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Work at Height Risk Management

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Overview

In the UK, since 6th April 2005, all work at height activities are governed by The Work at Height Regulations: 2005. This new set of regulations is designed to compliment the 1974 Health and Safety at Work Act, which ultimately has precedence.





The new regulations are designed to bring together the existing regulations, which relate to work at height, into a risk based and goal setting regulation. This is designed to maintain and improve the existing standards.

As at 2003/4 the statistics showed that work at height was the single biggest killer in the work place with 67 deaths. In addition there were nearly 4000 serious injuries, over 2/3rd of which were caused by 'low height falls' (of 2 metres or less). Of these injuries a significant proportion involved roof and ladder related work.

More recent statistics;

2005/6 = 48 Deaths, 3351 serious injuries
2007/8 = 58 Deaths, 3750 serious injuries

In a drive to make these new regulations effective, there was no transition period and the regulations came fully into force immediately on the 6th April 2005. This is owing to the fact that much of the new regulation already exists in other regulations now e.g. the Work Place Regulations: 1992, the Construction (HSW) Regulations: 1996, and the PUWER Regulations: 1998.

Key Features of the Work at Height Regulations: 2005

When we talk about 'Work at Height' it is useful to have some clarity about what is and is not work at height. The 2005 W @ H Regs define work at height as;

"Work in any place from which a person could fall a distance liable to cause personal injury".






This is includes both access and egress, work at or below ground level but ***does not*** include stairways or slips / trips on the level.

This definition has been carried over from an existing regulation (The Management of Health and Safety at Work Regulations: 1999), which stated that with respect to any activity, there is a duty 'to take suitable and effective measures to prevent any person falling a distance likely to cause personal injury…*so far as is reasonably practicable*'

Unfortunately some sectors of industry are still under the misapprehension that
The Work Place Health Safety at Work Regulations: 1992, still have priority and therefore use a 2m rule when deciding about safe systems for work at height because in this set of regulations it stated " where a person might fall a distance of 2m or more a 'safe system' of work should be implemented".

This has since been updated as detailed above and as such is no longer a useful means of assessing the safety requirements. The evidence available also indicates that over 60% of all major injuries related to falls from height result from fall from heights of less than 2m.

What do the Regulations Cover?

- Existing places of work and means of access for work at height
- Collective fall prevention (eg guard rails & toe boards)
- Working platforms
- Collective fall arrest (eg nets, airbags etc)
- Personal fall protection (eg work restraints, work positioning, fall arrest and rope access)
- Ladders and Step ladders
- Inspection reports (for working platforms, in construction only)
- Revocations

The W @ H Regulations cover all industries. It is not intended to cover the training of recreational activities such as climbing, caving and mountaineering.

Duty Holders

The following are duty holders under the w @ H Regs: 2005

- **Employers**
- **Self Employed**
- **Designers** – The Construction Design and Management (CDM) Regs: 1994 already places a duty of care on designers to design out hazards for the whole life of the structure.
- **Those in Control of People at Work** – this would include managers, team leaders, the most experienced, supervisors etc.
- **Employees** – must use equipment provided for health safety and welfare in accordance with training and instructions, and report any defect / activity which is likely to endanger the safety of the employee or another person.

The principle duty on all is to ensure that all work at height is properly planned, appropriately supervised and not carried out if conditions jeopardise health and safety. This includes making plans with respect to rescue of workers from height should a fall or other event happed, and being aware of the limitations which the weather and other hazards can place on work at height activities.

Responsibilities under the Health & Safety At Work Act (1974).

The Health & Safety At Work Act (1974), is probably the most important, single piece of legislation which effects any 'work' related activity and working at height is no

exception. In addition to the 1974 H&S at W Act, there are numerous Regulations, which give specific direction related particular work activities. These all have at their core the over riding principle of reducing the risks to workers to a level which is “reasonably practicable”.

Below is a summary of key points from the Health and Safety At Work Act (1974) with some additional comment to make specific links to ‘Work at Height’ related activities.

The act defines particular areas of responsibility and these are summarised on the key points posters displayed in all permanent places of work. The areas of responsibility are separated in to the Employers responsibilities, general and particular and the Employees responsibilities.

The Employer has a duty of care under the law to ensure the employees health safety and welfare. This is qualified with the statement “so far as is reasonably practicable”. This means that there is no black and white and that each employer has to make a judgement based on the particular circumstances. This judgement may be called into question in a court of law should an accident occur.

The Employers General Responsibilities Include:

- Making your workplace safe and without risks to health.
- Ensuring that plant and machinery are safe and that safe systems of work are set and followed. *Method statements, tool box talks.*
- Ensuring articles and substances are moved, stored and used safely. *COSHH*
- Providing adequate welfare facilities.
- Giving you information, instruction, training and supervision necessary for your health and safety.

The Employer has the following Particular Responsibilities:

- Assessing the risks to your health and safety.
- Making arrangements for implementing the health and safety measures identified as being necessary by the assessment.
- Record the significant findings of the risk assessment and the arrangements for health and safety measures if there are five or more employees. *Method Statement.*
- Draw up a health and safety policy statement and bring it to your attention if there are five or more employees.
- Appoint someone competent to assist with health and safety responsibilities and consult you or your safety representative about this appointment. Co-operate on health and safety with other employers sharing the same workplace.
- Set up emergency procedures. *Fire, falls from height.*
- Provide adequate first-aid facilities.
- Ensure that the workplace satisfies health safety and welfare requirements for ventilation, temperature, lighting, sanitation, washing and rest facilities.

- Ensure that all work equipment is suitable for its intended use and that it is properly maintained and used.
- Prevent or adequately control your exposure to substances, which may damage your health.
- Take precautions against the dangers of flammable, explosive, electrical, noise and radiation sources.
- Avoid hazardous manual handling operations.
- Provide health surveillance as appropriate.
- Provide Personal Protective Equipment (PPE) free of charge where the risks of injury are not adequately controlled by other means.
- Provide and maintain appropriate safety signs.
- Report certain injuries, diseases and dangerous occurrences (RIDDOR) to the appropriate enforcing authority.

You, as an Employee have some Key Legal Duties:

- Take care for your own health and safety, and that of others who may be affected by what you do or do not do.
- Co-operate with your employer on health and safety.
- Correctly use work items provided by your employer, including PPE, in accordance with training or instructions.
- Not to interfere or misuse anything provided for your health, safety or welfare.
- To report hazards and defects

Competence

Competence can be determined by a number of factors, and must not be confused with confidence. Competence is gained by undergoing a process of instruction, information, training and supervision (I.I.T.S). All people working at height should be competent in the activity concerned. This should include involvement in the supply and maintenance of equipment, and the organisation and planning of works. When being trained they should be supervised by a competent person with an extensive level of skill, knowledge and experience in the areas of work they are supervising.

Safety Systems for Work At Height

For all activities which involve work at height there are a number of conflicting interests and demands such as time, cost, practicality, and planning regulations to name but a few. When we consider any work at height we should always aim to use systems which provide the lowest acceptable risk. To this end the hierarchy of Safety Systems aims to provide a logical order in which to choose possible operational systems. The higher on the list the option is, the lower the level of risk to the user. All the employer / manager

has to do is work through the list and find the first one which provides a practicable and justifiable solution, balancing all of the competing pressures.

***Avoid* the need to work at height.**

If you don't need to work at height then don't. Consider whether the work is necessary in the first place. If it is necessary then can it still be done without leaving the ground i.e. by using reach devices, remotely controlled equipment or by bringing the work down to ground level?

***Prevent* falls**

Where possible use an existing place or means of access where sufficient safety features exist.
Consider the most suitable method for working, which prevents falls. (Restraint, Guard rails, Edge Protection)
Select the most suitable work equipment

***Minimise* the distance and consequences of a fall should one occur**

Take measures in the choice of system and work equipment to minimise the fall distance and prevent injury (Fall Arrest Protection). This should include information supplied to users, training on safe working practices, the use of safety equipment and the supervision of works.

Selecting Appropriate Work equipment

When selecting any work equipment for work at height, there are a few key criteria, which should be paramount. Firstly select collective rather than personal protective solutions, E.g. Guard rails / work platforms before fall prevention PPE (Restraint). Fall arrest netting, airbags, bean bags before Fall Arrest PPE.

Collective Protection – Provides protection to all users
Personal Protection – Provides protection only for the user

As a general rule systems which provide all round passive protection such as edge protection and fall arrest netting are always a safer option when compared to the other options within the same protection category which rely upon the use of Personal Protective Equipment (PPE). This is simply because PPE systems always rely upon the end user being effective in all aspects of its operation. As such PPE systems should always be considered to be a last resort.
The practicability of work equipment also need to be considered with respect to working conditions, access and egress, the distance and consequences of a fall, the

duration and frequency of use / task, the ease of rescue / evacuation and the risks involved in the use or misuse, and the installation and removal of the equipment.

In addition consideration should be given to risks from fragile surfaces, falling objects (such as tools and materials), warning about residual dangers, (such as signage, cordons, security), the inspection of work equipment (PPE, LOLER and PUWER Regs), and visual, on-site, check of surfaces and safety features of sites before work begins.

	Collective	Personal
Avoid	Pneumatic / wind up mast, self climbing camera, remote lighting arrays	Telescopic reach poles, optical enhancement
Prevent Falls	Guard rails, work platforms Scaffolding, MEWP, man riding basket	Work / travel restraint, Work positioning Roped Access
Minimise Consequences	Fall arrest netting, air bags, bean bags	Permanent / temporary fall arrest systems, Inertia block, fall arrest lanyards,

Risk Assessments

A Risk Assessment is;
'A careful examination of what could cause harm to people, so you can consider whether or not enough precautions have been taken to prevent harm'

- **Risk** is the chance, no matter how great or small of a hazard causing harm
- A **Hazard** is something with the potential to cause harm

RISK = LIKELIHOOD X SEVERITY

When assessing risk, the following must be considered;

- Factors that are reasonably foreseeable
- Factors that are suitable and sufficient
- Assessment carried out by a competent person
- Hazards are fully addressed
- Legislation is complied with
- All significant findings are identified and recorded

- The assessment must remain valid over a period of time

All work at Height should be risk based, well organised and planned for in advance. A risk assessment has been a requirement under The Management of Health and Safety at Work Regs and is a requirement under the Work at Height Regulations: 2005. A written record of this is required if there are 5 or more employees due to the difficulty of communicating precise information. This record may come in a number of formats, the risk assessment, a method statement both of which can be generic in some cases with site specifics added, and Health and safety policies which tend to be very general and are intended to give very broad guidance on activities.

There are 5 simple steps to undertaking a risk assessment;

1. **Identify** the hazards
2. **Decide** who might be harmed and how
3. **Evaluate** if the risk are currently adequately controlled or if more should be done and if so what.
4. **Record** the findings
5. **Review** the risk assessment when changes take place i.e. changes of environment, working practices or tools, equipment, machinery, access.

Method Statements

A method statement is a document, which is the outcome of conducting a risk assessment. It is often the one document which the worker will have access to and as such its purpose is to inform the worker / end user about all of the hazards and controls which he/ she needs to be aware of to operate safely. In essence to decide what should be in a method statement ask your self what would you want to know to protect yourself?

Below are is a list of broad categories which should be addressed with respect to method statements which involve work at height;

- Location
- Access and aggress
- Prevention / management of falls
- Prevention / management of falling objects
- Management of other health hazards
- What equipment is needed
- What level of competence / training and / or supervision is necessary
- What level of change if any may be made to the method statement if the site details / conditions are not as expected

Common Generic Work At Height Hazards

The common generic hazards associated with work at height can be usefully broken down in to the five key areas of, falls, falling objects, health, lone worker systems and fire safety. Below are outlined some of the common hazards associated with each.

- **Falls**
  - Access & egress
  - Exposed edged
  - Materials handling e.g. Size, shape, position, method.
  - Lifting operations
  - Fragile surfaces
  - Trip hazards
  - Slip Hazards
  - Weather e.g. Wind, lightning, poor visibility, vessel motion, waves, spray.

- **Falling objects**
  - Exposed edges
  - Materials handling
  - Management of tools and equipment
  - Lifting operations
  - Waste management

- **Health**
  - Manual handling
  - Electrical equipment
  - Radio frequency sources
  - Fumes and harmful gasses e.g. vents, exhaust flues.
  - Hazardous substances e.g. asbestos, lead, asphalt, bitumen, glues, solvents, bird excrement.
  - Temperature extremes
  - Noise e.g. sirens, horns, aircraft.
  - Entanglement e.g. moving wires, gearing, lifting systems.
  - Recovery from fall protection systems e.g. suspension trauma.

- **Fire safety**
  - Are warning systems audible / visible
  - Are there emergency egress routes available.
  - Is fire fighting equipment available

- **Lone worker systems**
  - What systems are available to monitor / supervise

Key Points

- If you are already follow good practice you should be doing enough to comply with the Work at Height Regulations: 2005
- Do a risk assessment, plan, and organise your work properly
- Follow the hierarchy: Avoid- Prevent- Minimise
- Select collective protection before personal

Personal Protective Equipment for Working At Height

Contents

- PPE System General Considerations.
- PPE System Component Suitability.
- PPE System Component Markings.
- Inspection of PPE
- Operational Systems.
- Additional General Items of PPE for Work @ Height

PPE System General Considerations.

Systems, which employ Personal Protective Equipment (PPE) as a means of managing the risk of falls from height, can be designed to do a number of very different and specific tasks. All such systems are made from a number of component parts, and all of these must be employed correctly to achieve optimal results in respect of safety. With this in mind it is paramount that operatives responsible for the application and use of such systems have a thorough understanding and working knowledge of the components, including the suitability and limitations of each product.

PPE System Component Suitability

Systems which incorporate PPE to achieve protection for workers exposed to the potential of falls from height, come under the guidance of the Personal Protective Equipment at Work Regulations (1992). These regulations define certain conditions, which must be met for the equipment to be considered suitable.

These include:

- It must give a suitable level of protection against the risk(s) identified.
- It must be suitable for the employee, including fitting.
- It must be compatible with the work, i.e. ergonomic influences and nuisance factors must be taken into account.
- It must not increase the overall level of risk.
- It must comply with relevant European Community provisions on design, testing and manufacture i.e. CE marked in accordance with European Norms.

In order to achieve the aims of the PPE (1992) regulations, employees should be involved in the selection of suitable equipment, training or instruction in it's use should be provided and it must be provided free of charge by the employer.

All PPE will fall into one of three categories that indicate the level of protection it affords the user, and subsequently the level of information and instruction necessary for their use.

Category I - Minimal Risk
Category II - Intermediate Risk
Category III - Mortal Risk - e.g. Fall Protection PPE



PPE System Component Markings

To simplify the process of selection and ensure compliance with the PPE (1992) regulations, below are outlined the four key markings which should be verified on any item of PPE. Such markings are not always obvious and any markings that are significant should be made clear by the manufacture in the accompanying documentation. These are as follows:

1. *CE Mark (Community European)*

This mark is an indication of conformity to a quality process in manufacture design and testing in respect of European directives. The four digits following the CE Mark (e.g. CE 0082) indicate the accredited body or 'testing house', which has tested the product.

2. *EN Number (Euro Norms)*

This indicates the standard or standards to which the equipment has been tested, and as such, what it is designed to be used for. A product may have one or more EN Numbers dependent upon the range of applications it has. In addition it may have other classifications which detail additional characteristics / variances in its use / design. Other additional prefixes include BSEN, a conversion from an existing British Standard, and prEN which is a provisional EN indicating that the standard is not fully agreed or converted from another standard.

The EN standards are designed to replace previously existing national standards such as AFNOR (French), DIN (German) and BS (British). It equates closely to the remit of the ANSI and NFPA (North American) national standards.

The details of EN Numbers and loading characteristics should be supplied with all PPE items purchased for use as work items. This is usually recorded in the form of a Certificate of Conformity or product information which accompanies the product.

3. *Date Of Manufacture*

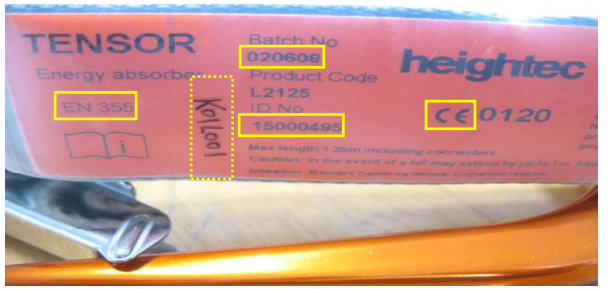
This clearly indicates how old an item is, and is important because virtually all materials degrade over a period of time even without use and when correctly stored. Manufacturers will normally specify what the storage / overall life of a product is, and therefore at what age items should be withdrawn from use.

4. *Individual Identification Mark*

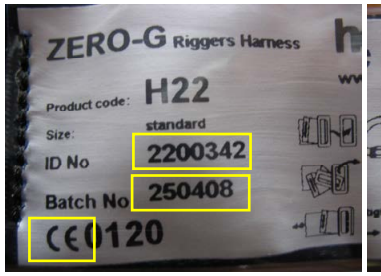
This marking may or may not be evident and if not will have to be added carefully so as not to damage the product. Care should be exercised not to confuse the batch number for an individual ID mark as this may relate to a large number of identical items.

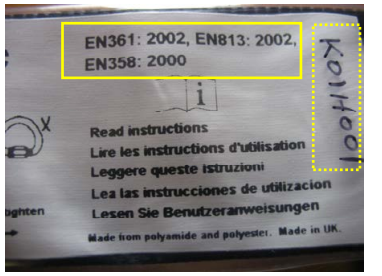
The Individual ID mark's importance is due to the need for traceability of each and every item in the form of a PPE record, and has particular relevance in relation to establishing the date on which the product was first used and therefore when the product was first used and therefore when the product will have reached the end of it's working life. The working life will normally be indicated by the manufacturer and will run within the term of the storage / overall life.

Markings found on Lanyard Absorbica



Markings found on Industrial Harness





Inspection of PPE

The end user should in the first instance, undertake inspection of all PPE items before every use. Secondary to this, it should be inspected by a 'competent person' at the intervals specified by the manufacturer, unless justification can be made for a different frequency. This is typically every 3-12 months.

A 'competent person' is defined as someone with the appropriate qualifications, knowledge and experience and the authority to take items out of use. A record of the periodic inspections should be kept and any comments related to minor damage noted for future reference.

Practical Reasons for Inspection

There are a large number of possible causes of degradation of materials used in fall protection equipment. These causes can be diverse and varied and can stem from sources such as UV light degradation, chemicals, excessive loading and general wear and tear to name a few.

Textile elements of equipment deteriorate slowly with age, regardless of their amount of use. Although the deterioration of fabrics and textiles will happen, the most common cause of strength loss on textile equipment is through abrasion. Common causes of abrasion are from grit and dirt being worked into the strands and fibres, or by direct contact with sharp, abraded or rough edges.

It must be noted by all users that any textile / fabric based equipment that has undergone a shock load, or high impact force upon it, should be removed from service immediately.

To ensure compliance with the frequency of inspections of personal and fall protection equipment, manufacturer's instructions should be consulted with regard to work life limit, storage, shelf life and the recommended periods of inspection.

The Work at Height Safety Association stated in 2006, that research had highlighted the issues that there are no specific boundaries to dictate when equipment is safe and when it is not.

In instances where equipment inspectors and users are unsure as to the safety of a piece of equipment, it should not be used, and should be scrapped.

Any out of date, untraceable or damaged items should be taken out of use or repaired as appropriate. If not repairable such items must rendered unusable to prevent future misuse by any third party.

Types of Damage to look for when Inspecting PPE

When undertaking a physical inspection we can break the inspection down into 5 general areas as follows:

Fabrics
Cuts, abrasions, burns, chemical damage, UV degradation, dirt, build up of foreign material, elongation, damaged, loose or missing stitching, damaged locking stitch.

Points to monitor:

Harnesses:-
- All points where metal comes into contact with fabric
- Main attachment points – Work position, fall arrest, fall restraint
- Edges of webbing or fabric



Slings / Webbing
- Edges of slings
- Joining points
- Fluffing / loose threads or fibres



Plastics
Cuts, abrasions, burns, chemical damage, UV degradation, elongation, stress marks, impact damage, cracks.

Points to monitor:

Helmets:-
- Individual elements, i.e. the shell, and the cradle
- Rivet points (where cradle is attached to shell)
- Look for deformities, impact & stress marks



Rope Products

Kinks, twists, deformity, softness, visible damage such as cuts abrasion & discoloration, dirt and tactile changes.

Points to monitor:

- Sheath of rope – not baggy, minimal fluffing, core not exposed.
- Look for dirt or pollutants such as oil, grease, paint, chemicals
- Uniform feel to the rope, no stiff, hard or loose sections.



Metal

Abrasions, wear and tear, burring, damage of moving parts, build up of foreign material, elongation, twisting, broken parts, dents and cracks, deformation.

Points to monitor:

- Potential wear and tear at connection points (ends of karabiners).
- Smooth operation of working parts (Twist or screw-gates, hinges on karabiners).
- Deformation / twisting / elongation.



Mechanical devices

Correct and efficient operations, build up of foreign materials, corrosion, distortion, worn, damaged or loose components, cracks, and sharp burrs.
All items should be properly maintained and cleaned in accordance with manufacturers instructions.

Points to monitor:

- Ensure moving & sprung parts move freely and are returning.
- Where safety measures are in place, ensure they operate correctly e.g. all teeth in place on a toothed cam.
- Ensure locking mechanisms do actually lock.
- Ensure the whole unit is bound / bolted correctly, no loose joins between metal or working parts.



Operational Systems

PPE systems employed for work at height tend to fall into three very distinct categories, all with very different scopes, in respect of what they aim to do and their associated design parameters. For clarity these systems will be dealt with separately, but in reality more than one system may be combined to achieve the desired outcomes. These are Restraint Systems, Work Positioning Systems and Fall Arrest Systems; their overall design requirements and limitations are detailed on the following pages.

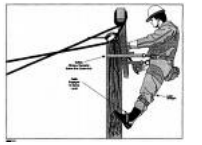
Fall Arrest



Work Restraint



Work Position



Restraint Systems

The purpose of this type of system is to prevent the user from gaining access to the fall hazard area by limiting the scope of their movement in one or more directions.

The system typically incorporates a full body harness attached to an anchor system via either a fixed length or retractable lanyard. The anchor system may include the use of fixed steel wire rope or low stretch kernmantle rope. In addition connectors may be used to link various parts of the system together. These are typically karabiners, maillon rapides, scaffold hooks or can be more complex such as transfasteners (Latchway), where rail or wire systems are used.

This type of system is not designed with a fall arrest capability and should not be used where a fall can occur. There are exceptions where this has been specifically included in the system but this should be made clear.

Common EN Numbers Currently Used for restraint system PPE

EN 361	-	Full Body Harness for Fall Arrest
EN 358	-	Work Positioning Harness
EN 397	-	Industrial Helmet
EN 12492	-	Mountaineering Helmet
EN 362, EN12275	-	Connector (Karabiner Scaffold Hook, Maillon)
EN 1891 Type A	-	Low Stretch Kernmantle Rope
EN 795	-	Anchor Point
EN 354	-	Restraint Lanyard

Work Positioning Systems

This type of system is designed to support some or all of the users body weight, and enable the user to operate at the work position with both hands free.

The systems which achieve this end typically employ either an adjustable pole belt or lanyard system with which to make an adjustable attachment to the structure or alternatively roped access techniques / bosun's chairs. Components of such systems include a full body harness or sit and chest harness combination, adjustable pole belt / pole strap with appropriate connectors, lanyards, or kernmantle ropes associated slings and connectors, descending, ascending and back up devices.

Roped access suspension work although falling within the scope of work positioning systems requires additional specific training which outside the scope of this training.

As with restraint systems work positioning systems do not typically include a fall arrest capability and should always be used in conjunction with a fall arrest system.

Common EN Numbers Currently Used for Work Positioning PPE

EN 361	-	Full Body Harness for Fall Arrest
EN 358	-	Work Positioning Harness
EN 358	-	Pole Belt
EN 813	-	Sit Harness
EN 12277	-	Chest Harness
EN 397	-	Industrial Helmet
EN 12492	-	Mountaineering Helmet
EN 362, EN12275	-	Connector (Karabiner Scaffold Hook, Maillon)
EN 1891 Type A	-	Low Stretch Rope
EN 353-2	-	Temporary Fall Arrest Device

Fall Arrest Systems

The purpose of this type of system is to safely arrest a falling person and then maintain their body position so as to optimise their chances of survival.

Such systems have to fulfil the following criteria:

- Limit the total fall distance to 5.75m.
- Limit the forces applied to the body to 6kN (approx 600kg).
- Distribute the forces so as to minimise injury (typically to buttocks and thigh areas).
- Keep the torso of the arrested person within 50º of vertical.

When considering the make up of such systems and the criteria that it must meet, it is important to realise that a falling person of 100kg mass falling a distance of 4m (2m above and 2m below the anchorage point) can generate approximately 20kN (approx 2000 kg) of impact force. This is primarily due to the role of gravity accelerating the mass as it falls.

The energy-absorbing component of the system works by spreading the impact force over a longer period of time. This has the effect of reducing the force being applied to both the body and the anchor connection at any one moment in time. This is typically achieved by the energy-absorbing component ripping, elongating, compressing, deforming or overcoming friction in order to elongate.

Typical systems utilize a full body harness with some form of energy absorbing attachment to the structure, commonly in the form of shock absorbing lanyards, inertia reels, fixed wire or rail systems with trolley attachments or temporary rope and rope grab systems.

To maximise the effectiveness, the user in all cases should aim to minimise the falling time and therefore the potential fall distance. This can usually be achieved by ensuring that the attachment point to the structure is a high above the person as is practicable.

Common EN Numbers Currently Used for Fall Arrest PPE

EN 361	-	Full Body Harness for Fall Arrest
EN 397	-	Industrial Helmet
EN 12492	-	Mountaineering Helmet
EN 355	-	Shock Absorber / Shock Absorbing Lanyard
EN 362, EN12275	-	Connector (Karabiner Scaffold Hook, Maillon)
EN 1891 Type A	-	Low Stretch Rope
EN 353-2	-	Temporary Fall Arrest Device
EN 360	-	Retractable Lifeline

Additional General Items of PPE for Work @ Height

This section deals with additional items of PPE, which although coming within work at height, does not fit well within the operational systems shown above, but would be needed as a matter of course.

Safety Foot Wear

Where lifting and moving activities are involved on any site it becomes a 'Construction Site' and as such requires protective footwear to be worn. All such footwear must meet CE BS EN 345-1 1993. Within the EN345-1 1993 standard there are a number of different features which a boot or shoe may have in addition to the steel toe cap, such as level of weather-proofing, antistatic (for explosive / flammable environments), insulation against the cold / heat and penetration resistance (for standing on steel work/ ladders or digging with spades).

A full list of additional abbreviations is detailed below:

SB	Standard Safety Boot
S1	Antistatic
S2	As S1 plus Water Penetration
S3	As S2 plus cleated Outsole
S4	As S3 plus shock absorbing heel
S5	As S4 plus penetration resistance
HRO	Hot contact resistance up to 300 ºC
P	Penetration resistance 1.1Kn
C	Conductivity Maximum 100K ohms
A	Antistatic
C1	Insulation against cold
H1	Insulation against heat
E	Heel shock absorber 20J
WRU	Water penetration resistant

This information should be found on a label in the tongue of the boot in a format as below:

Standard	BSEN 345-1 1993
Type	SB S3
Additional Information	HRO P C1 H1 A
Date of Manufacture	01.02.2002

Inspection and replacement of protective footwear should follow the same protocols as for all other items of PPE. Indications include exposed steel toecap or evidence that the steel toe has been subjected to an impact force.

PPE Purchase From Xi Training – Industrial Climbing

As well as training, Xi Training provides clients with PPE from a range of top manufacturers within industrial climbing. For more information regarding any of the products we sell, contact us.

Basic riggers PPE

The essential PPE to enable a rigger to conduct daily work on a telecommunications site.
Comprises: 1) Helmet 2) Twin Lanyards 3) Rigger Harness and 4) Work Positioning Pole Belt



1. Helmet—advisory specifications: Shell EN397, Chin Strap EN12492, Orange, no vents

2.Twin Lanyards—advisory specifications: two tail, shock pack, MGO scaffold hooks,

150-175cm in length including length of hook. EN354, EN355, EN362

3. Rigger Harness—advisory specifications: full body harness with leg straps, waist belt and shoulder straps, multiple attachment points at rear, sternal, waist for attaching fall arrest and work restraint equipment. Additional gear loops advisable and harness needs to be comfortable, especially if for long periods of work at height. EN361, EN358, EN813

4. Work Positioning Pole Belt—advisory specifications: 200cm in length, adjustable with rope locking device such as grillon, Maillon connector and a flat hook for connecting and looping. EN358, EN362, EN12775