

Fire Safety Code of Practice for Project Works and Contractors

1. Introduction
 2. Work on Fire Alarm Systems
 3. Major Project Works
 - 3.1 Fire Safety Arrangements & Procedures
 - 3.2 Fire Wardens
 - 3.3 Induction & Training
 - 3.4 Fire Barriers, Hoardings & Escape routes
 - 3.5 Inspections
 - 3.6 Provision of Extinguishers
 - 3.7 Protective Sheeting
 - 3.8 Fire Alarm Panels
 - 3.9 Fire Alarm Cabling
 - 3.10 Insurance
 - 3.11 Site Accommodation
 - 3.12 Weeds & Weed Killer
 - 3.13 Access to the College
 - 3.14 Fire Hydrants & indicators
 - 3.15 Hot Works for Estates Projects
 - 3.15.1 Permission to Undertake Hot Works
 - 3.15.2 Contractor Competence
 - 3.15.3 Hot Works Permit System
 - 3.15.4 Performance Monitoring
 4. Small Works / Maintenance
 - 4.1 Scoping the work and impact
 - 4.2 Imperial College Induction
 - 4.2 Small Works
 - 4.2.1 Site Induction
 - 4.2.2 Risk Assessments & Method Statements (RAMS)
 - 4.3 Planned & Reactive Maintenance Works
 5. Permits to Work
 - 5.1 Hot Work Permit (Planned Maintenance)
 - 5.2 Hot Work Permit (Emergency Maintenance)
- Annexe A - Measures Governing the Use of Hazardous Materials & Processes
1. Paint Stripping
 - 1.1 Blowlamps
 - 1.2 Electric Paint Strippers
 - 1.3 Paint Removers
 - 1.4 Stripped Materials
 2. Highly Flammable Liquids (flashpoints below 32 degrees °C)

- 2.1 Regulatory Requirements
- 2.2 Containers
- 2.3 Storage
- 2.4 Source of Ignition
- 2.5 Decanting
- 2.6 Quantities
- 2.7 Empty Containers
- 2.8 Live Filling
- 2.9 Electrical Apparatus
- 2.10 Highly Flammable Substances
- 3. Flammable Substances (Flashpoint 32 - 66 °C)
 - 3.1 Storage
 - 3.2 Stored Quantities
 - 3.3 Spraying
 - 3.4 Vapours
 - 3.5 Electrical Apparatus
- 4. Compressed Gas Cylinders
 - 4.1 Regulations
 - 4.2 Compressed Gas Overnight
 - 4.3 Storage
 - 4.4 Flammable Gases
 - 4.5 Use of Acetylene
 - 4.6 LPG Cylinders
- 5. Tar Boilers
 - 5.1 Siting
 - 5.2 Attendant Duties
 - 5.3 Cylinder Quantities
- 6. Drying Out, Heating, Lighting etc.
- 7. Smoking
- 8. Explosives or cartridge tools
- 9. Security

Annexe B - Contractor Hot Work System

- 1. Hot Work Permits
- 2. Fire Watch
- 3. Skilled Tradesmen
- 4. Preparation of Site
- 5. Protection of Floors
- 6. Passage of Flame
- 7. Conduction of Heat
- 8. Control of Ignition Sources
- 9. Fire Fighting Equipment
- 10. Fan Shutdowns
- 11. Emergency Stoppages

1. Introduction

The purpose of this document is to set out the measures that will be applied to all contract works undertaken at any Imperial College campus. The measures are designed to mitigate any risk that the activities of contractors potentially introduce thereby safeguarding the business, its staff, students, and visitors.

Buildings undergoing construction, major alterations, repair, or maintenance are more vulnerable to fire and smoke spread as the fabric of the building is altered and, hence its fire integrity is at risk of being compromised. This may come about as structural fire breaks and smoke barriers such as walls, partitions, doors, floors, and ceilings will be in varying states of completeness. It may also be necessary for certain fire protection equipment e.g. fire dampers, sprinklers, or smoke detectors to be deactivated during these works adding further to the risk of fire and its consequences.

Work methods and equipment may also introduce additional ignition and fuel sources and therefore increase the risk of smoke and fire.

In addition to the requirements set out in this document contractors are expected to work to and demonstrate 'best practice' with respect to fire safety management and in particular their duties under the Regulatory Reform (Fire Safety) Order 2005 and the Construction (Design & Management) Regulations 2015.

The College Fire Safety Code of Practice for Project Works and Contractors does not relieve contractors of any of their legal obligations or responsibilities for taking all necessary precautions during the works.

All documents and policies detailed in this code of practice can be found via the [Imperial College Fire Safety Website](#)

2. Work on Fire Alarm Systems

Any work to be carried out on the College fire alarm systems, including but not limited to fire alarm panels, heat / smoke detectors, call points, alarm sounders and fire suppression systems, shall only be carried out following consultation with a member of the Fire Safety department and the Fire and Security Engineer. Any work includes fault finding, system testing, system upgrades, alterations, and isolations. Works on fire alarm systems are not permitted without a [Fire and Security Systems Alteration form](#) signed and approved by the Fire and Security Engineer and a member of the Fire Safety department.

Only competent contractors appointed by the College or by Principal Contractors will carry out works on fire alarm systems. If a contractor is appointed by a Principal Contractor, then the Principal Contractor takes full responsibility for the competence of the sub-contractor.

Any alterations on fire alarm panels must be commissioned onto the system by the incumbent fire safety maintenance contractor and not by a third-party contractor unless that is the incumbent fire safety maintenance contractor.

To mitigate the impact of any works the contractor is required to apply the protocols as set out in the College Code of Practice – Fire Alarm System Failure available on the Fire Safety website.

3. Major Projects Works

The following arrangements apply to Major Project Works managed through the Projects Office where an external Contractor' is appointed. The Contractor will assume the role of Principal Contractor as defined in the CDM Regulations 2015 and will be responsible for all aspects of health & safety and the necessary reporting on the project site.

3.1 Fire Safety Arrangements & Procedures.

Buildings which are being constructed or are subject to a major refurbishment are at a greater risk of fire as many of the fire prevention and control systems have the potential of being compromised. The Principal Contractor is therefore required to carry out a full fire risk and safety assessment for the project site and

from this determine what control measures are required to prevent fire and safeguard lives and property. The fire risk assessment must be recorded and included with the documentation set as at 1.1 below.

The risk assessment must be reviewed at appropriate intervals throughout the project to ensure it remains current, suitable, and sufficient.

The Contractor is required to submit in writing details of the fire safety arrangements, procedures and precautions for the project site and these working arrangements must be agreed in writing by the Fire Safety department prior to commencement of works. These arrangements must include details of the contractor's arrangements for managing hot works and address where appropriate all the items noted within sections 1.2 to 3.6. Please refer to Item 4.0 for details of the hot works procedure required for Estates Projects.

The agreed working arrangements and precautions may only be varied on the written authority of a member of the Fire Safety department.

The Contractor and their staff are to co-operate with any College fire evacuations, drills and tests of the fire alarm which may be arranged during the contract period. Should the fire alarm sound within the building(s) in which the contract is situated, all site personnel must evacuate the building and assemble at the muster points as agreed with the Fire Safety department.

The Contractor is to ensure that, in the event of a fire being detected within the project site, a means of raising the alarm in the building is provided and this is communicated to the Imperial College Security Control Room.

The Contractor is to ensure that all those tasked with supervision of the works on site are provided with the campus specific emergency telephone number for the Security Control Room.

3.2 Fire Wardens

The Contractor shall either appoint a Fire Warden or identify a named member of their staff who will be responsible for ensuring that all necessary and agreed fire precautions specified for the works are observed at all times for the duration of the works.

The Contractor will be responsible for ensuring that the Fire Warden or appointed person is properly trained in his duties, including the use of fire extinguishers.

3.3 Induction & Training

The Contractor must ensure that all staff have been fully inducted into the fire safety arrangements for the site and are clear and that their personal responsibilities have been clearly defined before they commence work.

3.4 Fire Barriers, Hoardings & Escape routes

All fire precautions in areas adjoining the contract site areas are to be observed and any works affecting fire doors, fire alarms or other fire precautions in neighbouring buildings / areas must be advised and agreed with the Fire Safety department, prior to works commencing.

The Contractors fire safety arrangements must make sufficient provision for staff and contractors to evacuate the work site and ensure these routes are always kept clear of obstructions.

Where the work area is given over entirely to the Contractor, a fire resisting barrier of not less than 30 minutes fire resistance is to be maintained between the Contract site and the remainder of the building, except where the existing barrier exceeds 30 minutes fire resistance whereupon the existing fire resistance will be matched by the Contractor. This applies to both doors and walls.

Any opening made in fire resisting construction forming the site boundary is to be packed solid with mineral wool, intumescent pillows, or putty at the end of the working day to maintain the fire integrity. These materials are to be supplied by the Contractor.

It is the contractor's responsibility to ensure that at the end of each working day or for any period where the site is left unattended that the agreed fire safety arrangements (both active and passive) are in place.

3.5 Inspections

Any work area comprising easily ignitable material and places where flame or spark producing apparatus or equipment has been used are to be regularly inspected by the Contractor. Inspections should take place as a minimum at meal breaks and at the cessation of work to ensure that no conditions exist which might lead to an outbreak of fire (also note 4.3 Hot Works Permits).

Additional inspections of the whole area of the works, temporary buildings and storage areas and access routes are required to be undertaken at a frequency to be agreed with the College Fire Safety department.

3.6 Provision of Extinguishers

Contractors are required to assess the requirement for and receive the approval of the College Fire Safety department for the provision of fire extinguishers for each area of work. The fire extinguisher type and quantity shall reflect the nature of the work being undertaken but be a minimum provision of 1 x 13A rated water fire extinguisher per 200m² on all levels of the project demise.

The Contractor shall be responsible for ensuring that all extinguishers are appropriately tested and in full working order throughout the duration of the works.

3.7 Protective Sheeting

Any necessary temporary protective sheeting and all-weather sheets attached to the building, to scaffolding or hoardings shall be non-combustible.

3.8 Fire Alarm Panels

Fire alarm panels are programmed, serviced, and tested by the incumbent Fire Alarm Engineers and must not be altered or interfered with by persons other than the incumbent Fire Alarm Engineers unless agreement in writing has been received.

Any fire alarm panel located within the Project site must remain fully accessible by the College Fire Alarm Engineers and be suitably protected against any damage arising from construction activities,

3.9 Fire Alarm Cabling

The contractor is not to cut through or remove any fire alarm cables (normally coloured red) unless previously agreed in writing with the Fire Safety department or the appointed College Fire Engineers.

The Principal Contractor will take full account of items 1.1 to 1.10 above and all of the requirements as set out in Annexe A when formulating their 'Fire Safety Arrangements & Procedures'.

3.10 Insurance

The contractor is to provide evidence of adequate public and employer's liability and professional indemnity insurance cover prior to commencement of works to the relevant College Project Manager. The contractor is solely responsible for arranging insurance cover for his own property and equipment as defined within the contract.

3.11 Site Accommodation

Contractors are required to submit plans of the proposed layout of accommodation, hoarding storage areas and rubbish skips, including those to be used by their sub-contractors.

Contractor's site huts and accommodation may only be placed in locations agreed in writing with the College Fire Safety department. Site accommodation and temporary structures shall be constructed of materials which achieve a minimum 30-minute fire resistance.

To prevent the spread of fire, all temporary buildings, storage areas and specific combustible storage are to be located a reasonable distance from any buildings in agreement with the College Fire Safety department.

Any variation of these arrangements must be agreed in writing with the College Fire Safety department.

3.12 Weeds & Weed Killer

Undergrowth and grass within 6m of temporary buildings and storage areas shall be kept short. Only weed killer which has a fire suppressant included may be used within the College grounds.

3.13 Access to the College

Access routes for emergency vehicles and firefighting appliances are to be maintained clear and unobstructed at all times; these routes are to be a minimum of 3.7m wide and not less than a 4m height clearance.

3.14 Fire Hydrants & indicators

All Fire hydrants are always to be kept clear and readily accessible. Hydrant indicator posts and plates and hydrant pit covers are not to be removed or obstructed.

3.15 Location of Skips

The location and type of skip used for combustible materials MUST be approved in writing by the Fire Safety department.

3.16 Storage of Flammable Materials

The storage of flammable materials under the site accommodation is prohibited.

3.15 Hot Works for Estates Projects

A Hot Works Permit (HWP) is required for all hot works carried out on site e.g. welding, disc cutting, brazing, grinding, soldering or any activity or process that generates heat or smoke.

Please Note: It is the responsibility of the Principal Contractor to issue HWP's and manage all Hot Works on the site whether undertaken by their own staff or one of their Sub-Contractors.

3.15.1 Permission to Undertake Hot Works

All Contractors are required to seek permission from the Fire Safety department to undertake Hot Works. The Project Manager will consult with all key stakeholders, ensuring that comments are incorporated into the contractor's RAMs before forwarding the agreed information to the Fire Safety department for comment. When the works have been agreed, the Project Manager will seek authorisation from the Building Manager, before instructing the contractor to proceed.

Where hot works are planned within a Faculty controlled space, or where the works may have a negative impact on a Faculty's work, the Project Manager must discuss and agree the work (RAMS) with an academic representative. Where works take place in an operational laboratory/facility, the Fire Safety department will decide whether they need to inspect the work location to assess the implications of the intended Hot Works prior to giving permission. The Fire Safety department may determine that permission for the Hot Works can be granted conditional upon certain measures being implemented to mitigate any hazards associated with the works. Where the measures prescribed include changes / adaptation to the local fire safety systems or arrangements these will be specified on the pro-forma and actioned by the relevant Building Manager.

Where a particularly hazardous or fire sensitive operation is foreseen the Fire Safety department may require a detailed Method Statement to be submitted for approval prior to any work commencing.

The above procedure gives permission for Hot Works to be undertaken by the contractor; however, the contractor is expected to manage the hot works permits locally.

3.15.2 Contractor Competence

Imperial College requires its Principal Contractors to demonstrate their competence to manage all Hot Works undertaken by their staff or those of a sub-contractor. The College has determined that Contractors can best demonstrate their competence by signing up to the Fire Protection Association 'Hot Work Passport' scheme or a recognised equivalent.

The College actively works with and encourages all its Contractors to commit to this standard and ensure that those responsible for managing hot works on site are adequately trained to manage these tasks. The College will require the Contractor to confirm which of their staff are competent to manage hot works and provide evidence of competence.

3.15.3 Hot Works Permit System

All Contractors are required to demonstrate, via appropriate documentation and/or membership of professional bodies that they have a robust hot work permit system in place which sets out how hot works will be managed on site. The hot works permit system will form part of the Contractors fire safety arrangements and must be agreed with the Fire Safety department prior to the works commencing.

3.15.4 Performance Monitoring

Imperial College retains the right to inspect the Contractor's hot work system and work practice to ensure the Contractor complies with the standard advocated by the Fire Protection Association. The College Fire Safety department or his 'representative' have the right to enter the construction site to carry out random inspections.

4. Small Works / Maintenance

The following arrangements apply to small works and maintenance activities involving a single or 'Approved' Contractor.

4.1 Scoping the work and impact

It will be the responsibility of the Imperial College Project Manager or the Building Manager/Maintenance Manager overseeing the works, to assess the nature of the work being undertaken by the Contractor and determine: the extent to which the College fire safety systems could be affected; and the arrangements that need to be put in place for the safety of staff, students, visitors and Contractors at Imperial College.

4.2 Imperial College Induction

A number of Contractors are appointed by Estates Operations as 'approved contractors' able to deliver a range of services to the College which include planned maintenance, reactive maintenance and small project works.

Regardless of the nature of the works or service provided all Contractor staff that will manage and supervise work on-site are required to attend a Day One Induction session. These managers and supervisors will then be expected to cascade the content of the induction to all their staff who will work at Imperial College.

All Contractors will, at the time of being appointed to the approved contractor list, be provided with copies of Imperial College policy and codes of practice pertinent to the nature of the work and, environment in which they will function. The contractor will also be provided with a copy of the Estates Operations' [H&S Induction video](#).

4.2 Small Works

4.2.1 Site Induction

For Small Works, the project fire risk assessment is required to take place at a Site Induction meeting where the Imperial College Project Manager will meet with the Contractor and go through the full scope of works. Imperial College uses a standard agenda to facilitate these meetings which will cover such issues

but not limited to the no smoking policy, hot works, access & egress, works separation, control of dust, storage of materials and many more.

4.2.2 Risk Assessments & Method Statements (RAMS)

The Imperial College Project Manager will ensure the Contractor has been fully briefed and orientated with the fire arrangements in place in the building(s) which are subject to the work. The Imperial College Project Manager, with agreement from academic representative where works take place in an operational laboratory/facility, will assess the implications the work being undertaken could have on the normal operation of the fire system and arrangements for the building e.g., a fire escape route being temporarily blocked due to the works or the generation of noise / dusts etc. The Contractors will prepare risk assessments and detailed method statements relevant to the scope of works to enable the assessment.

Where appropriate the Imperial College Project Manager, with agreement from academic representative where works take place in an operational laboratory/facility, will discuss, and agree any modifications and or adaptations required to the fire detection system / fire arrangements with the Fire Safety department prior to work commencing.

4.3 Planned & Reactive Maintenance Works

The majority of planned and reactive maintenance works are carried out by 'approved contractors' who are managed through a 'Measured Term Contractor' (MTC) or directly by Estates Operations.

A planned maintenance specification will be provided by Imperial College which will define the scope and activity to be undertaken, this will be accompanied by a schedule setting out the dates / locations of the works.

All contractors are required to carry out their works in compliance with Imperial College Health & Safety policy and in accordance with industry 'best practice'. This requires the contractor to carry out a full risk assessment for the work to be undertaken and submit a method statement to Imperial College for approval. Where the MTC is managing the contractor the responsibility for agreeing the method is the MTC.

Imperial College has in place an 'Access Control System' which designates parts of the College as requiring a Permit to Work to be issued to facilitate access by a non-authorized person. The granting of a Permit will in part be dependent upon a suitable and sufficient risk assessment / method statement being provided by the Contractor and it is at this stage that the Permit approver will assess any fire safety implications.

There are two different Permits to Work that may be required:

The [Estates Operations Permit to Work](#) – these are for access to Estates Operations controlled areas, such as plant rooms and roof spaces.

The [Laboratory Permit to Work](#) – these are for access to academic areas such as laboratories or workshops.

Where works take place in an Estates Operations controlled area, but affect systems in academic areas, e.g. ventilation systems, the works may only take place with agreement from the academic representative overseeing the laboratory/facility.

Reactive maintenance contractors are selected from the Imperial College 'approved list' and the works will originate from the Defect Reporting System provided by Estates management.

Specifications will be provided by Imperial College which will define the scope and activities to be undertaken and these will be accompanied by a schedule setting out the dates / locations of the works.

All Contractors are required to carry out their works in compliance with Imperial College Health & Safety policy and in accordance with industry 'best practice'. This requires Contractors to carry out full risk assessments for the works to be undertaken and submit a detailed method statement to Imperial College for written approval. Where the MTC is managing the Contractor responsibility for agreeing the method statement rests entirely with the MTC.

Imperial College has in place an '[Access Control System](#)' which designates parts of the College as requiring a Permit to Work to be provided to enable access by non-authorised personnel. The granting of a permit will be dependent upon a suitable and sufficient risk assessment / method statement being provided by the MTC / Contractor and it is at this stage that the permit approver will assess any fire safety issues.

All Contractors are required to take account of all requirements as set out in Annexe A when undertaking work at Imperial College.

5. Permits to Work

Imperial College Estates Operations Team operates a Permit to Work system which grants contractors permission to enter those parts of the College which are under its direct control which are typically roofs, plant rooms, service tunnels, services risers and building circulation areas.

Where works take place in an Estates Operations controlled area, but affect systems in academic areas, e.g. ventilation systems, the works may only take place with agreement from the academic representative overseeing the laboratory/facility.

5.1 Hot Work Permit (Planned Maintenance)

All 'hot works' carried out e.g. welding, disc cutting, brazing, grinding, soldering or any process that generates heat or smoke will only be undertaken following the granting of a Hot Work Permit (HWP).

Any contractor undertaking hot works can apply with a minimum of five days' notice for a HWP by logging on to the Estates Operations website and selecting 'Permits to Work'.

Requests for a permit will not be accepted unless they are accompanied by a suitable risk assessment / method statement. Once submitted the permit request will go to the Estates Operations' Customer Services Centre, who will forward it to the Fire Safety department for approval of the hot works element. The request is then sent to the appropriate Building Manager/Maintenance Manager for authorisation.

Based upon the detail of the work requested and the suitability of the risk assessment / method statement provided the permit authoriser will decide whether they need to inspect the work location to assess the implications of the intended Hot Works prior to giving permission.

The permit authoriser may grant permission for Hot Works conditional upon certain measures being implemented to mitigate any hazards associated with the works. Where the measures prescribed include changes / adaptations to the local fire safety systems or arrangements, including isolations, these will be agreed in writing with the Fire Safety department, the academic representative in charge of the area where appropriate, and specified on the HWP.

Contractors will be notified by email when the permit has been approved or declined and will be advised whether they can print off the permit or collect it from the Authorising Officer.

5.2 Hot Work Permit (Emergency Maintenance)

Where a contractor is required to attend College in response to a reported 'Defect' or emergency which involves hot work, and there is insufficient time or opportunity to submit a permit request via the website, they must contact the Fire Safety department directly (or Shift Engineers if outside core hours) to seek permission.

Where access is required to an 'Amber' or 'Red' designated area under the College's Access Control policy, there will be an Emergency Response Plan located outside the facility which should contain relevant contact information for the area.

Annexe A - Measures Governing the Use of Hazardous Materials & Processes

1. Paint Stripping

1.1 Blowlamps

The use of blowlamps is strictly prohibited.

1.2 Electric Paint Strippers

Electric element paint strippers will only be used with the permission of the College Fire Safety department. These are not to be left in contact with combustible material and the plug is to be removed from the socket during breaks and when work ceases for the day.

1.3 Paint Removers

Liquids used for the removal of paint, varnish or polish must conform to BS: 3761.

1.4 Stripped Materials

Deposits of all stripped materials are to be collected twice daily and removed from site at the end of each working day.

2 Highly Flammable Liquids (flashpoints below 32 degrees °C)

2.1 Regulatory Requirements

All relevant requirements of the Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972, the Dangerous Substances and Explosive Atmospheres Regulations 2002, and the HSE Guidance Note HSG40 are to be complied with.

2.2 Containers

Highly Flammable liquids are to be kept in suitable containers designed specifically for the storage of the relevant substance and labelled correctly to identify the hazards associated with the substance.

2.3 Storage

All storage containers are to be kept in a locked metal bin (maximum contents 11 gallons (50 litres) provided by the Contractor and kept in the open air. There must be a warning sign in the vicinity to indicate 'NO SMOKING - PETROLEUM SPIRIT - HIGHLY FLAMMABLE'.

2.4 Source of Ignition

Highly flammable liquids are not to be exposed within 6 metres of a naked flame, electrical apparatus capable of igniting vapours, or any other possible source of ignition.

2.5 Decanting

Any decanting of these liquids is to be carried out in the open air. Caps and stoppers are to be replaced securely on all containers when not in use.

2.6 Quantities

Only sufficient quantities of the liquid (half a day's supply) are to be taken from stores.

2.7 Empty Containers

Empty containers are to be securely capped and returned to store.

2.8 Live Filling

Tanks of petrol engines are not to be filled while the engine is running.

2.9 Electrical Apparatus

Where it is necessary to use electrical apparatus in the presence of highly flammable liquids such equipment must be in accordance with BS EN 60079-14:2014.

2.10 Highly Flammable Substances

Wherever possible and where overall risk is not increased, highly flammable substances should be replaced by less hazardous ones, e.g., petroleum-based adhesive should be replaced with a water-based product.

Staff who handle flammable substances or hazardous chemicals must be properly trained in their safe handling and understand the properties of the substances sufficiently to recognise circumstances which increase the risk of fire, e.g., they should know if heavier-than-air flammable vapours are given off and how these can travel considerable distances to reach a source of ignition.

3 Flammable Substances (Flashpoint 32 - 66 degrees °C)

3.1 Storage

Paraffin or other flammable liquids are to be stored in metal lockers, away from buildings and in a position previously approved in writing by the College Fire Safety department.

3.2 Stored Quantities

The maximum so stored is to be 11 gallons (50 litres).

Flammable paints in quantities exceeding 11 gallons (50 litres) are to be treated as flammable liquids.

3.3 Spraying

Spraying highly flammable liquids will not be permitted within the College estate without written permission from the College Fire Safety Department.

3.4 Vapours

Some timber preservatives and adhesives give off flammable vapours and suitable precautions are to be taken before using insulation materials, laying vinyl flooring, or applying preservatives to structural timber etc.

3.5 Electrical Apparatus

Where it is necessary to use electrical apparatus in the presence of flammable substances such equipment must be in accordance with BS EN 60079-14:2014.

4. Compressed Gas Cylinders

4.1 Regulations

All relevant requirements of the Highly Flammable liquids and Liquefied Petroleum Gases Regulations: 1972; the Dangerous Substances and Explosive Atmospheres Regulations, 2002; the Control of Substances Hazardous to Health regulations, 2002; and the Pressure System Safety Regulations, 2000 are to be met.

4.2 Compressed Gas Overnight

All cylinders are to be sited away from sources of heat or potential fire risks, regardless of whether or not the contents of the cylinder are flammable, and whether they are full or empty. None shall be permitted to remain within the building overnight.

4.3 Storage

Full and empty cylinders are to be kept in a secure cage located in safe position agreed in writing with the College Fire Safety Department.

4.4 Flammable Gases

Cylinders containing flammable gases such as acetylene and propane are to be kept separately from that which support combustion such as oxygen and compressed air. Cylinder stores are to be prominently indicated by suitable signs or notices.

4.5 Use of Acetylene

It is College Policy that acetylene is not used. However, where there is no alternative, the College Fire Safety department is permitted to use their discretion and allow its use subject to the following:

Prior to the use of Acetylene on site, authorisation and a permit must be obtained from the College Fire Safety Department. Acetylene cylinders shall be stored and used at all times in the upright position and shall not be left within any building overnight or at weekends. At the cessation of work the main valves must be firmly closed and cutting torches and tubing removed. In no circumstances may any gas cutting equipment be left alight and unattended.

4.6 LPG Cylinders

Only the cylinders required for operating an appliance may be brought into any building and in the case of LPG, the cylinder capacity must not exceed 15 kg.

Note: Unlike mains gas, LPG vapours are heavier than air and will accumulate at low level.

5 Tar Boilers

5.1 Siting

Boilers for tar or other bituminous materials shall be sited in a safe place on a firm flat and level surface and a minimum of 3m away from their propane cylinders, and any building.

5.2 Attendant Duties

The boiler must not be allowed to overheat or run low and the gas supply must be turned off before leaving the boiler unattended, even for short periods. Lighted tar boilers shall be attended at all times.

5.3 Cylinder Quantities

Only sufficient cylinders for half a day's work are to be in the vicinity at any one time.

6. Drying Out, Heating, Lighting etc.

All drying out or temporary heating of the works shall be achieved using electrical appliances. Space heaters and LPG furnaces are not to be used.

Temporary electric heating appliances are to be of the enclosed type, securely fixed and guarded.

Temporary lighting must be of a good standard and in good repair. Any cable runs must not compromise fire escape routes. Temporary lighting must be supplied where works have disabled existing escape lighting.

Halogen lighting is not permitted for internal use but can be used externally if fixed as opposed to mounted on stands.

Gas lighting is prohibited unless in exceptional circumstances and approved by the College Fire Safety department.

Electric kettles are to be of a type incorporating a safety cut out which will prevent them boiling dry. They are to stand on a non-combustible base when in use.

Cooking equipment in welfare areas is restricted to microwave ovens and kettles.

Food preparation is only to be undertaken in properly appointed mess huts but in the absence of these, the College Fire Safety Department will authorise messing arrangements.

7 Smoking

Smoking is not allowed within 20 metres of any Imperial College building and all contractors are required to comply with this rule and designate appropriate areas for their operatives that are socially responsible.

8. Explosives or cartridge tools

Explosives or cartridge operated fixing tools are not to be used or stored within Imperial College facilities without the written permission of the Fire Safety Department and the Estates Operations Safety Manager.

9. Security

Contractors and their staff, when working on College premises, are bound by the same security rules as College personnel. A copy of the Security Rules can be obtained from the Security Office on the ground floor of the Sherfield Building, South Kensington. Failure to comply with College security and safety rules may result in Contractors and their staff being removed from site.

Annexe B - Contractor Hot Work System

1. Hot Work Permits

All Contractors are to ensure that any site personnel who issue Hot Work Permits and authorise Hot Works are suitably competent.

2. Fire Watch

Depending on the nature of the hot works being undertaken the Hot Works Permit authoriser will determine whether a Fire Watch is required for the duration of the works. A Fire Watch can include a dedicated member of staff to monitor the area during hot works for signs of fire and/or a final check after the completion of hot works after a stated period of time to ensure that no residual risk of fire exists.

Hot work is not to be undertaken during the last work hour of the day. Immediately after the last work hour the hot work and surrounding areas are to be closely examined to ensure that there is no smouldering or incipient fire. The danger area may extend to include cavities, voids, rooms, cupboards, ducts, or any concealed space where, despite the precautions taken, flame, hot sparks or conducted heat may have penetrated.

3. Skilled Tradesmen

Welding, cutting, brazing, disc cutting, plumbers' furnaces and other flame or spark producing apparatus are to be operated only by skilled personnel, each of whom is to be made aware of the safety precautions relevant to the job in hand.

4. Preparation of Site

All litter, rubbish and combustible materials are to be removed from the works areas vicinity of the work to be undertaken. Where combustible material is fixed or immovable, it is to be protected with non-combustible material such as sheet metal, fire resisting board or a fire blanket.

5. Protection of Floors

Floors which might otherwise be damaged are to be protected from heat, sparks, flames, or hot slag.

6. Passage of Flame

Special care is to be taken to prevent flame, sparks, or molten metal from reaching or entering ducts, channels, chases, or open-ended pipes, or through openings in walls or floors. Non-combustible material is to be used for the plugging of holes.

7. Conduction of Heat

The possibility of heat being conducted by fixed metal work, i.e., through partitions, walls, or floors, is to be investigated and combustible material in contact with such metal items is to be removed.

8. Control of Ignition Sources

Flame or spark producing apparatus is not to be used near containers of highly flammable liquids or gases, whether they are full or empty. Heat or flame producing apparatus are not to be left unattended when alight.

9. Fire Fighting Equipment

An adequate number of appropriate firefighting appliances are to be placed readily at hand until all possibility of an outbreak of fire has passed.

10. Fan Shutdowns

If any air circulation fans in the immediate works area have not been shut down, this is to be requested from the College Project Manager, before any hot work commences.

11. Emergency Stoppages

The College reserves the right to halt any works where working practices are considered to present a risk to the overall safety of the College, its staff, students, visitors, or contractors.

Those authorised to take the above action include the Director of Safety, Fire Safety department, the Directors of Estates Operations, and their appointed H&S personnel.