

WSH (Work at Heights) Regulations

- An Overview -



MINISTRY OF
MANPOWER

A Great Workforce A Great Workplace

A Great Workforce A Great Workplace

I - Preliminary

II - General Provisions

III - PTW System

IV - Industrial Rope Access System

V - Misc

Commencement

commencement

1 May 2013

Came into operation

- **Factory** where work at height is carried out

1 May 2014

- **All workplaces** where work at height is carried out
- **PTW System** & **FPP** will come into operation on **1 May 2014**

Duty-holders

“Employer” means a person who, in the course of the person’s trade, business, profession or undertaking, employs any person to do any work under a contract of service

Note:

Employee includes –

- (i) **volunteer**;
- (ii) person receiving **OJT** or gaining work experience;
- (iii) **loaned** employee;
- (iv) person under **rehabilitation scheme**.

“Principal” means a person who, in connection with any trade, business, profession or undertaking carried on by him, engages any other person otherwise than under a contract of service —

- (a) to **supply any labour** for gain or reward; or
- (b) to **do any work** for gain or reward;

Note:

There are **two types of principal**, i.e. those who –

- (i) **directs the manner** the work is to be carried out, e.g. Gives direction the what to use or how to erect the tentage (i.e. how to do it).
- (ii) merely engages a person (or company) to **perform certain task**, e.g. Erect a tentage (i.e. what to do)

Duty-holders

“Responsible person” in relation to a person who carries out or is to carry out any work at height, means –

- (a) his **employer**; or
- (b) the **principal** under whose **direction** he carries out or is to carry out any such work;

“Occupier” in relation to any premises or part of any premises, means —

- (a) in the case of a **factory** where a **certificate of registration** has to be obtained in relation to the premises pursuant to any regulations — the person who is, or is required to be, the holder of the certificate;
- (b) in the case of a **factory** where a **notification** has to be submitted in relation to the factory pursuant to any regulations — the person who is named in the notification, or is required to submit a notification; and
- (c) in the case of **any other premises** — the person who has **charge, management or control** of those premises either on his own account or as an agent of another person, whether or not he is also the owner of those premises;

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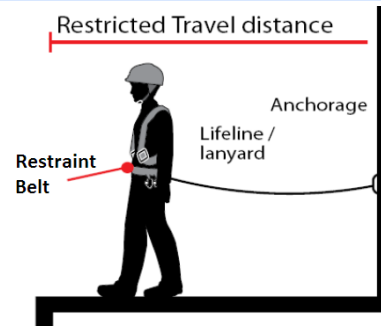
Definition

“work at height” means work –

- (a) in or on an **elevated workplace** from which a person could fall;
- (b) in the vicinity of an **opening** through which a person could fall;
- (c) in the vicinity of an **edge** over which a person could fall;
- (d) on a **surface** through which a person could fall; or
- (e) in **any other place** (whether above or below ground) from **which a person could fall**,



from one level to another and it is **reasonably likely** that the person or any other person would be **injured due to the distance of the fall**;



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4. Avoidance of work at height
5. Fall prevention plan
6. Training for persons at work
7. Supervision of work at height
8. Open sides and openings
9. Cover, guard-rail and barrier to prevent fall
10. Travel restraint system
11. Fall arrest system
12. Inspection
13. Staircases

14. Safe means of access and egress between different working levels in building or structures
15. Teagle openings
16. Work on roofs
17. Fragile surfaces
18. Ladders

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✓ **Most preferred**

Avoid work at height

r4



All open sides and openings **barricaded** or **covered***

r8



Use **travel restraint system***

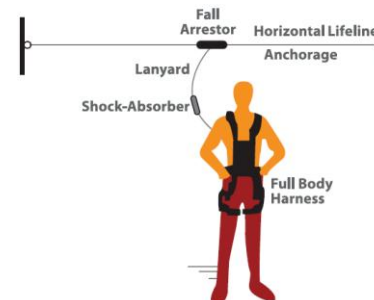
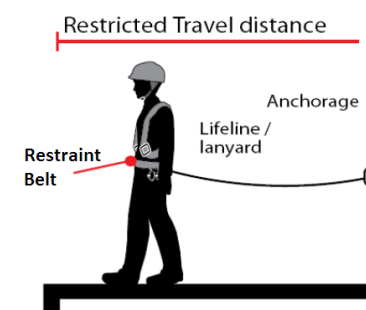
r8



Use **fall arrest system***

r8

Least preferred



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* Occupier to ensure its compliance

Safe Access and Egress for WAH

Lifting Platforms: Mobile Elevated Work Platforms (e.g. boom lifts or scissors lift)
-Relevant WSHC's Guidelines



Portable Ladders

• **Can WAH be eliminated? Are ladders the best means of access for the work?**

- **Unsafe positioning:** Do not position ladders near open edges where **worker may fall over parapets or guardrails**.

(Please refer to WSHC's Ladder Safety Pack and ACOP for full details)



Remote inspection mast with hand-held **lightweight** CCTV system (Image courtesy of Survey Support Ltd)

Source: <http://www.hse.gov.uk/pubns/priced/hsg33.pdf>



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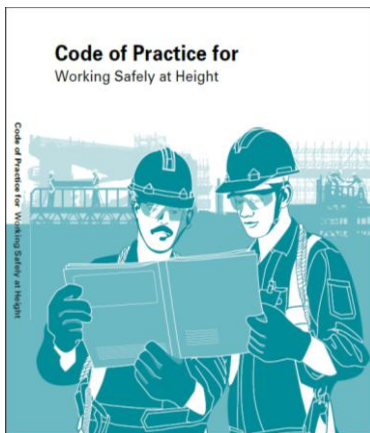
Fall prevention plan (FPP)

r5

1 May 2014

Where work at height is carried out in a workplace specified in the **Schedule** –

Occupier of workplace to establish and **implement an FPP** in accordance to with the requirements of the **ACOP** relating to safe and sound practices for fall prevention.



SCHEDULE

WORKPLACES REQUIRED TO HAVE A FALL PREVENTION PLAN

1. Any **worksite**.
2. Any **shipyard**.
3. Any factory engaged in the processing or manufacturing of **petroleum**, petroleum products, **petrochemicals** or petrochemical products.
4. Any premises where the **bulk storage** of **toxic or flammable liquid** is carried on by way of trade or for the purpose of gain and which has a storage capacity of 5,000 or more cubic metres for such toxic or flammable liquid.
5. Any factory engaged in the **manufacturing** of
 - (a) **fluorine, chlorine, hydrogen fluoride or carbon monoxide**; or
 - (b) **synthetic polymers**.
6. Any factory engaged in the manufacturing of **pharmaceutical products** or their intermediates.
7. Any factory engaged in the manufacturing of **semiconductor wafers**.
8. Any **factory** not falling within any of the classes of workplaces described in paragraphs 1 to 7, and in which **50 or more persons are employed**.

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Training & Supervision

r6 & r7

Person carrying out work at height

- to receive **adequate safety and health training** to familiarise himself with the hazards associated with work at height and precautions to be observed
- must be under **immediate supervision** of a **competent person**

“**competent person**” means a person who -

- has sufficient experience and training to perform the work required to be carried out, and
- has passed such courses as the Commissioner may require for that work;

- Avoidance of work at height
- Fall prevention plan
- Training for persons at work
- Supervision of work at height
- Open sides and openings
- Cover, guard-rail and barrier to prevent fall
- Travel restraint system
- Fall arrest system
- Inspection
- Staircases
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Open sides and openings

r8

Occupier to ensure open side and opening into or through which a person is liable to fall **> 2 m**

- must be covered or guarded by effective **guard-rails** or **barriers** to prevent fall

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Guard-rails & barriers

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May be removed – where free access is required for work actually in progress at or near the open side or opening

BUT must be **reinstated or replaced immediately** when access of persons or movement of materials is longer taking place

Note:

When guard-rail or barrier is being **installed, altered** or **removed**, the person who carries out work at heights must:

Use a travel restraint system



If not reasonably practicable

Use a fall arrest system

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Cover, guard-rail and barrier

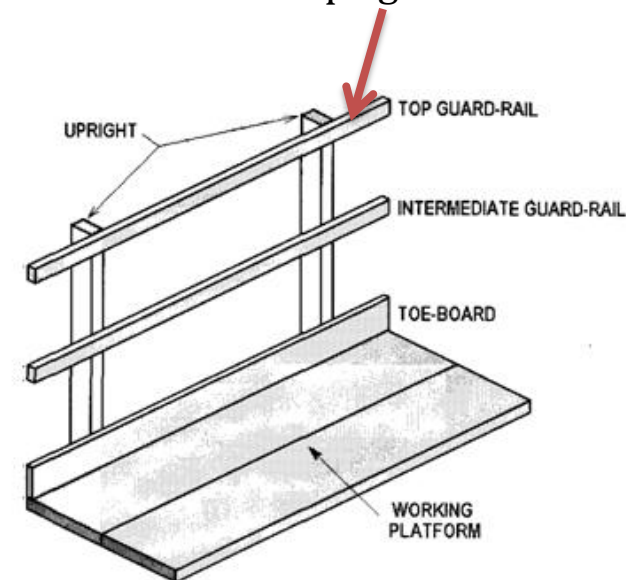
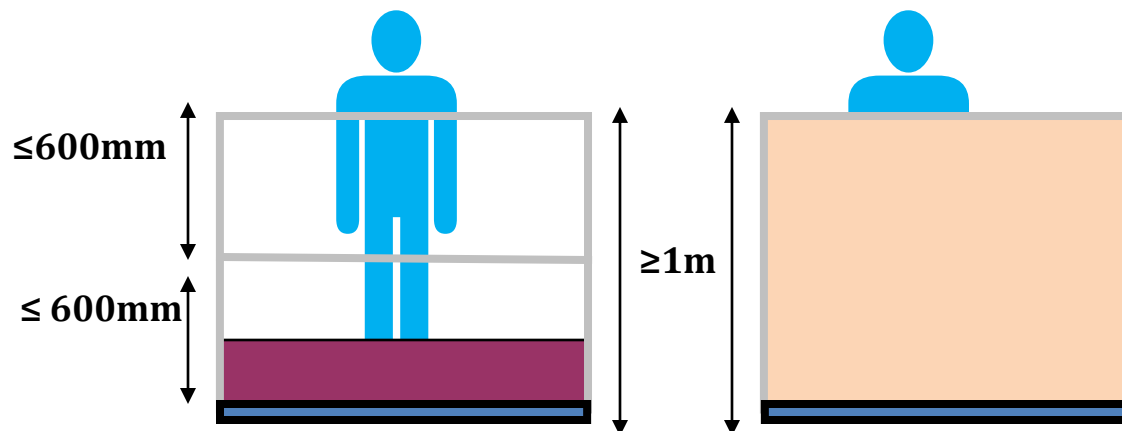
r9

Occupier to ensure it is –

- good construction, sound material and adequate strength
- **securely fixed** in place to prevent accidental displacement

Guard-rail and barrier

* Guard-rail placed on the inside of uprights or structures



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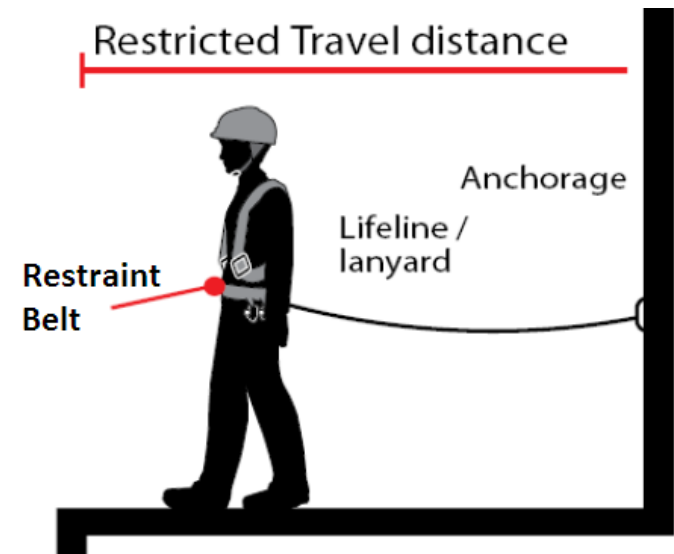
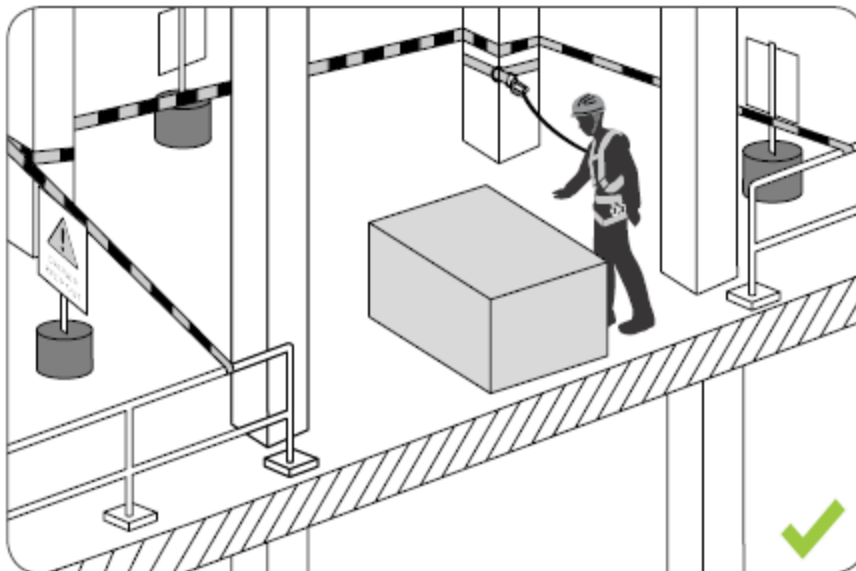
IV - Industrial Rope Access System

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Travel restraint system

r10

- good construction, sound material and adequate strength
- free from **patent defects**
- **suitable and safe** for its intended purpose
- **user** must be **trained** in the safe and correct use of the system



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Fall arrest system

r11

- good construction, sound material and adequate strength
- free from **patent defects**
- **suitable and safe** for its intended purpose
- **user** must be **trained** in the safe and correct use of the system
- no part of the system comes into **contact** with anything that could affect the safe use of the system, e.g. **sharp edge** or **corrosive substance**

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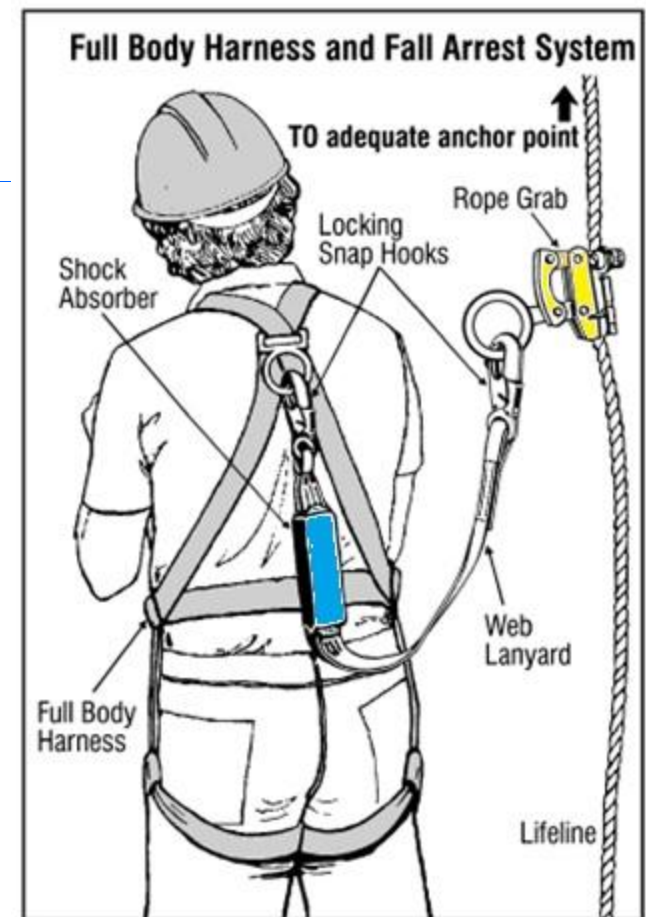
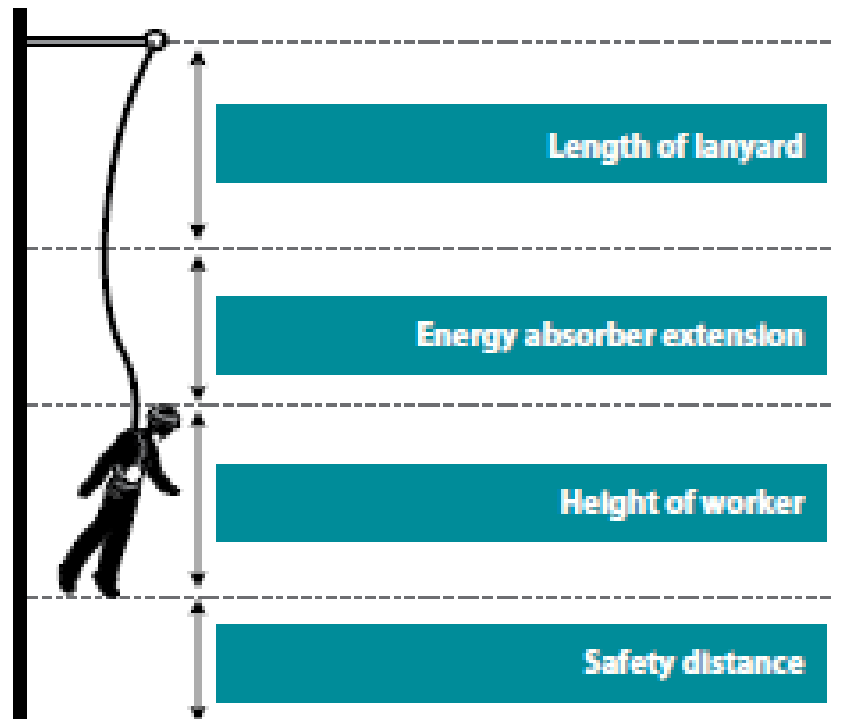
IV - Industrial Rope Access System

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Fall arrest system – using full-body harness

r11

- incorporates a suitable means of **absorbing energy** and limiting the forces applied to the user's body -
- Sufficient **fall clearance**



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Inspection (anchorage & anchorage line)

r12

- **competent person**
 - ✓ inspect the anchorage and anchorage line at the **start of every work shift** - ensure they are in good working condition
 - ✓ immediately **remove from service** those which are defective
 - ✓ **record** inspection in a register
 - ✓ give the register to **responsible person** by end of work shift

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Work on roofs

r16

- **Provide and maintain**
 - ✓ protection **against sliding** or **falling** from roof (e.g. crawler boards or roof brackets)
 - ✓ sufficient and secured **anchorage**

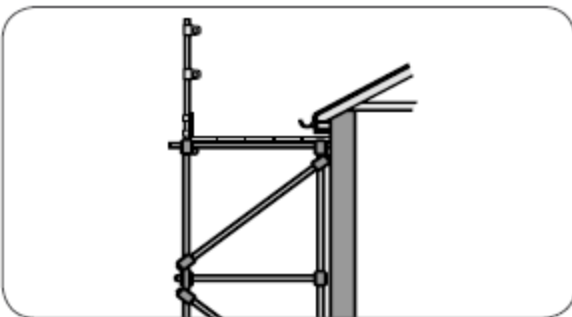


Figure 12.1: Typical pitched roof scaffold edge protection.

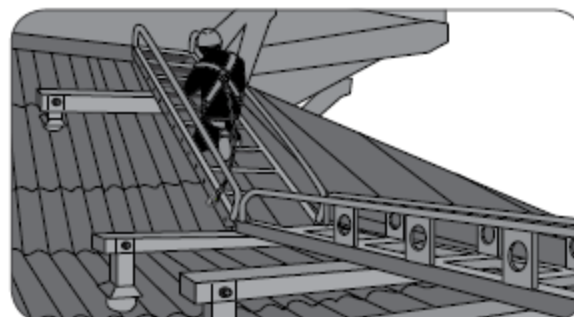


Figure 12.2: Crawler boards, gangways and perimeter guard-rails can enhance safety for work on pitched roofs.

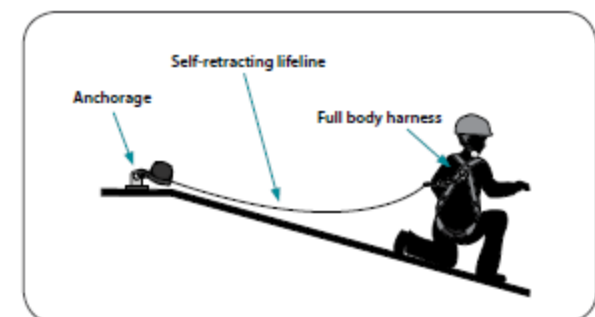


Figure 12.3: An example of personal fall arrest system for roof works.

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Work on roofs



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Fragile surfaces e.g. roof skylight

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Avoid work near fragile roof



All fragile roof
**barricaded,
covered or
protected with
platform**



**Warning
notice**



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Figure 19.2 Left: Danger signs to be fixed at points of access to the roof.

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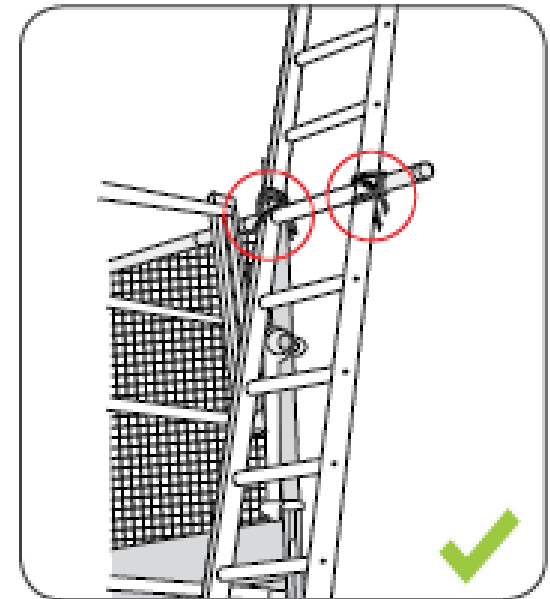
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Ladders

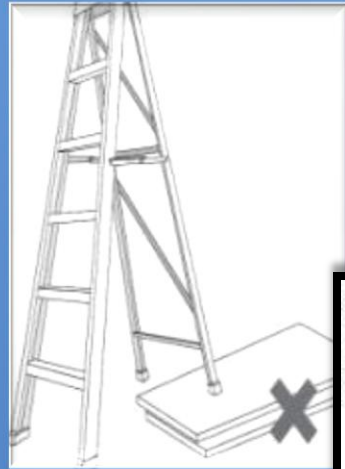
Where a ladder is used for access or as a working place, the ladder shall rise, or **adequate handhold** shall be provided, to a height of **at least one metre above** –

- (a) the place of landing; or
- (b) the highest rung to be reached by the feet of any person working on the ladder.

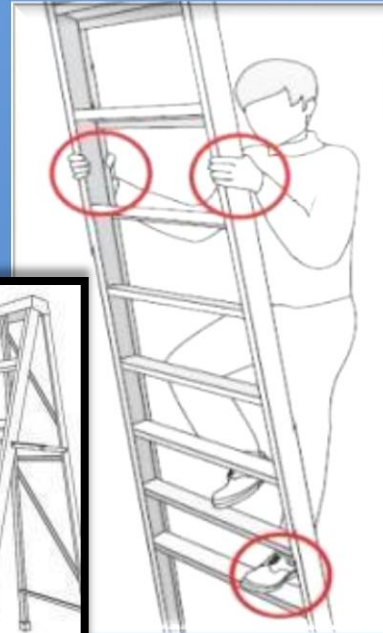


Key Points on Safe Use of Ladders

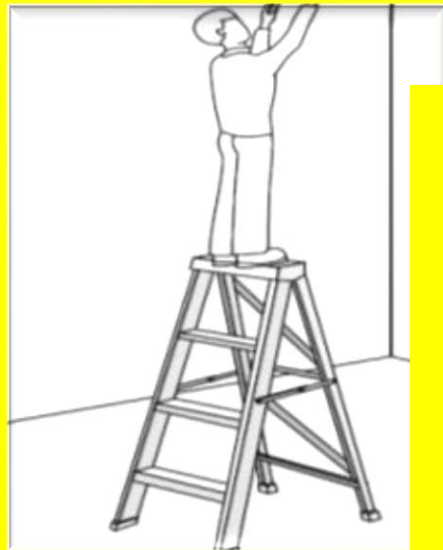
Place the ladder on **stable** and **level** ground. DO NOT place it on an uneven surface.
[r18(3)(b)]



FALLING OFF LADDERS CAN KILL
USE THEM SAFELY
安全使用梯子
避免坠落受伤

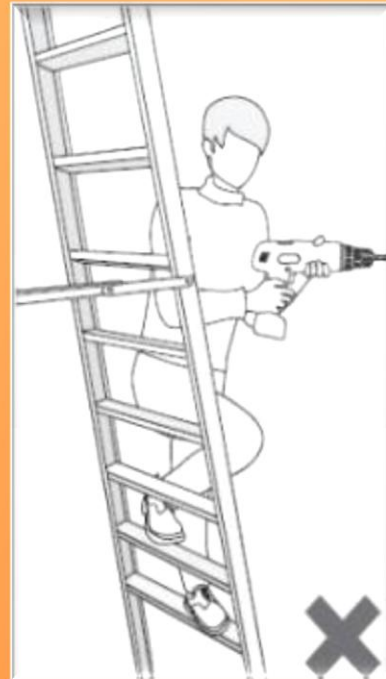


Maintain three points of contact with the ladder at all times.



Use the right ladder for the job. For example, the ladder must be high enough for you to reach your work area **without having to stand on its top rung.**

Do not lean away from the ladder to carry out your task. Always keep your weight centered between the side rails.



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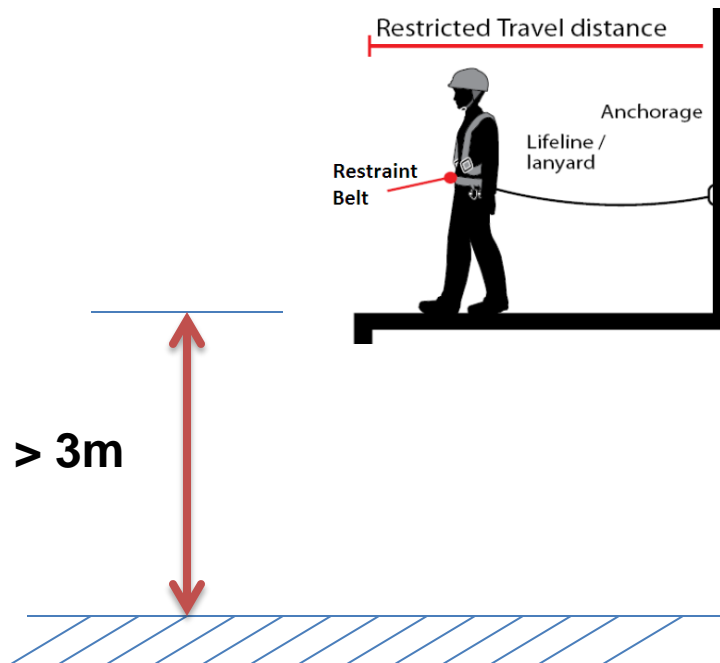
- 19. Application of this Part
- 20. Implementation of permit-to-work
- 21. No hazardous work at height without permit-to-work
- 21. Application for permit-to-work
- 22. Evaluation of application
- 23. Issue of permit-to-work
- 24. Posting of permit-to-work and supervisor's duty
- 25. Monitoring of work
- 26. Duty to report incompatible work
- 27. Daily review and revocation of permit-to-work

Application of PTW System

r19

1 May 2014

PTW system applies only to work at height carried out in a **FACTORY** where a person could **fall** from a height of **more than 3m** (referred to as hazardous work at height)



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Occupier's duty

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- appoint an **authorised manager**
- appoint a work-at-height **safety assessor**
- ensure PTW is **implemented in accordance to Part III (PTW System)**

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Implementing PTWS

Step 1 - Application

Supervisor of worker

Step 2 - Evaluation

WAH Assessor

Step 3 - Issue

Authorised Manager

Step 4 - Posting

Step 5 - Daily review

Monitoring

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“competent person” means a person who -

- (i) has sufficient experience and training to perform the work required to be carried out, and
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- 29. Industrial rope access equipment and personal protective equipment
- 30. Design and inspection



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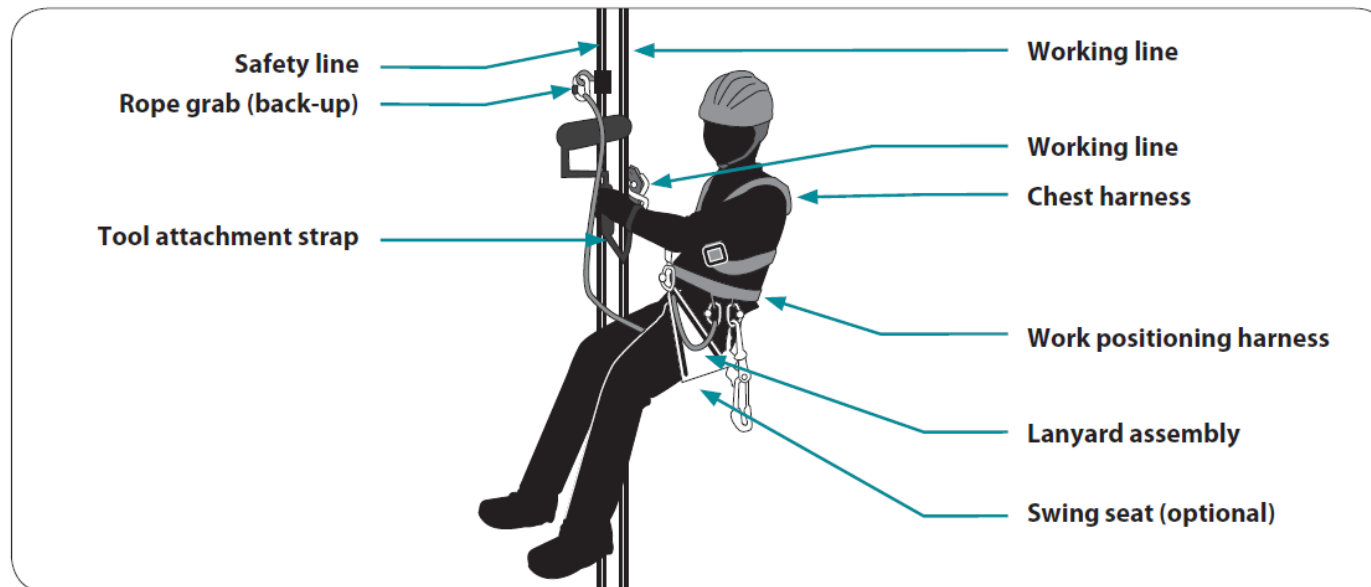
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Industrial rope access -Equipment & PPE

28. Industrial rope access equipment and personal protective equipment

- at least 2 independent anchored line, i.e. **working line** and **safety line**
- working line equipped with **self-locking mechanism**
- line **must not contact** with anything that could affect the safe use of the system, e.g. **sharp edge** or **corrosive liquid**



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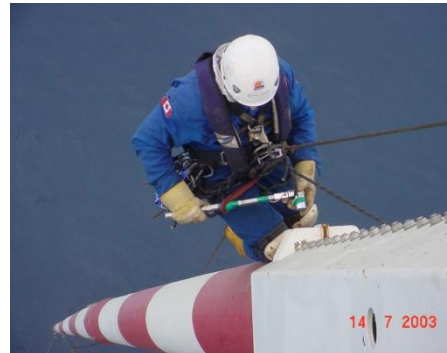
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PE Design

Note: Not applicable for tree-cutting or pruning

- Anchorage and anchorage line - **installed** in accordance with **design and drawings of a PE**
- **PE**
 - ✓ ensure his design can be **executed safely** (*i.e. safe for use and installation*)
 - ✓ **provide** all the necessary **design documentation** for the installation of the system to the parties installing it.

- 28. Industrial rope access equipment and personal protective equipment
- 29. Design and inspection



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Inspection (anchorage & anchorage line)

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- **competent person**

- ✓ inspect the anchorage and anchorage line at the **start of every work shift** - ensure they are in good working condition
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- ✓ **record** inspection in a register
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- 28. Industrial rope access equipment and personal protective equipment
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Resources

Singapore Standards on Personal Protective Equipment

Personal Protective Equipment

✓ **All PPE are to conform to Singapore Standards:**

- i. **SS 528 - 1: 2006** Personal Fall-Arrest Systems - Full-body harnesses
- ii. **SS 528 - 2: 2006** Personal Fall-Arrest Systems - Lanyards and energy absorbers
- iii. **SS 528 - 3: 2006** Personal Fall-Arrest Systems - Self-retracting lifelines
- iv. **SS 528 - 4: 2006** Personal Fall-Arrest Systems - Vertical rails and vertical lifelines incorporating a sliding-type fall arrester)
- v. **SS 528 - 5: 2006** Personal Fall-Arrest Systems - Connectors with self-closing and self-locking gates
- vi. **SS 528 - 6: 2006** Personal Fall-Arrest Systems - System performance tests



**Thank You for
your Time**