barricades.

  Good and proper barricades will prevent site personnel from falling of the edge or openings.



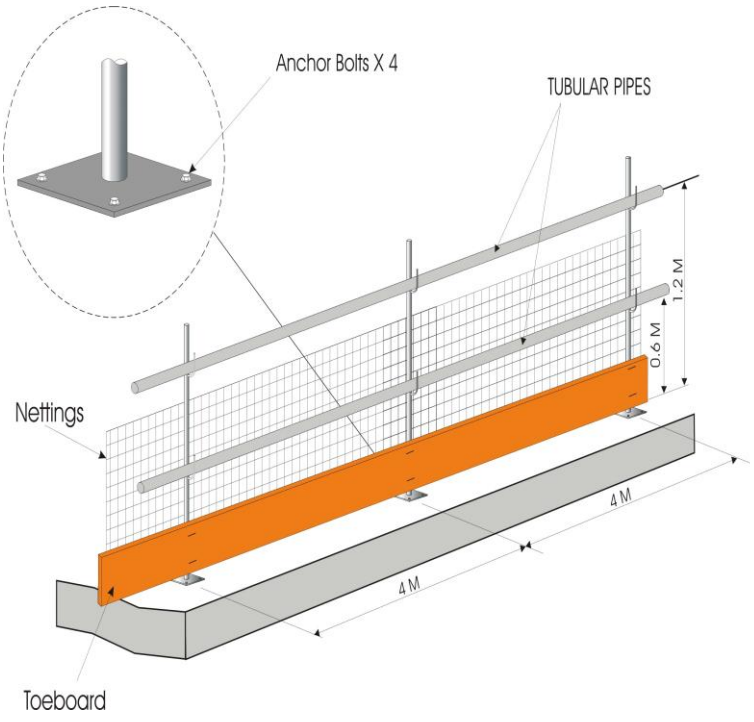


Fig 2.3

FALL CONTROL MEASURES

FALL PROTECTION SYSTEMS

Objective:
To ensure safe protection for person working and access on scaffold to location for performing works and transfer material.

Scaffold Systems:

- All scaffolds and its components must meet the requirements of the regulations stipulated in the WSH (Scaffolds) Regulations.
- If a scaffold exceeds 4m, it must be erected by an approved scaffold contractor.

The design of a professional engineer is necessary for scaffolds with the following conditions:

- For construction sites and general factories, construction of any metal scaffolds exceeding 30m in height and/or with cantilever or jib support;

In addition, all hanging scaffolds, from which a person may fall more than 2m must also be constructed and installed in accordance with the design and drawings of a professional engineer.

- Scaffold must be inspected and checked by Scaffold Supervisor and displayed with scaffold tag to certified Safe or Unsafe to use (Fig 3.1 & 3.2)

Fig 3.1

DO'S and DON'TS – Scaffold Safety

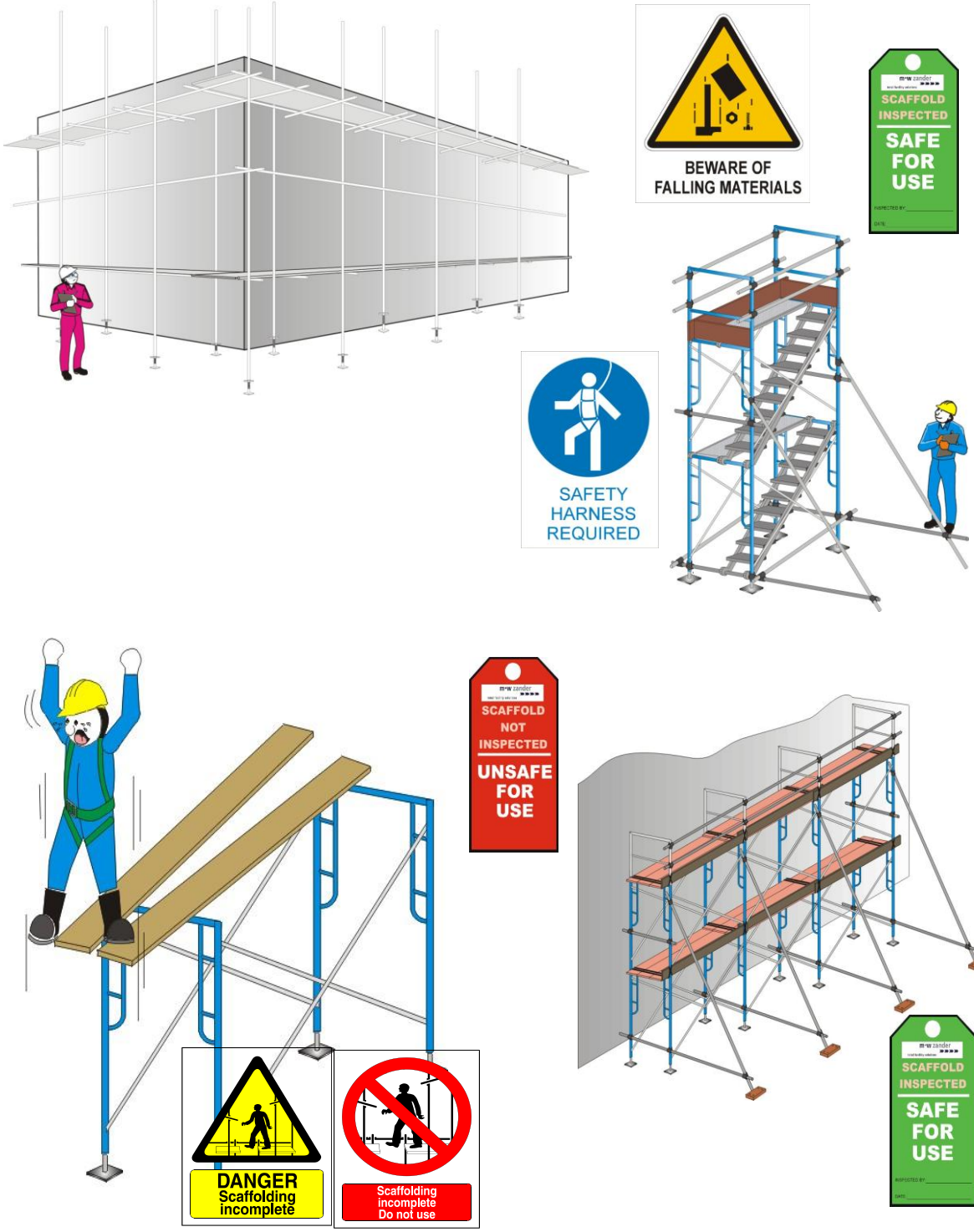


Fig 3.2

Tower Scaffolds

Tower scaffolds are a particular form of scaffolding that usually consist of fabricated frame units constructed as single-bay towers. Most available tower systems are aluminium, but steel systems are also available. A tower scaffold that is fitted with castor wheels equipped with effective locking devices is deemed to be a mobile tower scaffold (Fig 3.3)

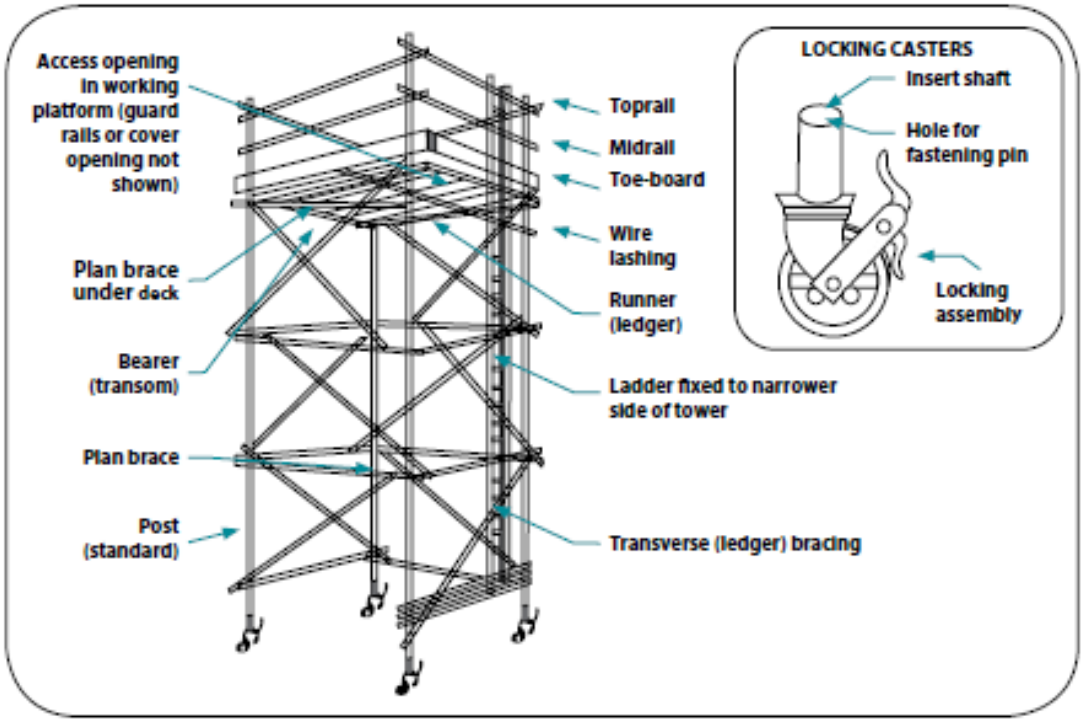


Fig 3.3

When a tower scaffold is mounted on castors for use as a mobile scaffold, the following rules should be strictly observed:

- Tower scaffolds should be moved with caution (Fig 3.4)
- Prior to moving, the route must be checked for power lines, overhead obstructions and for holes and uneven surfaces on the ground;
- When it is necessary to deploy tower scaffolds on an inclined surface, measures must be taken to ensure stability, such as the use of outriggers. Otherwise, tower scaffolds should not be deployed on an inclined surface.
- Never access the scaffold until all its castors are locked to prevent movement; (Fig 3.5)
- Never shift or move the scaffold while anyone is on it;
- Do not cover the scaffold with containment sheeting such as shade cloth, unless it has been specifically designed for the purpose and it is only used in an enclosed, wind-protected environment;
- Tower scaffolds must be inspected by a scaffold Supervisor before its first use:

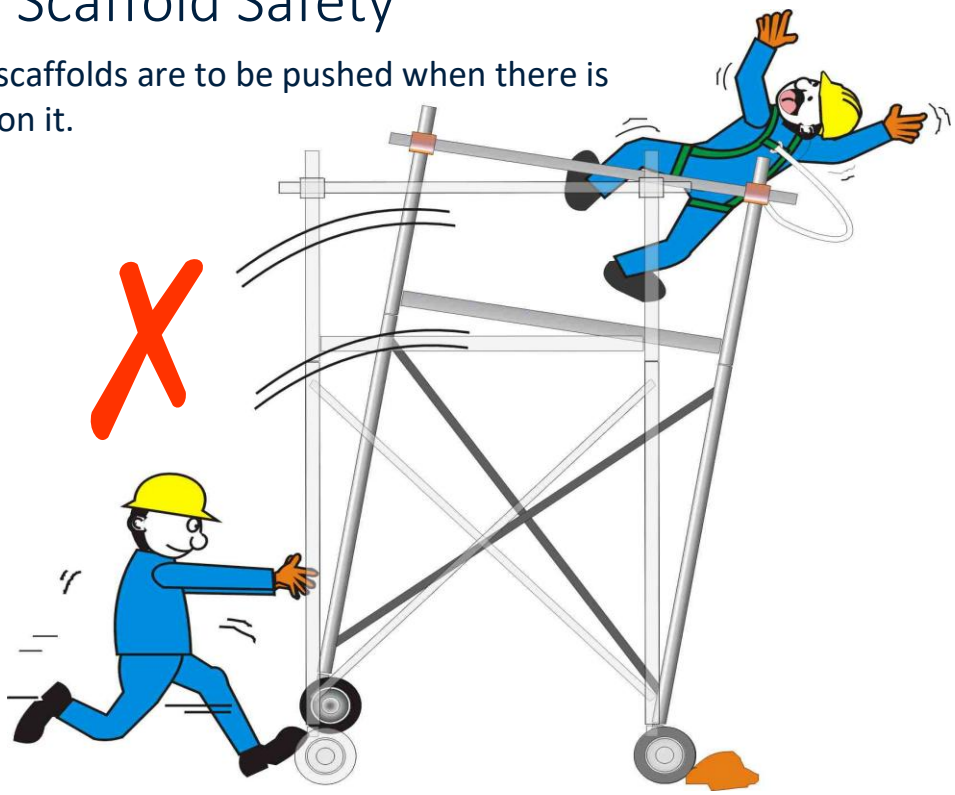
- After substantial alteration;
- After any event likely to have affected its stability; or
- Once it has been in place for 7 days.

At intervals not exceeding 7 days, tower scaffolds must be inspected and a written report made.

Fig 3.4

Mobile Scaffold Safety

- No mobile scaffolds are to be pushed when there is somebody on it.



Mobile Scaffold Safety

- Lock the mobile scaffold wheels when it is stationary. If possible, anchor your safety harness to a rigid anchoring point and not to the mobile scaffold. This is to prevent you from falling with the mobile scaffold if the mobile scaffold topples.
- Check & Ensure before using "SAFE-TO-USE" tags is signed by scaffold supervisor every/within 7 days.
- Do not remove/modification of any scaffold erection done, if needed inform ASC team for modifying

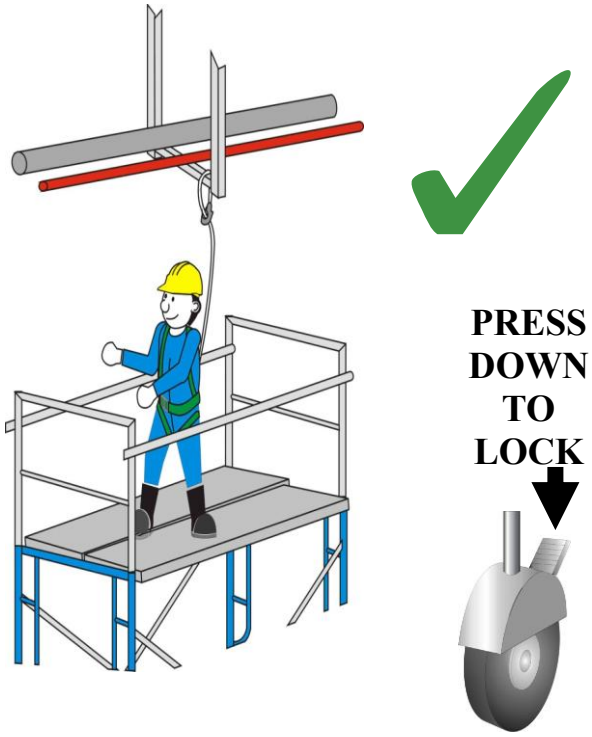


Fig 3.5

Mobile Elevated Work Platform (Scissor Lift and Boom Lift)

A mobile elevated work platform is any telescoping, scissor or articulating equipment used to position personnel, materials or equipment at height.

Mobile elevated work platforms consist of a platform surrounded by an edge protection system. The protected platform is used to position persons at work areas. Mobile elevated work platforms are available in a wide variety of types and sizes. They include scissor lifts and boom lifts
There are battery powered and internal combustion engine types. Some are designed for hard flat surfaces only, while others are designed for operation on rough terrain.

Mobile elevated work platforms:
- Should only be used on a solid level surface.
The surface area should be checked to make sure that there are no penetrations or obstructions that can cause uncontrolled movement or the platform to overturn;
- Should be clearly marked with a safe working load limit or maximum rate capacity notice;
- Should not be used in high wind conditions or where there is risk of lightning.

Safe requirements
- Operators of boom lifts should be properly trained and competent for the job (Fig 4.1). The level of training must be such that the operator is competent to carry out a visual inspection as well as the functional tests of the mobile elevated work platform. The ability to perform an adequate risk assessment is also vital for operators. They should also be familiarised with the mobile elevated work platform to understand if the unit requires any specific precautions such as the need to deploy outriggers.

- A risk assessment of the work and the area must be done by the operator before commencing any work. This is to identify any unsafe conditions of the workplace or the need to implement any additional control measures.

- A pre-operation inspection must be performed by the operator before usage. The inspection must include functional tests to determine if the mobile elevated work platform is in proper working condition.

- There must be no unauthorised alteration or modification of the mobile elevated work platform or any of its safety devices or functions.
- It is recommended that the load pressure at the contact points of the mobile elevated work platform with the ground be marked near the contact points. This is to help in preventing accidental positioning of the work platform on surfaces which may not be able to sustain the weight of the work platform.

- The operator must be able to recognise conditions such as hazardous terrain, such as slopes or trenches. They can result in work platforms tipping or falling over when moving over such terrain, resulting in the possibility of the operator being thrown off the work platform.

- Operators working in boom lifts should wear a suitably anchored safety harness anchoring to nearby poles or equipment outside the work platform is prohibited.

Personnel required to climb out of an elevated boom lift onto an elevated facility structure shall utilise 100 percent tie-off procedures (refer to paragraph 17.2) during the transition from the boom lift cage to the elevated work location, (i.e. personnel must anchor to a fall rated facility anchorage point prior to disconnecting their lanyard attached to the aerial boom lift cage).

The use of planks, ladders or any other devices on the work platforms for the purpose of achieving additional height or reach is strictly prohibited.

Always refer to the operator's or service manual for additional fall protection requirements for specific lift equipment.

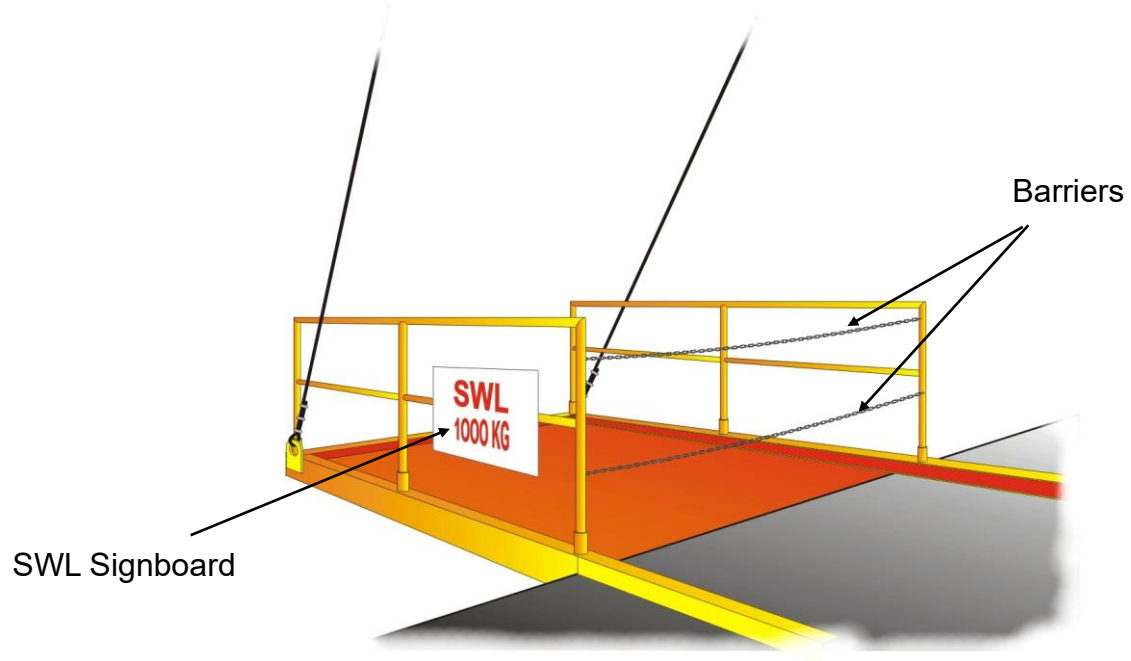


Fig 4.1

Material Receiving Platform (If Any)

-All material receiving platform shall be install in accordance with the PE's Design
-Installation and shifting must be trained Supervisor and install in accordance with PE;'s design
-No load shall exceed the Safe working load designed (Fig 5.2)
-No material shall be store on the material receiving platform. (Fig 5.2)
-Do not leave light items on material platform where it can be lift off by wind (Fig 5.2)
-Material receiving platform must be secured by guardrail weld to the platform on both sides of platform and secured with Safety chain at front side to prevent falling (Fig 5.1)
-Toe board must be secured at the edge of platform to prevent loose material from falling off the platform

Material Receiving Platform - Fig 5.1

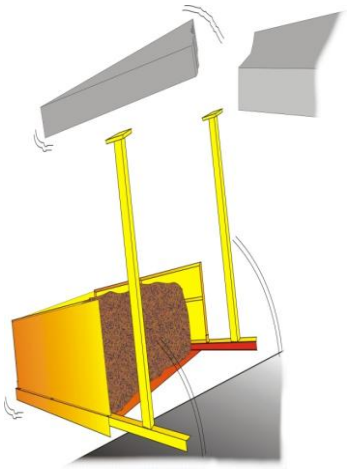


DO'S and DON'TS – Material Loading Platform Safety

1



2



3



- Do not stack plywood's or light materials. They might be blown off by the wind.
- Do not overload.
- Do not leave materials alone. They are to be lifted off immediately.



Fig 5.2

Ladders and Step Platform

1. Ladders leaning against a supporting structure should be set up on a level area on firm footing and the base should be located a distance from the wall approximately a quarter of the vertical height of the ladder.

2. Where a ladder is used as a means of access or as a working place, adequate handholds should be provided to a height of at least one meter above the place of landing of the highest rung to be reached by the feet of any person working on the ladder.

3. Persons on ladders should always maintain three points of contact, e.g. two feet and one hand or two hands and one foot.

4. Fall prevention measures may be necessary in association with the use of ladders if a risk assessment shows that additional protection is necessary. For example, permanent ladders are fitted with protective back guards. In addition, pole straps may be necessary while working from ladders.

5. If the ladder is more than 3m in length, it should be securely fixed (e.g. ladder lashing). If it is impracticable to do so, a person should be stationed at the base of the ladder to prevent the ladder from slipping or falling.

Portable ladders-

1. Ladders should be used as a means of access to or egress from a work area and not as a work platform.
2. Step and trestle ladders should only be used when they are in the fully open position. A step ladder may be used in the closed position by leaning it against a support. However, care should be taken to ensure that only the front stiles carry the load. Only trestle ladders are to be used to support work platform upon which a person has to work.
3. Standing on top of a step ladder is highly unsafe and should never be done. If it is necessary to work from a step ladder, work a few steps below the top rung, so that a handhold can be maintained. Do not overreach and keep both feet on the same step throughout the task.

Observe the following safety guidelines when using ladders (Fig 6.1):

1. Use a 2-person team to transport ladders that are greater than 2m in height, carry the ladder close to the body at elbow height;
2. Perform a check on the ladder before using it,
3. Do not paint or coat ladders such that flaws are unable to be spotted by users;
4. Do not handle or use ladders where the workers or the ladder may contact power lines, or use metal or reinforced metal ladders in the vicinity of live electrical equipment;
5. Do not set up ladders in passageways, doorways, driveways, or other places where a person, vehicle or crane lifted load can hit it. (if the use of ladder is unavoidable, erect a barrier or lock the door shut or as a last resort, a person standing at the base);

6. Do not use the step ladder near the edge of an open floor or on scaffolding to gain extra height; if the ladder topples, the worker could fall over the edge; (Fig 6.2)

Do not carry materials and tools by hand when ascending or descending the ladder. Materials or tools which cannot be safely secured on the worker's belt should be independently transferred or hoisted to the work station;

Do not use ladders with any of the following faults:

- Timber stiles that are warped, splintered, cracked or bruised;
- Metal stiles which are corroded, twisted, bent, kinked, crushed, or with crack welds or damaged feet;
- Rungs; steps, treads or top plates which are missing, worn or loose;
- Tie rods missing, broken or loose;
- Ropes, braces, or brackets which are missing, broken or worn; and
- Timber members that are covered with opaque paint or other treatment that could disguise faults in the timber.

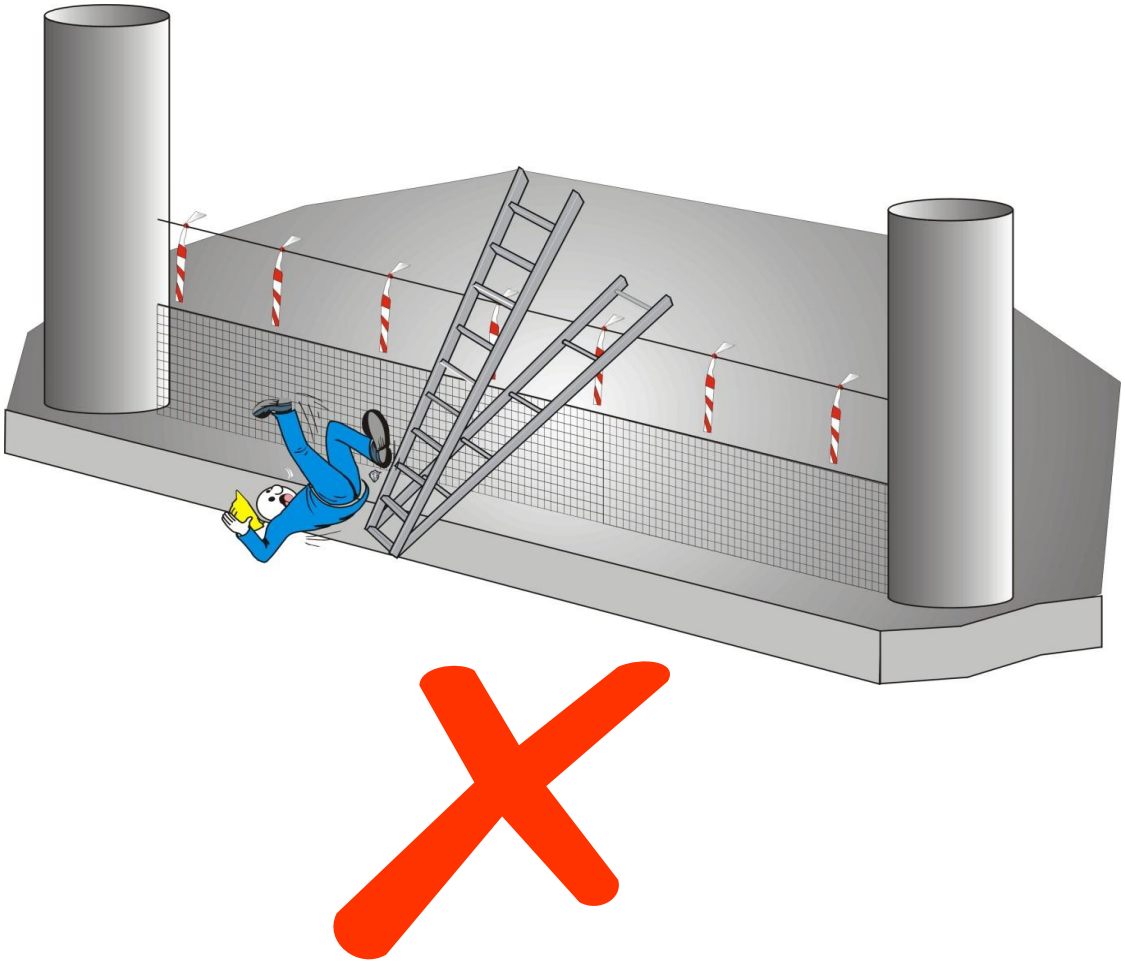
Fig 6.1

- When using a ladder as a working platform ensure that someone holds it firmly for you.
- Do not work on the last 3 rungs. **ENSURE TO BE COVERED AT ALL TIMES!**
- Ensure that the ladder is in good working condition with all the pivot & bracing locking.
- Check & Ensure to place it on a stable & firm ground.
- Rubber sole on all 4 side of ladder legs to be in good condition.



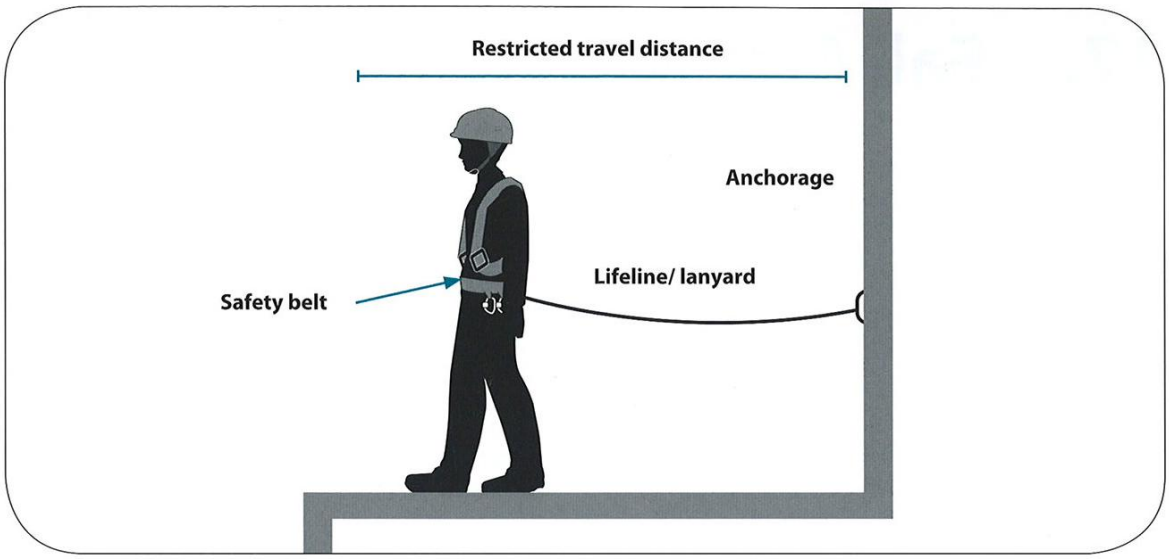
Fig 6.2

Do not use ladders when working near the edge.
Use a scaffold type working platform.



Travel Restraint Protection System

Where barrier may not be reasonably practical, travel restraint protection system may be used to prevent user from falling from height.



A travel restraint system may consist of a safety harness or safety belt, attached to one or more lanyards, each of which is attached to a static line or anchorage point and is designed to restrict the travelling range of a person wearing the safety harness or belt to prevent him from getting to a position where he could fall from height.

Where such a system is used, the user must understand, from toolbox briefing, safety talks, explanations of safe work procedure, etc, that the intention is to prevent the user from getting into a position where he may fall off.

Fall Prevention and Fall Protection Systems

1. Fall prevention systems

(a) Individual/Active:

(i) Work restraint: A fall prevention system which relies on waist belt or body harness and fixed length lanyard connected to a suitable anchor, so as to restrain the person from getting to the place where they could fall. (Fig 7.1)

(ii) Work positioning: A personal fall prevention system which includes a harness connected to a reliable anchor point to support the user in tension or suspension in such a way that a fall is prevented or restricted. All work positioning systems must be provided with a backup system in case the primary support fails.

(b) Collective/Passive: Guard-rails and other physical barriers with warning signs at the edges of the safe work zone.

2. Fall arrest systems

Individual/Active: A fall protection system that uses a harness connected to a reliable anchor to arrest and restricts the fall and prevents the user from hitting the ground. It usually has an energy absorbing device to limit the impact of gravity forces on the body.
Safety belts shall be used as fall arrest system where it can be used for build-up area or inner side of constructing level.

FALL PROTECTION – Safety Harness

Use safety harness when working at height of 6.5 m or more. Safety harness is to be of double lanyard & shock absorber with an auto-lock karabiner. All personnel must be safety harness trained before working at height.
Not feeling well do not carried out W@H activities.

YOU MUST BE TRAINED & AUTHORISED TO WORK AT HEIGHT.

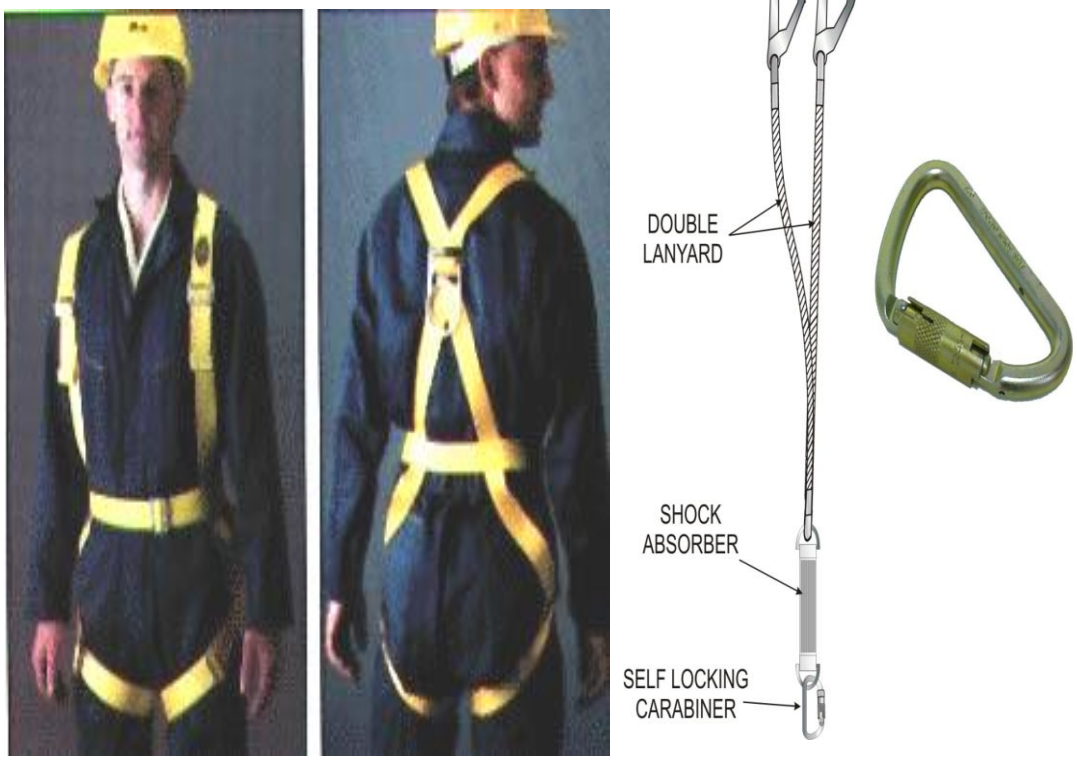


Fig 7.1

G. Inspection & Maintenance

Workers, foreman & supervisors are to conduct a thorough visual inspection on equipment including metal scaffold, Scissors/Boom Lifts before every usage is important to ensure that equipment is free from observable defects.

Metal scaffold is to be maintained periodically & inspect every 7 days by an Approved Scaffold Contractor (ASC) and ensure it is safe to use.

H. Training

The amount of information and type of training depends on several factors such as the risks involved, the level of operator skill required & the complexity of the tasks & work procedures.

Training needs are identified, plan and implemented to achieve workers skills, knowledge required to carry activities/tasks and in accordance with work procedures and safe work practices.

Training programme include :

a. Workplace Safety & Health Induction

b. On job training

c. Tool box briefing

d. In house training

e. Training courses offered by accredited training providers

All construction workers are required to attend MOM mandatory CSOC prior to commencement of work.

All workers are required to attend the workplace safety & health induction training conducted by WSHC prior to start of work, so that they understand & perform work safely.

For use of scaffold, workers are briefed that they are not allowed to take out any components of the scaffold.

The types of briefing that the workers gone thru' for scaffold usage are

a. The nature of fall hazards to which they are exposed;

b. The risk of injury associated with the task;

c. The control measures that are needed, including safe work procedures & the use of personal protective equipment;

d. The proper usage and maintenance of equipment, including performing inspection to ensure equipment are in good condition before use.

e. Procedures in the event of an emergency such as rescue, incident, or injury.

I. Incident Investigations

All accidents or incidents are to be reported to immediate supervisor who shall notify the WSHC & Management as soon & reasonably possible.

a. Determine any underlying deficiencies in the existing fall protection system & plan, which might cause or contribute to the occurrence of the incident;

b. Identify the need for corrective actions to be taken to address any such deficiencies as identified; and

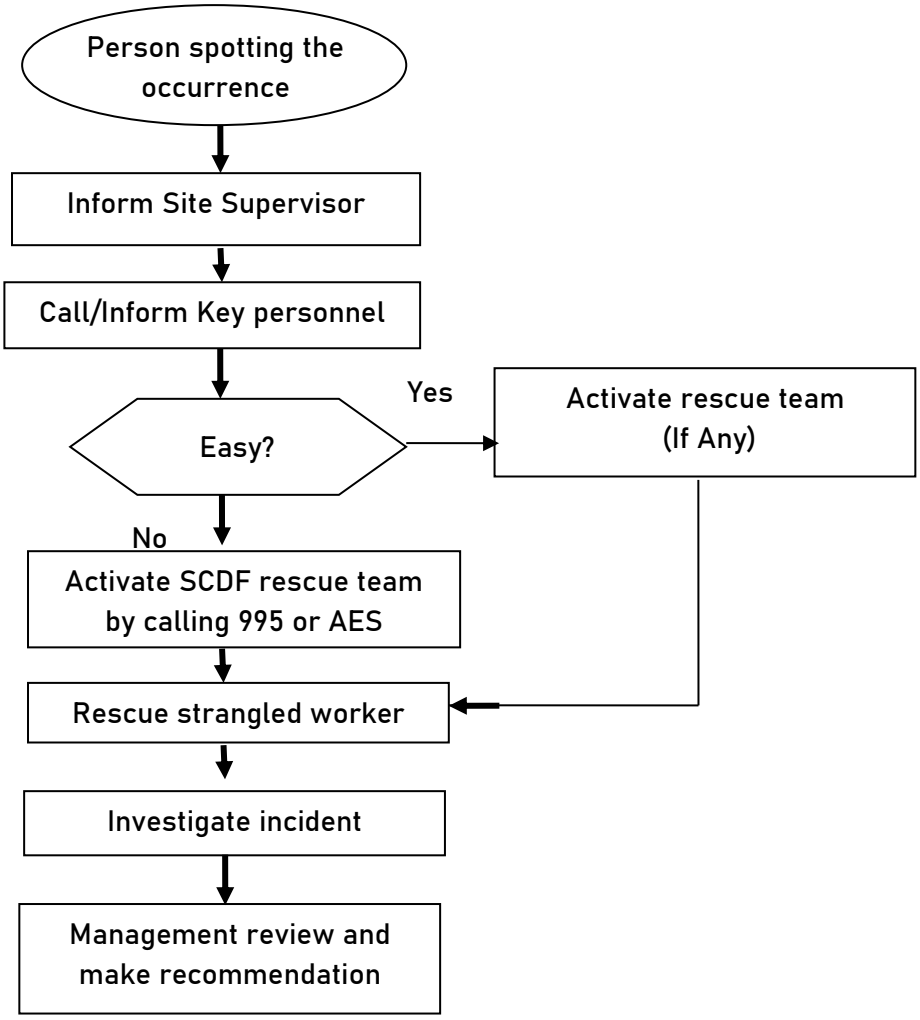
c. Identify the opportunities for preventive actions to be taken to prevent any such incident from reoccurring.

J. Emergency Preparedness

The emergency preparedness divided into 2 parts: mainly the emergency response, the emergency procedure and first-aid facilities and medical rendering.

The emergency response can be clearly demonstrated in the following flow-chart

EMERGENCY RESPONSE PROCEDURES



Relevant Government Agencies Telephone No.

Police : 999
SCDF/Ambulance: 995
MOM: 63171111
BCA: 1800-3425222
Airport Emergency
Service Hotline: Changi via 6541 2525

List of Key Personnel Contact No.

Name/Designation	Contact No.
Mr Teo Hwee Yean (CEO, CBM Solutions)	+65 9846 2568
Mr Pang Zi Hao (Deputy Project Manager)	+65 9169 2894
Mr Kelvin (Project Manager)	+65 8499 2031
Mr Alfi (WSHC)	+65 8847 8404

First-aid treatment / attention

The site shall have full-time trained & qualified first aider.
A first-aider box (min. Type C) shall be provided and maintained in site office.

First Aiders: TBA

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