SG16:14

Management of Fall Protection Equipment

NASC
National Access & Scaffolding Confederation

1. INTRODUCTION

The most common cause of death and serious injury within the construction industry is falling from height. All industry sectors are exposed to the risks presented by this hazard although the level of incidence varies considerably.

Employees who are potentially exposed to fall hazards while working at height must be provided with appropriate fall protection equipment. It is preferable for collective protection measures to be implemented, such as guardrails or other suitable barriers. In situations where guardrails are not practical, or when working from a suspended scaffold, personal fall protection equipment (such as safety harnesses, lifelines, lanyards, karabiners etc) may be used as a last resort. In some situations, positioning device systems such as restraint (tether) lines or aerial lifts can be used to provide protection from falling off an unguarded edge. Albeit that collective measures may be implemented, *It is the view of the NASC & HSE that scaffolders should wear suitable fall arrest equipment* ***at all times*** *whilst erecting, dismantling or altering scaffolding structures because of the inherent risks of a fall associated when operatives raise/lower working platforms or undertake non-standard tasks such as alterations, fitting ladder/unit beams etc.*

Personal fall protection systems must:

- Prevent a worker from falling (work restraint systems), or
- Arrest the fall of an operative whilst preventing the operative from striking or falling to the ground below

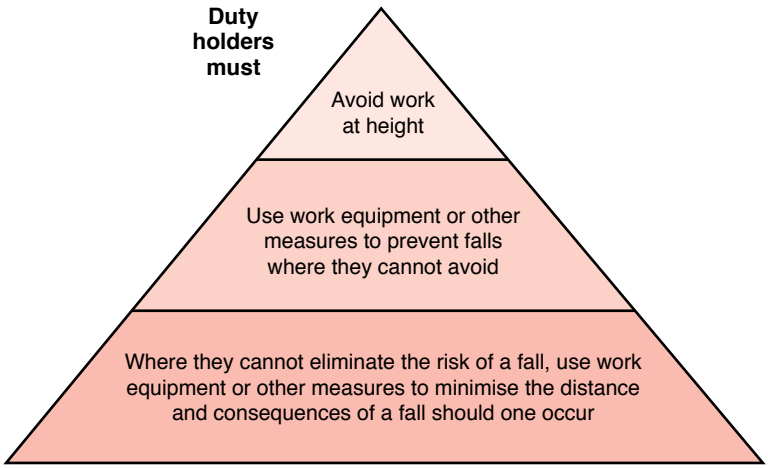
Trauma suffered by employees from falls from elevated work surfaces can be minimised by the proper selection and use of personal fall protection systems.

The aim of this guidance is to provide employers sufficient information to enable them to establish a successful management system when Fall Protection Equipment has been selected.

2. THE WORK AT HEIGHT REGULATIONS

The overall aim of the Regulations is to ensure that all work at height is properly planned, appropriately supervised and carried out in a manner which is, so far as is reasonably practical, safe. Planning must include provision for emergencies and rescue procedures. Employers should also ensure that no person takes part in work at height, including organisation or supervision, unless they are competent to do so, or if being trained, is supervised by a competent person.

The hierarchy for managing work at height is as follows:



The Regulations apply to all work at height where there is a risk of a fall that could cause injury. Employers, the self-employed, and anyone who controls the work of others (e.g. those responsible for contracting others to work at height) to the extent they control the work, have duties under the Regulations. The duty holder has to ensure that:

- all work at height is properly planned and organised
- those involved in work at height are competent (including managers and supervisors)
- 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

3. RISK ASSESSMENT

Fall protection equipment should be provided when the risk assessment and operational needs have identified it as a control measure. This type of equipment should only be used when all other control measures fail to adequately ensure the safety of operatives, and not as a stand-alone solution to working at height operations.

Fall protection equipment has limitations to its use and should only be used by suitably and sufficiently trained persons.

4. TRAINING

Before using personal fall protection equipment, each employee must be trained to understand the application limits of the equipment and proper hook-up, anchoring or tie-off techniques. Employees must be trained so that they can demonstrate the proper use, inspection, and storage of their equipment.

5. SELECTION OF APPROPRIATE FALL PROTECTION EQUIPMENT

Fall protection equipment should be selected in accordance with **BS 8437:2012 Code of practice for the selection, use and maintenance of personal fall protection systems and equipment for use in the workplace** and the risk assessment process. The CE mark is a mandatory European marking for certain product groups to indicate conformity with the required health and safety requirements set out in European Directives. All employers must ensure that any Fall Protection Equipment purchased is CE marked and complies with the requirements of the Personal Protective Equipment at Work Regulations. The CE marking

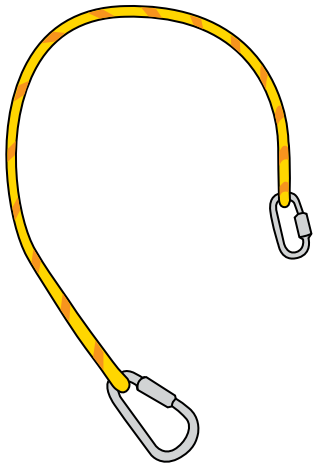
signifies that the Fall Protection Equipment satisfies certain basic safety requirements and in some cases will have been tested and certified by an independent body. All fall protection equipment should be supplied with a Certificate of Conformity i.e. a certificate stating that the product conforms to the respective British and European Standards.

There are a number of lanyards available within the industry, however the main lanyards utilised are:

Single lanyards (restraint lanyards)

Personal restraint while working at height is about creating a system where it is not possible for the person working at height to be able to physically reach the fall zone and therefore meaning a fall from that area is totally impossible.

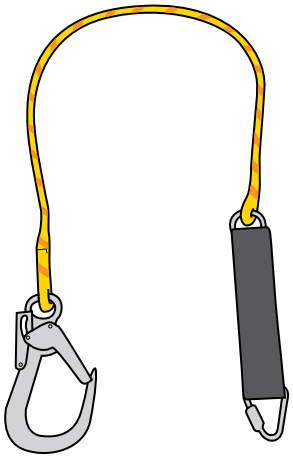
Usage include mobile elevated working platforms (MEWPS), roof spaces using mobile anchorage systems, roof spaces using horizontal latchway systems.



Single Lanyard (fall arrest lanyards)

Fall arrest lanyards are designed to connect the person working at height to an anchorage point so that in the unfortunate event of a fall the lanyard will catch the fall and absorb many of the forces created meaning that the forces absorbed by the person falling will never be above 6Kn. There are two main types of fall arrest lanyard; single leg and double leg.

Allows continuous connection where there is a risk of a fall for example scaffold structures, ladder travellers.



Twin lanyards which are attached to a single shared energy absorber)

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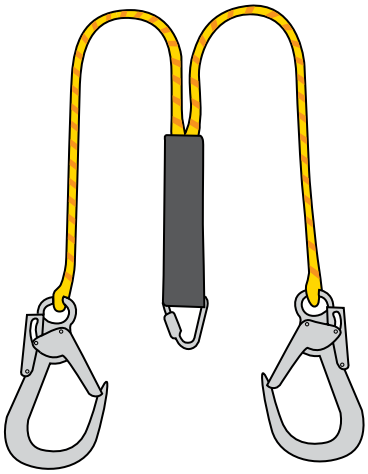
Allows continuous connection where there is a risk of a fall for example scaffold beam, scaffold structures, ladder or structure when climbing masts and towers.



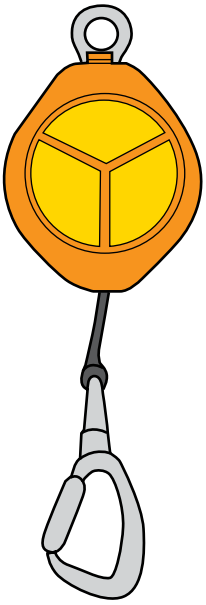
NOTE: if required, two single leg lanyards attached to the dorsal ring can be used instead of double legs.

Inertia Reel Fall Arrest Blocks (retractable)

Inertia reels are great for minimizing the distance of the fall and therefore reduce the consequence of the fall which is typically the injury caused by a fall.

For instance, inertia reels can allow continuous connection in the vertical plane for operatives erecting protection fans and hanging scaffolds when used in compliance with the manufacturer's instructions and SG4:10.

Designed for the harsh environments where abrasion is a high risk.



6. FALL PROTECTION EQUIPMENT INSPECTION

Schedule 7 – Regulation 12(7) of the Work at Height Regulations requires every employer to ensure that equipment used for work is inspected by a competent person and a report prepared that includes:

- Name and address of the person for whom the inspection was carried out;
- Location of the work equipment;
- Description of work equipment;
- Date and time of inspection;
- Details of matter identified that could cause risk;
- Detail of action taken to remedy risk matter;
- Details of further action considered necessary;
- Name and position of the person making report.

Ideally the competent person should be independent to the operation, this will ensure that a non biased decision be made as to the status of the equipment.

7. INSPECTION REGIME

Employers are responsible for establishing an inspection regime for the inspection of fall protection equipment that is produced and implemented by a competent person. A Register of equipment should be compiled for use in managing the inspection regime i.e. listing of all fall protection equipment held in the stores and / or issued to employees.

The regime should include:

- The fall protection equipment to be inspected (including their unique identification);
- The frequency and type of inspection (pre-use checks, detailed inspection and, where appropriate, interim inspection);
- Designated competent persons to carry out the inspections;
- Action to be taken on finding defective equipment;

- Means of recording the inspections;
- A means of monitoring the inspection regime to verify inspections are carried out accordingly.

It is essential that the person carrying out any inspection is competent and sufficiently independent/impartial to allow them to make objective decisions, and has appropriate and genuine authority to discard defective fall protection equipment. This does not mean that competent persons must necessarily be employed from an external company, although many manufacturers and/or suppliers offer inspection services and training in the inspection of their products.

Fall protection equipment that is on-hire may need special consideration, to ensure that they are subject to detailed inspections (and interim inspections if appropriate) within the period specified in the regime. Hirers should be informed of any use or damage that may affect the safety of the equipment (e.g. use with chemicals).

8. SCOPE OF INSPECTION REGIME

Fall protection equipment should be subject to:

- Pre-use and Post Use checks;
- Interim inspections;
- Thorough examinations.

These inspections/checks should be carried out by competent persons, who can identify any defects or damage that may affect safety.

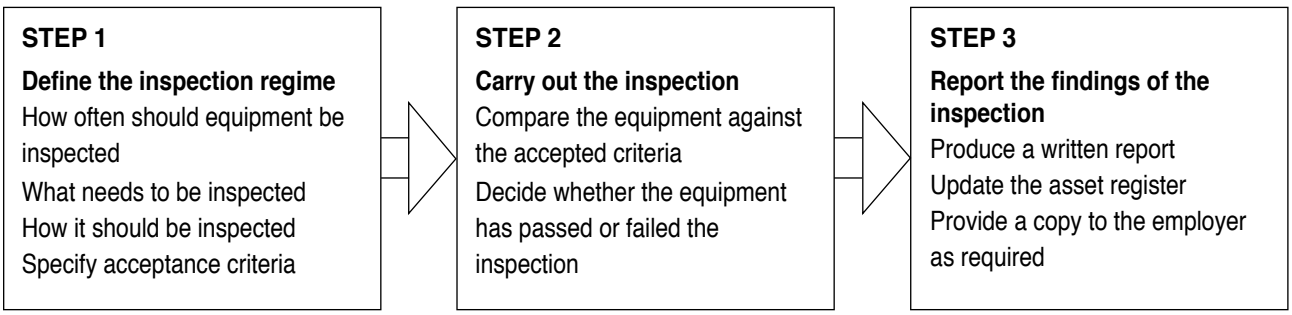
Pre-Use and Post Use Checks (by the user) – These checks are essential and should be carried out whenever the fall protection equipment is used. Pre-use and post-use checks should be tactile and visual i.e. passing it slowly through the hands (e.g. to detect small cuts in the edges, softening or hardening of fibres, ingress of contaminants). A visual check should be undertaken in good light and will normally take a few minutes.

Thorough Examinations (by the employer) – These more formal, in-depth inspections should be recorded and carried out periodically at minimum intervals specified in the employer's inspection regime. The NASC recommend that scaffolders fall arrest equipment i.e. safety harness, lanyard and attachment device have a detailed inspection completed at least once every three months.

Employers should also consult manufacturer's instructions.

9. RISK ASSESSMENT

Suggested Inspection Process



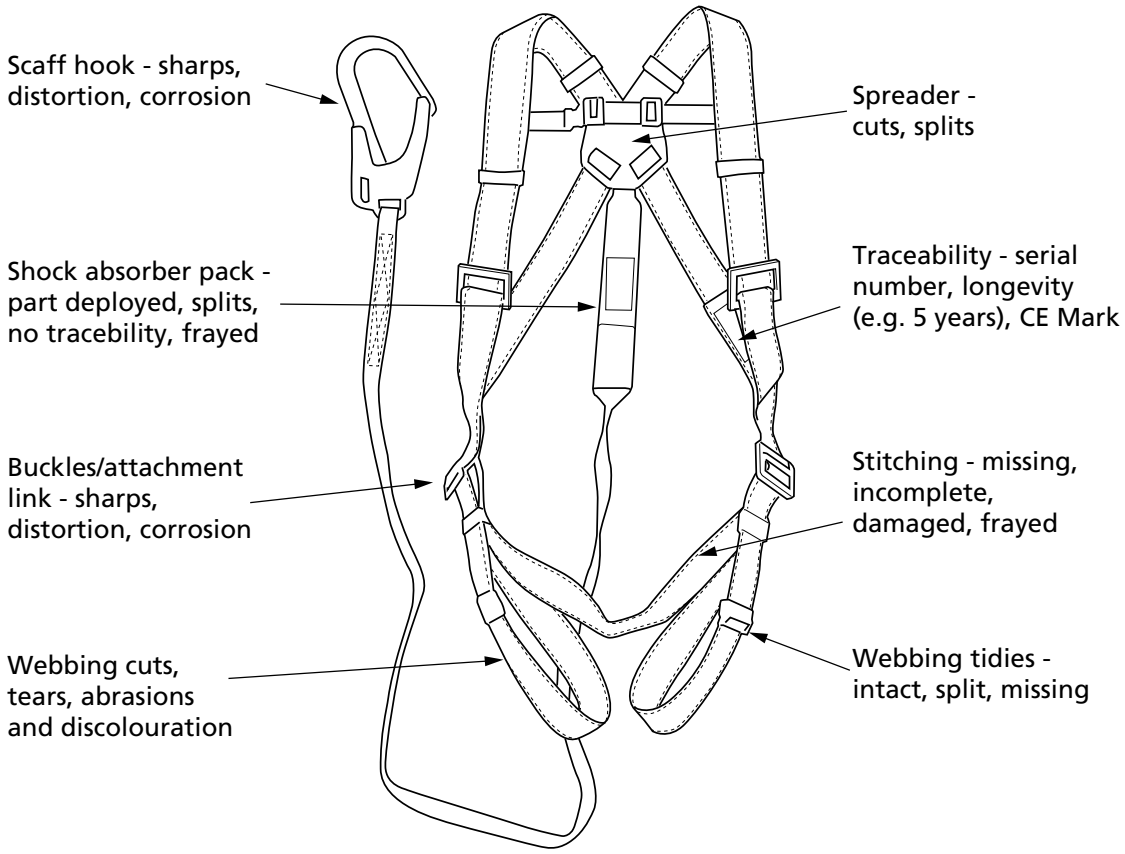
10. EXAMPLES OF DEFECTS

The following defects and damage have the potential to result in the degradation and/or weakening of the lanyard:

- Cuts of 1mm or more at the edges of webbing material (e.g. where the harness and / or lanyard may have been caught on the structure);
- Surface abrasion across the face of the webbing and at the webbing loops, particularly if localised;
- Abrasion at the edges, particularly if localised;
- Damage to stitching (e.g. cuts or abrasion);
- A knot in the lanyard, other than those intended by the manufacturer;
- Chemical attack which can result in local weakening and softening – often indicated by flaking of the surface. There may also be a change to the colour of the fibres;
- Heat or friction damage indicated by fibres with a glazed appearance which may feel harder than surrounding fibres;
- UV-degradation which is difficult to identify, particularly visually, but there may be some loss of colour (if dyed) and a powdery surface;
- Partially deployed energy absorber (e.g. short pull-out of tear webbing);
- Contamination (e.g. with dirt, grit, sand, etc.) which may result in internal or external abrasion;
- Damaged or deformed fittings (e.g. karabiners, screwgate connectors, scaffold hooks).

11. EXAMPLES OF DEFECTS CONTINUED OR WHAT TO LOOK FOR

The NASC strongly recommend that equipment is checked by visual and tactile means for:



12. WITHDRAWING EQUIPMENT FROM USE

Fall protection equipment should be withdrawn from use, quarantined and passed to a competent person for a thorough examination to decide whether they should continue to be used, destroyed or returned to the manufacturer for testing, if:

- There is no evidence that fall protection equipment has been inspected by a competent person within the last three months or employers specified time scale
- Identification is not evident (fall protection equipment should be indelibly and permanently marked in accordance with BS EN 365 not permanent marker i.e. chemical based. They should be uniquely identifiable so that they can be easily associated with their respective inspection documentation)
- Fall protection equipment is still in use and marked to the old British Standard, BS 1397: 1979 Specification for industrial safety belts, harnesses and safety lanyards (i.e. pre CE-marking)

13. CARE AND MAINTENANCE

Fall protection equipment should be subject to periodical inspections, to check for deterioration, defects and damage, which if left unnoticed could lead to injury or death;

Maintenance includes:

- Steel – cleaned, lightly oiled, free from corrosion, slight burrs rubbed off with a fine emery paper
- Fibre (not fall arrest lanyard) – should be washed in warm soapy water not exceeding 25°C using non biological detergent to prevent the ingress of dirt particles
- Aluminium – cleaned and free from corrosion
- Stored in cool, dry environment away from direct sunlight

14. FALL PROTECTION EQUIPMENT INVOLVED IN A FALL

Personal fall protection equipment and components subjected to impact loading i.e. a fall shall be immediately removed from service and following investigation should be disposed of.

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