



University of
St Andrews

Work at height

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University of St Andrews

Guidance on Work at Height A Brief Guide to the Work at Height Regulations 2005

Why are these rules so important?

These Regulations have been made to prevent the deaths and injuries caused each year by falls at work. Falls from height remain the most common cause of workplace fatality. In 2008/09 there were 35 fatalities, 4654 major injuries and a further 7065 injuries that caused the injured person to be off work for over 3 days or more, due to a fall from height (URL: <http://www.hse.gov.uk/falls/statistics.htm>)

As a consequence of the risks of falls, the Work at height Regulations 2005 were implemented . Detailed guidance on work at height can be found on the Health and Safety Executive- (HSE) website (URL: <http://www.hse.gov.uk/falls/>). Detailed guidance on Work at height can be found at URL: <http://www.hse.gov.uk/pubns/indg401.pdf>

What is 'Work at Height' ?

Under regulation 2 of the Work at Height Regulations defines a workplace is 'at height' if a person could be injured falling from it. There is now **no lower limit** for work to be deemed at height (prior to the 2005 regulations there was a lower limit of 2metres where such work was not deemed 'work at height').

Any work at height using equipment e.g.

- Work with MEWP, tower scaffold, ladder, kick stool,
- Work on a roof, vehicle, machine, plant, fabrication, tree, telegraph pole.
- Work next to an excavation, cellar opening,
- Work with harnesses, rope access and cradles.

What do the Regulations Cover?

They cover the detailed requirements for:
1. Existing places of work and means of access for work at height
2. Collective fall prevention (e.g. guard rails and toe boards)
3. Working platforms
4. Collective fall arrest (e.g. nets and bags)
5. Personal fall protection (e.g. work restraints, work positioning, fall arrest equipment and rope access)
6. Ladders and stepladders
7. Inspection reports

Do the rules apply to you ?

The Work at Height Regulations 2005 apply to all work at height where there is a risk of a fall which may cause personal injury. The regulations place duties on the University and any person who controls the work of others (e.g. Heads of Schools/Units) to the extent that they control the work.

The Regulations apply to a work situation but do not apply to the provision of paid instruction or leadership in caving or climbing by way of sport, recreation team building or similar activities.

If you are a member of staff working under someone else's control, Regulation 14 says you must:

- Report any safety hazard to them;
- Use the equipment supplied (including safety devices) properly, following any training and instruction (unless you think that would be unsafe, in which case you should seek further instructions before continuing).

Risk Assessment

The legislation requires that a specific risk assessment is undertaken for all work at height. This can be a generic risk assessment where the risks are low (eg working with stepstools etc) and incorporated into the School/Unit policy. Where there is a high risk of serious injury due to a fall from height then a very detailed specific risk assessment must be undertaken which identifies the hazards, determines who is at risk, assesses the risk of the operation and then implements appropriate control measures.

All such risk assessments must be for the process involved in the work activity which is being performed at height. This means the risk assessment must include all the hazards of the ancillary activities being undertaken at height (eg work with power tools, supply of electricity)

Control Measures

The risk assessment must include appropriate measures to eliminate or minimise the risks of working at height. These control measures should be prioritised as follows:

- Eliminate the risk;
- Substitute for something less hazardous;
- Engineer control measures
- Use of work practices and training;
- Only as a final resort, issue personal protective equipment as the first line of control.

Eliminate the risk

Where it is reasonably practicable, work should not be done at height. This can be done by re-thinking the task or finding alternative methods to do the work which does not require work at height.

An example of this is seen with cleaning windows on upper floors of buildings. Instead of using ladders or harnesses to access upper windows, there are mechanical devices which can be worked from the ground which will pump water to the cleaning surface.



Access by ladder - Work at height



No work at height

NOTE: Be aware that although you remove the risk of work at height, the alternative may be more hazardous for different reasons - for example there may significant ergonomic problems. As a consequence, the risk assessment should identify the least hazardous method to undertake the activity which may mean working at height with appropriate controls than to try and avoid the work at height and it may be safer to work at height.

Engineer Controls - Accessing Roofs

There must never be any access to fragile roofs where there is a potential of workers falling through the roof. Any such fragile roofs should be covered with appropriate boards to support the weight of the worker over the fragile area.

All fragile roofs should be marked with the following sign:



It is always better to prevent access to situations where a person can fall than it is to harness people working at height. Thus on roofs, the edges of the roofs should have fixed edge protection which forms a barrier against a fall.



Fixed Edge Protection

An alternative system is to use a fixed wire to which a harness is attached. This is not as effective as fixed edge protection as it does require people to know how to use harnesses. Only those trained to use such systems are allowed on these roofs. Any access by non-University staff should be by a 'Permit to Work system' only.



All roof protection systems must be regularly maintained and checked. Where harnesses are used, these come within the Lifting Operations and Lifting Equipment Regulations and have to be tested on a 6 monthly routine by a 'Competent' person.

Engineer Controls - Accessing Sides of Buildings

Scaffolding - For long term or major structural work, fixed scaffolding provides a stable long term base for work to be undertaken. Such scaffolding can only be erected by a qualified scaffolder and must be inspected weekly to check its stability. Such systems are only erected by external contractors. Accessing the different levels of a scaffold must be internal ladders which are anchored to the scaffolding.

Mobile Scaffolding - For short term work (eg work for days at a time), mobile scaffolding towers can be erected as a temporary measure for undertaking such work. Such scaffolding can only be erected by PASMA training and qualified staff. Accessing the top of such tower scaffolds should be by internal ladders which are fixed in place






Hydraulic lifting systems ('Cherry pickers' and scissor lifts - see pictures) provide workers with a secure cage to work from and a very stable base. The operation of such equipment is however complex and should only be undertaken by those who have IPAF Certification



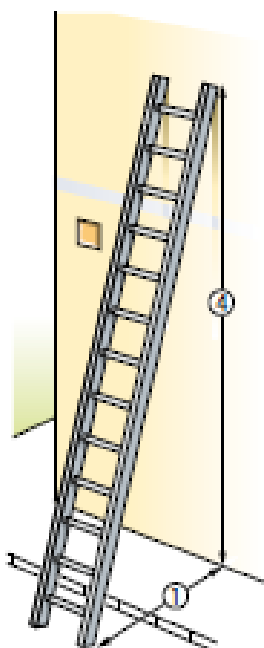
Ladders and Stepladders -The final means of access is the use of ladders for very short term work. Ladders must not be used for a work activity which will last more than about 30 minutes. Ladders and stepladders are an easy system and very adaptable solution for undertaking work at height but are not stable and also are often badly used.

The British Standard for ladders has classified ladders into 3 main groups, which are:

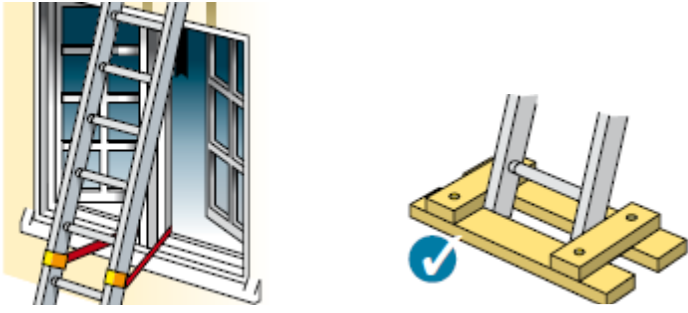
Classification	Duty Rating	Duty Rating Maximum Static Vertical Load	Application	Symbol
Class 1	130kg	175kg	Industrial	
Class EN131	115kg	150kg	Commercial	
Class III	95kg	125kg	Domestic	

Class III ladders have a very limited duty rating and have the potential when not looked after to fail. It is therefore not acceptable to use Class III ladders for work at the University. Class III ladders should be removed from the workplace and sent for destruction.

Ladders are most stable when they are laid against a wall at a 70° angle (1 metre out for every 4 metres high)



Ladders that are to be used either at a significant height or used repetitively should be fixed to the wall or a window. This will reduce the chance of the ladder slipping or falling over. Other methods of fixing include using a wide base or by have a person 'Footing' the ladder holding it in place.



NOTE: No ladder of greater than 6 metres should be used at the University as it is very heavy to handle, difficult to control when being used and there is a serious potential of injury if a worker falls from the ladder.

Before a ladder is used, then it is vital that the ladder is checked to ensure that it is good order. Examples of checklists in ensuring ladder (Appendix 1) and stepladders (Appendix2) safety are given in the appendices below.

Ladders should not be used for complex or difficult work as the worker on the ladder must always be able to hold onto the ladder with at least one hand. Detailed guidance on ladder safety can be found at the HSE website (URL: <http://www.hse.gov.uk/pubns/indg402.pdf>). To ensure safe use of ladders, the following should be undertaken:

- Always undertake a suitable risk assessment of the work activity prior to use;
- Always plan the work activity and ensure that the equipment being used is appropriate.
- No items of greater than 10 kg should be carried up a ladder unless a detailed risk assessment is undertaken and approved by a senior manager of the School/Unit;
- Where heavy items have to be lifted for use at height at the top of a ladder, then, where reasonably practicable, lifting equipment (eg block and tackle) should be used to get the work materials to the work site.
- Workers should leave a gap of about 1 metre from the top of a ladder or stepladder so that there is always a handhold (except in purpose built stepladders with platforms and a handrail);
- No work of greater than approximately 30 minutes should be undertaken on a ladder or stepladder;
- Always stand on a stepladder face onto the work activity eg



- Use appropriate types of ladders for the work activity eg use of roof ladders to stabilise the ladder on angled roofs



- The area where the work is to occur is suitable to support any access equipment
- Make sure there is good weather ie little wind and/or rain
- No ladder greater than 10 metres should be used at the University.

When using extension ladders the sections should overlap as follows:

- For ladders of up to 5m there should be an overlap of at least 1.5 rungs;
- For ladders of 5-6m then there should be an overlap of at least 2.5 rungs;
- For ladders of 6m or greater, there should be an overlap of at least 3.5 rungs.

When using stepladders you should:

- Ensure the stepladder is located on firm level ground;
- You should ensure that the stays/chains/cords holding the two halves of the ladder together are in good condition;
- The top steps or platform of the stepladder should not be used for standing on unless there is a 1.05m hand rail above the steps/platform
- Only one person at a time should be on the stepladder.

When handling or storing ladders, then you should;

- Ladders should be handled with care. If a ladder is dropped or hit by another item such that the ladder may be damaged, then it should be taken out of service and inspected by a 'Competent' person.
- Ladders should be stored horizontally on racks with an adequate number of support points. Ladders should not be stored near heat sources or near dampness or in the sunlight or in any other condition that may damage the ladder.

DO NOT undertake the following actions on a ladder

- Use a make-shift ladder;
- Use a ladder that is too short
- Allow more than one person on the ladder;
- Overreach from the ladder;
- Use metal ladders near electric cables;
- Use a ladder with broken rungs;
- Support a scaffold board on a rung.

Personal Protective Equipment (PPE) - PPE as the main control measure could only be considered as a last resort. This is because PPE only provides protection against the effects of a fall (eg fall arrest harness) but does not stop the fall happening in the first instance.

The use of fall arrest harnesses may be required where there is no other means of access. Such harnesses must be anchored to a point which is regularly tested to ensure it is strong enough to hold the weight and force of somebody falling. Only somebody who is trained in the use of harnesses should be allowed to undertake work where harnesses are the only means of protection from a fall. Where harnesses are used for access, then it is important that there is a second person available such that if the person falls they can be lowered to the ground. There is evidence that falling then being stopped and suspended in mid-air can cause serious trauma (URL: http://www.hse.gov.uk/research/crr_pdf/2002/crr02451.pdf). It is very important that when such harnesses are used there is a plan to rescue a fallen person and to get urgent medical attention to that person. Nobody should be working at height alone where the only protection is by using a harness.

PPE should be issued for protection against the work activity where a risk assessment identifies it as necessary. Examples of this are the wearing of hard hats to protect against falling objects, wearing appropriate gloves for grip, wearing of high visibility jackets to ensure the person can be seen, wearing of appropriate foot protection.

Training

All workers who will be working at height should receive suitable training. This will include general use of ladders and stepladders. All training to users should be repeated on a 3-4 year cycle.

Where specialised equipment is being used to undertake work at height, then specific training and qualifications will be needed before staff can use them eg hydraulic lifting devices (IPAF Training), mobile scaffolding erection and use (PASMA training), training in the use of harnesses

Inspections

All equipment used when working at height must be regularly inspected. The frequency of such testing should be:

- Ladders and stepladders should be inspected prior to use with an annual detailed inspection (See Appendices 1 and 2);
- Hydraulic lift equipment should be tested on an annual basis by a 'Competent' person;
- Mobile scaffolding should be inspected on an annual basis by a 'Competent' person;
- Fixed erected scaffolding should be inspected weekly by a trained scaffolder or whenever there has been a change which may affect the stability of the scaffold (eg very poor weather);
- All harnesses must be inspected on a 6 monthly inspection.

All inspected equipment should be marked to show it has been inspected during that year. Written records should be kept of all inspections of equipment used to access work at height.

Appendix 1

University of St. Andrews
An Example Step Ladder Inspection
Checklist



School/Unit

Ladder Reference

Ladder Identification Number

	Condition	
	OK	Faulty
Front Section		
Identification disc missing or illegible		
Stiles - Cracked, split, worn or broken		
Stiles - twisted or distorted		
Treads - Cracked, split, broken or worn		
Treads - Loose (considered loose if they can be moved by hand)		
Bottom diagonals - Loose or missing		
Bottom diagonals - Twisted or distorted		
Rubber feet - Damaged, worn or missing		
Rivets etc. - Loose or missing		
Rear Section		
Rear leg angles - Cracked, split, worn or broken		
Rear leg angles - Twisted or distorted		
Cross angles - Cracked, split, worn or broken		
Cross angles - Twisted or distorted		
Top hinge - worn or broken		
Rivets etc. - Loose or missing		
Rubber feet - Damaged, worn or missing		
Rivets etc. - Loose or missing		
Side stabilisers - Worn or broken		
Side stabilisers - Twisted or distorted		
Avdeloc bolts - Loose or missing		

Remarks

Inspected by Date

Appendix 2

University of St. Andrews
An Example Ladder Inspection
Checklist



School/Unit

Ladder Reference

Ladder Identification Number

Remarks

	Condition	
	OK	Faulty
Identification disc missing or illegible		
Stiles - Cracked, split, worn or broken		
Stiles - twisted or distorted		
Rungs - Cracked, split, broken or worn		
Rungs - Loose (considered loose if they can be moved by hand)		
Rungs - Twisted, distorted or missing		
Plugs - Damaged, worn or missing		
Clutch - Damaged, worn or missing		
Fittings - Rusted, corroded, damaged, worn or missing		
Fasteners - Rusted, corroded, damaged, worn or missing		
Ropes - Damaged, worn, badly deteriorated or missing		

Inspected by Date

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