# Working at Height

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## 1. Introduction

1.1 Many home and work injuries involve falls from heights. The human body is not designed to resist impacts well, and the resulting injuries are unpredictable in their extent. As chance determines the resulting injuries from falling from height, regardless of whether it is one metre or ten metres, and these injuries cannot be predicted in advance, the only course that can be followed is one of prevention.

## 2. Management responsibilities

2.1 The duty holder, as the nominated individual responsible for overseeing the working at height, must consider the following:

- Ensure that the work cannot be carried by any other intrinsically safer method.
- All work at height is properly planned and organised.
- All work at height takes account of weather conditions that could endanger health and safety.
- Those involved in work at height are trained and competent.
- The place where work at height is done is safe.
- Equipment for work at height is appropriately inspected.
- The risks from fragile surfaces are properly controlled.
- The risks from falling objects are properly controlled.

2.2 Within schools, the duty holder is the headteacher, whom must ensure that the policy is in place, although the individual responsibilities can be delegated to competent persons. Appropriate items such as stepladders and ladders must be used by staff when working at height (such as the fixture of displays or retrieving low-use items from storage) to prevent injuries to both staff and pupils. Ladders and stepladders should be provided in appropriate locations for ease of retrieval, and items such as chairs and desks are never to be used, regardless of the task.
3. **Legal requirements**

3.1 There are a number of general legal standards that may be applied to equipment and processes when working at height;

- The Health and Safety at Work Act 1974
- The Construction (Health, Safety and Welfare) Regulations 1996
- The Management of Health and Safety at Work Regulations 1999
- The Work at Height Regulations 2005
- The Provision and Use of Work Equipment Regulations 1998
- The Lifting Operations and Lifting Equipment Regulations 1998

3.2 However, the most specific legislation is the Work at Height Regulations 2005, which applies to all work at height where there is a risk of a fall liable to cause personal injury. They place duties on employers, the self-employed, and any person who controls the work of others (e.g. facilities managers or building owners who may contract others to work at height) to the extent they control the work.

3.3 The Regulations do not apply to the provision of paid instruction or leadership in caving or climbing by way of sport, recreation, team building or similar activities.

3.4 For those who are an employee or working under someone else’s control, Regulation 14 says the staff must:

- Report any safety hazard to the site manager;
- Use the equipment supplied (including safety devices) properly, following any training and instructions received (unless it is thought that process would be unsafe, in which case staff should seek further instructions before continuing).

4. **General principles**

**Planning**

4.1 Duty holders must:

- Ensure that no work is done at height if it is safe and reasonably practicable to do it other than at height;
- Ensure that the work is properly planned, appropriately supervised, and carried out in as safe a way as is reasonably practicable;
- Plan for emergencies and rescue;
- Take account of the risk assessment carried out under regulation 3 of the Management of Health and Safety at Work Regulations.
- Where they cannot eliminate the risk of a fall, use work equipment or other measures to minimise the distance and consequences of a fall should one occur.
- Use work equipment or other measures to prevent falls where they cannot avoid working at height; and
- Avoid work at height where they can;
Duty holders must consider:

Weather

4.2 Duty holders must ensure that the work is postponed while weather conditions endanger health or safety (but this does not apply to emergency services acting in an emergency).

Staff training

4.3 Duty holders must ensure that everyone involved in the work is competent (or, if being trained, is supervised by a competent person). This includes involvement in organisation, planning, supervision, and the supply and maintenance of equipment.

4.4 Where other precautions do not entirely eliminate the risk of a fall occurring, duty holders must (as far as it is reasonably practicable to do so) train those who will be working at height how to avoid falling, and how to avoid or minimise injury to themselves should they fall.

The place where work is done

4.5 Duty holders must ensure that the place where work is done at height (including the means of access) is safe and has features to prevent a fall, unless this would mean that it is not reasonably practicable for the worker to carry out the work safely (taking into account the demands of the task, equipment and working environment).

Equipment, temporary structures, and safety features

4.6 Duty holders must provide equipment for preventing (as far as is reasonably practicable) a fall occurring.

4.7 If the precautions do not entirely eliminate the risk of a fall occurring, you must do all that is reasonably practicable to minimise the distance and effect of a fall.

4.8 When selecting equipment for work at height, the duty holder must:

- Use the most suitable equipment.
- Give collective protection measures (e.g. guard rails) priority over personal protection measures (e.g. safety harnesses).
- Take account of:
  - The working conditions; and
  - Risks to the safety of all those at the place where the work equipment is to be used.

4.9 Duty holders must ensure that all equipment, temporary structures (e.g. scaffolding), and safety features comply with the regulations.
Inspections

4.10 ‘Inspection’ is defined by regulation 12(10) of the Work at Height Regulations 2005 as “such visual or more rigorous inspection by a competent person as is appropriate for safety purposes … (including) any testing appropriate for those purposes”.

4.11 Duty holders must ensure (as far as it is reasonably practicable to do so) that each individual place at which work is to be done at height is checked on every occasion before that place is used. This involves checking the surface and every parapet, permanent rail etc.

4.12 Duty holders must ensure that any item of a type mentioned in Schedules 2 to 6 is inspected:

- After it is assembled or installed (or after it has been assembled and installed if both are required), if its safety depends on how it is assembled or installed;
- As often as is necessary to ensure safety, and in particular to make sure that any deterioration can be detected and remedied in good time.

4.13 Duty holders must ensure that before users use any equipment which has come from another business, and before any equipment leaves the business, it is accompanied by an indication (clear to everyone involved) that the last inspection required by these regulations has been carried out.

4.14 Thus, the areas that should be considered by duty holders include;

- Faulty design of the access structure itself.
- Inappropriate selection of equipment when safer alternatives could have been used.
- Subsidence or failure of base support.
- Structural failure of suspension system.
- Structural failure of the components.
- Structural failure through overloading.
- Structural failure through poor erection/inspection/maintenance.
- Structural failure through overbalancing.
- Instability through misuse or misunderstanding.
- The potential for overreaching and overbalancing.
- Climbing while carrying loads.
- Slippery footing, including the weather, wrong footwear and failure to clean the routs of access and egress.
- Falls from working platforms and in transit.
- Unauthorised alterations and use.
- Contact with obstructions and structural elements.
- Electrical and hydraulic failures.
- Trapping by moving parts.
5. **Fall prevention and fall protection**

5.1 It is essential to understand the difference between these two concepts. Fall prevention aims to remove the need for people to work exposed to falls, undertaken by design and planning work. Fall protection is the use of techniques to protect those who are necessarily exposed to fall hazards so as to minimise the risks.

5.2 Changing luminaries in very high ceilings can be done from access equipment, but a safer solution is to design a fixed way of access above the ceiling space. Programming the early erection of fixed and final stairways during a building’s construction removes the need for temporary access up ladders and also the need to protect an open stairwell. These solutions need to be considered before other access choices.

5.3 For temporary access to heights, as in construction work, the principle is to provide protected access for every person likely to be at risk in preference to provision of personal protection. Thus, the use of a working platform with edge protection is always preferred to methods that do not prevent falls but provide protection when falls occur.

6. **Access equipment**

6.1 Each task should be assessed and a suitable means of access chosen based on an evaluation of the work to be done, the duration of the task, the working environment (and its constraints), and the capability of the person or people carrying out the task.

6.2 There are many types of access equipment, and this guidance note covers the general principles and the most commonly used pieces of equipment. Other, highly specialised equipment is also available and the general principles will apply to their use. Usually, they have been specifically designed for particular tasks and manufacturers’ information should be used in operator training.

7. **Ladders, stepladders and trestles**

**Ladders**

7.1 When selecting and using a ladder the following issues should be considered;

- See whether an alternative means of access is more suitable. Take into account the nature of the work and its duration, the height to be worked at, what reaching movements may be required, what equipment and materials may be required at height, the angle of placement and the foot room behind the rungs, and the construction and type of ladder.

- Check visually whether the ladder is in good condition and free from any slippery substances.

- Check facilities are available for securing the ladder against slipping – tied at the top, secured at the bottom, or footed by a second person if no more that three-metre height access is required.
• Ensure that the rung at the step-off point is level with the working platform or other access point, and that the ladder rises a sufficient height above this point (at least one metre or five rungs recommended) unless there is a separate handhold.

• A landing point, for rest purposes, is required every nine metres.

• The correct angle of rest for the ladders is approximately 75 degrees – i.e. one unit horizontally for every four units vertically.

• Stiles (upright sections) should be evenly and adequately supported.

• Ladders should be maintained free of defects and should be inspected regularly.

• Ladders that are damaged and beyond repair should be destroyed.

• Metal ladders, and wooden ladders when wet, are conductors of electricity and should not be placed near or used for any electrical work.

• It is important to ensure that ladders are positioned right way up. Timber pole ladders often have styles that are thicker near the base than at the top, and should have metal tie rods under the rungs. Metal ladders often have rungs with both flat and curved surfaces – the flat surface is the one upon which the user’s feet should rest.

Stepladders

7.2 When selecting and using a stepladder the following issues should be considered:

• Stepladders are not designed to accept side loading.

• Chains or ropes to prevent overspreading are required, or other parts designed to achieve the same result. Parts should be fully extended.

• Stepladders should be levelled for stability on a firm base.

• Work should not be carried out from the top step.

• Overreaching should be avoided by moving the stepladders – if this is not possible, another means of access should be considered.

• Equipment should be maintained free from defects, and regular inspection is required.

• No more than one person should use a stepladder at one time.
Working platforms and trestles

7.3 When selecting and using a working platform or a trestle the following issues should be considered;

- Trestles are only suitable as board supports.
- They should be free from defects and inspected regularly.
- Trestles should be levelled for stability on a firm base.
- Platforms bases on trestles should be fully boarded, adequately supported and provided with edge protection where appropriate.
- Safe means of access should be provided to trestle platforms, usually by a stepladder.
- Working platforms in construction work must, by law, be no less that 600mm in width, so many older trestles may not be suitable to support such platforms as they will be too narrow.

8. General access scaffolds

8.1 There are three main types of access scaffold, commonly constructed from steel tubing or available in commercial patented sections. They are;

- Independent tied scaffolds, which are temporary structures independent of the structure which access is required but tied to it for stability.
- Putlog scaffolds, which rely on the building (usually under construction) to provide structural support to the temporary scaffold structure through an arrangement of putlog tubes (with special flattened ends) placed into the wall.
- Birdcage scaffolds, which are independent structures normally erected for interior work that have a large area and normally only a single working platform.

8.2 When selecting and using a general access scaffold, the following issues should be considered;

- Select the correct design with adequate load-bearing capacity.
- Ensure adequate foundations are available for the loads to be imposed.
- The structural elements of the scaffold should be provided and maintained in good condition.
- Structures should be erected by competent persons or under the close supervision of competent person, in accordance with any design provided and applicable regulations and codes.
• All working platforms should be fully boarded, with adequate edge protection, including handrails or other means of fall protection, nets, brickguards, and/or toeguards to prevent materials or people falling from the platforms.

• All materials resting on the platforms should be stacked safely, with no overloading.

• Adequate and safe means of access should be provided to working platforms.

• Unauthorised alteration of the completed structures should be prohibited.

• Inspections of the structure are required, prior to first use and then at appropriate intervals thereafter, which will include following substantial alteration or repair, after any event likely to have affected stability, and at regular intervals not exceeding seven days. Details of the results should be recorded on an inspection form.

9. Scaffold towers

9.1 Scaffold towers are available commercially in forms comparatively easy to construct. They may also be erected from traditional steel tubing and couplers. In either form, competent and trained personnel are required to ensure that all necessary components are present and in the right place. Many accidents have occurred because of poor erection standards; a further common cause is overturning.

9.2 When selecting and using a scaffold tower, the following issues should be considered;

• Erection should be with the supplier’s or manufacturer’s instructions.

• Erection, alteration and dismantling should be carried out by experienced, competent persons.

• Towers should be stood on a firm level base, with wheel castors locked if present.

• Scaffold equipment should be in good condition, free from obvious defects such as bending or twisting, and properly maintained.

• The structure should be braced in all planes to distribute loads correctly and prevent twisting and collapse.

• Freestanding towers should not be used above 9.75 metres unless tied. When tied, the maximum height to the upper working platform should not exceed twelve metres.
• A safe means of access should be provided on the narrowest side of the tower. This can be achieved by vertical tower attached internally, by internal stairways, or by ladder sections designed to form part of the frame members. It is not acceptable to climb frame members not designed for the purpose.

• Trapdoors should be provided in working platforms where internal access is provided.

• Platforms should be properly supported and fully boarded.

• Guardrails, toeboards and other appropriate means should be provided to prevent falls of workers and/or materials.

• Mobile scaffold towers should never be moved while people are still on the platform, as this is a significant cause of accidents.

• Ladders or stepladders should not be placed on the tower platform to gain extra height for working.

10. Suspended access

10.1 A suspended access system includes a working platform or cradle, equipped with the means of raising or lowering when suspended from the roof rig. The key points to be observed in the safe installation and use of this equipment are:

• It should be capable of taking the loads likely to be imposed upon it.

• Experienced erectors should only be used for the installation.

• Supervisors and operators should be trained in the safe use of the equipment and in emergency procedures.

• Inspections and maintenance should be carried out regularly.

• All safety equipment, including brakes and stops, should be operational.

• The marked safe working load must not be exceeded and wind effects should also be considered.

• Platforms should be free from obstruction and fitted with edge protection.

• The electrical supply is not to be capable of inadvertent isolation and should be properly maintained.

• Adverse weather conditions should be defined so that supervisors and operators know what is considered unacceptable.

• All defects noted are to be reported and rectified before further use of the equipment.
• Safe access is required for the operators and unauthorised access is to be prevented.

• Necessary protective measures for those working below as well as public should be in place before work begins.

11. **Personal suspension equipment**

11.1 Also known as a boatswain’s (bosun’s) chair, this is a seating arrangement provided with a means of raising or lowering with a suspension system. This method should only be used for very short duration work, or in positions where access by other means is impossible.

11.2 Abseiling equipment is used by specialists to gain access where the duration of work is likely to be very short indeed and the nature of the work lends itself to this approach.

11.3 When selecting and using personal suspension equipment, the following issues should be considered;

• The equipment must be suitable and of sufficient strength for the loads which are anticipated and the purpose it is to be used for. A specific risk assessment should be made in every case.

• The equipment must be securely attached to plant or a structure strong and stable enough for the circumstances.

• Suitable and sufficient steps must be taken to prevent falls or slips from the equipment.

• The equipment must be installed or attached as to prevent uncontrolled movement.

12. **Mast-elevated work systems**

12.1 Generally, this equipment consists of three elements;

• Mast(s) or tower(s) which support(s) a platform or cage.

• A platform capable of support persons and/or equipment.

• A chassis supporting the tower or mast.

12.2 When selecting and using mast elevated work systems, the following issues should be considered;

• Only trained personnel should erect, operate or dismantle the equipment.

• The manufacturers instructions on inspection, maintenance and servicing should be followed.
• Firm level surfaces should be provided, and outriggers are to be extended before use or testing, if provided.

• Repairs and adjustments should only be carried out by qualified people.

• The safe working load of the equipment should be clearly marked on it, be readily visible to the operator and never be exceeded.

• Raising and lowering sequences should only be initiated if adequate clearance is available.

• The platform should be protected by edge guardrails and toe boards, and provided with an adequate means of access.

• Emergency systems should only be used for that purpose and not for operational reasons.

• Unauthorised access into the work area should be prevented by a range of measures, such as barriers.

• Contact with overhead power cables should be prevented by preliminary site inspections and not approaching closer than a given distance. Where necessary this distance can be obtained from the power supply company concerned.

13. **Power-operated mobile work platforms**

13.1 A wide variety of equipment falls into this category, ranging from small mobile tower structures with self-elevating facilities to large vehicle-mounted, hydraulically-operated platforms.

13.2 When selecting and using power-operated mobile work platforms, the following issues should be considered;

• Operator controls should be at the platform level, with override controls at ground level for emergencies.

• There should be a levelling device fitted to the chassis to ensure verticality in use.

• Supervision should prevent use of the equipment during adverse weather conditions.

• Outriggers, where provided for extra stability, should be fully extended and locked into position before the equipment is used/raised, in accordance with the manufacturer’s instructions. The wheels may also require locking.

• Materials and/or persons should not be transferred to and from the platform while in the raised position.

• Training is required for operators before they are allowed to use the equipment in field conditions unsupervised.
• Operators and other on the platform should wear safety harnesses secured to the inside of the platform cage.

• When fitted, scissor mechanisms require the provision of adequate fixed guards, so as to prevent trapping of the operator or others during raising or lowering.

• The equipment requires regular inspection, servicing, maintenance and testing in accordance with manufacturer’s instructions.

14. Further information and advice

14.1 If at any time further advice, assistance or information on working at height is needed contact the Education Health and Safety Team at John Smith House (extensions 55034, 55035 or 55259) who will be able to help.