Facilities Management Department
Electrical Safety Procedure

Document Control

Revision No.	Date Document Reviewed	Publication on Web Site	Date of next Review	Summary of main changes
Draft	August 2016	N/A	January 2017	• Creation of document
1	January 2017	February 2018	January 2018	• Update of document • Version approved at FMD H&S Meeting 31/01/2017
2	October 2018	November 2018	October 2020	• High voltage now has its own Procedure HV aspects removed • Review of arrangements

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FMD Electrical Safety Procedure

1 Introduction

Glasgow Caledonian University is committed to protecting the safety, health and wellbeing of all stakeholders affected by the activities of the University. This includes staff, students, visitors, contractors and all other persons on University premises. Electricity is used throughout the University to provide power, lighting and information services within the University campuses. It is important that electricity is treated respectfully due to the potential to cause severe harm or even death. Therefore it is vital that this procedure is followed to ensure that electricity is properly managed by the University.

The purpose of this procedure is to detail the local health and safety arrangements in place within Facilities Management Department (FMD) to manage electrical safety for the University. This procedure forms part of the arrangements FMD has in place to comply with the overall University Safety, Health and Wellbeing Policy and all relevant health and safety legislation including the Health and Safety at Work etc. Act 1974 and Electricity at Work Regulations 1989.

The roles and responsibilities of stakeholders are detailed within this procedure to make stakeholders aware of their responsibilities in relation to electrical safety and to assist them to discharge those responsibilities. Successful health and safety management requires the collective effort of all involved in order to create a positive health and safety culture. All stakeholders are required to observe FMD health and safety rules and procedures.

2 Scope

FMD acknowledge the importance of the electrical systems and equipment within the University because of the dependence on these to ensure the running of the University. Therefore FMD understand the necessity to develop and maintain local health and safety arrangements for electrical safety. Some of the key areas of electrical safety which are addressed include:

- Fixed wire installations;
- Low voltage network;
- Portable appliances;
- Specific equipment i.e. radiological or medical equipment;
- Power tools and equipment

Procedures have been developed to control each electrical hazard in proportion to the level of risk. This is to ensure a safe working environment in accordance with the relevant standards. Due to the rules and specialised nature of the high voltage network, this has its own procedure to detail the arrangements in place to manage this safely. This includes the roles and responsibilities and electrical testing requirements.

3 Roles and Responsibilities

The following responsibilities and tasks represent the performance standards required of University officers in the management of electrical safety. As with other management responsibilities it is for the named officer(s) to ensure that the task or outcome is delivered by delegating tasks and functions to others, if required, and monitoring the results.

Facilities Management Department

The Facilities Management Department are responsible for ensuring that:

- Fixed wire electrical testing is carried out as per legislative requirements by a competent contractor
- Portable appliance testing (PAT) is carried out as per legislative requirements by a competent contractor
- A source of backup power is maintained for critical services through business continuity planning arrangements
- Electrical risers, switchrooms and plant rooms are inspected to ensure they are safe and not used as storage areas
- Ensuring that termed contractors carry out necessary appliance testing as part of their Campus Services contract.

Managers

It is the responsibility of University managers to:

- Report any damaged electrical items or sockets to the FMD Helpdesk.
- Make electrical equipment available for inspection as required
- Ensure riser cupboards are not used for storage

Employees/Students/Visitors

All employees, students and visitors have a responsibility for their own and others health and safety. It is their responsibility to:

- Only use equipment which is in good condition with no signs of damage i.e. loose or damaged wires
- Use sockets appropriately so that power sockets are not overloaded
- Use extension cables appropriately without daisy chaining of wires
- Make University electrical equipment available for inspection as required
- Ensure riser cupboards are not used for storage
- Report any damaged electrical items to the FMD Helpdesk.

Contractors

All contractors must carry out works in accordance with their risk assessments and method statements. It is the responsibility of contractors to:

- Adhere to the Glasgow Caledonian University Contractor Code of Practice

- Consider the safety of all stakeholders within the area in which they are working
- Be adequately trained and competent to carry out the job
- Receive a site induction from FMD prior to starting works on site
- Follow all risk assessments and method statements
- Adhere to permit to work procedure

4 Electrical Systems

The development and refurbishment of the University means that there may be a need to change the existing electrical systems or design new electrical systems in order to meet the requirements of the University. The Authorised Person must be part of the design process to ensure that the needs of the University are met and that a safe system of work is produced by the contractor for the works. Further information on the Authorised Person can be found in the FMD High Voltage Electrical Safety Procedure.

The contractor is responsible for electrical hazards as part of their works however the Authorised Person must be liaised with for any impact the works may have on the University electrical system. On completion of the works electrical test certificates and the appropriate handover certificates for the new installations should be formally accepted from the contractor by the University before the installation is connected to a permanent supply for which the University has responsibility.

Access to Electrical Systems

The University has many areas with electrical systems throughout the campus. Access to these areas is restricted through access keys to ensure that only authorised persons can access the areas. Electrical switchrooms are located throughout University buildings and must be kept clear of all combustible items.

Electrical substation access is strictly restricted by key access through the Authorised Person. Access keys are only available through the Authorised Person with a spare key kept in a locked key cabinet on campus for emergency access. A log sheet must be completed for access to this key and anyone entering the substation may only do so with the authorisation of the Authorised Person.

5 Electrical Testing

FMD are responsible for providing a safe electrical supply for the University which copes for the demand for power to allow the University to operate. Electrical testing will only be carried out by those competent to do so and under the instruction of the Authorised Person to ensure that safe systems of work are in place. In order to ensure a safe electrical supply the following electrical testing regimes are implemented.

High Voltage Networks

The electrical testing requirements of the high voltage network are detailed within the FMD High Voltage Electrical Safety Procedure.

Fixed Electrical Testing
Only competent contractors shall be used for fixed electrical testing. All records of testing will be stored by FMD and any remedial works identified during testing shall be actioned by FMD. Testing shall be carried out following installation and at frequencies as per legislative requirements with certification issued by the competent contractor. A safe system of work must be followed to ensure that the works are carried out safely through the use of the University permit to work system.

Portable Appliance Testing
Only competent contractors shall be used for portable appliance testing. This shall be organised by FMD and access must be given by departments to undertake this work. Any appliances that fail shall be removed from service, disposed of and replaced.

At Caledonian Court, electrical equipment is always replaced with new. Any new items should be visually inspected before use and then added to the University inspection programme.

Personal equipment must be correctly fused and suitable for UK 230v mains electricity supply.

6 Record Keeping

It is the responsibility of FMD to ensure that accurate and up to date records are kept for all electrical systems. These records are vital to ensuring that the system is maintained in a safe condition and that safe systems of work are following. The following records shall be stored by FMD.

- Permit to work certificates
- Site and substation log books
- Operational procedure manual
- Operating and maintenance manuals
- Maintenance records
- Isolation and earthing diagram
- Site drawings
- Appointment certificates
- Mimic diagram

7 Safe Systems of Work

Permit to work
The University has a permit to work system to control work on electrical systems. This is managed by FMD in order to control who is working on the system and also the extent of the works to ensure it is done safely. The purpose of the permit to work system is to ensure that a process driven approach to electrical working is followed to allow a safe system of work.

A permit to work must be issued by FMD prior to any works beginning. The works will only be carried out by competent contractors and their procedure must include locking off systems to ensure that the work area is isolated whilst carrying out the works. On completion of the works the permit to work will be cancelled by FMD and system can then be switched back on.

Permit to works will be issued for both low voltage and high voltage networks within the University. Should works involve working on both of these networks then there shall be two permits to work issued but must cross reference each other. All permits to work documentation will be kept for 3 years after issue.

Live Working

There may be circumstances when live working must be carried out on the University electrical systems however this should always be considered as a last resort due to the increased hazardous working condition. Authorisation for live working must be provided in writing by the Authorised Person and detail exactly what equipment should be worked on, details of the work to be undertaken live and the safety precautions that must be followed.

8 Audits and Inspections

In order to assess whether the safe systems of work are still effective FMD undertake audits and inspections of work practices and electrical areas. At any point during electrical works the Authorised Person may undertake an audit of the work procedures being applied under the instruction of the Authorising Engineer. The content of the audit is under the discretion of the Authorised Person but will look at whether safe system of works is being followed.

FMD are responsible for carrying out inspections of plant rooms, boiler houses and electrical areas. As part of these inspections, all electrical areas will be inspected on an annual basis and a report produced. Any deficiencies picked up within these inspections shall then be actioned to ensure that the electrical areas are left in safe condition.

9 Underground Cables

FMD must be consulted prior to any works that will break ground within the University so that due consideration is given to any potential underground cables. The University schematic diagrams must be checked for all underground cabling within the University campus. Further to this, a cable locating device must be used over the proposed area to detect any cabling. This shall be carried out by a competent person holding certification for this task. Safe working procedures must be produced and provided to the Authorised Person for works to be carried out in the vicinity of any underground cables.

10 Wiring and Electrical Equipment

All wiring must be carried out in accordance with BS 7671: 2018 'The Wiring Regulations' 18th Edition which sets out the standards for design, testing and inspection of new low voltage installations, alterations and extensions, and periodic inspection and testing.

All electrical equipment procured or leased by the University must conform to the Electrical Equipment (Safety) Regulations 1994 which implements the European Directive 2006/95/EC - The Low Voltage Directive.

11 Emergency Procedures

FMD and all contractors working in and around electrical substations and switchrooms must have procedures in place to deal with emergency situations. These shall be reviewed at regular intervals or after any changes in circumstances. Following any electrical failure, business continuity plans shall be implemented to safeguard power to the campus. This may take the form of using generators to allow the University to continue to operate.