**\* INTERPRETATION - "Department" means College/School/Department/Centre/Unit as relevant.**

**18.32.1 GENERAL**

The current Health & Safety legislation regarding*,* electricalappliancesand their usage, apply directly to the University. While these Regulations obviously have much wider application in such departments as Science and Engineering and the Buildings and Estates Office, they also apply to ALL other University departments. Every Head of Department will have to assess the impact of the Regulations in each area under his/her control and assess the risks to personnel and property where electrical equipment is used.

**18.32.2 HAZARDS OF PORTABLE AND TRANSPORTABLE ELECTRICAL EQUIPMENT**

The main hazards associated with portable and transportable electrical equipment are:

* Electric shock, the consequences of which are related to magnitude and duration of current passed through the body and the actual physical path taken by the current. This could occur where electric equipment such as drills or portable grinders are used in a harsh and sometimes wet environment where there is a high probability of mechanical damage to the cable. This can also occur where cables on portable equipment are cut, damaged or cables are incorrectly bushed, leading to pressure being exerted on wires in terminals situated in plugs or the equipment proper.
* Burns, which can occur externally or internally caused by the passage of current through the skin from short circuits or electric arcing.
* Fire and explosions caused by sparks, arcs, short circuits, overloading and old wiring or working in hazardous atmospheres.
* Entanglement cuts or burns due to contact with moving parts of the tool.
* Injury from ejection of materials (generally associated with the use of the equipment).

**18.32.3 RISKS**

The risks associated with the aforementioned hazards are to be assessed by the Department (using the appropriate technical input where necessary). These assessments shall be carried out using:

1. Check lists provided (where applicable) and
2. Departmental Hazard Identification/Risk Assessment Work Sheets contained in Document No.3 i.e. Departmental Hazard Risk Assessment (D.H.R.A.).
3. **ARRANGEMENTS AND CONTROLS REQUIRED**

These hazards and risks will be minimised by the following arrangements and controls. It is the responsibility of line management to ensure that these arrangements and controls are followed:

1. **General:**

* Purchase portable electrical equipment/ appliances, that are manufactured by a reputable manufacturer, from a reputable retailer, that meets the highest current safety standard and displays a genuine CE marking.
* Avoid bringing personal electrical appliances into UCC. In exceptional cases, if this cannot be avoided, then permission should be obtained from line management to do so, having first been inspected by a competent person, PAT tested and certified OK.
* Ensure that the user has been trained in the use, care and hazards of portable and transportable electrical equipment and is competent to use it safely.

1. **Residual Current Device (RCD) Protection:**

* All portable equipment/appliances exceeding 125 volts AC and not exceeding 1000 volts AC must be protected by a residual current device (RCD) (also known as ELCB or RCCB).
* Regularly perform push-to-test on the RCD as per manufacturer instructions.
* RCDs should be functionally tested periodically by a competent person to ensure proper operation.

1. **Inspection and Maintenance:**

* All portable electrical equipment/ appliances must be maintained in a manner fit for safe use.
* Equipment /appliances exceeding 125 volts AC and exposed to deterioration risks, must be given a visual inspection by the user before use and must be given regular visual inspections by users thereafter, to ensure safe use. The user must look for:
  + Damage to enclosures, insulation, cables, plugs, and sockets.
  + Cables not securely held in position, scorch, or burn marks.
* Please see ‘[CF 03 00 Visual Electrical Safety Inspection Checklist](https://uccireland.sharepoint.com/:b:/s/OCLAEnterpriseRisk/EcGUosJUawFDg16aH1mezlUBoTCJl6htvQvHTAEfyDktWw?e=wfy7NC)’, which can be used by the user, to carry out visual checks as required.

1. **ARRANGEMENTS AND CONTROLS REQUIRED (Cont.)**

* Remove any faulty equipment/ appliances from use, mark it ‘FAULTY, DO NOT USE’, report any defects to line management for action. Faulty equipment/ appliances taken out of use should be put aside for replacement or repair and testing by a competent person. Any obvious visual defects in local sockets, trunking, etc., should be reported to the [B&E Helpdesk](mailto:bereception@ucc.ie) or via Extension 2480.
* ‘Periodic Inspections’ by a competent person are required for equipment/appliances exceeding 125 volts AC and exposed to deterioration risks. The checks should include that the plug is fitted with a fuse appropriate to the amp rating of the equipment.
* ‘Portable Appliance Testing’ (PAT) by a competent person is required for equipment exceeding 125 volts AC and exposed to conditions causing deterioration liable to result in danger, on top of periodic inspections.
  + All results should be recorded and equipment that successfully passes the test given an O.K. tag.
  + Any equipment /appliances that failed the test, should be immediately removed from service.
  + They must not be returned to service, unless the fault is rectified and the equipment successfully passes the test and is given an O.K. tag.
  + This is particularly important as portable and transportable tools and equipment are more vulnerable to physical wear and tear damage or harsh treatment than fixed electrical installations.
* In practice, it is likely that the ‘Portable Appliance Testing’ (PAT) and the ‘Periodic Inspections’ work would be bunched together, for completion be the same competent person.
* Factors to be considered when assessing the frequency of visual inspection and of combined electrical inspection and testing should include the following:
  + Type of equipment and whether it is handheld or not,
  + Manufacturer’s recommendations,
  + Age of equipment, frequency of use and duty cycle of tool or equipment,
  + Nature of environment in which it is used and possibility of mechanical damage,
  + Initial integrity and quality of equipment,
  + Effects of any repairs or modifications to equipment,
  + Examination of previous history of maintenance records of testing.

1. **Use Restrictions:**

* Portable equipment exceeding 125 volts AC cannot be used in:
  + Construction work
  + External quarrying activities
  + Damp or confined locations unless rated above 2 kilovolt amperes (kVA).
* Portable hand-lamps cannot be used in the above locations if exceeding:
  + 25 volts AC
  + 50 volts DC

1. **Transformers and Generators:**

* Portable transformers exceeding 125 volts AC should use a maximum cable length of two meters on the high voltage side.
* Extension leads should be used on the low voltage side and be suitable for the environment.
* Transformers supplying reduced low voltage (below 125 volts AC) must be double wound and isolating type.
* The star point (three-phase) or midpoint (single-phase) of transformers and generators on the secondary windings must be connected to earth.

1. **Additional Considerations:**

* Exercise caution with second-hand equipment with unknown history.
* Lower voltage is recommended for areas with increased shock risks (construction sites, damp locations etc.).
* Whenever possible use low voltage, battery powered hand tools.

**18.32.5 ARRANGEMENTS AND CONTROLS**

The details of the Arrangements and Controls in place and those required in the short, medium and long term, shall be set out by the Department in the forms provided in Document No.4 i.e. Departmental Safety Action Plan (D.S.A.P.). These Arrangements and Controls shall be reviewed and updated on a yearly basis.

**18.32.6 RESPONSIBILITIES**

The following personnel are responsible in the Department/Office/Lab/Area for ensuring the implementation and ongoing compliance with the aforementioned arrangements and controls.

|  |  |
| --- | --- |
| **AREA/LOCATION** | **PERSON RESPONSIBLE** |
| **1.** |  |
| **2.** |  |
| **3.** |  |
| **4.** |  |
| **5.** |  |
| **6.** |  |