



Bangladesh Power Development Board

**INTEGRATED MANAGEMENT SYSTEM
(BASED ON ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018
STANDARDS)**

WORK AT HEIGHT

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1. Purpose

The purpose of this procedural guidance is to ensure:

- working at height is avoided where possible;
- when working at height is unavoidable, all hazards are considered and sufficient safe systems of work are in operation that will actively reduce the risk of injury to all persons involved;
- compliance with relevant legislative requirements;
- best practice is adopted.

2. Scope

This procedural guidance applies to all working at height at all the sites of Bangladesh Power Development Board (BPDB).

3. Terms and Definition

Working at height is always a high-risk activity. Falls are the largest cause of accidental death in any industry and need to be avoided by provision of suitable access equipment being properly used.

High safety standards are essential for all working at height and the nature of the precautions required must be assessed for each individual job. This procedural guidance sets out responsibilities, precautions and provides general guidance for good practice relevant to all working at height.

Working at height - All falls from any height need to be prevented. Work at height means work in any place, including a place at or below ground level or when a person is accessing or exiting from such a place (except via a staircase in a permanent workplace) where if regulatory measures are not taken, a person could fall a distance likely to cause personal injury.

Short duration work - Short duration work is measured in minutes rather than hours. It includes jobs such as replacing a few tiles, making minor adjustments to equipment, inspections and access to other areas/locations. Work at height is still dangerous even if it lasts for a short time and appropriate safety measures are essential.

Safe systems of work - A safe system of work is a method of completing a job which eliminates identified hazards and controls risks. Good planning can significantly reduce the risks involved in working at height and a safe system of work achieves the controlled completion of the work with the minimum of risk for the individuals involved. Specific types of working at height must be done under a safe system of work, guidance for which is detailed in section 5.0.

Ladders - Ladders refers to fixed ladders, all portable ladders, section ladders, extending ladders, combination ladders and stepladders.

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Working platform - A working platform constitutes any platform used as a place of work or as a means of access or egress from/to a place of work (e.g. scaffolding, trestle, mobile platform, etc).

Abbreviations

BPDB – Bangladesh Power Development Board

MEWP - Mobile elevating work platforms

4. Roles and Responsibility

It is the responsibility of the Operation & Maintenance Manager, duly authorised person or relevant line manager to ensure all aspects of this section have been carried out prior to work commencing and to ensure that a safe system of work to include a working at height permit (as required) is fully implemented.

5. Procedure

5.1 Necessity of working at height

The best way to avoid a fall from height is to make sure that nobody ever undertakes working at height. Therefore, working at height should always be avoided where possible by asking ‘do we need to do the work?’ If the work needs to be done can it be completed in a controlled manner from a safe place? For example, if a gutter need to be inspected, can it be done from a powered access platform?

Precautions for all working at height

The following precautions are required for all working at height.

5.2 Risk assessment, method statements and working at height permits

Prior to working at height commencing a risk assessment must be undertaken by a competent person and be recorded in line with the procedure of Hazard Identification and Risk Assessment. Any person requested by their line manager to assist in the risk assessment process will be competent and trained in the risk assessment process. It is the responsibility of Heads of Department/Section, etc to ensure that such persons receive appropriate information, instruction and training in risk assessment as required.

A risk assessment, safe working procedure/method statement and permit to work covering all work where it is possible to fall of 2 meters or more, must be authorised and in operation for the duration of the task. A permit to work system is a formal written system used to control certain types of work that are potentially hazardous. A permit to work is a document which specifies the work to be done and the precautions to be taken. They form an essential part of safe systems of work for many maintenance activities. They allow work to start only after safe procedures have been defined and they provide a clear record that all foreseeable hazards have been considered.

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General risk assessments and method statements are to be used for routine working at height operations.

5.2.1 Prevention of falls

Generally:

- do not work at height unless it is essential;
- ensure that the working platform is secure;
- ensure that the working platform will support the weight of those persons using it and any materials;
- ensure that the working platform is stable;
- ensure that there is adequate working space to undertake the work;
- ensure that the working platform is footed on stable ground/support/structure;
- ensure that all open edges are protected by use of guard rails, barriers, etc.

5.2.2 Working platforms

The nature and duration of the work will influence the type of working platform most appropriate for the work. Much working at height can be seen to be done from scaffolding but there are other means of access e.g. mobile elevated work platforms, tower scaffolds, personal suspension equipment (rope access and boatswain's chairs) and ladders that offer both advantages and disadvantages in use. Risks associated with erecting the equipment in addition to using it must be assessed. Consideration must be given to the following when selecting the type of work platform or means of access to the workplace:

- space available – can you fit them in?
- the type of work to be undertaken – will there be heavy loads on the platform?
- how long will the work take to complete?
- what are the risks associated with erecting the platform?
- how difficult will the platform be to maintain?
- how many people need to use the working platform?
- can the working platform be stabilised?
- can part of a proposed or existing structure be used as a safe working platform?

Working platforms should be free from openings/trapping points, be constructed so as to prevent materials from falling and be free from tripping/slipping hazards. Work platforms must be erected by appropriately trained and competent persons only.

5.2.3 Edge protection

Wherever a person could fall from height and sustain personal injury, the first line of defence is to provide adequate edge protection. This must meet the minimum legal standards or consist of:

- a main guard rail at least 910mm above the edge;

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- a toe board at least 150mm high;
- an intermediate guard rail or other barrier so that there is no gap greater than 470mm.

Edge protection must be strong and rigid enough to prevent people from falling and be able to withstand other loads likely to fall on them e.g. stored materials. They must be fixed to a structure for adequate support.

5.2.4 Fall arrest equipment

Providing platforms and edge protection may not always be possible or reasonably practicable. In such situations either safety nets or harnesses will be required. This equipment does not stop people falling, but will minimise potential injuries if they do. Any nets provided must be properly installed by competent riggers as close as possible below the working platform involved to minimise the potential fall distance. Rescue plans must be in place should a person fall into a net.

If harnesses are used, they must be securely attached to sufficiently strong anchor points and **MUST ALWAYS BE WORN**. This requires user training and active monitoring by management.

N.B. All control measures to avoid a person falling must be considered first.

5.2.5 Falling material

Housekeeping is of paramount importance and can prevent material accumulating with the potential to fall and cause injury. **NOTHING SHOULD EVER BE THROWN FROM A HEIGHT** and waste material should either be lowered to the ground in a controlled manner or dropped down an enclosed rubbish chute.

Access to areas underneath or adjacent to work at height should be prevented. Where this cannot be reasonably maintained debris netting, fans, covered walkways or similar safeguards to stop falling material causing injury should be used. Particular care is needed where there is public access close to working at height. If possible, try to arrange for work to be carried out when numbers of passers-by will be minimal e.g. out of hours.

5.2.6 Training

Persons undertaking work at height must have the appropriate knowledge, information, instruction, skills, training and experience to work safely, or be under the supervision of a designated competent person. Competence must be assured in the following areas:

- be able to recognise the risks and necessary controls to complete the work safely;
- be fully conversant with the agreed safe system of working, including where necessary the installation/wearing of safety harnesses, requirements/installation of edge protection and operation of mobile access platforms, etc;
- safe operation of equipment.

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All such training should be recorded and repeated as necessary.

5.2.7 Weather conditions

Adverse weather conditions need to be anticipated and suitable precautions planned for all external working at height. Work platforms should always be inspected prior to work at height commencing to determine whether conditions have changed and to enable safe working. When deciding whether to continue or suspend work, consideration should be given to:

- wind speed;
- controls already in place to prevent falls from height;
- the position/height of the working platform in respect of any material being handled;
- the work being undertaken.

DO NOT work at height in icy, wet or windy conditions. Avoid excessive exposure to sunlight by wearing appropriate clothing, using sun-creams and wearing sun glasses to avoid excessive reflective glare.

5.2.8 Short duration work

It may not be reasonably practicable to provide full edge protection for short duration work, but it still needs to be considered during the risk assessment process. Where it is not reasonably practicable to provide full edge protection, a securely attached safety harness must be considered appropriate for personnel working at height. All personnel who wear a safety harness must be trained in its correct use.

Mobile access equipment provides both edge protection and a working platform and may be suitable for short duration/minor work.

5.2.9 Prevent unauthorised access

Make sure unauthorised access to all access equipment and working platforms is prevented. This may be achieved by implementing a permit-to-work system or by blocking off/securing access to the area(s) concerned.

5.2.10 Working on or near to fragile material

At **no time** may anyone work on, from or pass over fragile material, unless platforms, coverings or other similar safe means are provided that adequately support and protect the individual. Support platforms must be at least 600mm wide and of greater width if the work requires it. Platforms must be long enough to provide adequate support to do the work safely. Precautions are required to prevent people and materials falling from the platform. Edge protection comprising of a top rail, intermediate rail and toe-board is required.

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Safety netting installed beneath work at height will provide collective fall protection in the area that it covers. Harnesses will also provide fall protection but will require adequate attachment points. Information, instruction, training and supervision for people working at height is essential.

Protection must be provided when anyone passes or works less than 2 m from a fragile material. In such situations fragile materials must be securely covered, or full edge protection provided to the perimeter or along the full length of the fragile material to prevent access to it. Appropriate precautions are to be taken when installing such protection (e.g. safety netting or harnesses). Where it is not reasonably practicable to provide such protection for example, in cases where proximity to the fragile material is irregular or for a short time span, use of safety harnesses may be appropriate.

Designated boundaries can be established that are useful in identifying safe work areas and/or routes to and from them. If these are used:

- the boundary should be at least 2m from the fragile material;
- the boundary does not need to comply with full edge protection standards, but there should be a physical barrier (a painted line or bunting is not acceptable);
- all persons should receive appropriate information, instruction and training.

5.2.11 Worker considerations

Any person requested to work at height will be physically fit and provided with suitable PPE to include non-slip footwear as appropriate, identified via the risk assessment process. Plant managers are responsible for identifying such members of staff within their line management who regularly work at height for occupational health referral to the Plant's occupational health provider prior to undertaking any such works for the first time and at regular intervals thereafter. When moving/carrying activities e.g. step ladders, etc. are identified via the risk assessment process, individuals will receive manual handling training and an appropriate manual handling risk assessment will be completed by line managers.

5.3 General access scaffolds

All scaffold must:

- be designed, erected, altered and dismantled by competent trained personnel and such work must be directed by a competent supervisor;
- never be erected over people or busy areas. This risk must be controlled by scheduling the work during quiet times such as early mornings or alternatively, closing pavements/areas with permission from local authorities;
- be placed on a firm and level foundation that is capable of supporting the weight of the scaffold and any other potential loading;
- be braced and tied into a permanent structure or otherwise suitably stabilised as per any manufacturer's instructions;
- only be sheeted after informing and obtaining guidance from the supplier;

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- have platforms that are fully boarded and of adequate width for the intended work and access;
- consist of scaffold boards that are adequately supported and do not overhang excessively;
- be designed to prevent falling materials;
- be braced to help them from collapsing with platforms of at least four boards wide;
- be securely tied or otherwise supported;
- provide ladders or other safe access onto the work platform;
- only be altered by a competent scaffolder;
- erected following manufacturers instructions;
- be checked for suitability for the task prior to use or whenever it is altered or adversely affected (e.g. in high winds);
- be inspected by a competent person before first use, after substantial alteration, after any event likely to have affected stability and at regular intervals not exceeding 7 days.

When scaffolding is left unattended it should be secured in such a manner to stop unauthorised access for example by removing ladders at ground level. Waste materials should be removed via mechanical hoists or more often rubbish chutes. Scaffolding erected on public highways or on any roads, pavements, paths or routes used by the public must be authorised by the relevant Local Authority.


5.4 Tower scaffolds (mobile access towers)

Tower scaffolds can provide an effective safe means of access for working at height but many are involved in accidents due to incorrect operation and use, as all parts must be placed correctly to ensure safe operation. Tower scaffolds should only be adopted for use when the organiser of the work at height is satisfied that the equipment is the most suitable for the task to be undertaken. A wide range of prefabricated towers are available and the manufacturer or supplier has a duty to provide an adequate instruction manual detailing advice on the erection sequence and bracing requirements. If the equipment is hired, the hirer should provide this information which should be passed to the person erecting the tower.

A safe method of work must be adopted for erecting the tower scaffold and there are two approved methods recommended by the 'Prefabricated Access Suppliers and Manufacturers Association' (PASMA) as follows:

Advance Guard Rail System – temporary guard rail units are locked in place from the lower level and then moved up to the platform level. The temporary guard rails act as collective fall protection and are positioned before the erector accesses the platform to install the permanent guard rails. This system ensures that the operator is not exposed at any time to the risk of falling from an unguarded platform.

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'Through-the-trap' system – this system allows the operator to be at minimum risk during installation by taking up a position in the trap door of the platform where it is possible to remove or add components that act as guard rails for the level above. Again, the operator is not exposed to the risk of falling from an unguarded platform as components are installed whilst within a trap door arrangement.

If a tower scaffold is to be used:

- all manufacturers instructions for erection, use and dismantling must be adhered to;
- the person erecting the tower should be competent;
- an instruction manual should be kept with the tower scaffold for reference;
- the tower must be vertical with the legs supported on firm level ground with locked castors or base plates properly supported;
- stabilisers or outriggers must be used and fixed in position when advised to do so in the manual and when the tower scaffold is in position;
- a safe means of access to and from the work platform must be provided e.g. internal ladders with secure handholds at all landing places;
- edge protection in the form of guard rails and toe boards to all platforms (including intermediate ones) must be provided;
- unless the tower has been specifically designed for such activities it should never be sheeted; exposed to strong winds; used for grit blasting/water jetting; loaded with heavy items or equipment; used to hoist materials or to support rubbish chutes;
- always check the safe base to height ratio or safe working height in the instruction manual and never exceed it;
- suitable edge protection to platforms must be provided where a person could fall a distance liable to cause personal injury. Guard rails should be at least 910mm high, toe boards at least 150mm high and intermediate guard rails provided to ensure that no unprotected gaps exceed 470mm;
- the working platform must only be accessed via a safe route and must consist of a built-in ladder of an appropriate design located on the inside of the tower.

DO NOT:

- use a ladder footed on the working platform;
- use the tower as support for ladders, trestles or other access equipment;
- apply horizontal loads;
- overload the working platform;
- move the tower by applying force at the platform level;
- climb up the outside of the tower unless it has been specifically designed for this purpose;
- use a tower scaffold in situations where the weather is likely to make it unstable;
- use an incomplete tower.

All tower scaffolds must be erected by appropriately trained and competent persons only.

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When moving a mobile tower scaffold the route must be checked in advance for power lines, overhead obstructions and holes/dips in the ground. The tower must be cleared of all materials and people prior to it being manually pushed/pulled at its base. Anyone moving a tower scaffold must have received manual handling training and be in possession of a manual handling risk assessment covering the task. The tower should be reduced to a maximum height of 4m prior to moving and never be relocated in windy weather.

Tower scaffolds must be inspected by a competent person with experience, knowledge or appropriate qualifications so that any risks present can be identified and control measures implemented as appropriate. If the working platform is less than 2m in height the tower must be inspected after any assembly in any position, after any event liable to affect stability and at suitable intervals depending on frequency and conditions of use. If the working platform is 2m or more in height the tower must be inspected after assembly in any position, after any event liable to affect stability and at intervals not exceeding seven days. The result of any inspection should be recorded and kept on site until the next inspection is recorded. A visible tag system to supplement inspection records is acceptable. If the tower is 2m or more in height and the inspection is undertaken after installation or assembly, or to comply with the seven day inspection regime the competent person must complete the inspection report before the end of the working day and provide a copy to the person the inspection was carried out for within 24 hours. The person receiving the report must keep it at the site of the inspection until the construction work is complete and thereafter, keep it at an office for three months. A new inspection and report are not required every time a mobile tower is moved on the same site, but if guard rails or other components have to be removed to facilitate relocation, then a pre-use check should be undertaken by a trained and competent user to make sure the tower has been reinstated correctly.

Where towers are located in public places extra precautions should be provided to include:

- barriers at ground level to prevent persons walking into the tower or work area;
- minimise materials and equipment storage on the working platform;
- remove or board-over access ladders to prevent unauthorised access if the tower remains in position unattended.

Dismantling advance guard rail towers involves the operator starting from the top and reinstating the advance guard rail unit prior to removing the permanent guard rails and toe boards and then descending to the lower level. The process is then repeated on the lower levels by relocation of the guard rail units. This methodology ensures that collective fall protection is provided throughout the operation. Dismantling ‘through-the-trap’ systems involves the operator removing the toe boards and then disengaging the guard rail hooks furthest away from the trap. Guard rail components are then removed with the operator positioned through the trap who descends to the lower level from where the upper platform and end frames are removed. Again, this methodology ensures that collective fall protection is provided throughout the operation.

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5.4 Mobile and suspended access equipment

Where work cannot be done from an existing structure and the use of a scaffold working platform is not appropriate, there is a range of mobile access equipment that may be used. These include mobile elevating work platforms (MEWPS), suspended cradles, mast climbing work platforms (MCWPs), boatswain's chairs/seats and rope access equipment. Any person using this type of equipment must be trained and competent to operate it and be fully conversant with emergency and evacuation procedures.

Before any work commences that involves mobile and suspended access equipment the following must be in place:

- a handover certificate provided by the supplier/installer. It should include details of how to deal with emergencies, operate, check and maintain the equipment and state its safe working load;
- any equipment installed, modified and dismantled must be undertaken by a competent specialist;
- a current report of thorough examination provided for the equipment;
- areas cordoned off to avoid the impact of people with the platform and debris;
- safe systems of use in place for when the platform rises and descends to ensure that it does not come into contact with anything/anyone;
- any supports are protected from damage;
- ensure that the equipment is protected from adverse weather.

At the end of each working day the following checks must be carried out and recorded:

- the platform is clear of all materials and tools;
- all power is switched off and cables secured and made dead;
- the equipment is secured to avoid access to trespassers and vandals;
- notices stating that the equipment is out of service and must not be used are to be displayed;
- shift reports to be checked for any warnings of malfunctions.

5.4.1 Mobile elevating work platforms (MEWPs)

Mobile elevating work platforms (MEWPs) can provide excellent safe access to high levels. Anyone using a MEWP must ensure that:

- the operator is fully trained and competent;
- the work platform is fitted with guard rails, toe boards or other suitable barriers;
- it is only used on firm and level ground;
- the tyres are fully inflated;
- outriggers are properly extended and chocked before the platform is raised into position;
- emergency procedures are in place should the platform fail in the elevated position;
- the MEWP is not operated close to overhead obstructions or cables;

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- allow any part of the MEWP to extend over a traffic route
- the MEWP is not moved with the platform in the elevated position.

Employers and others responsible for the use of MEWPs must assess the risks of people falling from or being thrown from the carrier, or the MEWP overturning and take precautions to eliminate or control these risks. If the risks cannot be eliminated then measures should be put into place to minimise the risk of falling from or with the carrier. If there is still a residual risk of impact or persons falling then the use of fall protection equipment should be considered for example:

- when working adjacent to or in a live highway;
- when travelling with the carrier in a raised position where it may strike fixed objects in its path;
- when travelling with the carrier in a raised position over uneven ground;
- steel erection where the carrier has to move in and around the steelwork.

Fall protection will normally consist of either a work restraint system (normally a combination of a full body harness and lanyard) or fall arrest system. Wearing of a harness with a fall restraint lanyard attached to the platform can provide additional protection against falls whilst the platform is in motion.

The supplier of such equipment must provide information and instruction at the point of delivery.

5.5 Temporarily suspended access cradles and platforms

All such equipment should be selected, installed, thoroughly examined and tested to ensure that it is suitable for its intended use. Only trained and competent workers should use suspended access cradles and platforms. When cradles are used the following must be checked:

- there are adequate guard rails and toe boards;
- materials cannot fall through or from the cradle base;
- the cradle can fit close to the building and any buffers/rollers will run along suitable sections of the building;
- the building can carry the intended loads (a structural engineer may need to be consulted);
- adequate stops are installed to ensure that the cradle does not run off the end of the track;
- a factor of safety against overturning of no less than three is assured;
- a secondary safety rope fitted with a fall arrest device is provided and used;
- detailed operating instructions and technical support is available;
- the cradle must not be overloaded during use and any loads must be evenly distributed;
- safe access into the cradle, preferably at ground level;
- ensure emergency procedures are in place should the operator require rescuing whilst in an elevated position.

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All operators within the cradle must wear a safety harness attached to a suitable anchorage point within the cradle/platform or alternatively be attached to a running line rigged to the cradle. The lanyards to the harness should be kept as short as possible but allow the operators to reach their place of work.

A thorough visual pre-use check for obvious faults must be undertaken prior to each use and a weekly inspection by a competent person scheduled and recorded.

5.6 Boatswain's chairs/seats

This equipment can be used for light short-term work. Their use can only be justified where it is not practicable to provide a working platform. A boatswain chair/seat consists of a seat with a back, a central suspension point and a carrying facility for tools. The user must be attached to the suspension system by way of a harness and lanyard as protection against falls.

5.7 Rope access

This method is only acceptable for inspection and short-term light work where access from a working platform is not practicable. The following checks of rope access equipment must be made:

- the equipment is erected and used under the supervision of a competent person;
- the equipment is checked by a competent person prior to use;
- users of the equipment are trained and competent in its use;
- safe descent does not rely upon a single suspension point;
- the equipment is maintained and inspected on a regular basis;
- all tools required during use are attached to the operator with suitable chains/ropes so that they cannot be dropped;
- the area below the work is cordoned off if there is a risk of tools or materials falling.

5.8 Safety harnesses

In situations when it is not practicable to provide the requirements for edge protection and where people may still approach an open edge which they would be liable to fall a distance likely to cause injury, other forms of protection will be required. In some situations a suitably attached harness and temporary horizontal lifeline could allow safe working.

The following must be considered when using harnesses and temporary horizontal lifelines:

- harnesses and lanyards are prone to degradation and daily pre-use checks must be performed;
- an energy absorber fitted to the energy-absorbing lanyard can reduce the risk of injury to the user from impact loads should a fall occur;
- to minimise the free-fall distance the anchor needs to be kept as high as possible;
- emergency procedures must be in place to rescue anyone who does fall;
- operator attachment must take place from a safe position;
- the energy-absorbing lanyard should be attached above the wearer where possible;

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- ensure that there is adequate fall height to allow the system to operate effectively;
- if the user needs to move about during operations a twin lanyard should be used;
- installation of fixing points for harnesses must be supervised by a suitably qualified person;
- any person tasked to wear a harness must know how to check, wear and adjust it before use and the procedure for connecting themselves to the structure or safety line.
- Each day harnesses and lanyards must be inspected visually before use. They must also be thoroughly examined periodically, at least every six months.

5.9 Ladders & Stepladders

People organising and managing working at height must be able to justify that a ladder or stepladder is the most suitable type of access equipment by comparison to other options available. This is achieved by undertaking a risk assessment approach and taking into account the following hierarchy of controls:

- avoid the necessity for working at height;
- where working at height cannot be avoided, prevent falls from height;
- where falls cannot be prevented, reduce the consequences of any fall.

When deciding whether a ladder or stepladder is most suitable for use, consideration should be given to the following factors:

- should only be used for a maximum of 30 minutes in one position;
- used for light work only and not include tasks that involve the worker carrying more than 10kg (i.e. a bucket and contents) whilst ascending the ladder/steps, unless this task can be justified via a detailed manual handling risk assessment;
- a handhold should be available on the ladder/step ladder;
- maintain three points of contact (hands and feet) whilst in the working position. If a handhold cannot be maintained on a ladder other measures will be required to prevent the risk of a fall or reduce the consequences of one. Where a handhold is not practicable on stepladders, a risk assessment will be required to justify that it is a safe method of working.

Whether using a ladder or step ladder operators must not:

- overload it and observation must be made of the maximum safe load stated on the ladder;
- overreach or overstretch whilst on the ladder (always keep both feet on the same rung and centre of the body within the styles).

Whilst using stepladders, actions that involve the operator imposing a side loading should be avoided and a general rule of thumb is that the steps should be face-on to the work activity. Where this is not feasible, the steps should be tied at a suitable point or another type of access equipment adopted for the work that is more suitable. Tool belts should be used for carrying items whilst ascending and descending ladders. One hand should be free to grip the ladder and on stepladders where a handhold cannot be achieved for the duration of the task its use will have to be justified taking into account the following important factors:

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- a handhold still being available on the stepladder;
- whether the work involved is classed as 'light' work;
- whether the task involves any side loading;
- whether the task avoids overreaching/overstretching;
- whether the users feet are fully supported;
- whether it is feasible to tie the stepladder.

Manufacturers should be able to provide basic information about the types of surfaces that their products are designed to be used on and this should be born in mind at the point of purchase.

Ladders and step ladders should only be used:

- on firm ground or where the load can be spread via use of a board;
- on level ground (a maximum side slope of 160 with the rungs levelled or a maximum back slope of 60);
- on clean and solid surfaces that are free from loose material to ensure that the feet can grip adequately;
- where they have been appropriately secured.

There are different options for securing ladders in-situ and are as follows:

- tie both stiles of the ladder to a suitable point, whether tied at the top, part way down or close to the base;
- where ladders cannot be tied an effective ladder stability device should be utilised at the base;
- where the ladder cannot be secured, it should be securely wedged for example against a wall;
- if none of the above options can be achieved, the ladder should be footed by an appropriate individual. Footing should always be considered as a last resort and if possible should be avoided, by making use of other access equipment;
- ladders used for access to another level should be tied and extend at least 1m above the landing point to provide a secure handhold. As a general rule, stepladders should not be used in this manner unless they have been specifically designed for this purpose.

If ladders or stepladders are to be used for any work at height, must make sure of the following:

- they are protected with suitable barriers and cones to prevent them being struck by vehicles;
- they are positioned where they cannot be pushed over by opening doors or windows which should be secured where possible or have a person standing guard throughout use;
- pedestrians are stopped from walking underneath them or close to their base by making use of barriers;
- they are placed at the correct angle of 750 (as a rule of thumb this is 1 unit out for every 4 units up);
- that restraint devices are fully open and all locking devices are engaged;
- the ladder or stepladder use is not within 6m horizontally of any overhead power lines, unless they are made temporarily dead or protected with insulation;

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- any live electrical work is undertaken from a non-conductive ladder or steps;
- they are not rested against weak upper surfaces (e.g. plastic gutters or glazing) and that spreader bars or stand-offs are used;
- they are only used by one person at a time.

Stepladders and ladders should only be used if:

- they have no visible defects and have had a pre-use check completed for that working day;
- they have a current detailed visual inspection undertaken in accordance with the manufacturer's instructions. (Ladders forming part of an integral scaffold system must still be inspected every seven days);
- they are suitable for the work to be undertaken;
- they are stored and regularly maintained in accordance with the manufacturer's instructions.

Any person using a ladder or stepladder:

- must wear robust, suitable non-slip footwear that is free from contaminants on the soles;
- face the ladder when ascending and descending;
- be physically fit for working at height;
- be competent in that they have received information, instruction and training in safe use of the equipment;
- ensure that the ladder is long enough for the task;
- ensure that the rungs/steps are level by a quick 'eye' check;
- the weather is suitable for the duration of the task;
- they are aware of how to prevent members of the public and others from using them;
- they know how to tie a ladder or stepladder properly.

6.0 Reference

ISO 45001: 2018 Standard

7.0 Appendix

a) Checklist for Work at Height

8.0 Revision History

SI No.	Revision Number	Section	Change Made	Date of Creation

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