



lyit

Letterkenny Institute of Technology

**PORTABLE ELECTRICAL APPLIANCE INSPECTION AND TESTING
PROCEDURE**

1.0 INTRODUCTION

Letterkenny Institute of Technology has a legal obligation to carry out the visual checking, inspection and testing, on a periodic basis, of portable electrical equipment. Such testing is a requirement of the Safety Health and Welfare (General Applications Regulations) 2007 and Safety Health and Welfare at Work Act 2005.

It is the responsibility of the Head of Functions and Schools to ensure the inspection and testing of all Portable Electrical equipment within their area.

2.0 LEGISLATION

All work with or involving the use of equipment powered by electricity at the Letterkenny Institute of Technology is subject to the following legislation:

- The Safety Health and Welfare at Work Act 2005
- The General Application Regulations 2007

2.1 Legal Definition of Portable Equipment

The Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. 299 of 2007) came into operation on 1 November 2007. An amendment (S.I. 732 of 2007) to these regulations came into force on 12th November 2007. Regulation 74 (Interpretation) of these regulations defines portable equipment as follows:

“portable equipment” means equipment, including hand-held portable equipment, which:

- a) because of the manner in which it is to be used, requires to be moved while it is working,*
- b) is designed so that it can be moved while it is working, or*
- c) is moved from time to time between the periods during which it is working;*

3.0 PROCEDURE

- It is the responsibility of each Head of School or Functional Area to ensure that a full inventory of all portable electrical equipment within the School or Functional area is maintained.
- It is the responsibility of each Head of School or Functional Area to ensure a risk assessment is carried out on all electrical equipment and portable electrical equipment to determine what portable equipment is to be PAT tested by a competent person in their functional area.
- All electrical items covered by Portable Appliance Testing must be tested on a regular basis by a certified competent person.
- Each tested item must be labelled with the date of the latest test and the initials of the tester. The results of the tests must be registered with the Head of School or Functional area.

- Any item failing its required test **must be withdrawn from service immediately**, labelled and not re-used until the fault(s) have been rectified and it has been re-tested and successfully passed the PAT tests.
- All new electrical items must be recorded before use, tested within the warranty period and regularly thereafter. All second hand items must be tested before use and regularly thereafter.
- Those carrying out inspection and tests must be competent to undertake the inspection, and where appropriate, testing of electrical equipment and appliances, having due regard to their own safety and that of others. The Tester must be able to recognise electrical, mechanical or thermal damage to electrical equipment and appliances and their flexes/cables which may be encountered in any environment.
- All staff have a responsibility to report any electrical faults they observe to the Estates Office immediately, they will arrange for inspection by site electrician.
- The Head of School or Functional area is responsible for ensuring that any contractors employed by the Institute are made aware that they themselves are responsible for the electrical safety of their equipment including the requirement to inspect and PAT test their electrical equipment.

4.0 WHAT IS INCLUDED?

- All electrical items used by LYIT personnel within a School or Functional area regardless of ownership are included in this Procedure. Therefore this includes personally owned items and items loaned from other departments and/or external agencies on a long term basis.
- Portable mains extension leads are separate electrical items and must be tested independently of the item to which they are connected.
- The only electrical items excluded are those, which operate solely on batteries (for example, calculators and radios), or low voltage (for example some computer peripherals, laptops and telephones). However if a low voltage item has a 240 volt external power supply then its power supply is covered by these regulations.
- According to the HSA guide on the General Application Regulations (2007) “It is anticipated that equipment that is rarely moved and located in environments where it is safe from accidental damage or environmental degradation should not need to be tested unless a risk assessment shows otherwise”. However, this equipment should have a visual inspection carried out by a competent person at frequencies to be determined by a risk assessment.

5.0 LEVELS OF RESPONSIBILITY

- Heads of Schools and Functional areas are responsible for ensuring that they maintain a register of portable electrical equipment and ensuring that such equipment is checked, inspected and tested in accordance with:
 - Legislation e.g. General Application Regulations 2007
 - Electro-Technical Council of Ireland Guide (ETCI)
 - International Social Security Association Guidelines (ISSA)
 - And this LYIT procedure document
- The Estates Manager is the Authorising Person and will maintain a register of Certified Competent Persons to carry out PAT Testing. The institute electrician is also available to provide assistance on any queries PAT testers may have in relation to electrical safety.
- A Competent Person is someone who has been nominated by their Head of School/ Function to carry out PAT visual checks, inspections and tests. A Competent Person must have completed an approved PAT Test training course and hold a valid Certificate from this training.

6.0 RESIDUAL CURRENT DEVICE

In addition to visual checks, inspections and PAT Testing of electrical equipment in each functional area the Estates office will conduct testing of the protection provided by Residual Current Devices or RCD on all circuitry in accordance with the Electro Technical Council of Ireland Guide to the Maintenance, Inspection and Testing of Portable Equipment (Electrical Appliances and Tools) in the Workplace section 3.6 page 6.

7.0 STAFF TRAINING & COMPETENCY

Legal Definition*: Section 2 (2) of the Safety Health and Welfare at Work Act defines a 'competent person' as follows:

'For the purposes of the relevant statutory provisions, a person is deemed to be a competent person where, having regard to the task he or she is required to perform and taking account of the size or hazards (or both of them) of the undertaking or establishment in which he or she undertakes work, the person possesses sufficient training, experience and knowledge appropriate to the nature of the work to be undertaken.'

A **Competent Person** can carry out combined visual checking, inspection and testing as recommended by the ETCI guidance document for further information please refer to the ETCI guide and abstract see below. A Competent Person will have obtained a certificate of competence after attending an approved PAT Testing course for the **Visual Checking, Inspection and Testing** of Portable Electrical Equipment. This training will be organised by Estates. They will be certified competent by the training company for a set period of time. Certificate issued by training company will determine when training will

need to be re-certified.

After the issue of the certificate the Competent Person will be able to carry out visual inspections, use testing equipment, record results and recognise faults. They will be able to identify equipment and appliance types to determine the test procedure and frequency of inspection and testing. They will be familiar with test instruments used and, in particular, their limitations and restrictions so as to achieve repeatable results without damaging the equipment or appliance.

8.0 PAT Test Equipment

Estates will maintain and hold the approved test equipment and will lend this to competent persons previously described. Estates will ensure the maintenance, calibration and certification associated with the test equipment to ensure equipment standardisation and to maintain a central register of this equipment.

9.0 Test Records

Records **must** be maintained by Heads of School and Functional area of all electrical appliance inspections and tests, and any corrective maintenance. It may be convenient to incorporate these results into an existing inventory record system. It is a requirement that these records are retained for the life of the equipment.

9.1 Test Identification Labels

Each portable electrical appliance should have an INSPECTION (Black), PASS (Green) or FAIL (Red) label fixed to it after each inspection or test. Labels will be procured by the Estates office and made available to nominated competent PAT testers in all areas.

10.0 PORTABLE APPLIANCE TESTING PROCEDURE

10.1 Responsibility for Inspection and Testing

Responsibility for the introduction and management of the procedure will lie with the Head of School or Function. The Head of School or Function shall nominate appropriate staff to be trained. After the nominees have been trained, issued with a certificate and registered through Estates they shall implement the testing procedure.

10.2 Frequency of Inspection and Testing

The frequency of testing should be appropriate to controlling the assessed risks associated with the equipment use. There are no absolute rules regarding how often an item of portable electrical equipment should be inspected or tested. ETCI Guidance Notes and legislation advise “periodic” inspection and testing, which would be best achieved by an annual tests or inspections. However, circumstances, conditions of use and environmental conditions will vary. The frequency of testing should be determined by risk assessment carried out by the competent person. Please note electrical equipment should be visually checked before each use by all staff users.

Frequency of Inspection will generally be more frequent than for **testing**.

The following guidance documents have been issued by the HSA, ETCI and ISSA respectively and should be followed for recommendations:

- i) Guide to the Safety, Health and Welfare at Work (General Application) Regulations 2007 Part 3: Electricity (HSA)
- ii) Guide to the Maintenance, Inspection and Testing of Portable Equipment (Electrical Appliances and Tools) in the Workplace ET 215:2008 (ETCI)
- iii) Guideline on Managing Safety in the Use of Portable Electrical Equipment in the Workplace (ISSA)

11.0 ETCI Guide to the Maintenance, Inspection and Testing of Portable Equipment (Electrical Appliances and Tools) in the Workplace

Please find below abstract taken directly from the ETCI guide to explain the different terminology used in relation to:

11.1 Maintenance of Portable Equipment

11.2 Visual Checking

11.3 Periodic Inspection

11.4 Periodic Testing

11.1 “Maintenance: (all portable equipment)

As for any work equipment, follow the manufacturer’s instructions. As a minimum:

- Store it in a careful manner when not in use,
- Transport it in a secure manner (so as not subject to unnecessary shocks or vibrations)
- Use it in its intended manner, in its intended environment and never overload it,
- Use correctly rated protective devices and never by-pass these devices.

Keep records of inspections and any tests carried out by competent persons.”

11.2 “**Visual Checking** by the user before use: (recommended for all portable equipment)

One of the most important checks that can be carried out on a piece of equipment, particularly portable appliances or hand-held tools, is the visual inspection. Before using any portable equipment, the user should ensure that it is correctly rated for use in the proposed location and environment. Then visually check that it is safe to use, with no signs of damage or defects. Users must be instructed in the method of carrying out these checks.

Check:

- **Tool/Appliance:** Is the on/off switch working correctly? Is there any sign of damage to casing? Are there any loose parts or missing screws? Is there evidence of overheating or moisture?
Examine its voltage rating to ensure that it is the right voltage of for the purpose (e.g. 110 volt hand tools for construction sites) and the appropriate plug-top for that voltage. Are live parts properly guarded, so as not to be inadvertently accessible?
- **Cable/mains Lead:** It should be securely anchored to the plug and to the appliance/tool, with no signs of cuts, fraying, brittle cable, leads kinked or coiled, taped joints or overloading (overheating indicated by colour change or smell). Cable cores should not be externally visible.
- **Plug:** The cable should be securely anchored, with no signs of cracked casing, overheating, loose or bent pins.
- **Socket-outlet:** Is it free from cracks or other damage? Are there any signs of overheating?

If the ‘user-checks’ indicate that the tool/appliance is faulty or defective, or if a fault occurs during subsequent use, the tool/appliance should be taken out of service. It should not be used again until the fault has been repaired and the tool/appliance certified by a competent person* as fit for use.”

11.3 “**Periodic Inspection** by a competent person* (portable equipment rated >125V ac)

This requirement applies to portable equipment that is designed for use and supplied at a voltage exceeding 125V ac and which is exposed (in use) to conditions causing deterioration liable to result in danger. For such equipment a competent person* should carry out a ‘user’ visual inspection (as in Section 3.3 above) and in addition check the following:

- **Tool/Appliance:**

Is it a 'Class 1' equipment? If so check that it is earthed.

Is it a 'Class 2' equipment (which has either double insulation or reinforced insulation or a combination of these); the symbol for Class 2 is a square within a square and may be found on the rating plate or label.

If it is to be used in damp or wet conditions or atmospheres, or conditions where there is a liability of ingress of dust or solids into its works, has it an appropriate Ingress Protection (IP) rating?

If it is to be used in potentially explosive atmospheres, has it an appropriate Ex Rating?

Rated Voltage, and where appropriate protection Class, IP and Ex ratings should be stamped on the equipment or on its rating plate.

- **Cable/mains lead and plug:** Check that the cable/mains lead is secure at both the tool/appliance and plug and where covers can be removed that its cores are secure and correctly connected, with no excess insulation removed and with no bare loose strands. Check that fusing is correct.

The frequency of these inspections should be appropriate to controlling the assessed risks associated with the equipment use. Keep a record of such inspections.

Note that these inspections, while constituting a more rigorous approach (e.g. involves removal of covers) than that carried out by the users, also play an auditing role on the consistency of the 'User Checks'."

11.4 "Periodic Testing by a competent person* (portable equipment rated greater than 125V ac)

Portable equipment which requires Periodic Inspection as outlined in 11.3 above, may also need to be tested by Competent Person. Reasons for carrying out testing would include:

- Use of equipment in an extremely hazardous environment. (e.g. subject to heavy wear and tear)
- Requirements contained in manufacturers instructions.
- After Repair work on the equipment – see below.

- If equipment is second-hand and previous history is unknown

Portable equipment that has been found to be faulty or defective on inspection or during used should be taken out of service. It should not be used again until the fault has been repaired, tested and certified by a competent person* as fit for use. Such tests could include the following:

- Polarity,
- Earth continuity,
- Insulation resistance
- Any other tests as may be recommended by the manufacturer.

The frequency of testing should be appropriate to controlling the assessed risks associated with the equipment use. If testing is successful, certify the tool/appliance as fit for use. Keep a record of tests completed, test results and date of testing. Should there be a procedure in place for placing a 'use until date' stamp on the tool/appliance, then stamp it accordingly.

(Note: The person carrying out the tests should not only be competent in the safe use of the test equipment, but should also be aware of the maximum limits of the test currents and voltages that can be applied (so as not to damage the equipment being tested) and should be able to interpret the test results)"

Please find below example of Portable Equipment Register, Risk Assessment and Test Record form or table. This is a guidance form or table and can be adapted to suit the requirements of individual areas.

Example: Portable Electrical Equipment Register, Risk Assessment and Test Record

School or Function: _____

Compiled By: _____

Department: _____

Date: _____

Responsible person: _____

Sheet No: _____

Location	Environ.	Item Description & Serial No.	Periodic Inspection & PAT Test Yes/No/Frequency	If Periodic Inspection & PAT Test <u>not</u> required state reason why:	Date of Periodic Inspection & PAT Test	Pass	Fail

