



HEIGHT

Aware

WORKING SAFELY AT HEIGHT



Visit the HAAD website at www.haad-height.ae for additional details and resources.

HEIGHT Aware

SAFETY IS OUR HIGHEST PRIORITY

PROCEDURE MANUAL FOR WORKING AT HEIGHTS

INTRODUCTION

Working at heights is a common requirement for many jobs and occupations, especially in the construction sector in the UAE and GCC region where construction is taking place at such a rapid rate. Working at heights, however, is also common across many other sectors, from agriculture on date farms, to households with the cleaning of windows or changing of light bulbs, and in the office environment where stacking takes place. It is a common hazard that can lead to severe injuries and even fatalities. In Abu Dhabi, as in many parts of the world, falls from heights and falling objects are the leading cause of fatal injuries on worksites causing almost 50% of fatal injuries.

This procedure and training manual for occupational health and safety professionals and supervisors contains information and details of procedures, designed to guide the reader in safe work practices when working at heights.

Details of specific procedures to be carried out by appropriately trained personnel are covered in order to help supervisors and occupational health and safety personnel understand the elements of safe systems of work in all environments as well as how to implement the various elements of the

programme. The programme is designed to be implemented at whatever level is suitable for each site and may include placing posters in the workplace, distributing pamphlets to workers and supervisors, using the materials for toolbox talks or showing the training videos to workers.

Each person responsible for health and safety at work can decide on the best way to implement the programme at their worksite to raise awareness about the dangers of working at heights (even low heights) and the precautions to be taken to prevent falls and falling objects with the materials supplied and the online resources to help them. HAAD Occupational and Environmental Health Department can also be called upon to offer advice and additional support where required.

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I. WHAT IS THIS MANUAL?

The goal of the HAAD Height Aware programme is to create awareness around the dangers of working at heights including how to protect people who work at heights or who may be affected by others working at heights. The programme aims to help workers, supervisors and employers identify when they or their employees are working at heights and to know what controls to put in place to prevent falls and falling objects.

In construction specifically falls from heights and objects falling from heights are the top two causes of fatal injury in the workplace.

This manual for Working at Heights helps people identify:

- WHAT WORKING AT HEIGHTS IS,
- THE RISKS AND HAZARDS INVOLVED AND
- THE PRECAUTIONS THAT CAN BE TAKEN

to prevent falls and reduce the number of fatalities or injuries.

II. WHO IS THIS MANUAL FOR?

This manual is for all sectors and industries where employees work at heights including construction, agriculture and the industrial and commercial sectors.

Who should read this?

- CHIEF EXECUTIVE OFFICERS (CEOs)
- BUSINESS OWNERS
- EMPLOYERS
- CONTRACTORS/SUBCONTRACTORS
- HEALTH AND SAFETY PERSONNEL
- HEALTH AND SAFETY SUPERVISORS



**REMEMBER: SAFETY IS
EVERYONE'S RESPONSIBILITY!**

III. WHAT DOES THE LAW SAY?



The UAE Labour Law (Federal Law No 8 of 1980) states that employers shall 'provide adequate preventive equipment to protect workers against the dangers of occupational injuries'.

This includes the requirement that 'every employer provide the appropriate preventive measures for the protection of workers from risks of injuries or occupational diseases which may occur during working hours and against fire risks and all other risks which may result from the use of machineries and other equipment'.

The Abu Dhabi Emirate Environment Health and Safety Management System gives specific regulatory requirements for training, fall prevention programmes and working at heights (including scaffolding, excavations, ladders etc.) and should be referred to for legislative requirements. Refer to Abu Dhabi EHSMS Regulatory Framework and relevant Codes of Practice/Regulatory Instruments.

WHAT IS WORKING AT HEIGHTS?

DEFINITION AND EXAMPLES

DEFINITION OF WORKING AT HEIGHTS

WORKING AT HEIGHT MEANS: WORKING IN ANY PLACE WHERE, IF PRECAUTIONS ARE NOT TAKEN, A PERSON COULD FALL AND INJURE THEMSELVES. THIS INCLUDES PLACES **ABOVE, AT OR BELOW GROUND LEVEL**.



Working above ground level



Working at/below ground level



Working at a low height

 **REMEMBER: YOU DON'T HAVE TO FALL FROM A GREAT HEIGHT TO BE HURT.**



Working at a low height

WORKING AT HEIGHTS DOES NOT ONLY OCCUR IN BUILDING AND CONSTRUCTION. IT CAN OCCUR IN OTHER SECTORS AND EVERYDAY SITUATIONS SUCH AS:

Agriculture

Climbing a date tree or using a rope.



Transport

Working on the back of a truck or other vehicles.



Window cleaning

Working on an unprotected ledge.

Installations

Working on a roof.



Painting

Using a ladder.



Oil and gas

Working close to an unprotected area like excavations, pits or other openings.

RISKS OF WORKING AT HEIGHTS

HAZARD IDENTIFICATION

PEOPLE FALLING FROM HEIGHTS

FALLS FROM HEIGHTS ARE THE LEADING CAUSE OF WORK-RELATED FATALITIES IN ABU DHABI AND ACCOUNTS FOR MOST OF THE SERIOUS INJURIES IN THE WORKPLACE.



Workers can easily fall and be fatally injured if they are not wearing adequate personal protective equipment



Scaffolding collapses because it wasn't inspected before use

Common factors leading to incidents and injuries include:

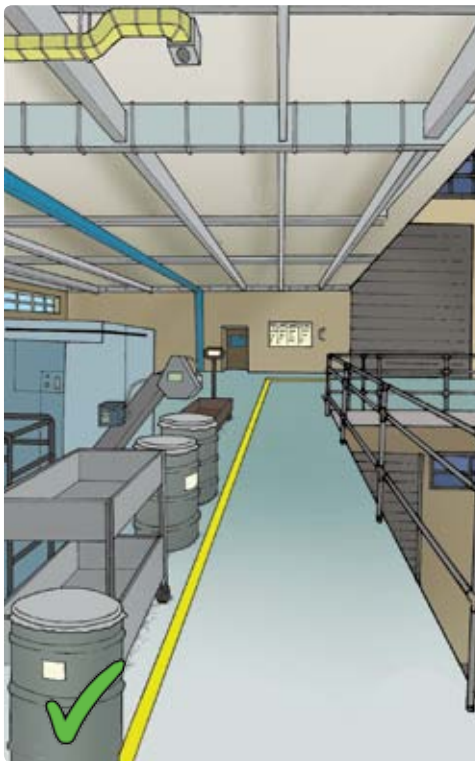
- Workers wearing inadequate personal protective equipment
RISK: falling/injury/death
- Unstable working platforms are used
RISK: falling
- Fragile work surfaces or openings not barricaded off
RISK: falling through
- Untrained workers incorrectly using safety harness and lifeline
RISK: falling/injury/death
- Workers not trained in rescue of fall victims
RISK: permanent injury or more people being injured
- Scaffolding not inspected before use
RISK: being defective and collapsing
- Equipment inadequate or not maintained
RISK: equipment being defective and breaking, leading to fall

OBJECTS FALLING FROM HEIGHTS

ITEMS SUCH AS TOOLS, EQUIPMENT AND MATERIALS FALLING FROM HEIGHTS ONTO PEOPLE ARE JUST AS DANGEROUS AS FALLS AND LEAD TO FATALITIES. FROM HIGH UP, EVEN A SMALL PIECE OF CONCRETE OR A SINGLE BOLT OR SPANNER CAN SERIOUSLY HURT OR KILL SOMEONE.



An untidy factory walkway increases the risk of falling objects



A tidy walkway means easy access in and out

Common factors leading to incidents and injuries from falling objects:

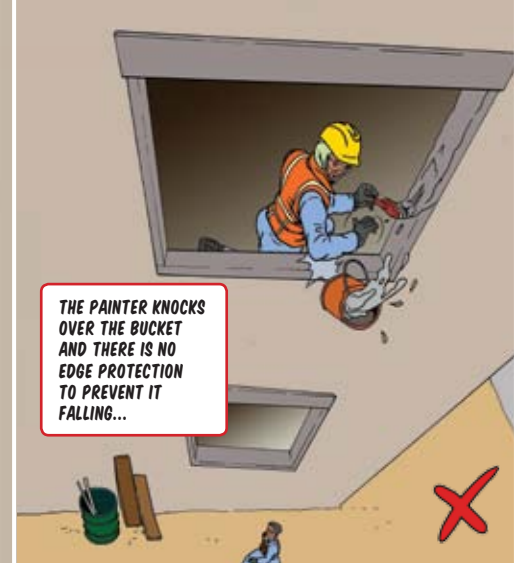
- Work surfaces cluttered and material not secured
RISK: Being blown off by the wind
- Tools/equipment not secured with lanyards
RISK: Being dropped or kicked off
- No toeboards or 'kicker plates' on walkways and edges
RISK: Items being kicked or rolling off the edge
- No netting
RISK: No catchment or barrier for falling objects
- Workers not trained in rescue of fall victims
RISK: Permanent injury or more people being injured
- Workers not wearing hard hats in high risk areas
RISK: Injury by falling objects

DANGER FROM ABOVE...

UP ABOVE SOMEONE IS PAINTING. THERE IS NO EXCLUSION ZONE OR SIGNS WARNING OF WORK BEING DONE UP ABOVE.



A WORKER WALKS BY WITHOUT A HARD HAT.



THE PAINTER KNOCKS OVER THE BUCKET AND THERE IS NO EDGE PROTECTION TO PREVENT IT FALLING...



...RIGHT ONTO THE WORKER WALKING BELOW.



HE ENDS UP IN HOSPITAL WITH SERIOUS INJURIES.



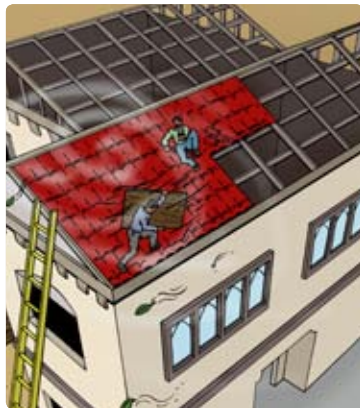
THIS IS HOW IT SHOULD BE DONE: THERE IS AN EXCLUSION ZONE WITH A CORRECT WARNING SIGN, THERE IS EDGE PROTECTION AND THE WORKER IS WEARING HIS HARD HAT.

EXTERNAL FACTORS

EXTERNAL FACTORS SUCH AS WIND, HEAT STRESS, STRUCTURAL INSTABILITY AND WORKER FACTORS SHOULD ALL BE CONSIDERED ALONG WITH CONTROL REQUIREMENTS AS THEY CAN BE THE CAUSE OF FALLS LEADING TO INJURY.



Blowing sand causes poor visibility



Wind can blow materials or workers off



Heat stress can cause falls

One of the most important environmental factors when working at heights is wind.

- **Wind** usually gets **stronger** the **higher** up you go.
- Semi-constructed buildings can create potentially **dangerous funnelling effects**.
- Wind can **blow off materials** and even **workers**.

Other external factors that should be considered and included in a safe system of work are:

- **Heat stress** and **dehydration** of workers working at heights.
- **Dust** and **blowing sand** – causes **poor visibility** and **instability**.
- **Building movement**.
- **Vertigo** – dizziness and feelings of instability when working at heights.

PREVENTING THE RISKS OF WORKING AT HEIGHTS

PLANNING

PLANNING IS A VERY IMPORTANT PART OF WORKING AT HEIGHTS. THERE ARE THREE TOOLS THAT ENABLE YOU TO DO THAT:

1 THE WORK PLAN REVIEW

A **Work Plan Review** must be undertaken before a project starts to examine what is required at a **design stage** to reduce and eliminate risk as far as reasonably practical.

- **All stakeholders** (e.g. project managers, contractors, supervisors, and even workers) should be involved in the review.



The Work Plan Review can identify a design solution such as casting metal 'sleeves' into floor slabs to make the erection of edge protection easier.

2 THE FALLS PREVENTION PLAN

A written **Falls Prevention Plan** must be prepared for all work to determine the hazards and controls involved in working at heights.

- It should be provided to **contractors and sub-contractors** and included in all **worker inductions and training**.
- **Audits** should then be done regularly to ensure compliance.



The Falls Prevention Plan should indicate where and when barrier protection must be set up for open edges, holes, voids and other openings as well as signage requirements.

3 THE RISK ASSESSMENT

A **Risk Assessment** must be completed by all contractors for each site or operation to identify the hazards, the risk and the control measures required for a project or task.

- The risk assessment must cover the **hierarchy of fall protection** (See Hierarchy of Controls p 10).
- It must be **approved by** the **Project Manager** or the person responsible for health and safety.



The Risk Assessment should include inspection of equipment such as cradles and personal protective equipment such as harnesses to ensure they are suitable and safe for the job.

THE **HIERARCHY OF CONTROLS** SHOULD BE FOLLOWED TO PREVENT ACCIDENTS WHEN WORKING AT HEIGHTS.

1



ELIMINATION

Don't do a job at height if you can do it on the ground.

2



SUBSTITUTION

Substitute all defective or dangerous equipment with new or safer equipment.

3



ENGINEERING CONTROLS, ISOLATION

Try to design out risks and eliminate them altogether.

4



ADMINISTRATIVE CONTROLS

Use signs and exclusion zones to keep people out of dangerous areas.

5



PERSONAL PROTECTIVE EQUIPMENT (PPE)

Safety harnesses should be in good condition and be used by trained workers.

AVOID

First priority is always to **eliminate the hazard or risk completely**, avoiding the need to work at height altogether.

PREVENT

Secondly try to **prevent the fall** by implementing the hierarchy of controls and the appropriate preventive measures.

MINIMISE THE DISTANCE AND CONSEQUENCES

Lastly put measures in place such as scaffolding, equipment or other means to reduce **the distance** and **the consequences of a fall**.

PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment would be the **last resort** since it means the wearer is exposed to the full hazard if not used or not used correctly. **So always use the AVOID, PREVENT and MINIMISE measures first.**

1. ELIMINATION

IF POSSIBLE ELIMINATE THE NEED TO WORK AT HEIGHT BY BRINGING THE JOB OR WORK DOWN TO GROUND LEVEL OR BY EXTENDING THE REACH OF THE WORKER USING LONG-HANDLED TOOLS.



REMEMBER: DON'T DO THE JOB AT HEIGHT IF YOU CAN DO IT ON THE GROUND



Using long-handled tools instead of a ladder



Lowering streetlamp for repair



Storing materials within easy reach eliminates the danger of height

EXAMPLES

- Design and **fit systems that prevent working at heights** such as streetlights that come down to the ground for maintenance and cleaning.
- **Long-handled tools** or other equipment can be used to carry out a task from a safe position e.g. long-handled brush or roller for painting.
- **Store materials at ground or lower levels** so that it is within reach of a person without them having to use any aids.



2. SUBSTITUTION

SUBSTITUTE THE DEFECTIVE OR DANGEROUS EQUIPMENT WITH NEW OR SAFER EQUIPMENT.

EXAMPLES

- Substitute any walking platform without handrails with one with **handrails** and **toeboards**.
- Substitute a defective cradle with one that **doesn't have rust and damage**.
- Substitute a worker who has a fear of working at heights with someone who is **confident, trained** and has no problem working at heights.



Cradle in a bad condition



Replace with a new and safer cradle

3. ENGINEERING CONTROLS

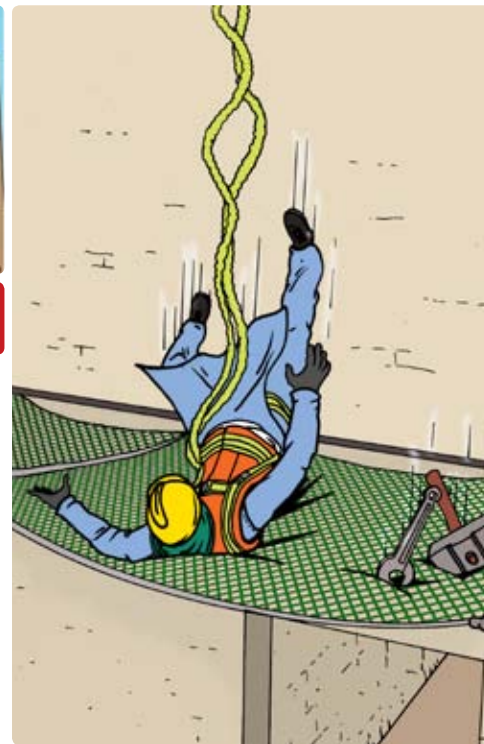
A LOT OF THE RISK INVOLVED IN WORKING AT HEIGHTS CAN BE DESIGNED OUT. OFTEN YOU CAN MAKE STRUCTURAL CHANGES TO THE WORK SYSTEMS OR WORK ENVIRONMENT THAT WOULD PREVENT FALLS AND MAKE FOR A SAFER WORKPLACE.



Install guardrails before erecting a structure

EXAMPLES

- Use places that are already safe e.g. places that have **permanent guardrails** or a **correctly designed and built scaffold**.
- Put on edge protection, guardrails and screens **before** erecting a structure.
- **Reduce the number** of personnel that have to go near the edge and the number of **times** they have to go.
- Put up **debris netting** to catch any falling objects.



Catch nets and debris netting catch falling objects or people

4. ADMINISTRATIVE CONTROLS

ADMINISTRATIVE PROCEDURES LIKE WORK PERMITS, STANDARD OPERATING PROCEDURES AND SAFETY POLICIES SHOULD BE FOLLOWED TO MANAGE AND CREATE AWARENESS OF THE RISKS OF WORKING AT HEIGHTS. TRAINING, INSTRUCTION AND SUPERVISION ARE ESSENTIAL.



An exclusion zone is used to keep people out of dangerous areas

EXAMPLES

- Create an **exclusion zone** to restrict access to areas where there is work taking place above.
- Put up **clear signage** to warn people of fall areas, open pits and unsafe conditions.
- Give employees **information and training** on the standard procedures and safety policies.
- Regularly undertake and record **maintenance, inspection and testing** of systems and equipment to ensure it is suitable as well as sufficient.

5. PERSONAL PROTECTIVE EQUIPMENT (PPE)

WORKERS MUST BE PROVIDED WITH CORRECTLY FITTED AND PROPERLY MAINTAINED PROTECTIVE EQUIPMENT AND CLOTHING.

EXAMPLES

- **Footwear** that is suitable to prevent slips.
- **Sunglasses** to make sure that an employee at height is not at risk due to glare or reflection.
- **Safety helmets** that will remain in place in the event of a fall.

They must also be **trained** in the **use** and **inspection** of all personal protective equipment.



REMEMBER: PERSONAL PROTECTIVE EQUIPMENT SHOULD BE USED AS A LAST RESORT. OTHER CONTROL MEASURES SHOULD BE USED FIRST IN ORDER TO ELIMINATE THE NEED FOR HARNESSSES.

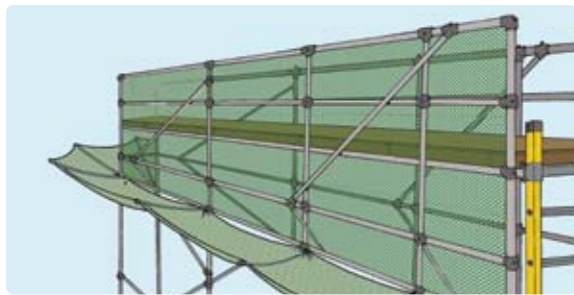


Train workers on the proper use of equipment

BEST PRACTICE GUIDELINES FOR CONSTRUCTION

PERIMETER/EDGE PROTECTION

PERIMETER/EDGE PROTECTION IS THE PHYSICAL BARRIERS THAT ARE PUT UP AGAINST EDGES TO PREVENT PEOPLE OR MATERIALS FROM FALLING FROM HEIGHTS. IT PLAYS A VERY IMPORTANT ROLE IN CREATING A SAFE WORKPLACE.



Standard protection – guardrail system with toeboard and netting



Permanent edge protection on frequently accessed area on oil rig

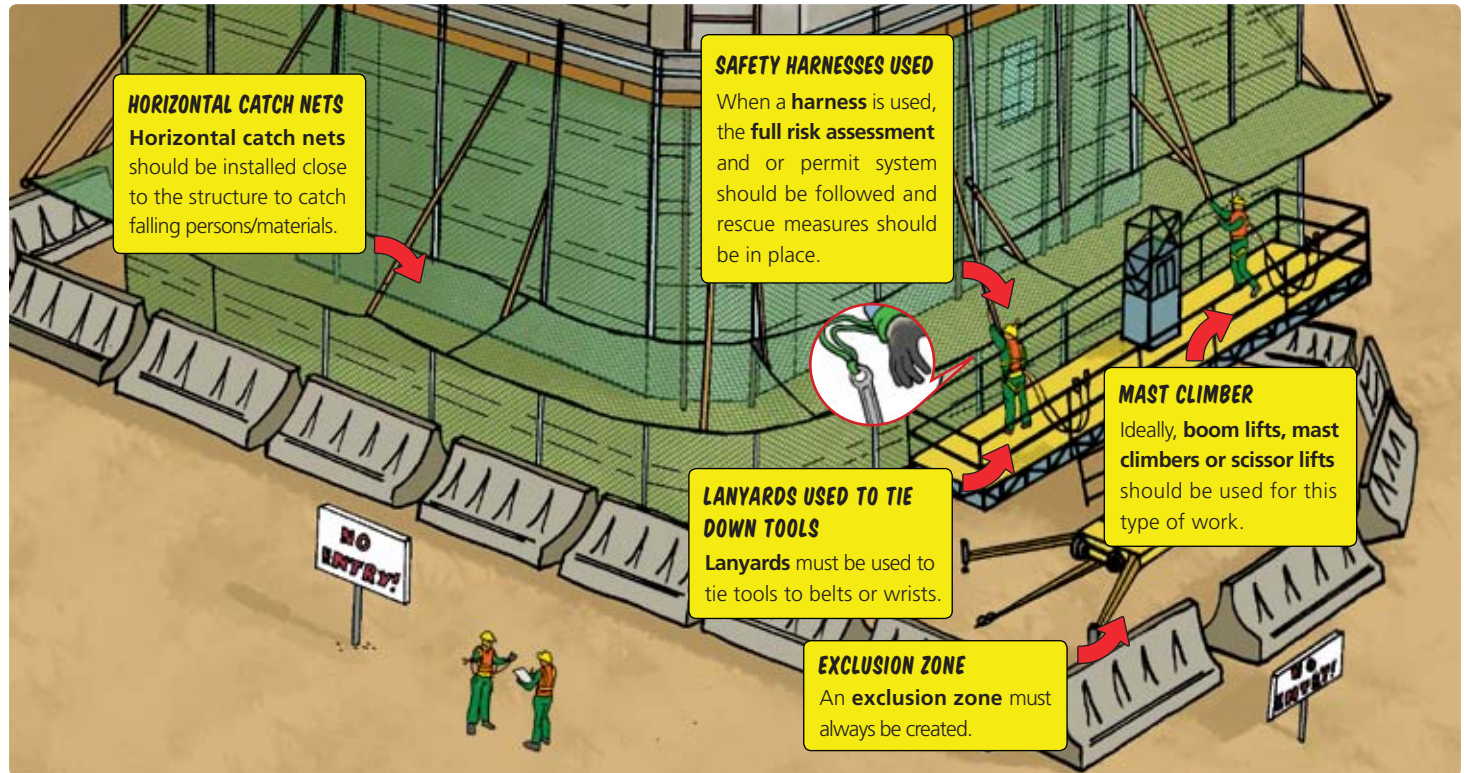


Advanced protection (used in high-rise construction) – full-height perimeter screens

- Perimeter protection can be **screens, guardrails, net systems** as well as **aircraft cables**.
- Physical barriers should be **robust**.
- It can be classified as either **STANDARD** or **ADVANCED** depending on the level of risk involved and must meet minimum standards set by local legislation.
- Advanced methods ensure protection at either 2 m or at **full floor height**.

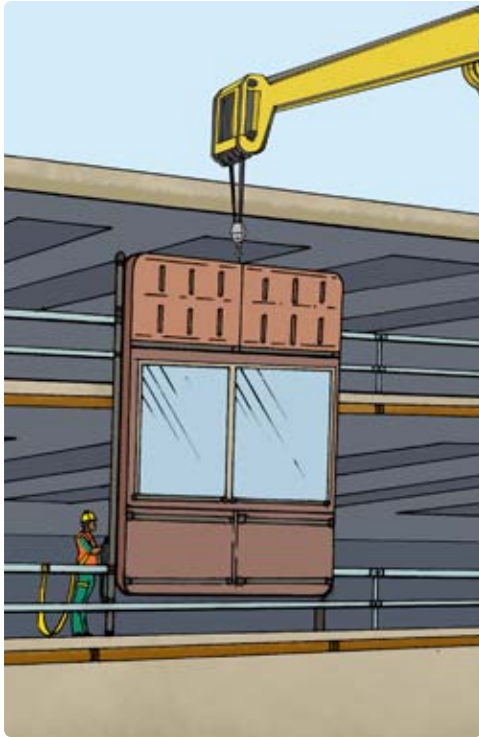
EXTERIOR WORK

EXTERIOR WORK IS WORK OUTSIDE THE PERIMETER PROTECTION SUCH AS INSTALLING OR DISMANTLING EDGE PROTECTION SYSTEMS. THERE ARE VARIOUS PROTECTIVE MEASURES THAT NEED TO BE PUT IN PLACE TO ENSURE THE SAFETY OF WORKERS CONDUCTING THIS KIND OF WORK.



Exterior work taking place – workers installing horizontal catch nets

WHEN ERECTING METAL FRAME STRUCTURES OR FORMWORK, VARIOUS HEIGHT SAFETY GUIDELINES NEED TO BE FOLLOWED. THE PROCESS OF ERECTING THESE WORKS MUST BE DESIGNED AND THOUGHT OUT CAREFULLY BEFORE WORK STARTS, WITH PRIORITY GIVEN TO REDUCING WORK AT HEIGHT OR REDUCING THE RISKS.



Edge protection allows cladding to be put into place from a safe position



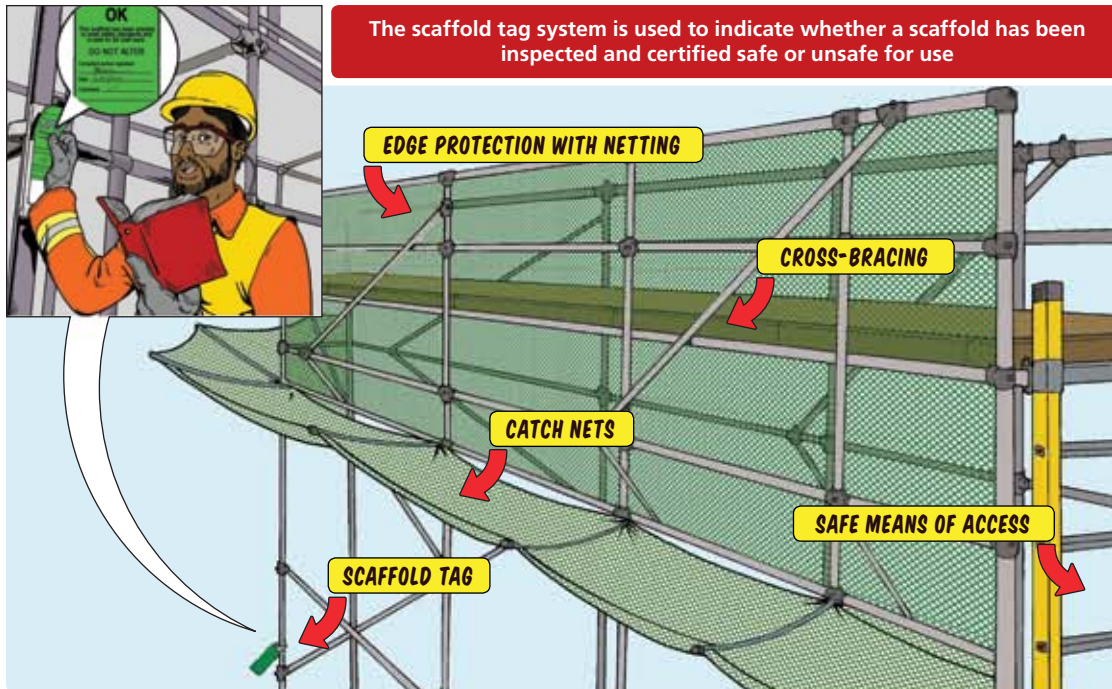
Formwork is erected from below using podium steps



An exclusion zone

- Erection should take place from **safe working platforms** or mobile elevated work platforms.
- An **exclusion zone** should be created and **barricades and signage** should be used to restrict access.
- **Edge protection systems** should be designed as part of the frame erection process to provide protection.
- Where possible, edge protection should be **fitted to beams at ground level before** they are lifted into position.

THESE SHOULD BE PROPERLY PLANNED, ERECTED, MAINTAINED AND ALTERED BY COMPETENT PERSONS TO PROVIDE A SAFE WORKING PLACE FOR THOSE WORKING AT HEIGHTS. A PROPERLY ERECTED AND DESIGNED WORKING PLATFORM WITH THE RIGHT DESIGN AND EQUIPMENT FOR THE SPECIFIC SITUATION ELIMINATES THE NEED FOR FALL ARREST EQUIPMENT. HOWEVER, FALL ARREST EQUIPMENT MUST BE USED IN THE ERECTION, ALTERING AND DISMANTLING OF SCAFFOLDING.



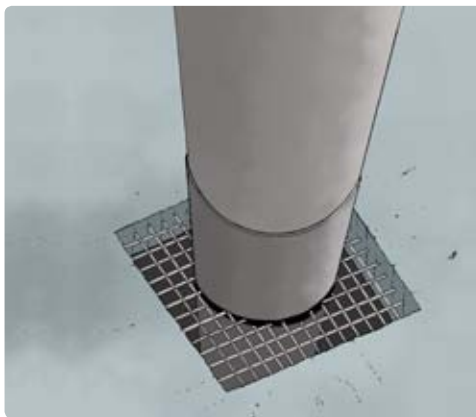
Safe scaffolding

- They must be **assessed** before use and **inspected regularly**.
- Adequate **cross-bracing** must be provided and the structure must be secure and stable.
- They must have **safe** and clearly defined **means of access** e.g. stairs or ladders.
- There should be **no gaps** between the planks in the decking.
- They must have **guardrails, midrails and toeboards** on all open sides or platforms.
- There should be **netting or fencing** where materials can fall over toeboards.

ALL OPENINGS NEED TO BE COVERED OR PROTECTED SO AS TO PREVENT ANYONE FROM FALLING THROUGH THEM. PROTECTIVE MEASURES ON OPENINGS CAN ONLY BE REMOVED WHEN WORK IS TAKING PLACE IN OR AROUND THE OPENING AND THOSE DOING THE WORK HAVE TAKEN SUFFICIENT SAFETY PRECAUTIONS.



Timber and mesh locked gate prevents unauthorised entry



Mesh cast into slab around riser



A securely fixed cover protects an opening in the floor



Roof openings have a different type of protective measure

LIFT SHAFTS

- Openings to lift shafts must be fully protected with a **secure and tamper-proof full height system** preventing unauthorised entry.
- **Safe working platforms** must be provided to all those working in lift shafts.

PENETRATIONS AND RISERS

- Penetrations and risers must be **limited in size and number** as far as reasonably practical.
- During construction a **mesh cast** must be fitted or other robust protection such as **metal guardrails or covers** placed at each level below the level of construction to prevent persons or materials falling through.

FLOOR OPENINGS

- Must be protected with a **clearly marked, robust, and securely fixed cover**.
- The **size** of the hole will **determine** what kind of **protective measures** will need to be taken, from suitable wooden or steel covers, to mesh cast across the hole, to double hand-rails and toeboards all around with a net across the hole.

A SUITABLE MEANS OF ACCESS SHOULD BE CHOSEN TO GO TO AND FROM WORK AT HEIGHT THAT IS AS SAFE AND SECURE AS POSSIBLE. PERMANENT ACCESS IS ALWAYS THE MOST SECURE OPTION. ALL PERSONS WORKING ON SUSPENDED OR MECHANICAL ACCESS SYSTEMS MUST WEAR FALL PROTECTION EQUIPMENT.

SUSPENDED ACCESS



Using a bosun's chair to wash a window

MECHANICAL ACCESS SYSTEM



Cleaning windows from a mast climber

VERTICAL ACCESS



Permanent stairs with handrails and guardrails

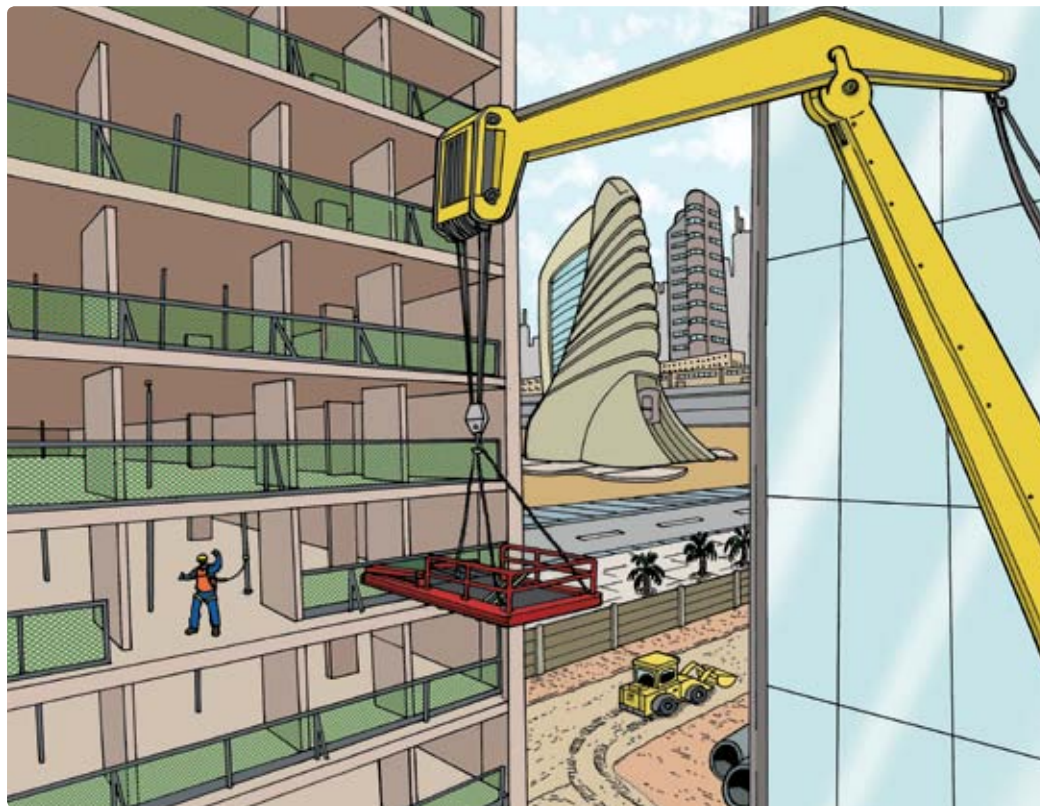
- These include **bosun's chairs**, **cradles**, **gondolas** and **swings**.
- They should only be used if there are **no other safer methods**.
- Equipment must be **inspected** before use and only used by **competent and trained workers**.
- An **exclusion zone** must be set up below the equipment at ground level.
- **Harnesses** must be worn and there must be a rescue procedure in place.

- These include hoists, **mobile elevated working platforms** (e.g. cherry picker) and scissor lifts.
- They must have **guarding** that is strong, sturdy and fit-for-purpose.
- The equipment must be **inspected regularly** and only used by competent and trained workers.
- Workers need to wear **safety harnesses** as secondary fall protection.
- **Minimum clearance distances** should be adhered to when the equipment is used near overhead electrical cables.

- **Permanent access** should be provided wherever possible. If this is impractical, adequate temporary staircases can be used.
- All vertical access must have **permanent handrails and guardrails** on both sides.
- There must be **sufficient lighting**.
- Vertical access must be kept **clean and clear** of materials or equipment that could obstruct stairways.

LOADING PLATFORMS AND RUBBISH CHUTES

THE DANGER OF FALLING OBJECTS OR FALLS FROM HEIGHTS IS EVER PRESENT, ESPECIALLY ON CONSTRUCTION SITES. LOADING PLATFORMS AND RUBBISH CHUTES ARE TWO ADDITIONAL AREAS ON SITE THAT CAN PROVE HAZARDOUS IF THE CORRECT PROTECTIVE MEASURES ARE NOT TAKEN.



Installing a compliant loading platform

LOADING PLATFORMS

- Must be fitted with **guardrails** on all sides where people or materials can fall.
- Must be checked **before installation** and **weekly thereafter**.

RUBBISH CHUTES

- Rubbish chutes, skips, and dumpsters used for rubbish disposal from upper floors must be **properly installed, secured** and **fenced off**.



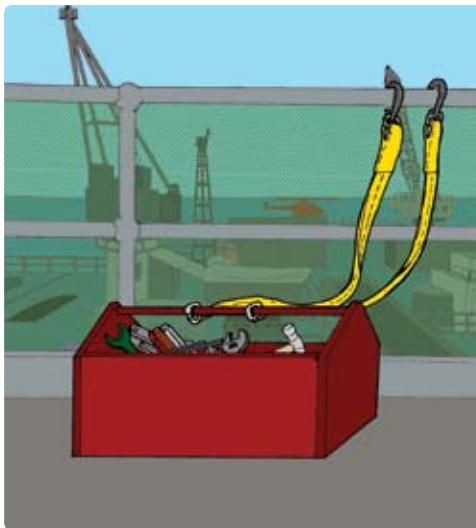
Rubbish chute system with barriers

GENERAL SAFETY MEASURES

THERE ARE GENERAL SAFETY MEASURES THAT CAN BE FOLLOWED IN ALL INDUSTRIES SUCH AS SECURING MATERIALS SO THAT THEY DON'T PRESENT A FALLING HAZARD. ANY WORK AROUND WATER ALSO NEEDS ADDITIONAL PRECAUTIONS TO REDUCE OR ELIMINATE THE RISK OF DROWNING.

SECURING MATERIALS

- **Materials that can be blown or swept off** roofs, exposed floors or scaffolding should be secured. This also includes materials or plant that can be dislodged by work activities.



Toolbox secured with lanyard

WORKING AROUND WATER

Where water is present (i.e. in excavations, work next to or above water or for dredging or reclamation):

- A **detailed risk assessment** must be done and workers who can swim should be allocated the job/tasks to be done.
- **Physical barriers** should be put in place to prevent access or people and equipment falling in.
- Suitable **training** should be given such as 'man overboard' recovery.
- **Rescue equipment** such as flotation devices must be easily accessible in case of an emergency.



Exposed materials secured



Working above water on an oil rig

FALLS FROM LADDERS OCCUR VERY OFTEN. LADDERS SHOULD ONLY BE USED IF NO OTHER SAFER EQUIPMENT (SUCH AS SCISSOR LIFTS OR PODIUM STEPS) CAN BE USED. THOSE INVOLVED IN THE USE OF LADDERS MUST BE TRAINED AND COMPETENT.

LADDER CONDITION

- The ladder must be in **good condition** and **inspected** before use.
- Ladder rungs need to be **clean** and free of grease or oil to prevent slips.
- Good condition means there are **no broken, cracked or missing rungs**, no broken braces, no cracks or rust anywhere and the ladder is not bent.
- **Never construct** your own ladder or carry out **makeshift** repairs to a damaged ladder; use only well-constructed purpose-built ladders.
- **Never paint** wooden ladders as the paint may hide faults.
- Ladders should be **inspected** on a **regular basis** by a competent person.



Never construct your own ladder



Ladder is secured and used for short duration work



Don't work from the top three rungs of a ladder



ONLY USE LADDERS FOR LOW RISK, SHORT DURATION WORK. DON'T WORK FROM A LADDER FOR MORE THAN 30 MIN. AT A TIME.

LADDER USE – GOOD PRACTICE

- Avoid carrying materials or tools up and down a ladder. Keep **three points of contact** to the ladder as much as possible.
- **Don't** set it up **near a passageway**, doorway, or other place where a person, vehicle or load might strike it.
- It must stand on a **level, stable** and **non-slippery surface**. If the ground is soft or uneven, wide planks can be used as a base.
- It must be **secured** at the **bottom** and the **top** to keep it from slipping or falling back.
- It must be **long enough**. Don't stand on the top three rungs of the ladder.
- Ladders must only be used by **one person** at a time.
- **Face** the **climbing side** of the ladder when going up or down.



Keep three points of contact to the ladder as much as possible



Don't use aluminium ladders near live wires

ADDITIONAL PRECAUTIONS

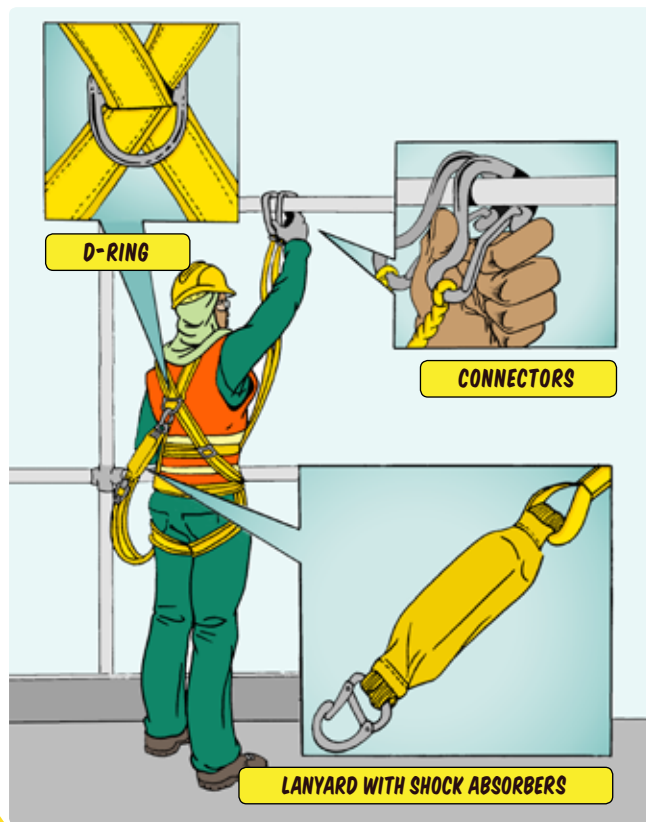
- Don't use **aluminium** ladders where there are live electrical facilities.
- Don't use ladders near other **fall hazards** such as edges or voids i.e. don't use ladders on **scaffolding** to create extra height.
- Don't use ladders outside in very **windy conditions** or **bad weather**.



Don't use ladders in windy conditions

SAFETY HARNESS SYSTEM

A SAFETY HARNESS MUST ONLY BE USED IF THERE ARE NO OTHER REASONABLE OR PRACTICAL OPTIONS THAT WOULD PROVIDE ADEQUATE FALL PROTECTION.



A SAFETY HARNESS SYSTEM CONSISTS OF THE FOLLOWING PARTS THAT MUST BE IN GOOD CONDITION:

SAFETY HARNESS

- Full-body type with **fall arrest attachment**
- Must provide the maximum degree of **comfort** and **freedom of movement**

LANYARDS

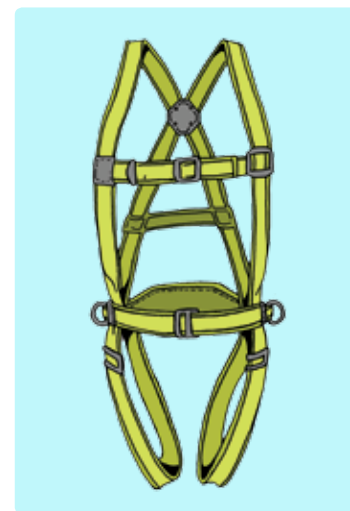
(connect the harness to the anchor point)

- A **flexible line** of rope or strap with **shock absorbers**

CONNECTORS (attach the harness to the rest of the fall arrest system)

- Must have **self-closing, self-locking gates** opened by at least two consecutive deliberate actions.
- The **D-ring** located high in the centre of the back is the appropriate connection point for **fall arrest** purposes. There can also be other D-rings used for positioning, restraint and rescue.

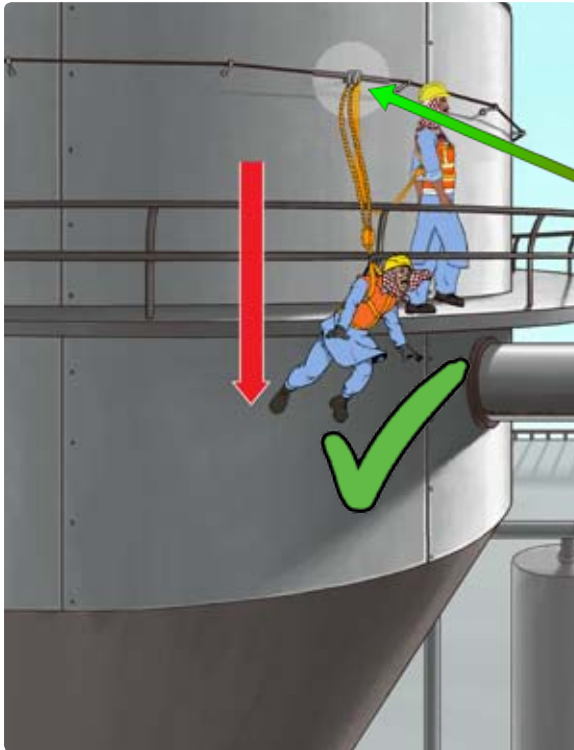
- There must be a **detailed rescue plan** in place if safety harnesses are going to be used.
- The equipment must be **regularly inspected** and **maintained**.
- It must be **checked before use**.



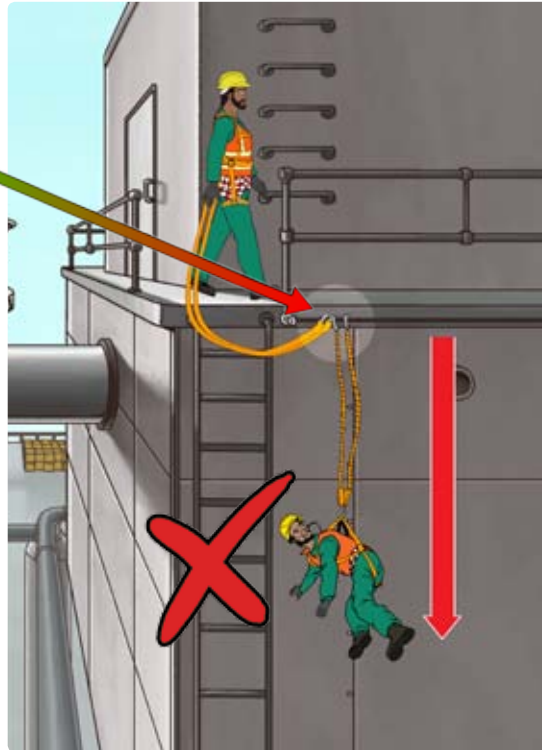
Safety Harness



HARNESS SYSTEMS CAN ONLY BE USED IF THERE ARE SECURE ANCHOR POINTS IN SUITABLE POSITIONS. THE WORKER'S HARNESS NEEDS TO BE ATTACHED TO AN ANCHOR POINT VIA A SINGLE OR DOUBLE LANYARD AND CONNECTOR.



Anchor point high. Worker doesn't fall far.



Anchor point low. Worker falls far.

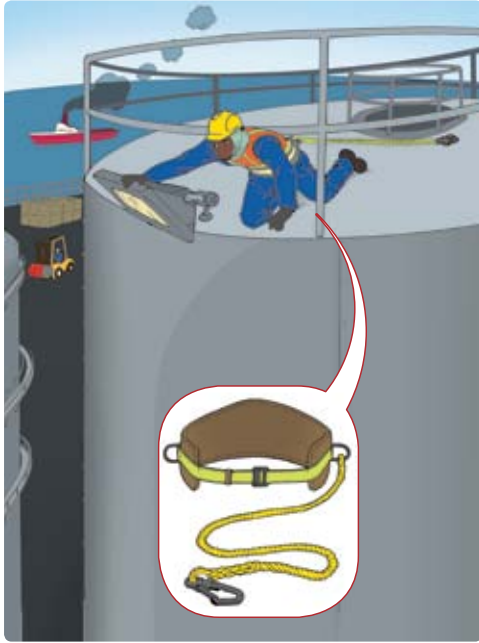
- Before workers move into an unsafe position they have to be attached to a **secure anchor point**.
- The anchor point must be **independent of any platform anchorage**, capable of supporting the worker and not used to anchor anything else.
- The position of the anchor point will determine how far the person will fall (**the fall factor**).
- Best practice is to have the anchor point **as high as possible** (above the head) to reduce the fall distance.
- Good practice is to have the anchor point at the same **level** as the **back attachment point** where the harness attaches.

DIFFERENT USES OF SAFETY HARNESS

WORK RESTRAINT

The harness prevents a fall by restricting the movement of the worker. A waist belt can be used.

It can be set up so that worker can go close to edge (fall restraint) or so that worker can't move at all (travel restraint).



The waist belt prevents the worker from moving far enough to go over the edge

FALL ARREST

The harness can stop a fall either through:

- **Primary arrest** – harness has to be deployed to stop fall.



Primary arrest: The safety harness stops the worker's fall

OR

- **Secondary arrest** – safety nets or airbags are installed below work area to stop fall before safety harness can be deployed e.g. on an unprotected edge.



Secondary arrest: The air bag stops the worker's fall

EMERGENCY RESCUE PROCEDURE

EVEN THOUGH THE GOAL IS ALWAYS TO PREVENT ALL INCIDENTS, THEY DO OCCUR. IN CASE OF AN EMERGENCY, QUICK ACTION AND SMART THINKING ARE OF THE UTMOST IMPORTANCE. THE FOLLOWING SHOULD BE CONSIDERED:



- A **rescue plan** or **procedure** must be included in the fall prevention plan and risk assessment.
- The procedure must be **regularly assessed** and updated if necessary.
- **Fully trained rescue teams** must be available to carry out a rescue **quickly** – do not rely on emergency services exclusively.
- **Speed and care** are important to minimise suspension trauma when a fall has been stopped through the use of a safety harness. **Suspension trauma** occurs when a person is suspended for a prolonged period of time and it could lead to death due to insufficient blood flow to the brain and heart. The aim is always to get the person down safely in the shortest possible time.
- An effective way of **communication** must be set up. Rescuers must be able to communicate with the casualty at all times.
- Avoid placing **additional personnel** at risk during a rescue.
- Ensure that all employees are provided with **information and training** in emergency procedures.

AN EMERGENCY RESCUE...

THE WORKER RECEIVES HIS TASK...

HE HOOKS ON SECURELY
BUT FALLS...

HELP!

THE RESCUE TEAM COMES RUNNING.

HE IS RESCUED QUICKLY.



HE IS PLACED INTO THE
RECOVERY POSITION.



RESCUE SERVICES ARRIVE.



HAAD HEIGHT AWARE PROGRAMME

Height Aware – the safe working at heights and falling objects prevention programme – has been developed to help everyone. Anyone can register to receive free support and materials from HAAD.

With this manual you will have received a DVD summarising the important points of working at heights which can be used for training health and safety personnel as well as workers. Worker and supervisor pamphlets and posters are also available.

For more details and to register for additional free material, visit our website:

www.haad-height.ae

The following materials form part of the 'Height Aware' programme:

- Working at Heights Procedure Manual for HSE professionals (English, Arabic)
- Working at Heights DVD with HSE professionals animated training video (English, Arabic) and workers animated awareness video (English, Arabic, Bengali, Urdu, Hindi, Malayalam)
- Workers Awareness Pamphlet (English, Arabic, Urdu, Bengali, Hindi, Malayalam)
- Supervisors Awareness Pamphlet (English, Arabic)
- A1 Educational Posters (English and Arabic, multi-language Asian (Bengali, Urdu, Hindi and Malayalam)
- Bilingual roll up promotional banner (English and Arabic)
- Working at Heights CD with high resolution pdf files of all materials for printing.
- Height Aware Website (English, Arabic)

