

ESTATES OPERATIONS

HEALTH & SAFETY DOCUMENT
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CODE of PRACTICE
WORKING at HEIGHT
APRIL 2018 v1.4

Please Note – the guidance provided in this Code of Practice pertains only to the Estates Operations Group and its operations. For Imperial College’s Health & Safety policies and Codes of Practice go to: <https://imperial.ac.uk/safety>.

INTRODUCTION

This Code of Practice reflects Estates Operations’ commitment to meeting the requirements of the Work at Height Regulations (WAHR) 2005, and sets out the management arrangements in place which are devised to satisfy the Department’s legal duties. The principles and practices described in this Code of Practice are aimed at mitigating the risk of injury and damage to health caused by working at heights as a result of a lack of systematic, planned management. The Code of Practice is not intended to provide definitive guidance to the Regulations and where any doubt exists as to the action to be taken or advice or assistance being required, contact should be made with Estates Operations’ Health & Safety Manager or the College’s Safety Department.

The Code of Practice provides the following:

- An introduction to the WAHR, a definition and the scope of the Regulations;
- The risk control hierarchy;
- Responsibilities of Duty Holders and employees;
- The methodology for risk assessment in Estates Operations, development of generic risk assessments and application of dynamic risk assessment;
- Selection and use of work at height equipment;
- Maintenance and Inspection;
- Training and Competence;
- Monitoring and Review and
- An Imperial College Working at Height flowchart (Appendix 1.)

1. Overview and Introduction to the Working at Height Regulations.

Falls from height are the biggest single cause of fatal injuries, and historically the second biggest cause of major injuries at work. Each year around 50 to 60 fatalities and 4,000 major injuries are caused by falls at work. The aim of the Work at Height Regulations 2005 (as amended) (WAHR) July 2010 is to provide employers with a legal framework within which to manage the risk arising from working at height.

Definition of Working at Height: “Any work on, below, or above ground level where there is risk of personal injury through falling and/or a potential risk to people below the work site being injured by falling objects”. This definition extends to obtaining access to or egress from any work at height, except by permanent staircase.

Scope of the Regulations

The WAHR apply to all work undertaken at height wherever there is the potential for a fall to occur which may cause personal injury. No height limits are specified in the Regulations in recognition that all work undertaken at height has the ability to result in injury. A place is 'at height' if a person could be injured falling from it, even if it is at, or even below ground level.

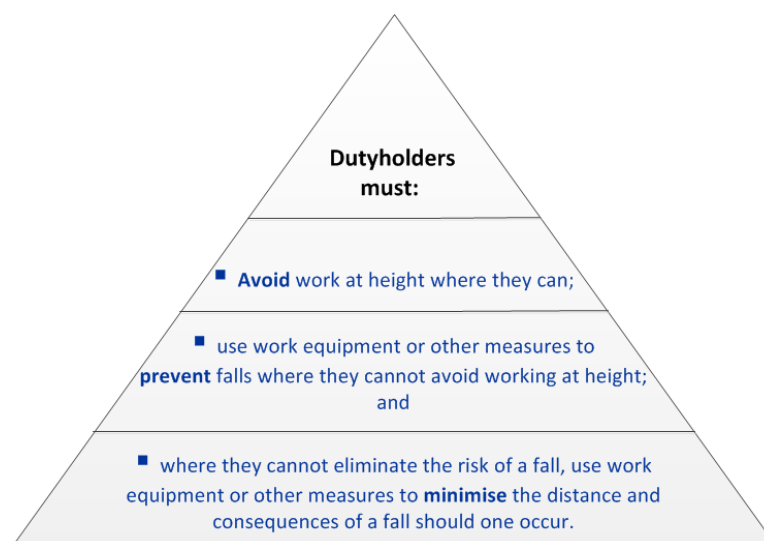
The Schedules incorporated within the Regulation provide the specific requirements for places of work and means of access for work at height. They cover fall prevention measures such as guardrails and working platforms, fall arrest measures such as nets and airbags, personal fall protection such as work restraints, fall arrests and rope access, and ladders. Information to assist with the management of these issues is, therefore, covered in the following Schedules to the Work at Height Regulations.

The Schedules to the Regulations cover:	Schedule No.
Existing places of work and means of access for work at height	1
Collective fall prevention (e.g. guard rails and toe boards)	2
Working platforms	3
Collective fall arrest (e.g. nets, airbags etc.)	4
Personal fall protection (e.g. work restraints, work positioning, fall arrest and rope access)	5
Ladders and step ladders	6
Inspection reports (for working platforms in construction only)	7
Revocations	8

2. Requirements of the Regulations

The Work at Height Regulations require that "every employer shall take suitable and sufficient action to prevent, so far as is reasonably practicable, any person falling a distance liable to cause personal injury".

The risk control hierarchy diagram below sets out the three principle measures, commencing with avoiding working at height, that employers should apply in order to prevent injuries occurring that arise from falls from height:



3. Duty Holders' responsibilities

The Regulations place responsibilities on 'duty-holders' i.e. employers, the self-employed, and any person who controls the work of others to the extent they control the work. These can be summarised as:

- all work at height is properly planned and organised;
- all work at height takes account of weather conditions that could endanger health and safety;
- those involved in work at height are trained and competent;
- the place where work at height is done is safe;
- equipment for work at height is appropriately inspected;
- the risks from fragile surfaces are properly controlled; and
- the risks from falling objects are properly controlled.

Also

- That nothing is thrown or tipped from height if it is likely to injure anyone.
- That nothing is stored or transported in such a way that its movement is likely to injure anyone.

The Director of Estates Operations, although being a principal 'duty holder', delegates day-to-day responsibility for safety management to operational line managers. Line managers will therefore ensure that the above general duties are complied with according to the following:

- Planning and Organising* commences from the point where somebody deems it necessary to undertake a task that could require employees to work at height. If that task for example requires the use of a mobile elevating working platform it is reasonable to assume that the piece of equipment must be mobilised to the work site and positioned. This will require consideration of the route which will be used and the method of physically moving the item from A to B; this could require an assessment of moving and handling. It is therefore incumbent on operational managers to consider the entirety of the task and organise it ensuring all health & safety issues are evaluated and the risk mitigated;
- Weather Conditions* can have a significant effect where an individual is working for example on an open roof and therefore weather conditions have been incorporated within the generic risk assessments and must be considered by a line manager undertaking a specific working at height risk assessment;
- Training & Competence of Staff* is an essential element of any safety management system therefore the training needs of staff will be assessed against the competency standards identified in the generic risk assessments. It will be a line managers responsibility to assess training needs and ensure staff are provided with the appropriate competence;
- A Safe Place of Work* is a fundamental requirement of the Health & Safety at Work Act 1974 and generic risk assessments make provision for this to the extent that any employee undertaking working at height is required not only to take responsibility for their own safety but that of others who could be affected as a result of their acts or omissions. Line managers have a duty to regularly monitor whether employees are working within the protocols as set out in the 'standard operating procedure' and to ensure that a safe workplace is provided;
- Inspection of Work Equipment* is an essential component of a safety management system. Employees undertaking working at height have a duty to inspect work equipment prior to its use e.g. a visual inspection prior to using a ladder. Line managers have a duty to maintain a register of all work at height equipment and put a regime of testing and inspection in place according to that stated in the generic risk assessment;
- Fragile Surfaces* across Imperial College will have been identified, risk assessed and precautions put in place to prevent employees / contractors walking on them or falling through them in the case of roof lights;

- g) *Falling Objects* such as tools and equipment can result in physical damage or injury to those adjacent to work at height locations. Measures as specified in the generic risk assessment will be applied to prevent injuries or damage occurring from falling objects, these will be for instance fitting toe boards to tower scaffold platforms or establishing a safe working perimeter around the work location.

3.1 Employee's Duties

The WAHR specifically require employees to ensure:-

- They immediately report to the employer any activity or defect relating to work at height or associated equipment which they believe to be likely to endanger the safety of themselves or others.
- They use all work equipment or safety devices provided to them for work at height by the employer, or by a person under whose control they work, in accordance with -
 - (a) any training in the use of the work equipment or safety devices which have been received by him/her; and
 - (b) the instructions respecting that use which have been provided to him/her by that employer or person in compliance with the requirements and prohibitions imposed upon that employer or person by or under the relevant statutory provisions.

Staff working at heights must observe the control measures as specified in the generic risk assessment / standard operating procedure or any other measures as directed by their line manager or the Department that are designed to protect their health and safety. In taking due care for their own safety they shall have regard for the safety of others. This duty applies also to visitors to the College.

4. Risk Assessment

Risk assessment is the tool used generically by employers to evaluate the risk arising from the conduct of their business e.g. if staff are regularly required to work at height in order to perform their jobs. The most common product of a risk assessment is a range of measures that will be applied by an employer to eliminate or minimise the risk arising from a hazardous work activity.

In Estates Operations a number of staff are required to regularly work at height in order to undertake their roles, this could include the following:

- Maintenance staff who will need to use steps, ladders, elevating platforms or tower scaffolds;
- A range of staff who will be required to access roofs to undertake surveys, inspections or carry out a range of maintenance activities;
- Support staff who may need to access high level storage;
- Technical staff who will need to enter tunnels.

Due to the diversity of locations that staff could find themselves working in it has been agreed with the Director of Estates Operations that a risk assessment will not be completed for every instance of working at height. Many of the work tasks that staff undertake are repetitive in their nature and predictable in terms of the risk inherent in the task. It has therefore been agreed that all staff who work at height will be provided with appropriate training and generic risk assessments will be produced to cover a range of work at height activities and equipment.

In addition it is understood by managers that any work at height activity which falls outside the provisions of the generic risk assessments will need to be specifically risk assessed and the findings recorded.

4.1 Generic Risk Assessments and Their Application

The purpose of a generic risk assessment is to define the parameters within which a piece of equipment e.g. step ladder, elevating platform etc can be safely used. The following generic risk assessments have been produced:

- 1) Using a ladder/extending ladder;
- 2) Using a stepladder;
- 3) Using a mobile elevating working platform;
- 4) Using a tower scaffold;
- 5) Using kick-steps;
- 6) Working at height on a building's roof;
- 7) Personal fall arrest/fall restraint equipment.

The risk assessments are available on this web page <http://www.imperial.ac.uk/estates-facilities/health-and-safety/safety-guidance/risk-assessments/>.

Generic risk assessments are to be applied as a means to establish whether a work activity can be safely undertaken using the particular work at height apparatus e.g. a tower scaffold. The risk assessment will provide advice as to the circumstances in which the apparatus should and shouldn't be used, the precautions which are necessary to ensure its safe use and what level of competence is required by the user. The term 'standard operating procedure' or 'SoP' usefully describes a set of measures which must be observed when undertaking a particular work task such as the safety checks undertaken by a flight crew prior to taking off.

The generic risk assessment will give consideration to the following:

- the activity – including loading (weights, dimensions of materials);
- the condition and stability of the work surfaces;
- the duration of the work;
- the equipment that will be used at height, e.g. tools and their weight;
- personal protective equipment;
- the environment, e.g. weather, temperature, lighting;
- the physical condition of the people involved e.g. age, fitness, pregnancy, vertigo;
- the training and supervision of the people undertaking the work at heights;
- maintenance and storage of the equipment used for working at heights;
- emergencies and rescue.

All employees whose job requires them to 'work at height' will be instructed in the use of generic risk assessments. They will also receive job specific training in respect of those pieces of work at height equipment which they will be expected to use.

Prior to commencing a task which requires an employee to work at height the individual should ask themselves the question whether the task can be safely undertaken by adhering to the guidance provided in the generic risk assessment. It will be necessary to consider the task, the environment and their individual capabilities, this consideration is known as 'dynamic' or '60 second risk assessment'.

4.2 Dynamic Risk Assessment

Dynamic or 60 second risk assessment is a term which describes the process of continually and consciously assessing the hazards present in undertaking a task. Frequently, circumstances can change quite dramatically, and sometimes in a short space of time, the weather being a case in point. Alternatively, a task which appears straight forward can quickly become complex with a change of circumstance which was not reasonably foreseeable.

The product of a dynamic or 60 second risk assessment will be either the task can be safely undertaken within the parameters set out in the generic risk assessment / SoP or it cannot. In the case

of the former the employee should proceed with the task but remain alert to the possibility that something could change e.g. the weather, which may render it unsafe to continue. Where it is assessed that the task, the environment or the individual's capabilities are not commensurate with the generic risk assessment then the employee should not proceed.

In the latter example the employee has identified, further to the 60 second risk assessment, that something about the task, the environment or his/her individual capabilities do not accord with the 'standard operating procedure'. Where this situation arises, the employee undertaking the task should do one of the following:

- a) Apply his/her experience and prior knowledge to implement additional precautions to ensure the task can be carried out without placing him/herself, others or the environment at risk. Where additional precautions are applied the employee must notate the job sheet (comments box) with the additional measures taken and return this to their Supervisor.
- b) Where the operative is unable or lacks the confidence to determine the additional precautions necessary to carry out the task safely this must be reported back to their Supervisor whose duty it will be to assess how the task can be completed without compromising safety.

All staff who will be required to carry out a dynamic / 60 second risk assessment will receive appropriate training.

4.3 Specific Risk Assessment

As stated at 4, above, many tasks that staff undertake are repetitive and predictable in terms of their inherent risk, and it is possible to develop generic risk assessments that provide employees with guidance as to how to work safely at height.

It is however recognised that there will be work at height tasks which cannot, due to the complexity of the task, the nature of the environment or the competency required of the employee, be covered by a generic risk assessment / Standard Operating Procedure.

Where it is identified that work at height cannot be safely managed through the application of a generic risk assessment, responsibility will rest with the line manager to ensure that a suitable and sufficient risk assessment is undertaken and recorded. A risk assessment pro-forma is available by following this link: <http://www.imperial.ac.uk/safety/forms/>.

Assuming that work at height cannot be avoided, the risk assessment should consider the following:

- the activity – including loading (weights, dimensions of materials)
- the means of accessing and working at height e.g. ladder and working platform
- the condition and stability of the work surfaces
- the duration of the work
- the equipment that will be used at height, e.g. tools and their weight
- the need for personal protective equipment
- the environment, e.g. weather, temperature, lighting
- the physical condition of the people involved e.g. age, fitness, pregnancy, vertigo
- the training / competence and supervision of the people undertaking the work at heights
- emergency and rescue.

Having completed a risk assessment and determined that the task can be undertaken, so far as is reasonably practicable, within an acceptable level of risk the task should be planned to take account of the following:

- Plan to do as much of the work as possible at ground level (preparative work to be done at ground level)

- Reduce the need to reach or overstretch.
- Ensure sufficient space for the person(s) working at height and the tools they will need to use.
- Check that there is a safe method of access to and from the work area, e.g. working platforms
- Provide sufficient space and a suitable surface upon which to rest tools.
- Make sure work platforms and any edges from which people may fall (e.g. roofs and holes in platforms), have guard-rails and toe boards or other secure barriers.
- Prevent tools being dropped causing harm to those below.
- If the risk of a fall cannot be eliminated, consider the need to use fall arrest equipment or safety nets, especially when working on or over fragile or dangerous surfaces.
- Put in place a 'safe perimeter' around the work site using barriers or fencing

Where it is perceived that individual risk assessments will be required to enable the task to be repeated in the future, a copy of the risk assessment should be retained within the team's risk assessment register.

5. Selection & Use of WAH Equipment

When selecting equipment for work at height we must:

- only use approved suppliers
- follow College Policies
- use the most suitable equipment;
- give collective protection measures (e.g. guard rails) priority over personal protection measures (e.g. safety harnesses);
- take account of:
 - the working conditions; and
 - risks to the safety of all those at the place where the work equipment is to be used.

Also consider:

- Will the equipment be battery or mains operated?
- How will the mains power be supplied?

5.1 Kick-steps

A kick-step or step stool is not a ladder and does not have stability issues such as a free standing ladder. You therefore do not need to attend the College ladder or other safety course in order to use one. However there are hazards of which you should be aware. The Generic Risk Assessment for use of kick-steps should be read in conjunction with [Estates Operations' Manual Handling CoP](#). British Standard EN 14183:2003 applies to step-stools.

5.2 Ladders and Stepladders

The College only permits the use of:

- Class 1 heavy duty (BS 1129 and BS 2037) or Class 2 for lighter loads (BS EN131) ladders and stepladders.

Ladders and stepladders should only be used as a place from which to work if the conditions under which they will be used are compliant with the generic risk assessments provided from within Estates Operations or where a specific risk assessment has been provided. Ladders and step ladders therefore may be used if the use of other safer work equipment such as scaffolding or a tower is not justified due to the short duration and low risk nature of the work.

Estates Operations employees are permitted to use ladders when the following conditions are met:

1. The conditions of its use are compliant with a generic / specific risk assessment.

2. The work can be reached without stretching i.e. both feet and at least one hand must be in contact with the ladder or step.
3. The person using the ladder does not stand on the top three rungs.
4. The ladder can be tied off to prevent it slipping or there is a second person to foot the ladder;
5. The working height is less than 5 metres from ground level.
6. The ladder can be erected on a flat surface to maintain a slope of one out to four up (1:4).
7. The ladder has a current Scafftag affixed to it confirming that it has been inspected within the last 3 months.
8. The ladder has been inspected by the operative in accordance with the guidance below and confirmed to be in good condition:
 - The stiles and rungs are not damaged
 - No safety feet are missing
 - There is no damage to the side rails
 - There are no loose rivets or fixings, which could affect the integrity of the equipment

(Note: Do not use any ladder with a defect. Any fault or defect must be reported to the line manager and the ladder taken out of service.)

9. Ladders are not to be loaned to contractors under any circumstances nor is an Imperial College employee to use a contractors ladder. (Contractors are required to provide all tools, plant and equipment that are necessary for the execution of any work that they are undertaking).
10. Any ladder used to access a working platform must be long enough to protrude by no less than 1.05m beyond the access platform unless other measures have been taken to provide a firm handhold.
11. Where suspended ladders are being used (with the exception of rope ladders) they must be secured in a manner to prevent displacement or swinging.
12. Where a run of ladders rise a vertical distance of 9 metres or more above ground level safe landing areas or rest platforms are provided at suitable intervals.

Estates Operations employees are permitted to use step ladders when the following conditions are met:

1. Only work on a stepladder for a maximum of 15 - 30 minutes at a time
2. Only carry light materials and tools (up to 10 kg)
3. Do not overreach - make sure your belt buckle (navel) stays within the stiles
4. Keep both feet on the same rung or step throughout the task
5. Make sure you have a safe handhold available on the steps
6. Avoid side-on working
7. Don't use the top two steps unless a suitable handrail is available on the stepladder. Don't use the top three steps of swing-back or double-sided stepladders, where a step forms the very top of the stepladder
8. The step ladder has a current Scafftag affixed to it confirming that it has been inspected within the last 3 months;
9. The step ladder has been inspected by the operative in accordance with the guidance below and confirmed to be in good condition:-
 - The stiles and rungs are not damaged
 - No safety feet are missing
 - There is no damage to the side rails
 - There are no loose rivets or fixings, which could affect the integrity of the equipment

N.B. Wet weather will make ladder rungs and tools less easy to grip.

Please also refer to HSE's leaflet '*INDG402- Safe Use of Ladders & Stepladders.*'

5.3 Mobile Access Towers / Scaffolds

Mobile access towers can provide an effective and safe means of gaining access to work at height providing they are erected and used in accordance with the manufacturer's instructions - a copy of which should be provided at the point of sale or by the hire company.

Although many models of towers are available there are two basic types which are 'through the trap' and 'advanced guard rail', either are suitable for use by Imperial College staff providing they have received appropriate training.

The following guidance will be a useful reminder for staff whose responsibility it is to routinely check that mobile access towers remain fit for purpose:

1. Check the frame sections fit together easily and that no interlock clips are missing or malfunctioning.
2. Check the welds and the frame for cracks.
3. Check for dents, holes, distortion, cuts and corrosion and remove from use any length :
 - where there is a dent of more than 5mm per 300mm length
 - where there is distortion or bending, greater than 5mm in a one metre length
 - where any damage or corrosion is thought to have perforated the metal.
4. Check that wheels and castors rotate freely and that brake mechanisms work properly.
5. Check castor stems for damage and that castors cannot fall out when the tower is moved.
6. Check stabilisers are solid, and secure when clamped to frame uprights.
7. On telescopic components, operate locking clips and ensure there is no movement in the mechanism.
8. On screw adjustable components, inspect thread for damage check that male and female threads do not bind or stick.
9. Check platform decking is securely fixed to framework.
10. Check for damage to decking, check toe-boards for splits and toe-board holders for cracks.
11. Ensure all components are clean, free of materials such as plaster and cement or other contaminants that may cause corrosion or cause slipping.

For staff who are assembling, using or moving a mobile access tower the following are to be adhered to:

1. Ensure the tower is sited on level, sound ground and that it is constructed correctly.
2. The height of the working platform must not exceed three times the smaller of the base dimensions.
3. It must be stable and outriggers must always be deployed in accordance with the manufacturer's instructions.
4. Access to the working platform must always be via the built-in ladders and never by climbing up the rungs or end frames;
5. No work is to commence on the tower scaffold until it has been inspected and signed off by a member of staff in possession of a current 'Prefabricated Access Suppliers and Manufacturers Association' (PASMA) Certificate of Competence;
6. No tower should be moved to a new work location where it stands greater than 4m high or where it will entangle in overhead lines or obstructions;
7. A tower is never to be moved whilst there are people or materials on the tower or when it is windy;
8. A tower that has been partially dismantled and moved to a new location must be checked by a competent person prior to its use;
9. When towers are to be located or used in public areas where staff / students will be present it should be surrounded by a physical barrier or cordoned off using hazard tape. Where it is to be left in position unattended the access ladder should be boarded over.

Please refer to HSE's 'Construction Information Sheet No. 10 (Rev. 4) Tower Scaffolds'.

5.4 Mobile Elevating Work Platforms ('MEWPs')

MEWPs can provide temporary workplace platforms and facilitate safe access to work at height. In relation to the fall protection hierarchy they are considered to be work equipment that prevents a fall.

The use and operation of a MEWP is governed not only by the Work at Height Regulations 2005 but also the Provision and Use of Work Equipment Regulations 1998 ('PUWER') and the Lifting Operations and Lifting Equipment Regulations 1998 ('LOLER').

When selecting a MEWP for purchase or hire purposes the HSE guidance 'Selection and management of mobile elevating work platforms' (Construction Information sheet No. 85) should be consulted.

Only Estates Operations staff in possession of a current International Powered Access Federation (IPAF) Powered Access Licence (PAL) card are allowed to drive or operate a powered elevating platform;

The PAL Card (Powered Access Licence) is recognised worldwide across industries as proof of platform operator training to the highest standard. It is issued by the International Powered Access Federation (IPAF) to platform operators who successfully complete a training course at an IPAF-approved training centre.

The IPAF training programme was developed by leading industry professionals and is certified as conforming to the international standard ISO 18878:2004 *Mobile elevating work platforms – Operator (driver) training*. MEWP Training records must be kept for at least 10 years.

Prior to a MEWP being used at Imperial College a risk assessment must be undertaken which considers:

- Mobilising the MEWP to and from the work location;
- What will the ground conditions be and will there be sufficient ground area;
- If the ground bear the weight of the MEWP and if there are any underground services / drains which could be affected;
- If there are any overhead obstructions or power lines which could interfere with the operation of the MEWP;
- What materials need to be lifted and if these will exceed the max lifting capabilities;
- If operating staff will use a personal fall restraint system;
- How will staff and students be segregated from the working area;
- If there are any weather conditions which are likely to adversely affect the operation;
- Whether there is a suitable emergency plan to recover individuals from the work platform if the equipment develops a fault.

When using a MEWP ensure that:

- Whoever is operating it is fully trained and competent.
- The work platform is provided with guard rails and toe boards or other suitable barriers;
- It is used on firm and level ground, the ground may have to be prepared in advance;
- The tyres are properly inflated;
- Any outriggers are extended and chocked as necessary before raising the platform;
- Everyone knows what to do if the machine fails with the platform in the raised position
- It is not operated close to overhead cables or other dangerous machinery;
- The equipment is not moved with the platform in the raised position unless it is designed to allow this to be done safely (check the manufacturer's instructions).

Please refer to HSE's '*Construction Information Sheet No. 58 -The Selection and Management of Mobile Elevating Work Platforms*'.

a. Building Roof Areas

All building roofs be they flat or pitched, fall within the classification of 'working at height' and therefore require measures to be put in place to prevent falls as per the risk control hierarchy. When implementing fall protection measures the first consideration must be to provide 'collective' fall prevention systems that will ensure all personnel accessing the roof are protected. Collective fall prevention will normally be provided via the installation of a physical barrier e.g. key clamp which must stand at least 950mm high and have an intermediate rail fitted so that no gap greater than 470mm exists between the horizontal rails.

Where there is a substantive reason as to why a collective fall prevention system cannot be fitted e.g. due to planning restrictions or roof construction type then protection must be provided by personal fall restraint or fall arrest equipment such as a personal harness attached via a lanyard to a 'latchway' system or anchor device.

All Imperial College's building roofs have been risk assessed and, where suitable, collective fall prevention systems have been installed. Where collective fall prevention is not available, access to the roof will only be granted via a permit to work system which will specify the measures to be taken to minimise the risks of falls from height.

All 'mansafe' systems such as anchor devices or horizontal line (Latchway) systems installed at Imperial College are inspected by an external competent contractor via a planned maintenance programme and all equipment is listed in an asset register. All items will be tagged showing the date at which point they will need to be retested and any item which is out of test date must not be used and must be reported as out of date.

b. Personal Fall Arrest / Fall Restraint Equipment

Personal fall arrest and restraint equipment can be used as part of an overall safe system of work to enable work to be undertaken at height where collective fall prevention systems are not available. The definition of this equipment is:

Fall Arrest – this equipment is designed to 'arrest' or limit the distance a person might descend having fallen from a position where they were working at height. The equipment comprises a full body harness which is then connected to an anchor device either via a shock absorbing lanyard or an inertia reel device which operates in a similar fashion to a car seat belt. An anchor device can either be a single point anchor or a 'latchway' system. It must be noted that a fall arrest system will not provide protection where the distance a person can descend is **6 metres** or less.

Fall Restraint – a personal fall restraint or work positioning system can be used to enable work at height to be undertaken safely by restricting the distance a person can work away from a fixed point such as an anchor or 'latchway system'. Safety is achieved by ensuring that a fixed length lanyard is worn between the anchor device and body harness which prevents the operative from reaching a point e.g. roof edge where they could encounter a fall hazard.

Where it is deemed necessary for College employees to use fall arrest or restraint systems, only that equipment as specified in a 'safe system of work' will be used, and then only by suitably trained and competent employees. Where fall arrest equipment is to be used the 'safe system of work' **must** incorporate a procedure that will facilitate the rescue / recovery of an individual who has fallen and becomes suspended by the lanyard.

The College places responsibility upon its Measured Term Contractor to appoint a contractor who will install and regularly maintain anchor devices and, lateral mansafe systems often referred to as 'Latchway systems'. In respect of the latter the system will be designed and installed to a specification which will enable operatives to carry out particular tasks safely, the design will also state the

specification of fall arrest / restraint equipment which is to be used in conjunction with the mansafe system.

Where equipment is supplied for use in respect of a mansafe system it will be stored in a secure location on campus where it can be accessed by both College staff and contractors both during office hours and out of hours. *Access to this equipment will only be allowed via the Estates Operations' Permit to Work system.*

Please note the British Standards document which applies: *BS8437: 2005 "Code of Practice for selection, use and maintenance of personal fall protection systems and equipment for use in the workplace."*

6. Maintenance and Inspection

All work at height equipment or that which is used as a means of access to a working platform must be regularly inspected and where appropriate subject to a programme of maintenance.

Ladders & Stepladders

Ladders & stepladders must be visually inspected prior to each use, the following are to be checked by the operative:

- The stiles and rungs are not damaged
- No safety feet are missing
- There is no damage to the side rails
- There are no loose rivets or fixings, which could affect the integrity of the equipment.

Imperial College London have adopted the "Laddertag" Safety System as manufactured by Scafftag Ltd for identification, inspection and record keeping purposes.

The Safety Department provides a 6 monthly inspection programme of all ladders and steps used across College, maintains records of these inspections and uses the Laddertag system to confirm that individual steps and ladders have been inspected and are suitable for use.

Tower Scaffolds

Those staff who are competent to erect tower scaffolds should routinely check the condition of the component parts of the scaffold as following:

1. Check the frame sections fit together easily and that no interlock clips are missing or malfunctioning.
2. Check the welds and the frame for cracks.
3. Check for dents, holes, distortion, cuts and corrosion and remove from use any length :
 - where there is a dent of more than 5mm per 300mm length
 - where there is distortion or bending, greater than 5mm in a one metre length
 - where any damage or corrosion is thought to have perforated the metal.
4. Check that wheels and castors rotate freely and that brake mechanisms work properly.
5. Check castor stems for damage and that castors cannot fall out when the tower is moved.
6. Check stabilisers are solid, and secure when clamped to frame uprights.
7. On telescopic components, operate locking clips and ensure there is no movement in the mechanism.
8. On screw adjustable components, inspect thread for damage check that male and female threads do not bind or stick.
9. Check platform decking is securely fixed to framework.

10. Check for damage to decking, check toe-boards for splits and toe-board holders for cracks.
11. Ensure all components are clean, free of materials such as plaster and cement or other contaminants that may cause corrosion or cause slipping.

Where a tower scaffold has been erected at a work location it is to be inspected by a competent person (see section 7 'Training' below) who will confirm the tower scaffold has been erected in accordance with the manufacturer's instructions and is fit to use. Once inspected and signed off a Scafftag will be attached to denote it is safe to use.

Mobile Elevating Working Platforms

Every MEWP and material handling attachment must be subject to a regular inspection by a 'competent person' every six months or in accordance with a maintenance scheme drawn up by that 'competent person'. Any maintenance scheme drawn up must comply with the Lifting Operations & Lifting Equipment Regulations 1998. The College Insurer will provide such an inspection programme but it is the duty of Estates Operations to ensure that all such equipment is listed on the College Asset Register.

Lanyards and harnesses

Most web-type harnesses and lanyards have a service life of 5 years. Always check the tag with the date of manufacture on it. If the harness or lanyard does not have a tag, do not use it. Return out of date/undated equipment to a supervisor immediately to prevent others from using it.

Lanyards and harnesses must be inspected visually prior to use to ensure proper protection. Check for signs of abrasion, tears or general wear and tear. They should be maintained to a high standard and tested thoroughly at least every six months.

Harnesses and lanyards are made of man-made fibres and as such are prone to degradation by sunlight, chemicals etc. It is important to carry out tactile pre-use checks daily, in good light, before using the harnesses and lanyards. If there is the slightest doubt about a harness or the lanyard, do not use it. Faults can be noticed by discolouration, little tears and nicks, grittiness to touch etc.

Webbing

- Look for cuts, fraying, broken stitching, and other damage.
- Check for chemical or heat damage e.g. by discolouration, brittleness, or melted fibres.
- Ensure that grommets are intact and plastic or metal keepers are sound.
- Inspect all metal buckles for distortion, cracks, and sharp or rough edges. All buckles should slide easily for adjustment.

D-rings

- Inspect for distortion, cracks, sharp or rough edges, and chemical or heat damage.
- Ensure that the adjustment plate holding the D-ring in position on the harness is free from cracks, heat damage, or other defects.
- The plate must keep the D-ring in position without allowing it to slide out of place under its own weight.

Lanyards

- Check the lanyard from end to end looking for worn, broken, or cut fibres. Look for evidence of stretching or impact-loading indicating that the lanyard may have been involved in a fall arrest.
- Inspect the lanyard for evidence of chemical or heat exposure. Discolouration and brittle material are signs of exposure.
- Check the connecting hardware for cracks, distortion, and other signs of stress.

- If the shock absorber is part of the lanyard, check the core of the absorber by sliding your fingers along its length to ensure that it is intact.
- Discard any lanyard that shows signs of the damage described above.

Shock Absorbers

- If someone wearing a harness falls, they may be injured by the impact load to the body when the line goes tight or when they strike against parts of the structure during the fall. An energy absorber fitted to the energy-absorbing lanyard can reduce the risk of injury from impact loads.
- A shock absorber must be checked prior to each use. All shock absorbers should carry an inspection tag with the date of the last inspection. If the tag is missing or out of date, the shock absorber should be returned to a supervisor for advice on its suitability.
- Check the outer jacket and end loops for any signs of damage including cuts, tears, burns, chemical damage, and stretching.
- Stitching should be checked, especially around end loops.
- Remove a shock absorber from service immediately if it is found to be defective.

Snap Hooks

- Check the snap hook for cracks and corroded or pitted surfaces.
- Ensure that the spring has enough tension to close the keeper securely.
- Ensure that bill and eye sections are not twisted or bent and are free from sharp edges. Check that the locking mechanism is working properly by attempting to push the keeper into the open position with the mechanism still engaged. If the keeper opens, discard the unit immediately.
- Open the keeper and release. The keeper should sit into the bill without binding. It should not be bent or show excessive lateral movement.

Anchor Points / Lateral Mansafe Systems

- Installation of equipment to which harnesses will be fixed, e.g. a suitable anchor or lateral mansafe system will only be undertaken by a competent and accredited contractor;
- Anchorage Devices are permanently installed into new and existing buildings and are for the use of Personal Protective Equipment (PPE) to protect against falls from a height. They may also serve as devices from which abseiling can be undertaken to facilitate cleaning of external windows and building fabric
- All anchorage devices whether existing or new have to be tested annually, according to BS 7883:1997. All devices will be labelled to confirm they have been tested, by whom and the date when the next test is due;
- The College has assigned responsibility for anchor point testing to the Measured Term Contractor who will commission the services of a competent and accredited company. The Measured Term Contractor will maintain a register of all devices identifying their location, unique identifier, the most recent test date and any conditions applying to their use.

7. Training

All staff who are required to work at height as part of their role will receive training in accordance with the range of tasks and equipment they are required to use. It is the duty of the line manager to determine by using training needs analysis what training individuals require in respect of their role and ensure that all staff working at height receive sufficient information instruction, and supervision necessary for them to work safely.

New employees will be particularly vulnerable to injury and therefore must not be allowed to work at height until suitable training has been provided and they have been deemed competent through observation.

An integral part of the training process will be to introduce the generic risk assessments for working at height to those being trained. Staff will also need to be instructed in the skill of dynamic / 60 second risk assessment.

A written record of all training must be maintained for each individual, detailing training dates, the equipment they have been trained to use and the topics covered in their training.

7.1 Training Courses

Risk Assessment Foundation Training (RAFT)

For Estates supervisory staff who are required to possess a working knowledge of risk assessment.

The following WAH specific and other relevant training courses are run directly by Imperial College's [Learning and Development Centre](#) or by their selected consultants on behalf of the College:

Ladders and Steps Safety

Who should attend: Estates staff and others who need to use ladders and steps in their work.

Key Areas:

- Types of ladders and steps.
- Selection of ladders.
- Inspection of ladders.
- Use of ladders.
- Storage of ladders.
- Choice of other types of access equipment.
- Competence test.

N.B. Recertification is required every three years.

Safe Use of Slings, Hoists and Mechanical Aids

Who should attend: Staff who need to know the theory and practice of handling techniques when lifting aids need to be used.

Key Areas:

- Principles of safe lifting and slinging.
- Selecting lifting aids.
- Safe working loads of ropes, wires and chains and their construction.
- Legal aspects.
- Storage and care.
- Mechanical aids.
- Safety harnesses / fall arrestors.
- Competency test.

Tower Scaffold

Who should attend: Estates staff who need to achieve and maintain competence in the erection, safe use and dismantling of tower scaffolds.

Key Areas:

- Aims of the Health and Safety at Work Act 1974 (Section 2).
- Need for accident prevention.
- Safe erecting and dismantling operation and GS42 guidelines.
- Inspection of aluminium tower scaffold.
- Safe systems of work with tower scaffold.
- Employer's and employees' responsibilities.

- Competency test.

Mobile Elevating Work Platform (MEWP) courses exist for:

- Operators
- Demonstrators
- Instructors

Categories of MEWP equipment:

- Static Vertical (1a)
- Static Boom (1b)
- Mobile Vertical (3a)
- Mobile Boom (3b)
- Push Around Vertical (PAV)
- Insulated Aerial Device (IAD)
- Specialist machines (SPECIAL)

Safe Use of Personal Fall Arrest and Fall Restraint Systems

Who should attend: All Estates staff who have cause to access roofs where suitable collective edge protection does not exist and there is a need to work within 2 meters of the roof's edge.

8. Monitoring and review

Both reactive and pro-active methods will be used to determine the degree to which staff in Estates Operations are operating in accordance with this Code of Practice.

Reactive Monitoring... will consist of analysing accidents and incidents that have occurred across the College as this may indicate that the risk assessment for the activity being undertaken when the accident / incident occurred is no longer valid and will need additional control measures to be implemented. It could also indicate that the training provided is in some way inadequate or that the learning has not been transferred in to the work place.

Accidents and incidents should be investigated proportionately and any relevant findings used to review the safe system of work pertaining to the activity.

Pro-active Monitoring... is an ongoing process which involves observing staff at work to ascertain whether they are applying the safe working practices as advocated in risk assessments, as directed by their managers and within training received.

Risk assessments should also be periodically reviewed to ensure they remain valid in respect to the task being undertaken and the assessed risk.

9. Further information on WAH

The full legislation is available [here](#).

For more information access the Health and Safety Executive's '[The Work at Height Regulations 2005 \(as Amended\) – A Brief Guide](#)'.

Further, more specific WAH information, (mainly HSE pdfs):

[Basics of Working at Height](#)

[Building and Plant Maintenance](#)
[Fall arrest systems](#)
[Fragile surfaces](#)
[Ladders](#)
[Legislation \(Working at Height\)](#)
[Mobile elevating work platforms \(MEWPs\)](#)
[Personal fall protection systems](#)
[Risks](#)
[Roof work \(minor\)](#)
[Safe use of ladders and steps](#)
[Selecting competent contractors for work at height](#)
[Selecting equipment for working at height](#)
[Selecting using and maintaining personal fall protection equipment](#)
[Scaffolds](#)
[Stepladders](#)
[Top tips for ladder and stepladder safety](#)
[Tower scaffolds](#)

For those staff who have to prepare [risk assessments](#) for work at height, we strongly recommend that you refer to the Regulations themselves to ensure that your arrangements are suitable and sufficient, available from the [Office of Public Sector Information](#) website.

The Regulations themselves and the HSE Working at Height campaign ('Shattered Lives'):

The Work at Height Regulations 2005 (as amended): A brief guide. HSE 2006
<http://www.hse.gov.uk/pubns/indg401.pdf>

Work at Height Regulations 2005
<http://www.opsi.gov.uk/si/si2005/20050735.htm>
http://www.opsi.gov.uk/si/si2005/uksi_20050735_en.pdf

Work at Height (Amendment) Regulations 2007
www.opsi.gov.uk/si/si2007/uksi_20070114_en_1

Management of Health and Safety at Work Regulations 1999
www.opsi.gov.uk/si/si1999/19993242.htm

Construction (Health and Safety Welfare) Regulations 1996
www.legislation.gov.uk/si/si1996/Uksi_19961592_en_1.htm

HSE – Shattered Lives Campaign
www.hse.gov.uk/shatteredlives

Guidance on safe working on roofs can be found here: <http://www.roofworkadvice.info/>. Minor roof work guidance is also available (free) from the HSE – [here](#). There is also a comprehensive (priced) publication available "[Health and safety in roof work](#)".

The **Access Industry Forum (AIF)** is the umbrella organisation for trade bodies and associations involved in the access industry. Committed to advancing safety and best practice, it is the collective voice of industry, and brings together organisations with an interest in all types of scaffolding, cradles, rope access, ladders and powered access. www.accessindustryforum.org.uk

ATLAS
Association of Technical Lighting and Access Specialists
www.atlas-l.org.uk

FASET
Fall Arrest Safety Equipment Training

www.faset.org.uk

IPAF

International Powered Access Federation

www.ipaf.org

IRATA

Industrial Rope Access Trade Association

www.irata.org

LA

Ladder Association

www.ladderassociation.org.uk

NASC

National Access and Scaffolding Confederation

www.nasc.org.uk

Appendix 1.

Imperial College Working at Height Flowchart (April 2018)

