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Faults and repairs

1. All electrical work (including fitting and rewiring plugs, and the replacement of fixed wiring fuses) is to be performed by electrically certified technicians,
2. Report any faulty equipment immediately to your supervisor or manager. Outside of normal hours and where prompt attention is needed ring the University Security Desk, x5000. Your concern will be relayed to Property Services who are on call.
3. Switch off the faulty equipment and remove it from service, or leave a warning notice if it is likely to be a hazard to other workers.
4. Faults in fixed wiring are to be reported to Property Services.

Safe working practices

1. Do not interfere with or alter the fixed electrical supply to an office, laboratory or workshop. This includes the opening of fuse boxes.
2. Do not use electrical equipment that has frayed or exposed leads or faulty or damaged plugs.
3. Protect electrical leads from mechanical, chemical, or heat damage.
4. When an item of equipment is situated at a distance from a power point, the electrical lead should not run along the floor. If necessary, place hooks along the wall to raise the lead above the floor.
5. Do not use extension cords as a substitute for fixed wiring. Additional power outlets can be requested from Property Services.
6. When power boxes are used that enable a number of appliances to be run from one power outlet, care must be taken to ensure that the circuit is not overloaded. Where possible, use power boxes with circuit breakers attached. However it is better to once again request more permanent power outlets.

7. Keep clothes, paper and other flammable materials well clear of heaters and other equipment producing heat as a function of their operation.
8. Keep all objects and dust away from air vents required by equipment for cooling to reduce the risk of fire. Liquid spills should be immediately removed as these can cause electrical short circuits that may lead to metal cases becoming 'live' or to fire.
9. Do not attempt construction of electrical equipment or carry out alterations or repairs to it unless you are appropriately licensed and hold a current practicing certificate.
10. Do not open covers on any equipment that leaves potentially 'live' circuits exposed.
11. In wet or damp conditions a residual current device should be used. Protective rubber gloves and boots should be worn.
12. Display warning notices in places where specific dangers are present - high voltage, high power transmitters, lasers, unearthed equipment, etc.
13. Turn off and preferably unplug all electrical apparatus that is not in use.
14. Any electrical equipment left operating and unattended should have the control switch clearly marked and instructions for switching off in the case of emergency posted in a prominent position
15. Do not use three-phase outlets for single-phase equipment.

Equipment Inspection and Testing

1. The AS/NZS 3760/2001 standard provides for the inspection and testing of electrical equipment connected to the mains by flexible leads. A 'competent' person, who does not necessarily need to be electrically qualified, may carry out inspection and testing.
 - a) The inspection involves:
 - i) A check that the equipment is free from obvious external damage.
 - ii) A visual check for damage to accessories, connectors, plugs or outlet sockets.
 - iii) A check that the inner conductors of flexible leads are not visible and that unprotected conductors or insulation tape are not in evidence.
 - iv) A check of the security and alignment of any control knobs.
 - v) A check that covers and guards etc are properly secured in place.
 - vi) A check that mechanical safety devices are in good working order and that ventilation inlets and exhausts are not obstructed.
 - vii) A check that any controls and alarms are in good working order.
 - b) The testing involves:
 - i) An earth test to ensure that there is less than 1ohm resistance between exposed metal parts and earth.

- ii) An insulation test to ensure that there is more than 1M ohm resistance between phase and neutral and earth.
- 2. All laboratory and workshop equipment should be inspected and tested annually.
- 3. Office equipment, where the leads are not flexed in everyday use, should be inspected and tested every 5 years.
- 4. Departments should maintain a register of electrical equipment, especially laboratory and workshop equipment, which records date of purchase and dates of inspections and testing.
- 5. Because the inspection and testing to the standard does not involve the removal of covers and an internal inspection, safety hazards may exist in older equipment due to ageing of insulation and loosening of connections, especially where heat and vibration are present.
- 6. An inspection schedule should be established for equipment greater than 10 years old.
- 7. Equipment on the schedule should be inspected inside and out by a registered electrical technician at appropriate intervals. Property Services or external firms (eg equipment suppliers) may be contracted to undertake inspections if internal resources are insufficient.
- 8. Hazards identified common to particular pieces of equipment should be advised to the H&S Coordinator who will maintain a clearing house for this information.
- 9. External providers of electrical equipment (eg photocopiers) should provide a certificate of electrical safety when they service the equipment.

Equipment fuse replacement

Unplug equipment from the mains before replacing blown fuses in equipment. Ensure that the replacement fuse cartridges is of the correct physical size and electrical rating. It is best to consult technical staff to find the cause for the blown fuse before replacement. Always consult if in doubt.

Imported equipment

Equipment made outside New Zealand may have wire colours and voltage settings that are different from NZ standards. It is advisable to have new imported apparatus checked by an electrically certified technician. Plugs may only be fitted or rewired by and electrically certified technician.