

Practical alternatives to using stepladders

A guide for electricians and other engineering contractors

Part 1 Working at height



Produced by



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Part 1

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Some key messages

When looking for practical alternatives to steps:

- *Consider the whole job*
- *Plan the work*
- *Keep an open mind about practical alternatives to stepladders (steps)*
- *Communicate if possible with the client or major contractor -confirm if they have any plans or expectations about access*
- *While using steps can be justified on a practical basis, you must show you considered the suitability of safer alternatives*
- *If using steps, be clear as to why you have selected them -you may need to justify it - particularly if there is an accident*
- *Always consider if the risk of harm can be reduced in any other way before opting for protection by using harnesses.*

DISCLAIMER

This document provides general information related to the use and selection of stepladders and alternatives to stepladders. All users are responsible under health and safety law to make an assessment of the risks to health and safety of their operations, and how these risks can be suitably controlled. Users of the document are responsible for selecting safe equipment and methods of work for any given workplace situation. Neither the ECA nor any organisation associated with this document is liable in any way for the actions or omissions of users of the document.

However, we welcome comments from users about their own practical experience of working with stepladders, or alternatives to steps, which we will take into account when this and related documents are reviewed.

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This document is Part 1 in a two-part series from the ECA on the use of stepladders, and practical alternatives.

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Cover Photo

Podium steps are an increasingly common alternative to stepladders Courtesy Generation Access Ltd.

1. Introduction

ECA statistics show clearly that working at height is a major cause of accidents.

Falls from height lead to serious injuries, not only to electrical contractors but to workers across the specialist engineering contracting industry.

This guide has been produced by the ECA with the support of HSE and others, as part of ECA's ongoing 'ZAP' initiative to reduce accidents at work.

The forthcoming Work at Height Regulations (WAH) will cover work activities where "a fall involving a distance liable to cause injury could occur". Under WAH, this work can include all types of access equipment and work platforms, regardless of the duration a person is at a height, or of the height at which the activity occurs. Significantly for electrical contractors, the regulations include working with *stepladders* ('steps'), whether they are being used as a work platform for maintenance or other tasks, or simply as a means of accessing or leaving work at a different level.

This guide is designed to help contractors (and others) to establish whether stepladders can still be a reasonably practicable solution to the task in hand. For situations where the use of steps is considered the reasonably practicable option, it also looks at how steps should be used to reduce the risk of injury. It complements a second guide that discusses practical *alternatives to stepladders* that are available to contractors.

"We are aware of the practical challenges faced by contractors as they consider alternatives to steps. This two-part guide will help companies of all sizes to assess the best way to work at height"

Alex Meikle FIOSH, Head of Employee Relations, ECA

Are stepladders allowed under WAH?

Yes, but the Regulations aim to stop them being used as widely as they have been. While stepladders are *not* outlawed by the WAH regulations, opting to use steps must be based on a suitable risk assessment that considers other options for working safely at height. WAH requires contractors to *actively consider whether there are reasonably practicable alternatives*.

It seems clear that for a range of jobs, the days of "turning up with some steps", without considering the alternatives beforehand, are numbered. Stepladders will still be the preferred method of work for some short or tricky jobs. However, there will be many situations where other means of access to work at height will have to be considered, and *used*.

In addition to the requirements in WAH, many clients/main contractors are telling contractors not to bring steps on-site. The usual background to this is that the client wants to 'stop importing the risk of accidents onto the site'. However, banning stepladders does not remove the hazard -the need to do the job at height - and so both the client and contractor need to agree on suitable alternative equipment, in line with WAH.

"We need to move on from just using a stepladder because it is in the van to ensuring that the right piece of equipment for the job is used, and used properly"

Andrew East, HSE Principal Inspector
construction sector

2. Planning and risk assessment

The best way of reducing the risk of injury due to falls from height is to reduce the potential for a fall (the hazard) at the design stage. This will usually include talking to the designer, client or major contractor.

Opportunities for reducing risk by *design* should be explored before major building and installation work.

There are also major opportunities for reducing the risk of harm by effective *planning*, in both big and small contracting jobs. Too often, the day-to-day nature of the job means that operatives (and even supervisors) decide that the way to get past problems is to resort to using steps. Issues such as effective sequencing, so that all types of operative can get proper access to the job in hand, are an essential part of planning larger jobs.

Health and safety legislation, including WAH, requires risk assessment to be an integral part of job planning, for all work at height. Unless the client or major contractor has specific requirements, a risk assessment will support the decision to use steps or alternative equipment.

Risk assessment

HSE's guidance to WAH says that risk assessment for work at height should be carried out *before work starts* and it should be proportionate to the risks involved. For simple maintenance tasks, a simple risk assessment before starting work at height will establish if any measures are needed to avoid or reduce the risk of injury.

For bigger jobs, risk assessments for work at height often involve a general assessment at the design or planning stage (which will help with the compilation of a method statement), and then an on-site reassessment before the work actually starts. The risk assessment will help the contractor to decide, and justify, which type of access equipment they are going to use on-site. Anyone who carries out risk assessment should be competent to do so.

Whatever the type of access equipment being considered, WAH says that when conducting a risk assessment, factors to consider include the:

- *job/task to be done*
- *duration of the job*
- *degree of hazard (notably, how high)*
- *number of people required to undertake the job*
- *how frequently the job needs to be performed*
- *equipment to be used (including stability and barriers);*
- *conditions on site (for example, ground conditions need to be stable and secure enough to support access equipment)*
- *location, e.g. near site traffic, under live power, near edges etc;*
- *environment, e.g. temperature, lighting;*
- *risks that may arise from (for example) transporting, installing and dismantling access equipment;*
- *competence of workers and the level of training and supervision required*
- *physical condition of the people involved (e.g. age, fitness, vertigo, etc).*

Note that although any fall from height can lead to injury, falls from around or over 2m are more likely to be serious or fatal. If there is an increased risk of injury (such as working near a traffic route or above a dangerous surface), then suitable extra precautions will be required. Housekeeping issues (such as the presence of trailing leads, boxes and other obstructions) should also be considered.

Finally, a risk assessment should consider those who work 'on the tools' and any passers-by.

Key regulations to be aware of when considering work at height include the:

Management of Health and Safety at Work Regulations 1999

Forthcoming Work at Height Regulations (expected by early 2005)

Provision and Use of Work Equipment Regulations 1998

Lifting Operations and Lifting Equipment Regulations 1998

3. Choosing temporary access equipment

Based on the risk assessment, employers must use suitable control measures for reducing the risk of harm from falls, "as far as is reasonably practicable". HSE's guidance to WAH includes a 'hierarchy' (order or preference) of ways to reduce risk. This is:

- eliminate the risk by not undertaking work at height (see section on design and planning). If it is not reasonably practicable to perform the task without working at height then:*
- assess if there is a "suitable" surface where work can be carried out safely (i.e. there is no risk of causing injury by falling if work at height is carried out). An example of a suitable surface would be a stable platform with suitable guardrails)*
- if this is not possible, then assess and minimise risks by choosing equipment which allows the work to be done whilst preventing falls; if a risk of a fall still remains;*
- control any remaining risk of harm by mitigating the effects of any fall (such as the use of an air bag or, with proper training, a harness).*

Note that general safety measures such as protective guardrails are preferred to 'personal protective measures' such as safety harnesses.

It is often very beneficial to exploit suitable *existing* means of access, rather than trying to set up new access. This requires planning, often with others, but it will reduce the risks of setting up equipment.

“We are increasingly replacing the use of steps with mobile towers. In open-plan areas towers work well, but they are unsuitable in confined spaces. Both clients and contractors need to match risk assessment with a practical view of the job.”

Steve Burly, Director, Derry Building Services, Newark

A “suitable work surface”

As we can see above, the WAH Regulations require work at height to be conducted ‘from a suitable (work) surface’. This can also be referred to as a ‘working platform’. Essentially, a suitable ‘surface’ provides the same security as working from the ground. Guidance to WAH says that access equipment needs:

- a flat, suitably sized, working platform
- barriers or rails
- to allow two-hand working
- to be stable in use.

This list helps to explain why steps are not regarded as a suitable for a range of situations, especially long duration work.



Some alternatives to steps provide high level, work platforms that allow ‘two handed’ work

Source: Turner Access Systems Ltd.

Guidance to WAH also requires protection against falling off the edge or through a hole. This means that work surfaces should have guardrails and barriers at the appropriate height (usually above waist height), as far as reasonably practicable.

According to the WAH Regulations a “working platform” is any platform used as a place of work or as a means of access to (or egress from) the workplace. This definition includes podium steps and towers but also scaffold cradles, trestles or gantries. Mobile elevating work platforms (MEWPs) such as scissor lifts or self-propelled booms also fall under this heading.

When selecting and using working platforms, ensure that they:

- are big enough to allow room to work, safe passage (if needed) and the safe use of equipment and materials;
- don’t allow feet to pass through the flooring, or feet and objects to pass over the edge (i.e. toe boards or edge protection must be in place);
- are kept clean and tidy (e.g. dust or rubbish must not build up on platforms)
- are secure.

“Many people who have been seriously injured by a stepladder accident find it difficult to bring themselves to use stepladders again. This can have a profound effect on their working lives.”

Alison Cook, HSE construction inspector

The following advice relates to any temporary access equipment, including towers, podiums and steps.

- those who use the equipment should be properly trained and competent
- those who aren’t supposed to use the equipment must be clearly advised that they should stay off it
- the equipment should be properly maintained and regularly inspected (particularly if it is used or stored outside).
- the equipment should be inspected visually before use, every day
- ensure light tools are carried in a shoulder tool bag or holster attached to a belt so that both hands are free for climbing
- heavy or bulky loads should not be carried up or down access equipment - lifting equipment should be used instead
- work should not require extended periods in difficult postures.

Defective access equipment must be reported to the supervisor, be clearly identified, and *not used*.

Metal access equipment, including steps, podiums or towers should not be used if there is the possibility of contact with live overhead electric wires or unprotected electrical equipment.

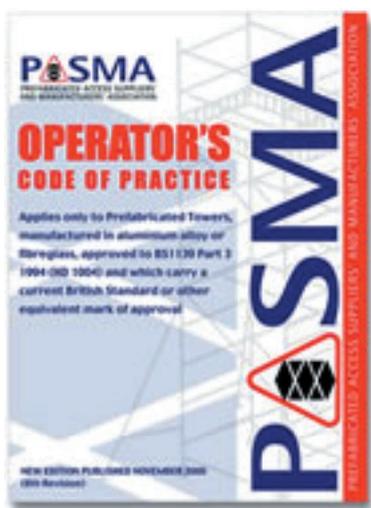
All access equipment should have a simple safety guide.

4. Competency, training and changing behaviour

'Competency' is a blend of training, experience, awareness of risk, and attitude to the job in hand. All supervisors and operatives must be competent to work at height, or be properly supervised by a competent person. Proper information, instruction and training are crucial.

Whatever access equipment is used, operatives must know about its limitations, and if they are required to set up or adjust the equipment, they should be properly trained.

The installation or erection of mobile access towers should only be carried out by (or under the supervision of) a competent person. PASMA (www.pasma.co.uk) sponsors training by authorised trainers. A PASMA standard course covers:



1. Introduction to Mobile Access Towers
2. Tower Assembly
3. Stability
4. Safe Use of Towers
5. Repositioning Towers
6. Tower Inspection
7. Care and Maintenance
8. Dismantling Towers
9. Regulations and Standards.

Managers, supervisors and operatives

Steps have been around for a very long time. Some operatives may have used virtually nothing else in their working life, so some workers will have a culture and mindset that supports the continued, extensive use of steps.

A major challenge for employers is to persuade workers that there can be a safer -and better - way to do the job. Proper training and instruction, leading by example, and assuring employees that *using a suitable alternative is what you want them to do*, can all help. Over time, alternatives to steps will become more common, but in the next few years, companies will need to actively encourage and ensure the use of safer alternative to steps.

One way of helping to ensure that alternatives to steps are used is to involve employees in your decisions about which equipment to buy or hire. Ask them what sort of equipment they feel most able to work from, and whether they think there are any practical problems.

Part 2 of this guide provides more information on the pros and cons of choosing and using alternatives to stepladders.

5. Using stepladders

We have already established that WAH will not ban steps. However, you must consider other practical options for work at height. If you opt for steps, try to ensure that the client or major contractor knows about your choice of access, and agrees it is suitable, before you use it. It can be very expensive to learn, halfway through a job, that the client does not want steps or another type of equipment on-site.

Note that many ladder accidents happen during work that would have taken under 30 minutes. A decision to use steps, even for short work, must take the risk of harm from a fall into account (e.g the risk of a fall while carrying out simple fitting is likely to be much lower than cable pulling).

For certain jobs, steps may still be the reasonably practicable option for working at height. WAH says that steps can be used where risk assessment shows that the time and cost involved in using other work equipment* is not justified because of:

- *the low risk and short duration of the job, or*
- *“unalterable practical features” of the work site (such as small doorways or permanently inaccessible floorspace).*

***Note that using safer alternatives does not always take longer, or cost more.**



Quality stepladders will help to reduce accidents when steps are the only means of access

Source: Bratts Ladders for Haden Young

Working safely from steps

If stepladders are the equipment of choice, then they must be fit for purpose, with good safety characteristics. This means a high degree of stability (notably a wide base), plus a strength and quality that allows the ladder to be a stable means of access or a *short-term* workstation. Many contractors comment/complain that steps are too flimsy for the job in hand. Cheap 'DIY' ladders are unlikely to be suitable for safe professional working.

Many stepladders come with stabilizers and side handrails, to reduce the risk of a fall.

Stepladders are not designed for side loading. Excessive body movement, overreaching or just stepping down from above onto the top of steps can overturn them. They can also be knocked over by people or moving equipment.

Working near the top of a 6-8 step ladder is a significant hazard. A person who falls from the top of a ladder can rotate as they fall, so that their head hits the ground. Falls from lower levels can still cause serious injury. Note that if a worker is taken ill while working at height or becomes dizzy, they can fall from steps more easily than from an enclosed working platform.

An operative should be able to reach the job with their feet at *least* one metre below the top of the stepladder. Marking the steps clearly to indicate the highest acceptable footrest can help, but this should be supported by proper operative awareness and training.

Platforms can allow the worker to face the job, which is safer than twisting or leaning to reach the work. However, the top step of a stepladder should not be worked from, unless the step is a *substantial platform* with accessible and reliable hand holds and good ladder stability. According to HSE, the width of such a platform must be *380mm or more* and the platform must offer handholds *above waist height*. Even then, mainly one-handed work should be carried out. A platform without an accessible handhold can tempt a worker into a very unsafe situation, and *should not be used*.

"Far from improving safety, a small platform on the top of the steps may tempt operatives into a dangerous situation."

If steps are used as workstations, HSE guidance says employers should ensure that:

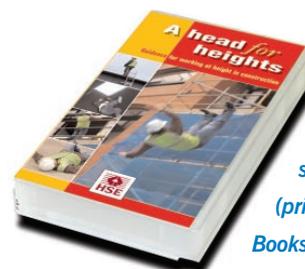
- *a good handhold is always available*
- *in the main, the work only requires one hand (this statement, though long regarded by HSE as good practice, will take on more significance when it is allied to the WAH regulations, and could affect many tasks taking place on ladders)*
- *work can be reached without stretching*
- *the work does not require excessive body movement (e.g. tugging cables) or lead to sideways loading*
- *the equipment is used in line with manufacturer's instructions*
- *the ladder is on a firm, level surface*
- *operatives are not carrying or dealing with awkward or heavy materials.*

Finally, steps should always be in good condition. Check the stiles are not damaged or buckled, no steps are cracked or missing, and that (if fitted) all the safety feet are there. Ensure that employees are aware of any variations in the tread gap -some steps have a 12" rather than 10" gap. Operatives should be trained in how to adjust and use steps, but they should not attempt to repair them.

Selected sources of information

Height Safe: Absolutely essential information for people who work at height, from HSE (www.hse.gov.uk/falls/index.htm)

HSE video **A head for heights**



'A head for heights' outlines how practical risk assessment can identify safer ways of working at height (price £29.32 inc. VAT from HSE Books, 01787 881165)

DTI Stepladders User's guide

(go to: www.dti.gov.uk/homesafetynetwork/dy_stepladder.htm)

The ECA

The Electrical Contractors' Association represents the interests of over 2000 member companies which are all involved in electrical installation work. They dominate their industry sector in the UK with a collective annual turnover in excess of £4 billion per annum.



A special category of Registered Associate is available for start-up and developing businesses.

The ECA objectives are:-

- *To promote the safety and uniformity of electrical installation work to relevant standards*
- *The qualification and reward of its practitioners*
- *The encouragement of beneficial new technologies*
- *The achievement of an equitable commercial return for work done*

Since its foundation in 1901, membership of the ECA has implied high standards and qualities.

Member companies undertake all types of electrical work, including the design, installation, testing, commissioning and maintenance of power, lighting, fire and intruder detection, data and telecommunication networks and process control systems.

They employ over 30,000 operatives and support 8,000 apprentices in their craft training.

Members range from single owner proprietors to large national companies with many branches.

Part 2 of this guide is entitled 'Practical *alternatives* to steps', and covers many of the factors to consider when deciding on safe, practical means of access to work at height, beyond the use of stepladders.



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