WORKING AT HEIGHT

DOCUMENT TYPE: GUIDANCE NOTE	REFERENCE: HSE CS 30-03	STATUS: GUIDANCE

Purpose

This document provides guidance to support implementation of Control Standard HSE CS 30 WORKING AT HEIGHT.

Introduction

This document provides additional guidance on some of the mandatory requirements within the Rolls-Royce Global Control Standard for HSE CS 30 WORKING AT HEIGHT and highlights good and bad practice where appropriate.

This document does not describe the full technical details of the risk control measures and precautions that may be appropriate for all working at height scenarios. If necessary, further specific information should be obtained from sources of best practice guidance: -

United Kingdom
Health & Safety Executive (HSE) –
http://www.hse.gov.uk/falls/

Americas
Occupational Health & Safety (OHS) –
http://www.ccohs.ca/newsletters/hsreport/issues/2013/05/ezine.html

Occupational Safety & Health Administration (OSHA) –
https://www.osha.gov/SLTC/fallprotection/

Asia
Workplace Safety and Health (WSH) Council / Ministry of Manpower –
https://www.wshc.sg/ (Code of practice for working safely at height)

Use of this document

- Each numbered section of this document refers to a mandatory requirement of the WORKING AT HEIGHT Control Standard.
- Each requirement of the WORKING AT HEIGHT Control Standard is included in ***blue italic text***.
- Advice on how to comply with each requirement follows in normal text.
- The word **shall** denotes a **compulsory requirement**.
- The word **should** denotes an **advised course of action;** equally effective alternative courses of action may be applied.

1. ***Local Management shall identify all working at height that takes place within their area of control to ensure that:***
   - ***All working at height is planned, organised, supervised and monitored;***
   - ***Those involved in working at height are competent;***
   - ***The hazards and risks are assessed;***
   - ***Appropriate equipment for working at height is selected, inspected, used correctly and maintained;***
   - ***Emergency and rescue procedures are developed, communicated and rehearsed.***

All working at height is planned, organised, supervised and monitored

Working at height is often incidental to a main activity or task or is not a regular activity. This means that sometimes the risks are not recognised and the appropriate precautions are not taken.

The working at height safety checklist in HSE CS 30-04 should be used to plan, organise and control unavoidable work at height. The checklist may also be used in support of a risk assessment or for periodic inspections and audits.

Supervising and monitoring will confirm that working at height is being completed as planned and control measures remain effective. The level of monitoring and supervision should be proportionate to the level of risk involved. For example, trainees or apprentices would require more supervision by a competent person.

Those involved in working at height are competent

Anyone engaged in any activity in relation to working at height are competent so that they can carry out their duties effectively.

This should include individuals who:

- Plan, organise, supervise and monitor working at height;
- Design and select work equipment;
- Assess the risks associated with working at height;
- Inspect and maintain equipment for working at height; and
- Work at height.

The level of risk associated with any working at height task will determine the level of competence a person needs to enable them to work safely (see HSE CS 30-07 Training Matrix).

In the case of most low risk activities, the following competencies may be sufficient:

- Awareness of what working at height means;
- Being able to identify examples of working at height activities in their area;
- Selecting the right equipment for working at height, using it safely and reporting defects;
- Recognising the common hazards and risks associated with working at height;
- Appreciate the risk of working at height at all levels; and
- Identify the main issues associated with working at height injuries.

In addition to any specific training requirements, the working at height toolbox talk in HSE CS 30-06 can be deployed locally in order to satisfy the above low risk competencies and also act as a refresher for those undertaking more complex activities.

The hazards and risks are assessed

The risk assessment will ultimately decide whether controls are needed and in what form, so it is imperative that all foreseeable hazards are considered during the risk assessment process. For example, consider the hazards associated with setting up and dismantling equipment (e.g. manual handling and ergonomics), environmental conditions and emergency rescue situations.

A Permit to Work may be required if the risk assessment indicates that there is a significant risk of a hazard such as a fall from height, a fall of an object from height, exposure to radiation or hazardous fumes or any other significant hazard (see HSE CS 13 – Permit to Work).

The expectation is that the risk associated with working at height activities are continually assessed so that alternative, safer methods are introduced.

Fragile roofs

Fragile roof surfaces refer to parts of the roof that are not designed to bear load and are unlikely to bear the weight of a person. Materials such as cellulose cement roof sheets, plastic or glass may deteriorate over time leaving areas in a fragile state.

All roofs shall be treated as fragile until a competent person has confirmed they are not.

Fragile roofs shall be identified (e.g. with an appropriate warning sign) and clearly communicated to any persons accessing the roof.

Example warning signs to be fixed at points of access to fragile roofs

Appropriate work equipment for working at height is selected, inspected, used correctly and maintained

Selection

Selecting inappropriate work equipment for a task will increase the likelihood of a fall from height.

Points to consider when selecting which type of work equipment to use:

- How high is the work from the ground (or below ground);
- Duration and frequency of the work;
- Time between equipment movements;
- Access / egress to the work area; and
- Type of work activity

For example, an activity at a high level, being undertaken for a long duration of time with minimal or no movements will justify a higher standard of collective protection i.e. a fixed scaffold.

Access and egress

The risk assessment shall consider how employees will get up to and down from the work area. In the majority of cases either fixed or portable ladders will be used to provide a simple and easy access solution for all sorts of work without considering whether the risk warrants an alternative method. For example, a temporary (or, where appropriate, a permanent) working platform is inherently much safer than a ladder, and its use will eliminate most of the factors which cause falls from ladders. In addition, a purpose built work platform can often ensure the job is done more quickly and efficiently.

See example below, using a ladder to access / egress a work platform complies with the relevant industry design standards but safer alternatives are available and should be used e.g. purpose built access stand with landing area and stairs with handrails.

Example of improving standards

Ladder increases the chances of a fall due to: -

- Carrying tools / equipment
- Confidence in ascending / descending ladder
- No handrail

Stairs reduce the chances of a fall due to: -

- Handrails being used instinctively
- Familiarity in using stairs
- Landing area

Deciding what type of equipment to use

Collective protection

Collective protection shall be given priority over personal protection.

Collective measures have several advantages. They are easier to use, protect everyone at risk and need less effort in terms of maintenance and user training.

Examples of collective protection

An example of a custom designed work platform for assembling the core of an aero engine.

An example of a scissor lift (MEWP), providing a safe temporary work platform.

An example of a podium step, a safer option than a ladder / step ladder.

Personal protection

Personal measures have disadvantages, they require a high level of training and maintenance and they only protect the user.

This type of work method should only be considered if the working at height cannot be avoided or collective protection is not suitable. However, there may be situations when personal protection is used in conjunction with collective protection. For example, using a work restraint inside the cradle of a MEWP when working outside or on uneven surfaces (this requirement will be based on a risk assessment).

If a work restraint system is used it must not be relied upon as a means of fall arrest.

If a fall arrest system is used there must be sufficient clearance so that the user does not hit an obstruction or the ground/ floor before the fall is stopped.

Other work equipment which does not prevent or mitigate a fall from height includes ladders, stepladders and kick stools (See HSE CS 30-05 Safe Use of Ladders and Step Ladders).

Examples of personal protection

An example of a retractable fall arrester which automatically locks on if any sudden movement occurs, typical of a fall.

Fall arrest lanyards must not be added to the end of a retractable fall arrester. Adding another energy absorber element to the end of the retractable arrester cushions the input forces and prevents the device from locking on.

Fall arrest lanyard with impact absorbing insert.

Inspection and maintenance

Detailed inspections of work equipment are more in-depth than pre-use checks and need to be carried out by competent persons. Work equipment such as ladders and mobile work platforms will be subject to engineering inspections as per HSE CS 29 Engineering Inspection of systems and equipment.

Following the identification of hazards and associated risk, a sensible pragmatic approach should be taken when considering what controls should be taken for low level risks. For example, a set of plastic steps would not require a detailed inspection.

Low risk work platform

Control measures include: -

- ✓ Good lighting in area
- ✓ Visible steps
- ✓ Anti-slip tape
- ✓ Mandatory safety footwear
- ✓ Pre-use (visual) checks
- ✓ Working at height awareness training

Based on the level of risk, these control measures reduce the risk of a fall from height.

Pre-use check

Regardless of the work equipment's last formal inspection, a pre-use check shall be undertaken by the users of work equipment for any signs of obvious defects which may warrant further investigation by a competent person. The pre-use check is the last opportunity to identify an obvious defect before the work equipment is used and could prevent an injury.

Local legislation or industry standards will determine whether the pre-use check is either visual or formally documented and recorded. A visual pre-use check may be sufficient, providing that all users of work equipment have the necessary competencies and have undergone the relevant training to be able to use the work equipment in a safe manner. For work equipment such as MEWPs, a pre-use safety inspection shall be carried out by the operator at the start of each shift covering specific criteria in HSE CS 56-07 MEWP Checklist.

An example visual pre-use check on a harness would involve the following:

Example Harness Inspection

Emergency and rescue procedures are developed, communicated and rehearsed

The amount of effort required in developing an emergency and rescue procedure must be in proportion to the level of risk involved and should cover foreseeable situations. For example, if the method of work could result in the worker being suspended in a harness the emergency and rescue implications shall be considered.

Employees shall be trained in the procedures and also in any rescue equipment which may need to be used locally (See HSE CS 30-07 Training Matrix) as this will ensure that they do not put themselves and the injured person in any further danger.

When developing an emergency and rescue procedure, consider the following points:

- How accessible is the site / area?
- What equipment is being used?
- How easy would it be to get the individual to ground level?
- What level of competency is required by workers undertaking the rescue?
- Is specialist equipment required?

Emergency and recue procedures should be rehearsed annually. This rehearsal could be performed in conjunction with the site emergency preparedness and response plan (see HSE MS 06 Emergency Preparedness and Response) as a live exercise involving both internal and external emergency services.

Evacuation

People working in elevated places such as cranes, MEWPs, roofs and gantries may need emergency evacuation in the event of mechanical or electrical breakdown or medical emergency.

Evacuation and rescue retrieval shall also be considered for those working below ground and in confined spaces (see HSE CS 15 - Working in Confined Spaces).

Rescue

The arrangements detailed in the emergency and recue procedure must not solely rely on the external emergency services as there may be unnecessary delays in their arrival which could be detrimental to the injured person. For example, suspension in a harness can lead to suspension trauma.

Suspension trauma

Suspension trauma occurs if a person is suspended after a fall due to the pressure points created by the harness restricting blood circulation. Symptoms such as tingling and dizziness can occur within a few minutes and if left, the person can become unconscious. Ideally, rescue should take no longer than 15 – 20 minutes. There are temporary aids which can be affixed to harnesses to help reduce the effects of suspension trauma prior to be being rescued. For example, foot loops and temporary supports / safety straps.

Once a person is rescued and the pressure is released from the harness, it is imperative that care is taken as blood containing toxins may be released back into their system. The casualty must be monitored until medical assistance arrives.

2. *The working at height hierarchy shall be considered and applied prior to any working at height activity.*

The working at height hierarchy is as follows:

1. Avoid working at height;
2. Prevent a fall from height;
3. Minimise the consequences of a fall from height; and
4. Reduce the risk of a fall from height.

The working at height hierarchy will prompt those with specific roles and responsibilities relating to the identification, planning, organisation and completion of work at height to select the most appropriate method of work in order to avoid or reduce risk associated with working at height.

The hierarchy ensures that working at height activities are gradually eliminated and reduced, as new technologies develop and improved equipment becomes available.

The working at height flow diagram in HSE CS 30-02 illustrates the steps needed to manage and control working at height.

The guiding principle shall be the avoidance of working at height where possible.

Examples of how this can be achieved include:

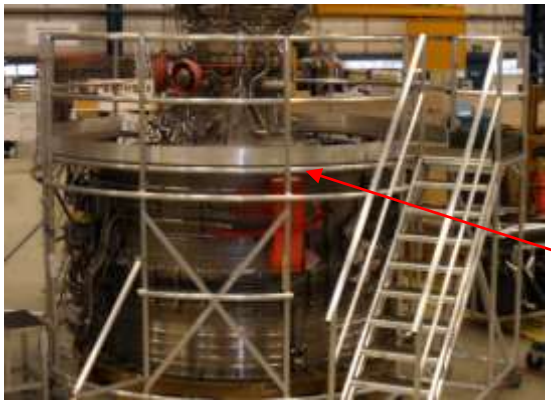
- Using extendable tools from ground level to remove the need to climb a ladder;
- Changing the method of work (e.g. changing the orientation of tall components, removing the need to use platforms or other access equipment);
- Fitting a low level gauge rather than manually checking the contents of a liquid tank from above; and
- Considering work at height at the design stage so that equipment and services are installed to avoid the need to work at height (e.g. at ground level).

6. ***The risk assessment shall comply with HSE MS 09-00 Risk Management and consider: -***
   - ***The fall of materials or tools;***
   - ***The possibility of adverse weather; and***
   - ***Whether a working at height fitness for work assessment is required.***

The falls of materials or tools

Control measures could include:

- Good housekeeping – not allowing material to accumulate on platforms;
- Removing all items of tooling and other work equipment before dismantling equipment;
- Toe boards / edge protection;
- Netting;
- Wrist / tool belt safety lanyards;
- Physical barriers & warning signs around the work area; and
- Banksman.



Toe boards / edge protection prevent loose objects being inadvertently kicked or knocked off the work platform

Toe board

An example of a wrist safety lanyard

The possibility of adverse weather

The risk assessment shall consider the possibility of adverse weather.

All working at height activities shall be postponed if weather conditions present a danger to the health and safety of employees, contractors or members of the public.

For example: -

- Rain, snow and ice increase the risk of slips, trips and falls.
- High winds can mean that handling large objects such as roofing sheets is unsafe since the person and/or roof sheet can be blown off the roof.
- Lightning during steel erection.

Whether a working at height fitness for work assessment is required

A working at height fitness for work assessment should be undertaken if the risk assessment identifies the use of personal protection as a control measure.

Personal factors which could mean a person is not suitable for working at height would include conditions which: -

- Limits, reduces or prevents them from performing a job effectively (e.g. musculoskeletal or cardio-respiratory conditions which could restrict their ability to climb a ladder, work in a confined space or in hot conditions).
- Could be made worse by a job (e.g. heart problems made worse by physical exertion) Could make certain jobs unsafe (e.g. if they could potentially lose consciousness due to a known medical condition or medication).