

The selection and management of mobile elevating work platforms

HSE information sheet

Construction Information Sheet No 58

Introduction

This information sheet is aimed at those responsible for selecting, specifying and managing mobile elevating work platforms (MEWPs) on site and should be read alongside *Preventing falls from boom-type mobile elevating work platforms*.¹

It tells you what you should consider before selecting a MEWP to gain access to work at height and the risks that need to be managed while the MEWP is in use.

All types of MEWPs are covered by this guidance, including ones that are:

- vertical 'scissor' lift;
- self-propelled boom;
- vehicle-mounted boom; and
- trailer-mounted boom.

This information sheet has been produced in consultation with the International Powered Access Federation Ltd (IPAF), the Construction Plant-hire Association and the British Constructional Steelwork Association.

What the law requires

The Work at Height Regulations 2005 require an assessment to be carried out before starting any work at height. If the assessment says that the work can be carried out in a way that avoids having someone working at height then this must be done.

However, if the assessment confirms that there is no alternative to working at height then the work must be properly planned and organised in advance by a competent person to make sure that the most suitable work equipment is chosen, taking into account the nature of the work.

When choosing the most suitable work equipment, you must follow the fall protection hierarchy. This states the order in which protective measures should be taken to prevent and mitigate the risks where you cannot avoid working at height.²

The Provision and Use of Work Equipment Regulations 1998 (PUWER) require the risks from using equipment at work to be prevented or controlled and Part III of PUWER specifically focuses on minimising the overturning risks associated with mobile work equipment such as MEWPs. This is particularly relevant when considering the ground conditions that the MEWP will cross and be used on, and how it will be used, eg to install long or heavy materials.

The Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) require that any equipment used for lifting or lowering loads or people should have been designed to a recognised standard and thoroughly examined at regular intervals thereafter.

Assessing the risk

MEWPs are increasingly being used as temporary working platforms that provide a safe place of work at height. In relation to the fall protection hierarchy, they are considered to be work equipment that prevents a fall.

It is important for employers and others responsible for selecting, specifying and managing MEWPs on site to understand the risks associated with the use of a MEWP and take adequate precautions to eliminate or control those risks. Planning is crucial to their safe operation and the stages below are designed to help you with your planning.

Selection criteria

There are several different types of MEWP with various rated capacities, working heights and outreaches.

Before you decide which type of MEWP is the most suitable for the job, think about the following (this list is not exhaustive):

- What work needs to be done?
- Who is going to operate the MEWP?
- At what stage in the job will the MEWP be needed and what will the ground conditions be like at that

stage (ie rough, prepared, poured slab, finished surface etc)?

- What access is there to the site?
- How much base area is available at the work position?
- What terrain and gradient will the MEWP have to cross to get to the work position and is visibility and segregation adequate for the manoeuvre?
- What is the maximum ground bearing capacity at the work area and along the route to and from the work positions?
- How many people need to be lifted?
- What height/outreach is required?
- Will the MEWP be expected to move in the elevated position?
- Are there any overhead power lines on site?
- Are there likely to be any overhead structures which the operator could be crushed against?
- Are there any materials to be lifted and if so how heavy/long are they?
- Are there any manual handling issues?
- What interface is there with other vehicles and pedestrians and are there any unusual issues, eg aircraft or rail traffic?
- What fuel type is allowed on site and where will refuelling take place?
- What wind loads can be expected?

Thinking about the points above should help you to select the most suitable MEWP for the job.

Managing the risk

Once you have chosen the most suitable type and size of MEWP for the job you need to look at the hazards associated with using it, assess the risks and identify control measures to develop a safe working method. The following areas should be considered:

Transport and delivery to site

Think about what size of delivery vehicle or vehicle-mounted MEWP will need access to site or whether a self-propelled MEWP will have to be offloaded on the public highway:

- What time of day will be most appropriate and what additional measures will be required?
- Will the MEWP need to be reversed off the carrier or, if vehicle-mounted, reversed onto site? What size turning circle will be needed?

Storage/charging area

Wherever possible, keep MEWPs in a secure compound or in a designated area with the engine or motor switched off, the working platform lowered to its

parking position and the brakes applied. If it has to be parked on a gradient, the wheels should be chocked.

When not in use, all keys should be removed from the MEWP to make sure it cannot be used by unauthorised persons. Alternatively, the MEWP can be isolated using a security keypad with a designated PIN number.

Positioning before and during work

- What type of ground will the MEWP have to travel across before reaching its work position, eg hard, firm, soft, sloping, uneven terrain, soft spots, subterranean hazards (such as tanks, cellars and culverts, inspection covers, sewers and service trenches), paved areas, footpaths, waterlogged areas, frozen ground etc?
- What is the ground bearing capacity at the work position and along the route to and from it? Is there enough space for the outriggers to be deployed and what is the maximum point load (under a wheel, outrigger or jack pad)? Are spreader plates required?
- Will the MEWP have to pass beneath any overhead power lines? If so is there enough clearance and has the area been demarcated?
- Will the MEWP have to be lifted into position by crane? Are the MEWP lifting points well indicated and is the weight known?
- Will the MEWP have to operate on elevated floor slabs? Has the risk of the MEWP running off the edge of an elevated floor slab been considered? How will the risk be controlled?

Handling materials

If MEWPs are to be used directly to install materials, it is essential to know the weight and dimensions of those materials and to properly consider any manual handling and load distribution issues.

Boom-type MEWPs generally have smaller baskets and lower lift capacities than scissor-type MEWPs and their platforms can 'bounce' at height due to the boom structure flexing. This usually makes them unsuitable to use for installing long or heavy materials, or bulky materials that may obstruct the function controls.

In these cases, consider using a scissor lift, crane or a telehandler of appropriate capacity in conjunction with an appropriate material handling attachment where necessary. This combination reduces the risk of overturning, removes the need to balance materials on the MEWP's handrails and minimises the risk of injury due to manual handling.



Figure 1

If you plan the work properly the need for outreach may be avoided by, for example, preparing or reinstating the ground conditions in the area directly beneath planned overhead work or by adjusting the work schedule to delay the construction of low-level structures until work overhead has been completed.

Hazards during use

Look out for localised ground features, such as trenches, manholes and uncompacted backfill, which could lead to overturning?

If operating on a pre-cast concrete slab, check the slab loading limits and how this compares with the maximum weight of the MEWP. Has enough time been allowed for the concrete to cure? What measures are in place to stop the MEWP running off the edge of the slab onto soft ground?

Think about wet, cold and windy weather:

- What is the manufacturer's maximum wind speed in which the MEWP can operate safely?
- How will the wind speed be checked (usually with an anemometer) and by whom?
- Is the MEWP being operated between buildings where increased wind speed and/or turbulence

can be a particular problem?

- What about the potential for wind chill, which can affect the operator's dexterity and concentration?

On some MEWPs fitted with proportional controls there can be an element of 'run-on' when the controls are released. This is designed to create a smoother operation but can mean that the MEWP continues to move after the controls have been released. Therefore particular care must be taken when working close to overhead structures to avoid the risk crushing.

If there are overhead structures against which an operator could be trapped and then pushed onto the MEWP controls causing sustained involuntary operation of the platform, consider selecting a MEWP which has been designed to prevent such accidental contact with the controls. MEWPs with shrouded or otherwise protected controls are available.

Extra care must be taken if MEWPs are used to manoeuvre up through several levels of steelwork as there is a risk of the operator being trapped should the boom or basket strike the steelwork. This risk increases with the number of levels the MEWP operates through and if materials are loaded out onto the lower levels which can reduce clearance.

Manoeuvring the basket with the operator crouched over the control panel to try to avoid overhead obstructions is dangerous and should not be done.

Is there a risk of trapping other workers between the counterweight and an adjacent structure during slewing?

Look for any overhead hazards such as power lines, pipe bridges, arches or trees.

Think about how the MEWP interacts with other site traffic and personnel:

- Does the operator have limited visibility, particularly during reversing?
- What is required in terms of vehicle route signage, pedestrian segregation barriers, cones, crossings etc?
- Does any part of the MEWP protrude out of the confines of the site?
- Are people below protected from the risk of falling objects?
- When working in an area used by other workers or vehicles, the entire MEWP work area (based on reach distances and not just base structure footprint) should be barricaded using cones and warning signs etc.

Maintenance

The trained operator is responsible for carrying out a basic daily/pre-use inspection and function check and records of these checks should be kept.

The operator should also be fully aware of the procedure you expect to be followed should they identify a fault with the MEWP, ie isolate the controls, tag the machine and report the defect to the person in control.

You should request a copy of the maintenance records as evidence that the MEWP and any related materials handling attachments that are going to be used on your site have been properly maintained.

Thorough examination

MEWPs, and any material handling attachments, must be thoroughly examined at least every six months by a competent person or in accordance with an examination scheme drawn up by such a competent person. You should ask to see and retain the report of the thorough examination for the equipment you are going to allow to be used on your site. If the report shows any defects seek confirmation from the supplier that they have been remedied.



Figure 2

Operator training and certification

All MEWP operators should have attended a recognised operator training course. On successful completion of the course they will receive a certificate, card or 'licence', eg IPAF's Powered Access Licence (PAL) or Construction Skills' CPCS card, which clearly identifies the bearer and lists the categories of MEWP they are trained to operate. This document can be updated as the operator undergoes further training. You should check the expiry date of the training licence or card.

Operators using material handling attachments should have received additional training in accordance with the attachment manufacturer's recommendations.

Familiarisation

Before being authorised to operate a particular make or model of MEWP, the operator should be familiarised with it by a competent person. Familiarisation should follow on from basic training and should cover:

- manufacturer's warnings and safety instructions;
- the control functions specific to the particular MEWP;
- the function of each safety device specific to the particular MEWP;
- operating limitations such as limiting wind speed, wheel and outrigger loadings, set up requirements, maximum operating slope etc;
- emergency lowering procedures;

- safe working loads or load charts;
- the maximum number of people who can be carried; and
- the maximum safe operating speed.

All of the above can be found in the information supplied with the machine.

On completion of their familiarisation, the operator should know whether or not that particular MEWP is designed for the operator to travel on with the work platform in the elevated position and whether or not the controls are protected to prevent accidental contact with the operator's torso.

It is important that you allow enough time for your operator to check, inspect, function test and familiarise themselves with every new MEWP.

All familiarisations should be recorded.

Personal protective equipment

One of the biggest risks in using boom-type platforms is being thrown out of the basket if the boom swings, jolts or tilts away from the machine's centre of gravity, or if the operator overreaches (usually by standing on the guard rails). Precautions are described elsewhere in this guidance to minimise the chances of this happening but any risk assessment must still consider the use of personal fall protection equipment. This is covered in more detail in *Preventing falls from boom-type mobile elevating work platforms*.¹

A hard hat with chinstrap and cold/wet weather high-visibility clothing should also be worn.

Emergency and rescue procedure

The emergency and rescue plan should identify trained, site-based personnel who would be available to lower the work platform using the control panel or emergency descent system situated at ground level. These people should be included in the familiarisation training for the specific machines being used on site.

The plan should also include the call-out details for the service engineer or other person who is competent and authorised to lower the work platform in the event of an emergency.

Documenting what you have done

The next stage is to record the planning and communicate it to all those involved with the work.

Before work starts the plan should be reviewed to allow for any changes in circumstances, such as

changes in site access, ground conditions, the task to be carried out, the weather conditions etc.

Make a record of who has been briefed and issued with the plan.

Tell those involved in the work to report any problems with the plan immediately. Should they need to deviate from the plan, this should be agreed with the competent person before any changes are made.

Further reading and references

1 *Preventing falls from boom-type mobile elevating work platforms* Information Sheet MISC614 HSE Books 2003 www.hse.gov.uk/pubns/misc614.pdf

2 *The Work at Height Regulations 2005 (as amended): A brief guide* Leaflet INDG401(rev1) HSE Books 2007 (single copy free or priced packs of 10 ISBN 978 0 7176 6231 9) www.hse.gov.uk/pubns/indg401.pdf

Inspecting fall arrest equipment made from webbing or rope Leaflet INDG367 HSE Books 2002 (single copy free or priced packs of 10 ISBN 978 0 7176 2552 9) www.hse.gov.uk/pubns/indg367.pdf

BS 8460:2005 *Safe use of MEWPs. Code of Practice* British Standards Institution

Crane stability on site C703 (Second edition) CIRIA 2003 ISBN 978 0 86017 703 6

ISO 18878:2004 *Mobile elevating work platforms. Operator (driver) training* British Standards Institution

Avoidance of danger from overhead electric powerlines General Guidance Note GS6 (Third edition) HSE Books 1997 ISBN 978 0 7176 1348 9

Managing health and safety in construction. Construction (Design and Management) Regulations 2007. Approved Code of Practice L144 HSE Books 2007 ISBN 978 0 7176 6223 4

Management of health and safety at work. Management of Health and Safety at Work Regulations 1999. Approved Code of Practice and guidance L21 (Second edition) HSE Books 2000 ISBN 978 0 7176 2488 1

Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and guidance L22 (Third edition) HSE Books 2008 ISBN 978 0 7176 6295 1

Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and guidance L113 HSE Books 1998
ISBN 978 0 7176 1628 2

Manual handling. Manual Handling Operations Regulations 1992 (as amended). Guidance on Regulations L23 (Third edition) HSE Books 2004
ISBN 978 0 7176 2823 0

Safety harnesses in mobile elevating work platforms
Technical Guidance Note H1 IPAF 2005

Familiarisation of MEWPs Technical Guidance Note F1
IPAF 2007

Further information

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This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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