



Working Safely at Height – method, equipment and training are top priorities!

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As the single biggest cause of workplace deaths and a major cause of accidents at work, Working at Heights presents many and varied problems, but they can be overcome by ensuring all workers are properly trained in method and usage of the correct equipment for the task.

The following report in May 2010 on a recent accident, which could have happened in any country, illustrates the consequences which could happen if a firm doesn't stick to safety recommendations for working at heights.

A technician fell through the roof of a water pumping station in Cambridge, England, resulting in a fractured vertebra, and as a result a water services company and its sub contractor were fined.

The technician fell through an unmarked fragile roof light, whilst recording data from a rain gauge on the top of a pumping station and suffered a debilitating fracture, with ongoing employment implications.

The company failed to ensure the health and safety of those working near unmarked fragile skylights, where skylight protection or personal protective equipment could so easily have been provided

This is happening all too frequently the world over. The company concerned failed to adequately identify the risks associated with working at height and as a result suffered a significant financial penalty.

A Government Safety Inspector stated, "Incidents such as this particular fall are entirely avoidable. Falling from height is one of the most obvious and well-known dangers for those working on roofs, and at all times fall prevention systems should be installed, and used by trained personnel working on the roof"

Unfortunately, employers don't appear to be listening. This is not an isolated event. It is happening every day world-wide. Employers need to plan ahead, assess potential risks and carry out training *before* any work at height.

Since 2001, an average of 50 people in Great Britain alone have died each year as a result of a fall from height and a further 8,700 seriously injured. The message is clear: Don't let a fall shatter your life!

Right now the UK Government Inspectors belonging to Health and Safety Executive are running a high-profile 'Shattered Lives' campaign about working safely at heights and is offering a useful advice toolkit, which can be followed in all countries and which is set out below.

The WAIT toolkit

WAIT - Work at height Access equipment Information Toolkit is a simple, user friendly, toolkit for people who occasionally work at height. It gives users practical advice and guidance on the factors to consider when selecting access equipment for planned work at height. It also gives guidance on how to work at height safely, plus useful information on some of the different types of access equipment available.

WAIT is useful for people who only work at height occasionally or are unfamiliar with some of the different types of access equipment available. It contains videos, case studies and other free downloadable, material from HSE as well as advice and guidance from leading industry bodies in this field.

WAIT does not give advice and guidance on specialised and more complex work at height, for example, working on fragile roofs and rope access techniques. These are complex areas of work where formal training and expert help and advice are required. Employers can find out more by visiting the website at www.hse.gov.uk/shatteredlives

For advice on working on fragile roofs see [HSG33 \[PDF\]](#) and [INDG284 \[PDF\]](#) at www.hse.gov.uk/pubns/priced/hsg33.pdf and www.hse.gov.uk/pubns/indg284.pdf
For advice on rope access techniques contact [IRATA](http://www.irata.org) at <http://www.irata.org>

How dangerous is it anyway?

We all know that nothing in life can be 100% safe. We strive to make things as safe as possible by doing a risk assessment, considering the dangers and applying suitable controls.

In most countries, falls from heights account for around about 50% of all fatal accidents. The majority of these falls are between 2 and 3 metres. Strangely the figures for falls of over 2 metres have halved in recent times.

What these figures illustrate is that humans instinctively take more care when the danger is *obvious*. If the danger is less obvious people become complacent and more willing to take chances and short cuts.

Everyone must remember that taking care in these situations includes those in charge correctly assessing the danger and putting suitable controls and training in place. Safety is not an optional extra.

An Example

The task: Window cleaning up to 4 storeys

Until relatively recently the accepted method for such a task was to use ladders, abseiling and, for the more enlightened, aerial access platforms (also known as cherry pickers, scissor lifts, flying carpets and a variety of other local names). Whilst using aerial platforms is certainly better than using ladders, it still requires people to work at height, which is far from ideal and we should avoid it if we can.

The '*water-fed pole system*' allows cleaning activities up to 30 metres (6 storeys) from the ground. So why would anyone want to waste time and resources, and risk their workers' lives, by using access platforms or, heaven forbid, ladders?

Perhaps it's a case of '*this is how we have always done it*'? Or perhaps people think that safety is expensive. However, far greater is the cost of an accident in terms of injury to staff, damage to plant and loss of your good reputation and contracts.

With some strategic planning, forethought and very importantly, the will to change at all levels within the organisation – from top to bottom – we can conduct this work in a very safe and yet, productive manner. Safety does not have to cost money, rather, it can save money. By way of example, which is relevant to companies all over the world, a study was conducted across all industries by UK Government health and safety enforcing officers – the Health & Safety Executive, HSE, and 6 cooperating companies. The companies were given criteria against which to report and asked to cost the events themselves – so the figures are quite realistic. The study found, that for every one pound lost that we know about we lose between £8 and £36 that we are not aware of (lost productivity, down time, idle workers etc).

In fact, the same study showed that in construction, for example, the losses on the average contract added up to around 8.5% of contract value! You can do the maths yourself for your own company.

Why change?

So why change how we have always cleaned windows? Well, there are generally 3 business motivators for doing anything, namely;

- 1 Saving money – the safer way is often the cheaper way in the long run
- 2 Keeping on the right side of the law – civil and criminal
- 3 Looking after the welfare and well-being of staff

How can using a water-fed system help you?

It is generally accepted that using the water fed pole system:

- allows operators to work from the safety of the ground
 - eliminates the need for ladders and high access equipment
 - is twice as quick as conventional window cleaning
 - cleans more effectively using pure water and no detergents
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- allows a small company to bid for work on higher buildings, without the need for massive expenditure in costly access equipment
- reduces disturbance to clients
- reaches inaccessible windows

What if you're not a window cleaning company?

Even if you're not directly involved in construction activities, window cleaning or similar, you probably do have occasions when either your staff, or contractors working on your behalf, have to work at a height – that is: ***'work requiring them to...obtain access to or egress from such place while at work...where if measures... were not taken, a person could fall a distance liable to cause personal injury'***.

Considerations

The first question to ask ourselves is, do we *need* to work at height? If the answer is yes, then consider the following:

- 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 trained and competent persons.
 - If you can't avoid working at heights, follow the hierarchy for managing risks, and take steps to avoid, prevent or reduce risks.
 1. Provide a **safe place of work**
 - Scaffolding: A correctly designed and built scaffold should be as safe to work on as standing on the ground.
 - Mobile elevating work platform (MEWP): As with a scaffold, a correctly positioned and used MEWP should be as safe as working with our feet on the ground.
 - Suspended access platform: When correctly installed and operated, these too should be as safe as standing on the ground.
 2. Provide **collective protection**
 - Safety nets: These protect all workers without the need for restrictive working lines, harnesses etc.
 - Air filled 'fall bags': In case someone does manage to fall from a height.
 3. Provide **individual protection**
 - Safety lines and harnesses: Fall prevention, using a suitable anchor point and retention line/harness.
 - Fall arrest: Such as inertia reel equipment.
 - Rope access systems: Using abseil techniques.
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4. **If all the above fails** – use a ladder or ‘hop up’ but only if the work is low risk and of short duration and does not require both hands at any time to complete the activity.
 - Hop ups are a suitable and relatively safe, method of gaining ‘inches’ in height not feet.
 - Ladders are really to be seen as a last resort as a means of access and then only when used correctly by competent persons.

Training: The above will only work if ALL workers are trained and suitably supervised against the assessed risks and in the safe systems of work.

When there is no alternative...

In order to illustrate what can be achieved, and still be productive and profitable, let us consider that there is no alternative to working at height.

As an example, let's use the activity of curtain walling. This is a very dangerous activity, which by using simple, but very effective methods, and training all staff can be made a lot safer.

The activity of glass curtain walling requires us to hoist a frame holding heavy-duty glass, sometimes of several tonnes, into place, usually at great height. Until recently, this work required us to have an exposed and, usually, unguarded edge against which we positioned the heavy frame, with the resultant risk of falls to the workers.

Health and Safety best practice advises: 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 which may only provide personal protection from a fall.

Safety equipment versus Safe Systems of Work?

Of course there is an excellent argument for providing good quality personal protective equipment (PPE), for working at height in the form fall prevention and arrest devices. However, it is far more effective and sensible to use our best endeavours to ensure that we design out hazards, making a safe place of work, rather than rely on workers to use PPE.

With this in mind, let us examine glass curtain walling a large multi-storey building, using both PPE (safe person approach) and safe systems (safe place of work approach).

Providing a safe worker in an unsafe workplace – Use of PPE

Whereas there are many excellent PPE providers around the world, operating to the highest standards of production, we have to accept that there is one weak link in using PPE as our last line of defence – the worker! We have all seen excellent

companies provide state-of-the-art PPE, only to fail in accident prevention due to non-compliance by staff in the use of such equipment.

If you do decide to use personal protective equipment, harnesses, fall arrest/restraint/prevention etc., please consider the competence of the expected user in wearing/using such PPE. A recent survey on one of our client sites revealed that 18 out of 20 regular harness wearers could not correctly adjust their harness to ensure that should they need it, it would protect them from any injury due to the fall and the use of the harness.

Also consider the provision of suitable quality and sufficient numbers of, anchor points for the area of work, which will allow the required range of movement. We frequently see workers clipping on to inappropriate anchor points, risking failure of the anchor and in several cases, potential collapse of the platform they are working on.

All good PPE providers will be able to suggest suitable anchor design and/or systems and also provide training for your staff in competent use of any PPE that they provide.

So, overall, although we can't completely do away with PPE as our solution, we must really think of it as a last resort.

Designing a safe place of work

Below, we will see the second, and safer, approach of providing edge protection throughout the activity, which is not only safer, but also saves time erecting edge protection in the first place, then removing it during the glass wailing installation, and potentially re-erecting it if the expected production rate is not achieved. Additionally with the revised and safer method of work suggested, fewer workers are required to achieve far greater production levels, making the job not only safer, but also far more efficient.

Additionally, if we consider the whole activity of glazing the building, the savings in manpower, time and potential damage to equipment/product alone, we will see massive savings. Couple this with the massive reduction in the likelihood for injury to workers and others, by edge protection being in place *all* the time.

If we examine construction sites that come in on time and budget, with few, if any snagging/rectification jobs and high customer satisfaction levels, we will see that they are fundamentally well-organised and well-run sites. Of course, the reverse is also true – as I'm sure we all know!

The above method only really works, if we are able to plan everything well in advance, including space to work and store materials and, of course, to order our materials and specialised plant to arrive on time, removing the temptation that we might try and start the job before everything is ready.

The fact that we have safe access, both internally by use of the semi permanent edge protection, and externally using platform hoists, we create a safe and

productive working environment for our workers – who of course we have ensured are all properly trained in working at heights and use of the safety equipment.

As you can see from the above very brief description of works, we can create magnificent looking and exciting buildings, with imaginative designs *and* do it safely, with planning, thought and competent workers.

Goal Setting

The good practice requires that all work at height is risk assessed. The assessment should really be based on a 'goal setting' approach, which means that there is no absolute right or wrong way to do the activity. Instead we follow a hierarchy of control. When planning an activity that may involve work at height the employer should consider the following:

- Can work at height be **avoided?** i.e. is it reasonably practicable to introduce a system where the work can be done from ground level, that is there is now no risk of a fall from height?
- Where you must work at height, what can be put in place that would **prevent a person falling?** I.e. could guard rails or a movement restraint system be used?
- If it is not reasonably practicable to put measures in place that will prevent a fall occurring, think about what you can do to **reduce the distance and consequences of a fall** should one occur; mats, air bags and fall arrest harnesses for example.
- If the risk of a fall remains, think about **other measures** that will stop a person being injured, **such as extra training**.

If you review your procedures and risk assessment, you should be able to decide what suitable, sensible measures need to be put in place to make sure the people who are doing the job can do it safely. This may include further training.

If you conclude that guard rails, tower scaffolds or mobile elevating work platforms cannot be used, any work restraint system chosen should be set up so that the user is prevented from reaching a position from where a fall can occur. A belt rather than full body harness may be appropriate where a person cannot reach a position from which a fall can occur. If a fall can occur, the system is not working restraint but fall arrest. In this case, the person will need a full body harness, energy absorbance and sufficient fall distance to safely arrest the fall.

Tips for safe working

- Plan what you will do in an emergency, or if someone falls.
 - Make sure the people who will be doing the job have the right skills, experience and training to use the equipment safely and have been consulted about the right equipment to use.
 - Take frequent breaks, especially when working from a ladder - do not work from a ladder for longer than 30 minutes at a time.
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- If you have to use a ladder make sure you re-position it before you clean another window, to reduce the risk of an accident from over-reaching.
- If you use a ladder keep three points of contact wherever possible.
- If you are hiring access equipment, make sure you know how to install and dismantle it safely - ask the hirer for instructions or assistance if you need them.

Next time you are tasked to put people to work at height, consider:

Do they need to do it?

If the answer is yes, think “How can I plan it such that they are as safe as possible – *and* still achieve my production targets?”

Remember the hierarchy above:

Don't do it or If you must:

- 1 Provide a safe place of work, or if you can't
- 2 Provide collective protection, or if you can't
- 3 Provide individual protection
- 4 Always ensure that all workers are properly and appropriately trained.

Ends

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