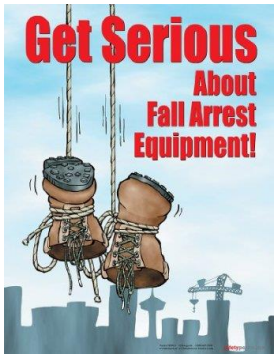
TOOLBOX TALK
NO.44

Fall Arrest and Suspension Equipment



Where a risk assessment has identified that the risk of falls from height cannot be eliminated by the installation of barriers, guard-rails or other similar measures, the use of fall-arrest equipment may then be the best option.

Safety nets or the use of other soft landing systems are preferred to the use of safety harnesses and lines, as they protect the whole area and all persons working above them. They do not rely on individual workers wearing a safety harness and lanyard connected to a secure anchorage point.
Safety nets should be manufactured to the requirements of BS EN 1263-1 and erected in accordance with BS EN 1263-2. The installation of a safety net system should be installed by an experience and competent net erector.

Important points:

- In situations where the prevention of falls from height cannot be guaranteed, it is essential that measures are put in place to ensure that any fall that does occur is arrested, without injury to the person who has suffered the fall.
- In many cases safety nets are the preferred method of arresting falls because:
  - They provide collective fall protection
  - If rigged immediately below the work area, they limit the height of the fall to the minimum and recovery of the alter should not be a problem
  - They are a soft landing system that should cause no injury to the person who has fallen.
- Safety nets can suffer wear and damage and must be inspected periodically.
- Other forms of soft landing systems are airbags or beanbags, these also offer collective protection and are more appropriate for some types of work.
- If fall protection is to be achieved, using a safety harness and lanyard, the wearer must be trained in fitting and adjusting the harness and selecting the appropriate lanyard and a secure anchorage.
- Harness and lanyard offer personal fall arrest protection only.

Fall heights

The positioning of a safety net system is critical to minimise the height of falls that may occur. Safety nets are designed for a maximum fall height of 6m from the work position. When installed, the maximum amount of sag in the net should be no more than 10% of the bay width.

Inspection

Where safety net systems are erected, they should be inspected on a weekly basis by a competent person to ensure that they are still in a safe condition, fixed correctly and will provide the fall arrest capability if required. Inspections should be carried out more frequently if circumstances indicate that the integrity of the net system is in doubt. A net should also be inspected after a person or substantial load has fallen into it. All inspections are to be recorded.

Maintenance

Nets must always be inspected after use and before storing to identify any damaged areas. They are to be stored away from heat, chemicals and solar radiation. Nets should be stored in dry conditions, wet nets should dry naturally and if stacked, nets should be packed up clear of the ground.

Rescue from a net system

Where the net is erected as close as possible below the work area, many of the situations where persons enter a net, will be minor step-ins, with the person able to climb out unaided.
On other occasions, a person may fall a considerable height into a net. They may fall onto materials lying in the net, or strike their head or body on, for example, structural steelwork during the fall. When such accidents occur, extreme care must be taken during the3 rescue of the person lying injured in the net.

Safety belts, harnesses and lanyards

In fall prevention measures (working platforms, barriers or guard-rails) or collective fall arrest measures (safety nets or other soft landing systems) are not practical, an alternative safe system of work must be employed. This safe system may require the use of safety harnesses and lanyards, but it should be a last resort.

Care must be taken when planning to use a safety harness, lanyard and energy absorbing system since, depending on where the lanyard is anchored, a person may fall around four metres before the fall is arrested.

One of the limitations of using such fall-arrest equipment is that it only protects a person if they adjust and wear the harness properly and connect the lanyard to an appropriate and secure point. The use of any such system requires a high degree of training, competence and supervision.

Types of belt or harness

A – **Pole Belt** – a simple waist belt for use by pole lines people and other similar tasks.
B – **Chest harness** – a safety belt with shoulder straps, for use where a lanyard and anchorage point limit the drop to a maximum of 600mm.
C - **General purpose safety harness** – a full body harness with thigh and shoulder straps. In the event of a fall, a person is suspended in a reasonably upright position form the attachment point. If the harness is of the right size and properly adjusted, the wearer cannot fall out.
D - **Safety rescue harness** – designed to be worn by anyone in a confined space or location where they may be overcome or incapacitated and need to be rescued. A safety rescue harness looks similar to type C but will support a person almost upright for rescue purposes. It is intended for a maximum drop of 600mm.

A thorough examination at six month intervals and user checks each time the equipment is used is required.

Types of lanyard

A - **Fall arrest lanyards** incorporate an energy-absorbing feature to reduce the shock loading on the body, termed the impact force of the person who has fallen when the fall is arrested.
B - **Twin tailed lanyards** are a type of fall arrest lanyard that allows greater mobility at height by enabling the repositioning of one tail at a time so that the user is constantly clipped on.
C - **Restraint lanyard**s are used as a means of limiting the range of movement of the wearer in order to stop them falling from an exposed edge.

When working in fall arrest, in order to limit the drop, the **anchorage points** should always be as high as possible above the person and as near to vertical as possible in order to avoid the pendulum effect. Anchorage points must be capable of withstanding the anticipated shock loading.

Summary - During Use

- Only authorised, trained and competent personnel are allowed to use suspension equipment.
- Regular checks must be made to ensure that safely nets remain free from rubbish and debris.
- Deliberate interference with safety-critical equipment is a criminal act.
- The immediate area must be free from projections that could interfere with the use of any access equipment.
- The area below where work is being carried out at height must be cordoned off and signed as a danger zone.
- All tools must be adequately secured with lanyards and secured to suitable anchorage points.
- Care must be taken not to exceed the safe working load of any access equipment.

Question: What should happen to safety nets and suspension equipment after use?