

## **Question and answer brief for the construction industry on the Work at Height Regulations 2005**

### **Introduction**

This question and answer brief includes some of the key issues about the new Work at Height Regulations 2005 and explains some of the things that you should be doing if you work in the construction industry.

Our key messages are:

- those following good practice for work at height now will normally be doing enough to comply with these Regulations; follow the risk assessments you have carried out for work at height activities and make sure all work at height is planned, organised and carried out by competent people;
- follow the hierarchy for managing risks from work at height - take steps to avoid, prevent or reduce risks; and
- choose the right work equipment and select collective measures to prevent falls (such as guardrails and working platforms) before other measures which may only mitigate the distance and consequences of a fall (such as nets or airbags) or may only provide personal protection from a fall.

The Regulations require dutyholders to ensure:

- all work at height is properly planned and organised;
- those involved in work at height are competent;
- the risks from work at height are assessed and appropriate work equipment is selected and used;
- the risks from fragile surfaces are properly controlled; and
- equipment for work at height is properly inspected and maintained.

### **Question 1 Who do the Regulations apply to?**

The Regulations place duties on employers, the self-employed, employees and anyone who controls the way work at height is undertaken, for example a principal contractor, a client, a managing agent, contractors, or factory owner etc.

Existing requirements covering work at height in the Construction (Health, Safety and Welfare) Regulations 1996 are revoked, such as Regulations 6 to 8 and Schedules 1 to 5.

For further information see Schedule 8 of the Work at Height Regulations 2005.

## **Question 2    What is work at height?**

Work at height is work in any place, including a place at, above or below ground level, where a person could be injured if they fell from that place. Access and egress to a place of work can also be work at height.

Examples of work activities that are classified as working at height include:

- working off bandstands;
- working on a flat roof;
- erecting falsework and formwork;
- working from a ladder;
- working at ground level adjacent to an open excavation;
- working on formwork within an excavation;
- working near or adjacent to fragile materials.

Some examples of where the Regulations will not apply:

- walking up and down a staircase in an office;
- working in the upper floors of an office block or a temporary accommodation building;
- an operator sitting in a seat on an excavator;
- sitting in a chair.

## **Question 3    What is a risk assessment?**

The Work at Height Regulations are based on a risk assessment approach. When considering work at height, a risk assessment should be undertaken in order to identify what the hazard is and the degree of risk present.

A risk assessment is a careful examination of what could cause harm to people as a result of a work activity, and it allows you to take the necessary precautions to prevent the harm occurring.

In a risk assessment you need to:

1. Look for the hazards.
2. Decide who might be harmed and how.

3. Evaluate the risks and decide whether the existing precautions are adequate or whether more should be done.
4. Record your findings where necessary.
5. Review your assessment.

Examples of what to consider include:

- the work activity;
- the equipment to be used;
- the duration of the work;
- the location where the work activity is due to take place, ie presence of hazards such as overhead power lines, open excavations, underground services etc;
- the working environment, eg weather conditions, lighting;
- condition and stability of existing work surfaces;
- physical capabilities of the workers, eg pregnancy, vertigo sufferers.

**Question 4    How does the requirement to do a risk assessment under the Management of Health and Safety at Work Regulations differ from these Regulations?**

All recent health and safety legislation is goal setting and based on a risk assessment approach. The Management of Health and Safety at Work Regulations (the Management Regulations) have required the use of risk assessments to manage health and safety since 1992.

The requirement under the Management Regulations for a risk assessment is no different from the requirement for one under the Work at Height Regulations. However, the risk assessment under the Work at Height Regulations is focused upon controlling the risks associated with working at height and the selection and use of work equipment for working at height.

If you are already using risk assessments to address working at height, then there is normally no need to change what you are doing in order to comply with the requirement for risk assessment under the Work at Height Regulations.

Further advice on risk assessment can be obtained from HSE guidance: [Five steps to risk assessment](#) Leaflet INDG163(rev1) HSE Books 1998.

### **Question 5     What is required when planning to do work at height?**

Any work at height needs to be planned in advance of the work activity, with careful consideration given to the selection and use of work equipment. The safe system of work needs to take account of:

- Any supervision of workers that may be necessary, eg work equipment selected lower down the hierarchy of control, such as fall arrest equipment, will require a higher level of supervision.
- Any weather conditions that workers may be exposed to, eg carrying out maintenance on an icy roof, or working in rainy conditions on a slippery surface;
- Any emergency or rescue procedures that may be required, eg if persons falls while using a fall arrest system. It is not acceptable just to rely on the emergency services, it needs to be covered in the risk assessment and planned prior to the work activity being carried out. For example, how will an unconscious person be rescued after having fallen into a net? How will a person be rescued after having fallen in a fall-arrest harness? You may need to consider the use of a mobile elevated work platform (MEWP), ladder or tower to undertake a rescue. Please see Question 19 for further guidance.

### **Question 6     Who is competent to work at height?**

Competency is the experience, knowledge and appropriate qualifications that enable a worker to identify the risks arising from a situation and the measures needed to be taken.

Those undertaking a height work activity need to be trained in the selected system of work and any particular work equipment chosen. For example if a MEWP is selected then the operator must be trained in its use. If nets are used the net riggers must be trained in how to erect them safely. Managers should check that those doing the work are adequately trained.

For employees who regularly carry out work at height, eg roofers, it may be necessary for them to attend a formal training course on safe working procedures when at height, rather than just on-the-job training.

### **Question 7     How can I avoid working at height?**

A risk assessment for undertaking work at height should always consider how the work activity at height could be avoided. This may require modifying a design, eg erecting guardrails on steelwork at ground level and then craning the steel and the guardrails into place, or doing the work from underneath, eg using a MEWP or a mobile platform inside a

building to repair a roof internally. However, in most instances in the construction industry, avoidance will not be possible and control measures for working at height will be required.



Windows being cleaned from the ground rather than off ladders

Steel beams designed with prefixed sockets to insert the edge protection at ground level and so preventing scaffolders being exposed to a risk from height



**Question 8      How can I prevent someone from falling when working at height?**

Falls from height can be prevented through the use of working platforms with guardrails, or particular access equipment, such as MEWPs (cherry pickers, scissor lifts, mast climbers etc).

Personal protective equipment can also prevent falls, such as a work restraint system, but this form of protection is lower down the hierarchy and should only be considered if the collective method of protection, as mentioned above, has been ruled out. However, in selecting work equipment for fall protection, all risks associated with that equipment must be considered, eg the risks involved in installing, using, dismantling and rescue related to that equipment.

**Question 9      What is an existing place of work?**

An existing place of work is best thought of as a 'safe' place of work - somewhere where you don't need to use or add any additional work equipment to remove the risk of a fall from height occurring. If you do have to add or use anything to address the risk of a fall from height, then it is not an existing place of work.

Work at height may be undertaken from an existing place of work, such as a flat roof. If the flat roof has permanent edge protection fitted around the perimeter of the roof, then it is unlikely that further work equipment would be necessary, as the risk of falling from the roof has already been controlled. Other examples include a machine or storage tank with fixed guard rails, mezzanine floor with edge protection, parts of a demolition or construction site where work equipment is not needed to make a working position safe because there is no risk of a fall.

An existing place of work may be transitory. For example soft strip demolition may be taking place on the fourth floor of an office building and during this process there is unlikely to be a risk of a fall occurring. However, as soon as the windows are removed, the openings created will give rise to the risk of a potential fall occurring and measures will need to be taken to prevent a fall, therefore this place of work is no longer an existing place of work.

**Question 10      What are collective and personal measures?**

Collective control measures should always take priority over personal control measures. Collective measures protect more than one person at any one time, eg scaffolds, airbags, nets etc and they are usually passive (ie they require no action by the user to work effectively).

Personal control measures rely upon personal protective equipment and only protect the user, eg fall-arrest harnesses. They are usually active (ie they require the user to do something for them to work effectively, such as clipping PPE lanyard onto an anchorage point at all times).

**Question 11      What are 'appropriate ergonomic conditions'?**

Ergonomics covers how people interact with their environment and how a person adopts the correct work position or posture for the work in hand. The work position should have characteristics (including dimensions) that are appropriate to the nature of the job being carried out, eg a working platform should be wide enough to allow safe passage and movement, and allow safe and comfortable handling of materials.

**Question 12      What is the hierarchy in Regulation 6?**

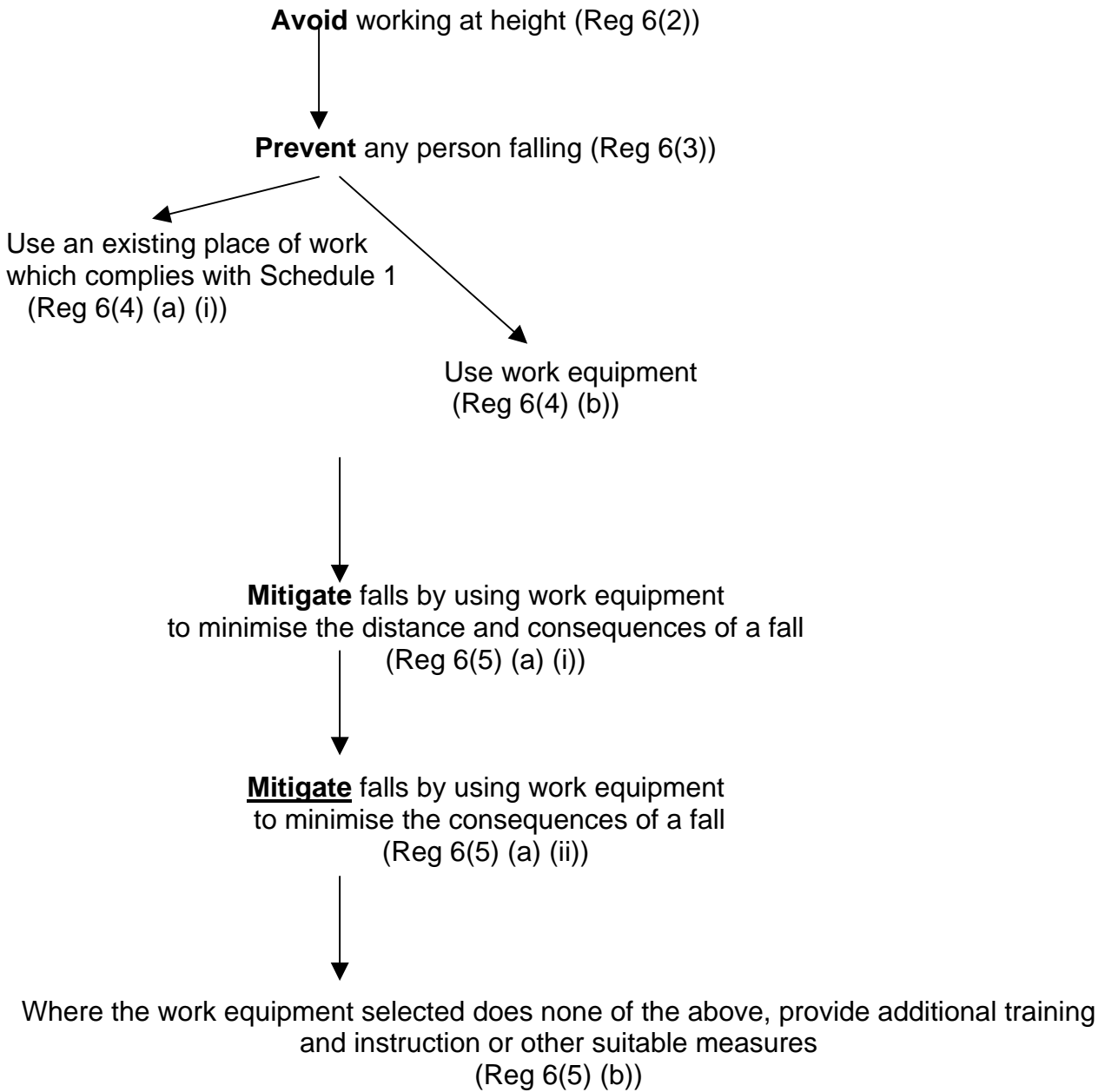
Under Regulation 6 of the Work at Height Regulations, there is a hierarchy of control for determining how to work at height safely. The hierarchy has to be followed systematically and only when one level is not reasonably practicable may the next level be considered. It is not acceptable to select work equipment from lower down the hierarchy (eg personal fall arrest, such as harnesses and lanyards) in the first instance.

Duty holders must:

- avoid work at height where they can;
- use work equipment or other measures to prevent falls where they cannot avoid working at height; and
- 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.

It is not necessary to implement all parts of the hierarchy, eg in the case of a fully boarded and guarded scaffold, workers would not be expected to wear personal fall-arrest equipment in addition.

## An overview of the Regulation 6 hierarchy of control measures



In all cases **collective protection measures** have **priority over personal protection measures**.



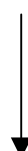
## The Hierarchy of Control Measures with practical examples

### Hierarchy

### Examples

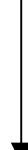
#### **AVOID**

- Design out the need to work at height.
- Cast in mesh in riser ducts in floor slabs at positions of services
- Erect handrails/edge protection at ground level and crane in.
- Fix nets by working from the floor below using extending poles.



**PREVENT** by using an existing place of work

- A flat roof with permanent edge protection.
- A tanker roof with fixed edge protection.



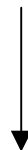
**PREVENT** by using work equipment  
**COLLECTIVE**

- Access equipment fitted with guardrails: MEWPs, scissor lifts, mast climbers, cradles, tower scaffolds, independent scaffolds.



**PREVENT** by using work equipment  
**PERSONAL**

- PPE used in a way so it is impossible to get to a fall position, eg work restraint.



**MITIGATE** by using work equipment to minimise distance and consequences

**COLLECTIVE**



- Nets and soft landing systems, such as air bags positioned close under work surface.



**MITIGATE** by using work equipment to minimise distance and consequences

**PERSONAL**



- A personal fall-arrest system with the anchorage point sited above the head (fall factor zero).
- Rope access
- A work positioning system.
- A personal fall arrest system with anchorage level at sternum/dorsal attachment point (fall factor 1)
- A personal fall arrest system with an anchorage point sited at the feet (fall factor 2)



**MITIGATE** using work equipment to minimise the consequences

**COLLECTIVE**



- Nets positioned at a lower level
- Soft landing systems



**MITIGATE** using work equipment to minimise the consequences

**PERSONAL**



- A personal injury systems (life jacket whilst working next to unguarded water)



**MITIGATE** through training and instruction or other means

- Ladders.
- Hop ups.
- Stilts.

### **Question 13 What do I have to do for falls below 2 m?**

There has always been a duty for a safe system of work and to prevent people from falling from any height. Under the Construction (Health, Safety and Welfare) Regulations 1996 all falls were required to be prevented. For falls under 2 m, how this was done was determined by the risk, while for over 2 m, there was a hierarchy that had to be followed that specified the use of guardrails and working platforms (or other similar equipment) to prevent falls.

The Work at Height Regulations require the risk of a fall to be prevented wherever a fall is liable to cause personal injury. This means that for any height where there is a risk of a fall causing personal injury then measures should be taken to prevent injury.

The old division between low and high falls has gone. The duty is to prevent falls. It is worth noting that there are almost as many low-fall injuries as high-fall injuries.

The Work at Height Regulations require you to take a sensible risk-based approach to preventing falls. Where it is reasonably practicable to take precautions to prevent a fall, steps should be taken to do so. Examples of what you have to do include:

- using edge protection on bandstands for bricklayers;
- ensuring that handrails to scaffolds and towers are provided and not deliberately removed for work less than 2 m.

However it is essential that a sensible and pragmatic approach is taken when addressing low falls, so precautions should only be taken when the scope and duration of the work presents a risk of injury. If the risk is trivial, it is not reasonably practical to take precautions, then no action needs to be taken apart from training and instruction.

### **Question 14 What about falls at 2 m or more?**

Where the fall height is 2 m or more, HSE inspectors will always expect action to be taken to prevent falls. When selecting work equipment, the expectation is that guardrails and working platforms will be used. These are always the preferred measures to protect from falls unless a risk assessment clearly identifies other equipment as providing better protection given the nature and duration of the task. There will be no dilution in existing standards for work at height above 2 m.

### **Question 15 How high should handrails be?**

The new Regulations require that handrails have a minimum height for construction work of 950 mm, increased from 910 mm in the old regulations. Where existing 910 mm handrails are fixed in place they can remain at that height until they are changed. Any gap between the top rail and any intermediate rail should not exceed 470 mm.

### **Question 16 What do I need to consider when selecting equipment for working at height?**

When selecting work equipment for use at height, the following need to be taken into account:

- The working environment: what are the ground conditions, are there space constraints, are other people working in the same area, will members of public be affected?
- The duration and frequency of use: is the work activity of short duration, is it repetitive?
- Emergency and rescue procedures: can a timely evacuation and/or rescue be instigated?
- The distance and consequences of any potential fall: can a fall from the work equipment occur? If so, does this have the potential to cause injury?
- In the case of access and egress, what is the distance to be travelled?
- Any other additional risks posed by the installation, use, dismantling or removal of the work equipment.
- The dimensions of the work equipment, to ensure a safe working area and safe passage.
- The potential loadings of persons, equipment and materials.
- Is it appropriate for the nature of the work to be undertaken?

The type of work equipment required should be selected in conjunction with the risk assessment in accordance with the hierarchy of control.

### **Question 17 What about using ladders and stepladders?**

These regulations do not ban ladders but require consideration to be given to their use. They require that ladders should only be considered where the use of other more suitable work equipment is not appropriate, such as towers scaffolds, podium steps or temporary stairs. For example ladders are frequently used during fit-out installations, but in most cases other work equipment is more appropriate. Where ladders and stepladders are used they should only be

used as a work place for light work of short duration. Specific guidance on ladders and stepladders is due to be issued shortly by HSE.

**Question 18 What are working platforms?**

The Work at Height Regulations have changed the meaning of working platforms, which have traditionally been understood to mean a fully-boarded platform with handrails and toe boards. A working platform can now be virtually any surface from which work is carried out, such as a roof, floor, platform on a scaffold, a MEWP, the treads of a stepladder.

**Question 19 What do I need to take account of when considering emergency procedures?**

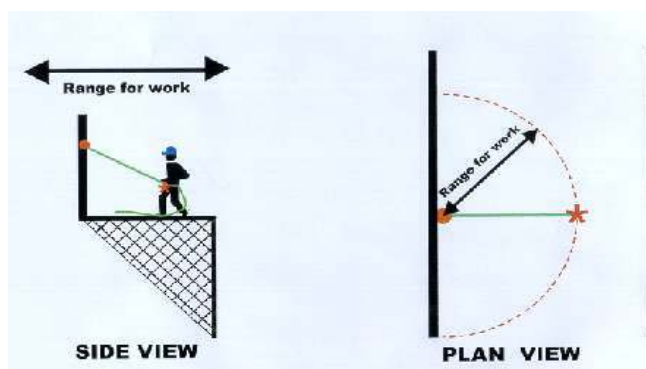
Emergency procedures need to be considered for reasonably foreseeable circumstances, such as stuck access equipment, deployed fall arrest in order that a person or persons can be rescued.

The method selected needs to be proportionate to the risk and there should not be reliance on the emergency services. The method of rescue may well be simple, such as putting a ladder up to a net and allowing the fallen person to descend, or pulling a worker hanging on a deployed lanyard onto the surface below.

In other situations, consideration may need to be given to the use of other work equipment, such as MEWPs or proprietary rescue systems. Whatever the situation selected, you should be able to demonstrate that if someone falls, that there are arrangements in place that are capable of rescuing that person and that those involved are trained in the procedures and the equipment required is available.

**Question 20 What is a work-restraint system?**

A work-restraint system is a fall-prevention system, which relies upon personal protective equipment, consisting of a harness and a lanyard, which is adjusted or set to a fixed length that physically prevents the person from getting to the place where they could fall. This system requires close supervision. While it is normal to use a specific work-restraint lanyard for this purpose it is acceptable to use a fall-arrest lanyard, provided the lanyard and energy absorber are correctly sized and used.



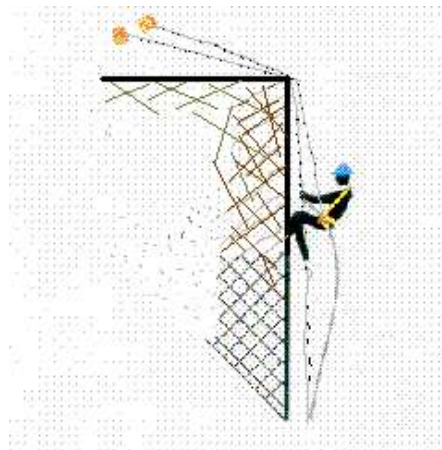
**Question 21 What is a work positioning system?**

A work-positioning system is a personal fall-protection system, which includes a harness connected to a reliable anchor to support the user in tension or suspension in such a way that a fall is prevented or restricted. Examples of this type of equipment include: boatswain's chairs; or people working on telephone poles. The Regulations require that all work-positioning systems be provided with a back-up system in case the primary support fails.



**Question 22 What are rope access and positioning techniques?**

Rope access is a personal fall-protection system using two ropes each secured to different anchors. One rope is connected to a harness and the other acts as a safety back-up. Rope access is often used to access cliff faces or the sides of tall building when cradles are not suitable.



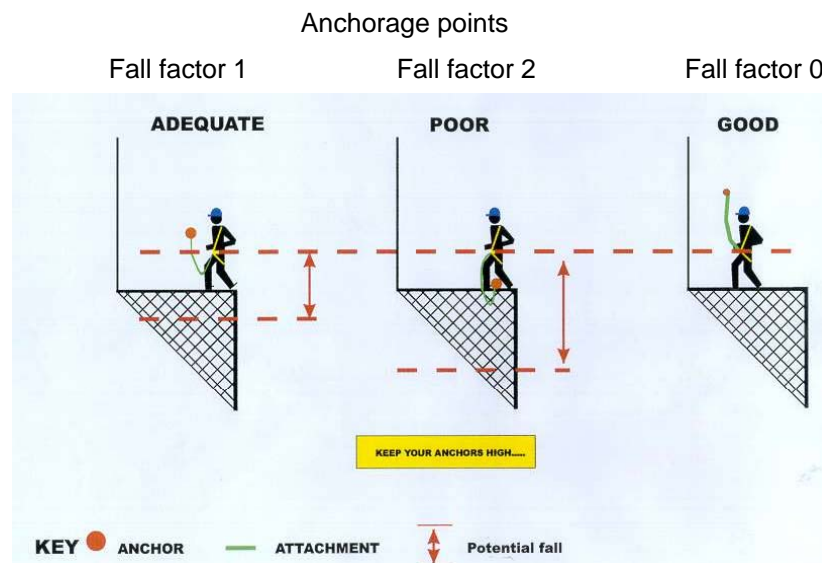
**Question 23 What is a personal fall-arrest system?**

A personal fall-arrest system is a fall-protection system that uses a harness connected to a reliable anchor to arrest and restrict a fall and prevent the user hitting the ground. It is designed to limit the forces on the body by having an energy-absorbing device. Fall-arrest

harnesses should only be used where other collective measures cannot be used. To minimise the distance a person falls, the anchor point should be positioned as high as possible above the feet of the user [FF0 as shown in the diagram below]. Personal fall-arrest systems should be regularly inspected for signs of wear and damage.



Personal fall arrest



**Question 24 What about scaffolding? Do I have to design scaffolding? What is a generally recognised standard configuration?**

Most scaffolds can be erected following a generally recognised standard configuration. Such as those given in the National Access and Scaffolding Contractors (NASC) guide TD 20:05, or used in accordance with the manufactures guidance for system scaffolds .

Where scaffolds due to their complexity or size cannot be erected to these established configurations they should be designed generally in accordance to the principles given in BS EN 12811 or based on fundamental engineering principles. In these cases a note of the design should be available. Competent scaffolders should always erect tube and fitting, or system scaffolds, and a safe system of work should be followed, ie as described in NASC's guidance note SG4.

### **Question 25 What do I have to do about falling objects?**

The risk of falling materials causing injury should be minimised by keeping platforms clear of loose materials. In addition, a way of preventing materials or other objects rolling or being kicked off platform edges should be provided, eg toe boards, solid barriers, and robust brick guards or similar at open edges.

If the scaffolding is erected in a public place, debris nets, properly designed fans or covered walkways may be needed to give extra protection for people who may be passing below. High-visibility barrier netting is not suitable for fall preventing objects from falling.

Where material is deliberately dropped it should be done in a controlled manner with the receiving area secured to keep people out of the drop area.

### **Summary of steps to take before working at height**

- Check there is a safe method of getting to and from the work area. Decide what particular equipment will be suitable for the job and the conditions on site.
- Make sure work platforms and any edges from which people are likely to fall have guardrails, toe boards or other barriers.
- Make sure that the equipment needed is delivered to site in good time and that the site has been prepared for it.
- Check that the equipment is in good condition.
- Make sure that whoever puts the equipment together is trained and knows what they are doing.
- Make sure that those who use the equipment are supervised so that they use it properly. The more specialised the equipment (eg MEWPs, boatswain's chairs and rope access equipment), the greater the degree of training and supervision required to ensure safety.
- Check any equipment provided by another company to make sure it is safe before using it on site.



- Find out who to tell if any defects need to be remedied or modifications need to be made and keep them informed.

Remember:

- Only when other methods are not reasonably practicable or when work platforms cannot comply with all requirements for safe work should a way of arresting falls (such as nets or air bags) that provides collective protection to all those who are working be used.
- If no other means of providing a safe place of work at height is available then an appropriately anchored harness (personal fall arrest) should be worn. However, whenever fall-arrest harnesses are used, a rescue method must be available should the user fall and be left suspended in their harness. Further information on safety harnesses can be obtained from *Appendix 3 of Health and safety in roof work HSG33* (Second edition) HSE Books 1998.
- Nets or harnesses may also be needed to protect those working to put guard rails or
- When selecting a safe system of work at heights, all the risks have to be considered before one method is selected. If nets are selected, is there adequate clearance under the nets to prevent injury to those who may fall into the net? If harnesses are used, is there sufficient clearance from the ground to allow the shock-absorbing lanyard or inertia reel to fully extend?
- Before installing or using any system of work to enable safe work at height to be carried out, check that there is adequate clearance for equipment. For example, overhead power lines can be a risk when erecting scaffolds or using MEWPs; there can be a risk of crushing against nearby structures when mobile access platforms are manoeuvred and that the ground is strong enough to support the MEWP.
- Ladders should always be secured if possible, and be primarily used for access and only be used at workplaces to do light work of short duration, and then only if it is safe to do so. It is generally safer to use a tower scaffold or MEWP, even for short-term work. Heavy work activity carrying heavy loads should never be carried out from a ladder. When using a ladder ensure that the person on the ladder always has three points of contact, ie two legs and a hand.