



Health and Safety Procedure

Inspection & Maintenance of Portable Electrical Equipment (PAT)

(Ref: QMUL/HS/090)

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1. Purpose

Employers are required to ensure that portable electrical equipment is maintained in order to prevent danger. This procedure outlines the safeguards for portable electrical equipment provided for use at Queen Mary University of London (QMUL).

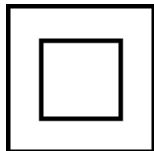
The two primary elements described are the process and frequency for formal inspection and testing of portable electrical appliances; and the role of users in being able to identify patent defects in the portable electrical equipment they use.

2. Definitions Introduction & Legislation

Portable appliances. These are appliances which are capable of being easily moved whilst in an energised state and/or operation or an appliance which can easily be moved from one place to another e.g. vacuum cleaner, toaster, kettles, angle poise lamps, water bath, microscope, etc.

Class I electrical equipment. Equipment or appliances that have 'live' parts protected by basic insulation and a metal enclosure or accessible metal parts that could become 'live' in the event of failure of the basic insulation. Typical Class I items can include toasters, kettles, washing machines, lathes, pillar drills, centrifuges, etc.

Class II electrical equipment. Equipment and appliances that are commonly known as double-insulated equipment. These items have 'live' parts encapsulated in basic and supplementary insulation (double), or one layer of reinforced insulation equivalent to double insulation. Examples of Class II equipment would include food mixers, drills, table lamps, microscopes, etc. They can be identified by the following symbol.



3. Legislation

The Electricity at Work Regulations 1989

4. Roles and responsibilities

Heads of School / Institute or Directorate

- The Heads of School / Institute or Directorate have overall responsibility to ensure that portable appliance testing (PAT) is carried out in their areas of responsibility. They should appoint a competent person, normally the safety coordinator, to oversee the programme.

- The School / Institute or Directorate fund the PAT and inspection programme from their own budget for any equipment they own.

Local competent person (e.g. the safety coordinator)

The local competent person (typically the safety coordinator) should.

- Organise a formal visual inspection and testing of all portable electrical equipment in the department and report any items which appear damaged so that they can be either repaired or replaced. The suggested frequency of visual inspections is shown in Appendix 1.
- Ensure records are maintained for portable electrical equipment after formal visual inspection and testing and the relevant information is available for users.

Staff and students

Staff and students must:

- They are required to inform their line manager /supervisor/safety coordinator of any electrical equipment brought into the University, either through the normal procurement process or personal equipment brought in for University use.
- Before using portable electrical equipment they should visually check that the equipment is operating correctly and report any defective items to their line manager /supervisor/safety coordinator. The required user checks are described in Appendix 2.
- If there is any doubt as to the safety of any piece of electrical equipment it should be taken out of use immediately. Advice should then be sought from safety coordinator or tutor as appropriate. Further guidance can be sought from the Health and Safety Directorate (HSD).
- Obtain guidance from HSD if electrical equipment is not fitted with standard UK plugs (3 pin, BS 1363).

5. Arrangements

Frequency of Portable Appliance Testing

Not every electrical item needs a portable appliance test. Required frequencies are shown in Appendix 1.

New equipment does not require PAT testing as it should already be safe for use provided that it has been CE marked. However, a brief visual inspection before its first use is recommended to determine if there was any damage in transit, and that the equipment is appropriate for the intended environment, etc.

Potentially sensitive equipment and linked equipment

The owner, or primary user, of potentially sensitive or linked equipment should, prior to test and formal inspection:

- Identify any portable electrical equipment that may be sensitive to damage e.g. some computer systems and highlight these to the electrical tester
- Clearly identify the full extent of linked electrical equipment, (it may span several connected items).
- All potentially hazardous power supplies and data connections should be identified and isolated.
- Ensure that no equipment power supply can accidentally or automatically re-energise whilst it undergoes a routine inspection and test.
- Once identified, label individual power supply cables, power packs, etc., to assist its future test and maintenance.

Approved contractor for carrying out formal visual inspection and testing

An approved contractor for carrying out PAT testing can be contacted through the Estates and Facilities Maintenance Department at Queen Mary on extension 2580 or email estates-helpdesk@qmul.ac.uk .

6. References

- The Institute of Electrical Engineers (IEE) Code of Practice for In-service Inspection and Testing of Electrical Equipment (3rd Edition) guidance.
- HSE Web site PAT - Portable appliance testing FAQs
<http://www.hse.gov.uk/electricity/faq-portable-appliance-testing.htm>



Appendix 1 - Frequency of Portable Appliance Testing (PAT) and

Inspection

Equipment/environment	User Checks	Formal visual inspection	Combined inspection and PAT testing
Battery-Operated: (less than 40 volts)	No	No	No
Extra low voltage: (less than 50 volts AC): Telephone equipment, low-voltage desk lights.	No	No	No
Desktop computers, VDU screens	No	Yes, 2 – 4 years	No if double insulated (Class II), otherwise up to 5 years
Photocopiers, fax machines, centrifuges,; Not hand-held, Rarely moved	No	Yes, 2 – 4 years	No if double insulated (Class II), otherwise up to 5 years.
Double insulated (Class II) equipment: Hand-held, e.g. some floor cleaners, some kitchen equipment, and microscopes.	No	Yes, 2 – 4 years	No
Double insulated (Class II) equipment: Not hand-held, e.g. some floor cleaners, some kitchen equipment	Yes	Yes, 6 months – 1 year	No
Earthed equipment (Class I): Can include Electric kettles, some floor cleaners, some kitchen equipment, and rotary evaporators.	Yes	Yes, 6 months – 1 year	Yes, 1 – 2 years
Cables (leads and plugs connected to the above) and mains voltage extension leads and battery – charging equipment	Yes	Yes, 6 months – 4 years depending on the type of equipment it is connected to	Yes, 1 – 5 years depending on the type of equipment it is connected to





Appendix 2 – User Checks

Before using any electrical equipment for the first time and thereafter at periods determined by a risk assessment the user should look critically at the electrical equipment they intend to use, and visually check that the portable electrical equipment is in good condition

Unplug the equipment from the mains supply and check the following:

(1) The plug:

Check the following:

- Is it securely connected to the appliance cable? Are there any inner wires showing?
- Are all the pins secure? Are any of the pins bent?
- Is there any visible evidence of overheating such as blackening of pins or burn marks on the casing?

(2) The cable:

Check the following:

- Is it secure at both ends?
- Note: It may be impractical to remove the casing of a piece of equipment to verify that the internal connections are correctly clamped. All that is required is an external inspection to make sure the cable is not obviously badly connected or poorly anchored.
- Are any inner wires visible?
- Is it frayed, damaged or broken in any way? Are there any taped joints?
- Is outer sheath gripped where it enters the plug or equipment?

(3) The equipment:

Check the following:

- Is the equipment suitable for its location?
- Is it being used for its intended purpose as prescribed by the manufacturer; (this should also be addressed in any Risk Assessment).
- Are there any loose parts or cracks in the casing of the equipment

If you answer no to any of the above questions or you are in anyway unsure about the equipment do not use it and seek further advice from a competent electrician

(1) Unmoulded plugs:

Check the following:

Are any bare wires visible other than at the terminals? Are the terminal screws tight?
Is the plug firmly clamped to the outer sheath of the cable?





Document Control

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