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**Standard**

## **F Gas and ODS Policy**

**EM&I C018**

**Version 2.0**

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# UCL F Gas and ODS Policy

## Version Control

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V1.0	18/05/2015	First Issue	Leon Markwell	Not Approved	
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## 1.0 Introduction

The University recognises its statutory obligations under the 2014 EU F-Gas Regulation (517/2014), the Fluorinated Greenhouse Gas Regulations 2015, the Ozone-Depleting Substances (Qualifications) Regulations 2009 and the Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011, along with the requirements of the Health & Safety at Work etc Act 1974, and the The Control of Substances Hazardous to Health (COSHH) Regulations 2002.

The Ozone Depleting Substances (ODS) and F-Gas Regulations cover different types of refrigerant (see table below, which includes some refrigerants used by the retail industry in freezers and fridges), but their ultimate aims are similar - to reduce the amount of refrigerant leaking into the atmosphere and damaging the environment; and to reduce the amount of new refrigerants that are potentially damaging to the environment from entering the market. Together, they have important implications for anyone involved in the design, installation and operation of air conditioning systems.

Refrigerant	Type	EU F Gas Regulations	ODS Regulations
R22	HCFC	No	Yes
R408A	HCFC + HFC blend	Yes	Yes
R134A	HFC	Yes	No
R404A	HFC blend	Yes	No
R407C	HFC blend	Yes	No
R410A	HFC blend	Yes	No

The ODS Regulations resulted from the Montreal Protocol on substances that deplete the ozone layer. To meet the Montreal Protocol obligations UK Regulations have been implemented. These are The Ozone-Depleting Substances (Qualifications) Regulations 2009 (SI 2009/216), and the Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011 (SI 2011/1543). Ozone depleting substances are man-made chemicals that damage the ozone layer in the upper atmosphere (the stratosphere).

Ozone is destroyed by chlorine and bromine atoms within ODSs. The regulations introduced a number of measures designed to reduce leakage of refrigerants, eg, only contractors with a recognised refrigerant handling qualification could handle HCFC refrigerants such as R22. The definition of ODSs only includes halogen source gases emitted by human activities and controlled by the Montreal Protocol. Those gases that have only natural sources are not classed as ODSs. Most ozone depleting substances are also greenhouse gases that contribute to global warming. The main ozone depleting substances include:

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Chlorofluorocarbons (CFCs)	Halons
Hydro chlorofluorocarbons (HCFCs).	Methyl Chloroform
Carbon Tetrachloride (the main precursor of CFCs).	Methyl Bromide

The Environment Agency helps businesses comply with the UK regulations and enforces compliance, and specific guidance is provided for high voltage switchgear, solvents, stationary refrigeration, air conditioning, heat pumps, fire extinguishers and mobile air conditioning.

Although F-gases do not damage the ozone layer like the CFCs that they have replaced, they are believed to have a very high Greenhouse Warming Potential, are generally long-lived, and are included in the “basket of gases” under the Kyoto Protocol. The F-Gas Regulations first came into force in the UK in July 2008. The main focus of this law is the containment and recovery of certain F-Gases. The F-Gas regulation bans disposable refrigerant cylinders and requires labelling of all HFC refrigerant cylinders and systems.

There are also strict rules for the monitoring of all equipment with the potential for leakage of fluorinated refrigerants to atmosphere. Under F-Gas rules, refrigeration and air conditioning equipment containing 3kg and above of refrigerant must be checked for leaks every 12 months. Hermetically sealed systems are exempt up to 6kg. For systems containing 30kg, the checks must be every six months, unless automatic leak detection is fitted (in which case the checks should be annual). Where the charge is 300kg or more, automatic leak detection systems are mandatory and must be checked every six months.

The following 3 types of F gases are in use:

HFCs	Hydrofluorocarbons	<b>Common uses:</b> refrigerants in refrigeration, air-conditioning and heat pumps used in many applications such as industry, offices, retail, hospitality and cars.  <b>Other uses:</b> aerosols, insulating foam, solvent cleaning and fire protection.
PFCs	Perfluorocarbons	Used in semi-conductor manufacture and a few other specialised applications.
SF6	Sulphur hexafluoride	Used in high voltage switch gear, for magnesium smelting processes and a few other specialised applications.

Keeping a register of gases as detailed in the UCL Standard Operating Procedure, along with records of any works or maintenance carried out is very important. The servicing technician must be identified in the building operator’s records, and the type of refrigerant involved must be recorded as well. Contractors must also provide a logbook which is easily accessed and updated. Existing systems must have a logbook issued at the first test. Any refrigerant leaks must be identified and repaired as quickly as possible, by a

'competent person'. The repair must be re-tested within 1 month. It is the equipment operator/owner's responsibility to adhere to these regulations.

## 2.0 Purpose

The purpose of this document is to detail the UCL management arrangements to be followed to ensure compliance with its legal duty to control the use and disposal of, and the risk associated with the leakage of F Gas and ODSs and covers the following:

- Roles and responsibilities
- Records
- Training
- Monitoring & review

## 3.0 Scope

This document details how UCL will address the management of F Gases and Ozone Depleting Substances. The University has a duty of care to all Students, Staff and Visitors across its entire Estate and as such, this Policy shall be applicable to all UCL UK buildings, as listed on the UCL Building Register.

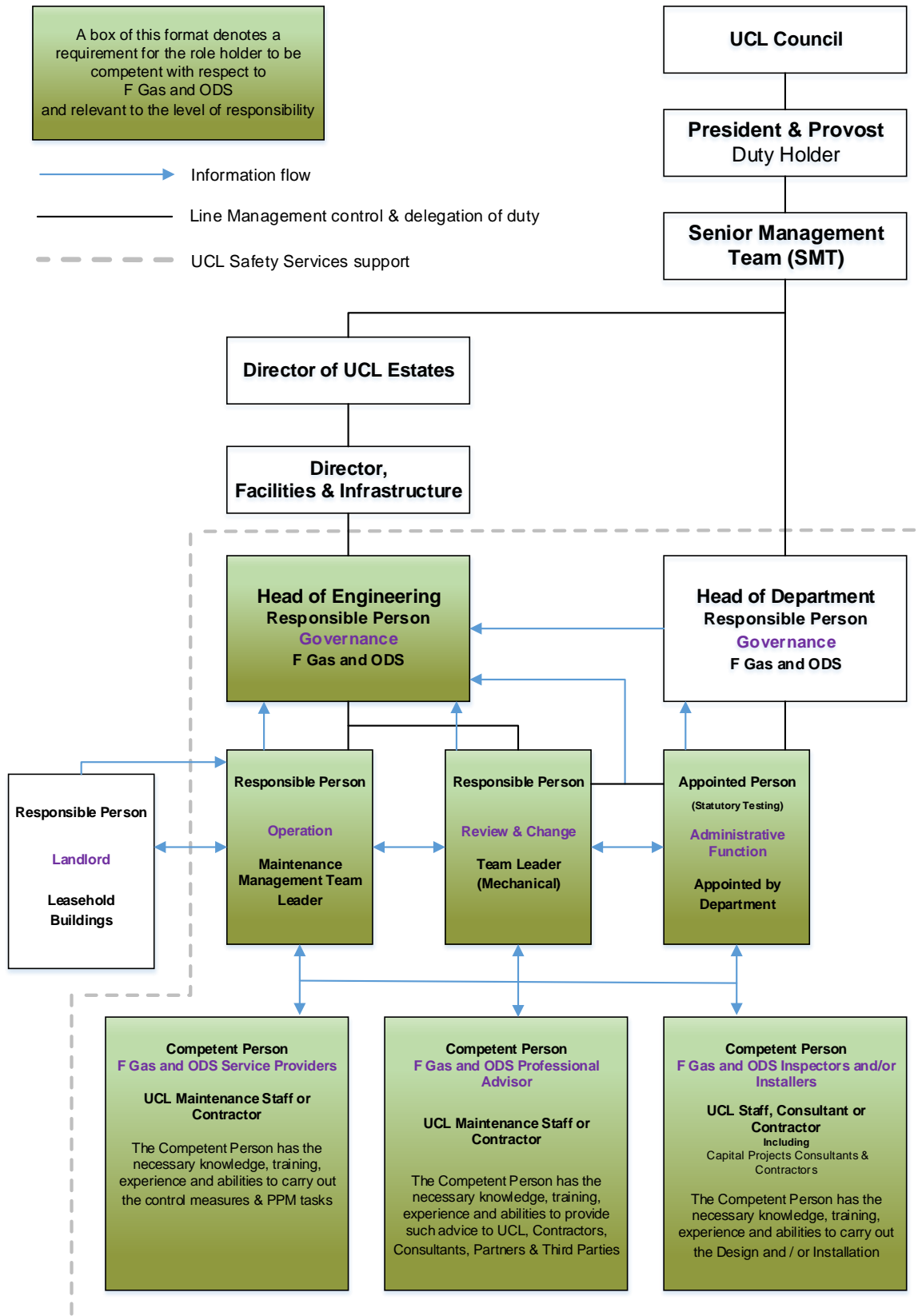
The only exception to this is with regards to leasehold buildings, where UCL does not hold the maintenance or repair obligations. In such areas, UCL Responsible Person – F Gas and ODS - Operation shall ensure that the Landlord is carrying out such tasks to the same level of conformity and diligence.

Where UCL has members of staff and students using these buildings there is a duty of care to ensure that the duty holder in those buildings has adequate management systems in place for controlling the F Gas and ODS requirements or that UCL completes a management system for the area under our control.

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## 4.0 Management responsibilities



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## 4.1 Roles and Responsibilities

The principal responsibilities for the management of health and safety and statutory compliance are stated in the UCL Safety Policy. Specific responsibilities relating to the management of F Gas and ODS are stated below.

### 4.1.1 UCL Council – Duty Holder

UCL Council, as the employer, has the ultimate responsibility for health and safety and statutory compliance and is the duty holder for UCL.

UCL Council has delegated the duty of the day-to-day running of UCL, which includes the management of health and safety and statutory compliance to the President and Provost.

### 4.1.2 The President and Provost

The President and Provost is the duty holder responsible to UCL Council for the day-to-day duty holder responsibilities of UCL in all of its activities, including the management of F Gas and ODS statutory compliance.

The role takes overall responsibility to ensure that the policy for the management and control of F Gas and ODS is implemented and that appropriate funding is made available to carry out works and management activities.

The Council has constituted the Health & Safety Committee (HSC) to determine a policy framework for health and safety and the executive arrangements therein, which includes the management of F Gas and ozone depleting substances.

### 4.1.3 Senior Management Team

The SMT are responsible to the Council for the planning, consultation and dissemination of the arrangements made within this policy and shall maintain details of appointees with responsibilities for the management and control of F Gas and ozone depleting substances within RiskNET, and the reporting of relevant information to UCL Estates.

### 4.1.4 UCL Safety Services

UCL Safety Services are responsible for the provision of independent competent safety advice and for reviewing departmental organisation and arrangements.

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#### **4.1.5 UCL Director of Estates**

The Director of UCL Estates has responsibility for the strategy and budget allocation for the management and control of F Gas and ozone depleting substances at UCL.

The Director of UCL Estates through the Director of Engineering and Faculty Directors is responsible for day-to-day management control of F Gas and Ozone Depleting Substances with technical support from Safety Services.

#### **4.1.6 Director, Facilities & Infrastructure**

The Director, Facilities & Infrastructure is responsible for the allocation of finances and resources for the assets under the Directors control which are subject to the engineering and management requirements of the F Gas and Ozone Depleting Substances regulations.

The Director allocates resources to ensure that installations and equipment modifications for compliance can be carried out, and that training and competency is sufficient so that the responsible persons can undertake their duty.

#### **4.1.7 Head of Engineering – Responsible Person - F Gas and ODS Compliance Governance**

In all instances the term ‘Responsible Person’, and the associated duties, applies equally to any nominated Deputy formally appointed to act on all occasions when the nominated Responsible Person is unavailable.

The Head of Engineering has managerial responsibility for the governance of F Gas and ODS compliance and management, and providing supervision for implementation of the requirements through:

- Manage the UCL Estates Policy and SOP for the management of UCL’s F Gas and ODS compliance, and takes managerial responsibility.
- Appoints, in writing, ‘Responsible Persons’ to be responsible for the day-to-day management of UCL’s F Gas and ODS compliance with current regulations, Estates Policy and SOP.
- Ensures that the Responsible Persons are aware of their roles and responsibilities and that they are competent to carry them out.

The full details, expectations and requirements of this role are contained within the UCL F Gas and ODS Standard Operating Procedure, which is controlled by UCL Engineering, Maintenance and Infrastructure. The Standard Operating Procedure forms part of this policy.

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#### **4.1.8 Responsible Person – F Gas and ODS Compliance - Operation**

In all instances the term ‘Responsible Person’, and the associated duties, applies equally to any nominated Deputy formally appointed to act on all occasions when the nominated Responsible Person is unavailable.

The Responsible Person – F Gas and ODS Compliance – Operation is a duty holder and has been delegated the primary role to act as administrator in the management of F Gas and ODS compliance in accordance with this UCL Estates Policy and has managerial responsibility for supervising the implementation of this policy, the standard operating procedure, and the management of the air conditioning and refrigeration systems cooling equipment under the control of UCL Estates.

The full details, expectations and requirements of this role are contained within the UCL F Gas and ODS Standard Operating Procedure, which is controlled by UCL Engineering, Maintenance and Infrastructure. The Standard Operating Procedure forms part of this policy.

#### **4.1.9 Responsible Person - F Gas and ODS Compliance – Review & Change**

In all instances the term ‘Responsible Person’, and the associated duties, applies equally to any nominated Deputy formally appointed to act on all occasions when the nominated Responsible Person is unavailable.

The Responsible Person - F Gas and ODS Compliance - Review is a duty holder and has been delegated the managerial responsibility for reviewing the compliance and performance against this standard.

The Responsible Person - F Gas and ODS Compliance – Review & Change produces and develops the policy and standard operating procedures for F Gas and ODS compliance management on behalf of the Head of Engineering, and periodically audits their implementation.

The Responsible Person – F Gas and ODS Compliance – Review & Change has also been delegated the managerial responsibility for supervising the implementation of this policy into the management of any changes, modifications of or additions to, or replacements of existing systems or equipment, or into any new installations of the air conditioning and refrigeration systems under the control of UCL Estates.

The full details, expectations and requirements of this role are contained within the UCL F Gas and ODS Compliance Standard Operating Procedure, which is controlled by UCL Engineering, Maintenance and Infrastructure. The Standard Operating Procedure forms part of this policy.

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#### **4.1.10 UCL Estates** (Project Managers, University Project Officers and University Service Managers)

Project Managers, University Project Officers and the consultants they appoint are responsible for ensuring equipment and systems are designed, modified or replaced and equipment and installations are installed in compliance with the documents contained in the Reference section of this document, and the UCL Standard Operating Procedure.

The Responsible Person – F Gas and ODS Compliance – Review & Change is to approve each stage of any design, modification and acceptance.

The Project Manager and University Project Officer are responsible for ensuring that AC and refrigeration system conditions are maintained as necessary throughout any project.

The Project Manager and University Project Officers will be responsible for ensuring that plant and services are capable of meeting any increased demand where a system is extended, and for the provision of as fitted drawings at the time of handover together with all commissioning data.

No system will be accepted unless the Responsible Person – F Gas and ODS Compliance – Review & Change has given the final written approval.

#### **4.1.11 Contractors** (and managers employing contractors)

Those who employ contractors to work on AC and refrigeration systems shall be responsible for ensuring the work complies with the requirements of this estates policy and that the works comply with the F Gas and ODS regulations and the UCL Standard Operating Procedure.

Reasonable enquiries are to be made to confirm the competency and training of contractors in the area of work, before entering into contracts for the change of, modification or addition to of AC or refrigeration equipment or systems for F Gas and ODS regulation compliance.

Contractors are to be made fully aware of the duties and responsibilities assigned to them, and are to be familiar with the estates policies, UCL standards and standard operating procedures.

Contractors operatives directly involved with the management and work on AC and refrigeration equipment and systems must be trained, qualified and registered in accordance with the requirements of the F Gas and ODS regulations requirements and a copy of their registration certification is to be held on the UCL records system file.

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Only UCL Approved Contractors are permitted to work on UCL AC and refrigeration equipment and systems.

Contractors are to have completed the necessary UCL Safety Questionnaires and that their responses have been assessed.

<http://www.ucl.ac.uk/estates/procedures/new-project-management/forms/>

Contractors are to comply with the UCL Safety Policy 'Safety Rules for Contractors employed on UCL Premises', and sign the document accordingly.

Work on AC and refrigeration equipment and systems includes connections to, the installation of new or replacement equipment, any changes, modifications of additions to, or replacements of existing systems or equipment or equipment modification, as well as maintenance to the system, or the charging, topping-up or removal of refrigerant in the system.

#### **4.1.12 Heads of Departments (other than UCL Estates), Responsible Person – F Gas and ODS Compliance Governance**

Heads of Departments are responsible for identifying, assessing and controlling the F Gas and ODS compliance of any AC or refrigeration systems INSTALLED within their department, and/or departmental equipment that does not comply with the requirements of the F Gas and ODS Regulations. NB In general the supply of air conditioning and chilled water services is the responsibility of UCL Estates, except under some leasehold agreements when a landlord or managing agent will hold this responsibility.

In addition, subject to agreement by the Responsible Person (Operation), UCL Estates may also be responsible for certain identified items of department equipment upon acknowledged receipt of a UCL Estates Data Collection Sheet (Asset Register request).

Where departmental equipment is not managed by Estates, a local inventory of both specific items and types of equipment that could present a risk of non-compliance with the requirements of the F Gas and ODS Regulations should be maintained by the Appointed Person (Statutory Testing) to ensure that all equipment is assessed and subject to appropriate controls. Departments are responsible for reporting to the Facilities Customer Services Help Desk stating that the issue is a "F Gas and ODS compliance risk" when any permanent or temporary installations (ie Experimental Rigs) are installed that use air conditioning, chilled water or refrigeration equipment or systems that may not comply with the requirements of the F Gas and ODS Regulations.

The UCL Estates Responsible Person (Operation) will be responsible for arranging the removal of AC or refrigeration equipment or systems within all areas that are no longer required. UCL Estates will be responsible for amending

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the schematic drawings as appropriate, and revising the UCL records system file.

#### 4.1.13 Appointed Person – Statutory Testing

The Appointed Person (Statutory Testing) will maintain a list of specific items of ventilation ductwork or equipment or types of equipment that could present a health and safety risk and this list should identify who is responsible for management of the equipment (department vs Estates). Where equipment is under sole management of the department, they should confirm that an appropriate assessment has been carried out and measures are in place to control identified risks.

## 4.2 Records

Records must be kept to confirm compliance with the requirements of the F Gas and ODS Regulations and this estates policy, and retained for the periods stated.

Under the F Gas and ODS regulations it is the responsibility of the Operator to prepare a register of the F gases in their equipment and keep records, as detailed in the UCL Standard Operating Procedure. The Operator is the person or legal person (typically a company) who is responsible for giving instructions to its employees as to the day to day technical functioning of the equipment. These records should include separate records for each piece of equipment – identified on the UCL asset list - detailing work completed, by whom, when and why, detailing any results and follow up actions. The records must also specify quantities of gas or refrigerant added/removed along with details of what was done with recovered gas or refrigerant. The obligation on operators to keep records should mean that information is not lost but kept on site or centrally by the operator.

Inspection and test activities are to be carried out as detailed in the UCL Standard Operating Procedure and a log book should be kept on site local to the equipment where all tasks are logged and signed for by an engineer as the Regulation states that the 'records shall be made available on request to the competent authority and to the Commission'. If the records are kept elsewhere or by other means, they are still required to be accessible and available 'on request'.

Records of F Gas and ODS quantities on site must be maintained along with any materials brought onto or removed from the site as detailed in the UCL Standard Operating Procedure.

- The person or persons responsible for conducting the F Gas and ODS management control measures must provide sufficient information and documentation to comply with the regulations.
- Any significant findings and action points of the inspections must be prioritised and actioned accordingly.

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- Deviations of readings which are likely to indicate leaks and non-compliance are to be reported directly to a Responsible Person for management action. The Competent persons are to take all immediate action to reduce/mitigate non-compliance.

These records must be retained throughout the period for which they remain current and for at least two years after that period.

- The results of any monitoring, inspection, test or check carried out, and the dates. This should include details of the state of operation of the system i.e. in use / not in use.

These must be retained for at least five years.

#### **4.3 Training and competence** (See also UCL Authorisation of Technical Competence)

F Gas and ODS Regulations awareness training will be provided at 3 levels to suit the different roles of staff:

- Management – for supervision
- technical / maintenance – for maintenance, operational works & record keeping
- refresher training as required

All persons that carry out the activities detailed above on equipment that contains F-Gases must hold an F-Gas handling certificate. This requirement applies both to in house staff and to personnel employed by external contractors. The training for maintenance staff shall ensure that they obtain the prescribed qualifications required in the legislation and are made aware of the operational and record keeping requirements of the F Gas and ODS Regulations. Records of training and competence shall be maintained on a UCL records system file.

Training records/evidence of competence must be provided by contractors and confirmation that they hold the prescribed qualifications required by the legislation for the work they are required to carry out. Records of training and competence shall be maintained on a UCL records system file.

#### **4.4 Monitoring & Review**

The Estates Standard Operating Procedure(s) and Risk Assessments detail the procedures for preventing, monitoring and controlling risk. These documents along with this standard shall be annually reviewed to ensure they remain up to date.

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## 5.0 References

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- EU F-Gas Regulation (517/2014) 2014 (UK legislation)
- The Fluorinated Greenhouse Gas Regulations 2015 (SI 2015/310)
- the Ozone-Depleting Substances (Qualifications) Regulations 2009 (SI 2009/216)
- the Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011 (SI 2011/1543)
- Control of Substances Hazardous to Health Regulations 2002 (COSHH)
- The Pressure Systems Safety Regulations 2000 may apply to systems with an input power in excess of 25 kW (SI 2000/128)
- BS EN 15240: 2007: Ventilation for buildings. Energy performance of buildings. Guidelines for inspection of air-conditioning systems
- UCL Design Brief for Mechanical, Electrical & Vertical Transport Services
- DEFRA website <http://www.synecore.co.uk/wp-content/uploads/2014/07/F-Gas-EC-regulations-DEFRA.pdf>
- Air Conditioning and Refrigeration Industry Board (ACRIB) website <http://www.acrib.org.uk/>

### Safety Services References:

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