

HS14 Electrical Safety and PAT Testing | Standard Operating Procedure

1. Background information

1.1. Introduction/Purpose

1.1.1. This Standard Operating Procedure (SOP) details the processes for the provision and use of work equipment at SOAS University of London.

1.2. Scope

1.2.1. The legal requirements relating specifically to the use and maintenance of electrical equipment are contained in the Electricity at Work Regulations 1989.

1.2.2. These Regulations apply to all work activities involving electrical equipment. They place duties on employers, the self-employed and employees (subsequently referred to as 'dutyholders'). These duties are intended to control risks arising from the use of electricity.

1.3. Definitions

1.3.1. P.A.T Testing - Portable appliance testing (PAT) is the term used to describe the examination of electrical appliances and equipment to ensure they are safe to use. Most electrical safety defects can be found by visual examination but some types of defect can only be found by testing. However, it is essential to understand that visual examination is an essential part of the process because some types of electrical safety defects can't be detected by testing alone.

- A relatively brief user check (based upon simple training and perhaps assisted by the use of a brief checklist) can be a very useful part of any electrical maintenance regime.
- However, more formal visual inspection and testing by a competent

person may also be required at appropriate intervals, depending upon the type of equipment and the environment in which it is used.

1.4. Roles and Responsibilities

1.4.1. P.A.T

- The Electricity at Work Regulations 1989 requires that any electrical equipment that has the potential to cause injury is maintained in a safe condition.
- However, the Regulations do not specify what needs to be done, by whom or how frequently (ie they don't make inspection or testing of electrical appliances a legal requirement, nor do they make it a legal requirement to undertake this annually).
- There is no legal requirement to label equipment that has been inspected or tested, nor is there a requirement to keep records of these activities.
- However, a record and/or labelling can be a useful management tool for monitoring and reviewing the effectiveness of the maintenance scheme – and to demonstrate that a scheme exists.

2. Main Content

2.1. Electrical Safety

2.1.1. In compliance with Electricity at Work Regulations, 1989, it is the policy of the university that wherever possible, all hand tools will be battery-powered or 110v. Where this is not possible a Residual Current Device (RCD) will be used.

2.1.2. The main hazards of working with electricity are:

- Electric shock and burns from contact with live parts.
- Injury from exposure to arcing, fire from faulty electrical equipment or installations.
- An explosion caused by unsuitable electrical apparatus or static electricity igniting flammable vapours or dust, for example in a spray paint booth.
- Electric shocks can also lead to other types of injury, for example by causing a fall from ladders or scaffolds etc.

2.1.3. A risk assessment must be made of any electrical hazards. The assessment must cover:

- Who could be harmed by them.

- How the level of risk has been established.
- The precautions taken to control that risk.

2.1.4. The risk assessment should take into consideration the type of electrical equipment used, the way in which it is used and the environment that it is used in.

2.1.5. All electrical installations and equipment must be:

- Suitable for its intended use and the conditions in which it is operated.
- Only used for its intended purpose.

2.1.6. In wet surroundings, unsuitable equipment can become live and make its surroundings live too.

2.1.7. Fuses, circuit-breakers and other devices must be correctly rated for the circuit they protect.

2.1.8. Isolators and fuse-box cases should be kept closed and, if possible, locked.

2.1.9. Cables, plugs, sockets and fittings must be robust enough and adequately protected for the working environment.

2.1.10. Ensure that machinery has an accessible switch or isolator to cut off the power quickly in an emergency.

2.2. Maintenance

2.2.1. So far as is reasonably practicable, the SOAS community must make sure that equipment and installations must be maintained to prevent danger.

2.2.2. Users of electrical equipment, including portable appliances, should carry out visual checks. Remove the equipment from use immediately and check it, repair it or replace it if:

- The plug or connector is damaged.
- The cable has been repaired with tape, is not secure, or internal wires are visible etc.
- Burn marks or stains are present (suggesting overheating).

- 2.2.3. Repairs should only be carried out by a competent person (someone who has the necessary skills, knowledge and experience to carry out the work safely).
- 2.2.4. More frequent checks for items more likely to become damaged (eg portable electrical tools and equipment that is regularly moved, or used frequently or in arduous environments) are required.
- 2.2.5. Less frequent checks are needed for equipment less likely to become damaged (eg desktop computers etc).
- 2.2.6. Visual checks are not usually necessary for small, battery-powered items, or for equipment that works from a mains-powered adaptor (laptops or cordless phones etc). However, the mains-powered adaptor for such equipment should be visually checked.
- 2.2.7. Consider whether electrical equipment, including portable appliances, should be more formally inspected or tested by a competent person. Also, think about the intervals at which this should be done.

2.3. P.A.T Testing Guidance

- 2.3.1. New equipment should be supplied in a safe condition and not require a formal portable appliance inspection or test. However, a simple visual check is recommended to verify the item is not damaged.
- 2.3.2. Portable electrical equipment used at the university must be maintained to prevent danger.
- 2.3.3. For most portable electrical equipment in a low-risk workplace, a portable appliance test is not needed.
- 2.3.4. Simply looking for signs of damage is a good way of Maintaining portable electric equipment.
- 2.3.5. P.A.T testing is not compulsory:
- The law simply requires an employer to ensure that their electrical equipment is maintained in order to prevent danger. - It does not say how this should be done or how often.
 - Employers should take a risk-based approach, considering the type of equipment and what it is being used for.

- If it is used regularly and moved a lot eg a floor cleaner or a kettle, testing (along with visual checks) can be an important part of an effective maintenance regime giving employers confidence that they are doing what is necessary to help them meet their legal duties.
- Health and Safety Executive (HSE) provides guidance on how to maintain equipment including the use of P.A.T.