



UNIVERSITY
OF WOLLONGONG
AUSTRALIA

UOW SAFE@WORK

ELECTRICAL SAFETY GUIDELINES

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1 Introduction

The purpose of this guideline is to provide the framework for controlling the risks associated when working with electricity to the University's workers, students and visitors.

This document is based on specific legislative requirements as contained in [NSW Work Health and Safety Regulation 2011](#), [Managing Electrical Risks in the Workplace Code of Practice](#) and [AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment](#).

In addition to legislative requirements the general principles of risk management (identification, assessment, control, and review) should be applied to electrical hazards. This guideline outlines the controls specific to certain hazards concerned with electricity safety.

2 Scope

This guideline outlines the University's electrical safety program, aimed at reducing the risk of exposure to electrical hazards for staff, students, visitors and contractors. The provisions established within this document are applicable to all areas within the University in which work, teaching or research is undertaken.

This guideline does not apply to:

- electrical work on extra-low voltage electrical equipment, including extra-low voltage electrical installations. Extra-low voltage means voltage that does not exceed 50 volts alternating current (50 V a.c.) or 120 volts ripple-free direct current (120 V ripple-free d.c.).
- electrical work on high voltage equipment after switching, isolation, short circuiting and earthing
- the manufacture of electrical equipment
- automotive electrical work.

3 Definitions

For the purpose of this policy and procedure, the following definitions apply:

<i>Competent Person</i>	A person who has the necessary practical and theoretical skills, acquired through training, qualification, experience or a combination of these, to correctly and safely undertake the tasks prescribed by these guidelines.
<i>Electrical Appliance</i>	A device or apparatus that is connected to the electrical power supply through a general purpose outlet in the form of a plug-in type.
<i>Electrical Installation</i>	A system that supplies electricity to a building, including the switchboards, distribution boards, fixed wiring and socket outlets.
<i>Extension Lead</i>	An assembly of a plug intended for connection to a mains outlet socket, a sheathed flexible cord and a cord extension socket. Work involving:
<i>Electrical Work</i>	connecting electricity supply wiring to electrical equipment or disconnecting electricity supply wiring from electrical equipment installing, removing, adding, testing, replacing, repairing, altering or

		maintaining electrical equipment or an electrical installation.
<i>Hostile Environment</i>	<i>Operating</i>	An operating environment at a place of work where an item of electrical equipment is, in its normal use, subject to operating conditions likely to result in damage to the item of equipment. This includes an operating environment that may: Cause mechanical damage to the item of equipment, or Expose the item of equipment to moisture, heat, vibration, corrosive substances or dust that is likely to result in damage to the item of equipment.
<i>Fixed Equipment</i>		Equipment that is fastened to a support, secured in position or otherwise, due to its size and mass, located in a specific location.
<i>General Purpose Outlet</i>		A three-pin wall socket commonly used to deliver 240 volts
<i>Personal Equipment (P.E)</i>		Any privately owned electrical equipment of the plug-in type to be used at the University. Examples of personal equipment include (but is not limited to) radios, electric heaters and fans, sandwich makers, coffee makers, and mobile phones.
<i>PAT</i>		A Portable Appliance Tester (PAT) is an electronic instrument that automatically tests equipment plugged into it. The results it indicates require no technical interpretation.
<i>Power Board</i>		A device having a single plug intended for connection to a mains outlet socket, a sheathed flexible cord and an assembly of one or more outlet sockets.
<i>RCD</i>		A Residual Current Device is a mechanical switching device intended to isolate the circuit when the current imbalance attains the rated operating leakage current value of the device.
<i>Risk Management</i>		The culture, processes and structures that are directed towards realizing potential opportunities whilst managing adverse effects.
<i>Stationary Equipment</i>		Equipment having a mass exceeding 18 kg and not provided with carrying handle(s).
<i>Tag</i>		A durable, non-reusable, non-metallic label that may be colour coded to identify the period in which testing was performed.
<i>Voltage</i>		The difference in electrical potential between two points in a circuit, normally existing between conductors and between conductors and earth, expressed in volts.
<i>Extra-low voltage</i>		Voltage that does not exceed 50 volts alternating current (50 V a.c.) or 120 volts ripple-free direct current (120 V ripple-free d.c.).
<i>Low voltage</i>		Voltage exceeding extra-low voltage, but not exceeding 1000 V a.c. or 1500 V
<i>Worker</i>		Any person who carries out work for the University which includes: Employees Trainees Volunteers and affiliates including visiting and honorary fellows Outworkers Apprentices Work experience students

Contractors or sub-contractors

Employees of a contractor or sub-contractor

Employees of a labour hire company assigned to work for the University.

4 Responsibilities

4.1 Executive Deans, Directors, Heads of Departments

Executive Deans, Directors, Heads of Departments are to ensure that the Electrical Safety Guidelines are implemented within the local areas they are responsible for.

4.2 Facilities Management Division

Facilities Management Division (FMD) are responsible for:

- the governance of electrical installations in all buildings.
- ensuring only approved persons with relevant licences and qualifications are engaged for electrical work.

4.3 Area Supervisors/Coordinators

Area Supervisors/Coordinators are to:

- ensure that testing and tagging is being undertaken for electrical equipment in their respective area.
- ensure that any faulty equipment is managed in accordance with this guideline.
- act as a point of contact for the electrical testers for the purpose of induction to individual laboratories or workshops etc.
- provide instructions to the electrical tester regarding specialist equipment that may be in the area.
- those working in an area are aware of the tester's impending visit.
- ensure that a list of areas to be inspected is provided to the electrical tester.

4.4 Testers of Electrical Equipment

Testers of Electrical Equipment are to ensure that:

- prior to entering an area they organise with the Local Area Coordinator an appropriate time for induction to the area and for the testing of equipment.
- all electrical equipment requiring testing presented within the work area is inspected, tested, tagged and recorded in accordance with this policy and procedure.
- any faulty electrical equipment is tagged appropriately and removed from service until it satisfies the testing requirements.
- if test fails the item is removed from service in accordance with 7.9 Non-Compliant Electrical Appliances.

Regional and Metropolitan Campuses' electrical items requiring testing will be tested and tagged according to this guideline by a third party contractor. This may include equipment from the main campus that has been transported to a Regional or Metropolitan campus.

4.5 Workers

Workers are to ensure:

- any electrical equipment that has been removed from service in accordance with 7.9 Non-Compliant Electrical Appliances must not be used until a licensed electrician has completed repairs
- items requiring testing are presented or made available when the tagger is scheduled
- suspect items are checked by a qualified person before use.

In addition, all users of electrical equipment should:

- visually inspect all electrical equipment prior to use to ensure:
 - there is no obvious external damage, particularly to plugs, sockets, cords or other connectors
 - the flexible supply cord is free of damage, anchored correctly and no inner core insulation is visible
 - covers and guards are correctly secured
 - ventilation inlets or exhausts are not obstructed.
- ensure the appropriate area supervisor is notified of any faults and equipment that is out of service for maintenance or repair
- use the correct appliance for the specific task
- ensure that electrical appliances are dry and clean
- ensure that an appropriate power board is used where more than one appliance is required to be connected to a single GPO
- not use double adaptors or “piggy-back” plugs
- not withdraw a plug from a socket by pulling the cable.

5 Risk Management

Hazards associated with electrical work can arise from a range of aspects associated with the type of work being undertaken. The requirements set out in the [UOW Risk Management Guidelines](#) are to be applied for the identification of hazards, assessment and control of risk when performing electrical work.

6 Electrical Work

The University must take all reasonable steps to ensure that electrical work that is required to be undertaken by a licensed or registered electrical worker is undertaken by a worker that meets the relevant licensing or registration requirements. The provisions outlined in the [UOW Risk Management Guidelines](#) must be applied to all electrical work. Specific requirements for certain types of electrical work have been outlined below.

6.1 Design of Electrical Equipment

Any change in design or modification to electrical equipment needs to be performed by a licensed electrician. Refer to the [WHS design and modification guideline](#) for further information.

6.2 Electrical Installations

Any work on electrical installations (switchboards, distribution boards, fixed wiring and socket outlets) is managed by Facilities Management Division (FMD).

Any electrical installation work required must be approved by FMD.

6.3 Access to Electrical Switchboards

Access to University switchboards and resetting of circuit breakers is restricted to Facilities Management Division (FMD) electrical staff and approved contractors only. Reports of tripped circuits and requests for resetting tripped circuits must be directed to FMD ext. 3217 or in an emergency to UOW Security ext. 4900.

6.4 De-Energised Electrical Work

Electrical work is not to be carried out on electrical equipment while the equipment is energised, subject to the prescribed exceptions discussed in Section 7 of the [Code of Practice – Managing Electrical Risks in the Workplace](#). Before electrical work is carried out on electrical equipment the equipment must be de-energised and verified by a competent person that it is safe to work on.

When electrical work is being performed on electrical equipment, each exposed part must be treated as energised until it is isolated and determined not to be energised. De-energisation needs to be determined by a test which is safe and effective, thereby incorporating the principle of ‘TEST FOR DEAD BEFORE YOU TOUCH’.

The worker carrying out the testing must understand the testing procedures and be competent in the use of the testing method. Panel voltmeters should not be the only method of testing to be used to determine whether an electrical part is de-energised.

Additionally each high-voltage exposed part of the equipment must be earthed after being de-energised.

Anyone carrying out electrical work for the University must ensure that electrical equipment that has been de-energised to allow for electrical work to be carried out cannot be inadvertently re-energised. Refer to [Lock Out/Tag Out Guidelines](#) for further information.

A safe work procedure applying the ‘TEST FOR DEAD BEFORE YOU TOUCH’ should be completed within any local area required to perform electrical work. Where safe work procedures have been developed for electrical work or energised electrical work, that work must be carried out in accordance with the safe work procedure.

6.5 Low Voltage Isolation and Access

Isolating electrical equipment or circuits from all relevant sources of electricity supply can involve the use of opening switches, removing fuses or links, opening circuit breakers or removing circuit connections. The following steps should be taken when organising low voltage isolation:

- consultation
- isolation
- securing the isolation
- tagging
- testing
- re-testing as necessary

Local isolation procedures can help to ensure the above steps are catered for during the working process. Effective isolation can be achieved by applying lock off processes or tagging systems. All reasonable steps must be taken to ensure that restoring electricity supply following isolation does not pose risks to health and safety at the workplace. If work is left unfinished then the workplace must be left in a safe state that will not put anybody’s health and safety at risk.

6.6 Energised Electrical Work

Work must not be carried out on energised electrical equipment unless the work is subject to the prescribed exceptions referred to in part 152 and 157 of the [WHS Regulation](#). When work is carried out on energised electrical equipment the following must be conducted:

- a risk assessment
- clear the work area and the point at which the electrical equipment can be disconnected or isolated from its electricity supply of obstructions
- clearly mark or label the point at which the electrical equipment can be disconnected or isolated from its electricity supply
- make sure that the point at which the electrical equipment can be disconnected or isolated from its electricity supply is capable of being operated quickly.
- Any work carried out on energised electrical equipment by a competent person must take into account the following:
 - the competent person has tools, testing equipment and PPE that are suitable for the work, have been properly tested and are maintained in good working order
 - work is to be carried out in accordance with a safe work method statement prepared for the work, and
 - work is to be completed with a safety observer who can implement emergency management procedures, rescue the person who is carrying out the work and has been assessed as competent in the last 12 months in resuscitating a person unless otherwise specified as not required within a completed risk assessment

Only authorised persons may enter the immediate area in which electrical work on energised electrical equipment is being carried out.

During short circuit fault conditions, a current of up to 20 times the rated current can flow for a short duration. Circuit protection devices may not operate quickly enough to provide protection in such circumstances and an electric arc flash over can occur. Electric arcs have the energy to cause explosions and/or melt metallic switchboard cubicles and equipment. Arc flash may cause severe burns to the body including skin, hands, face and eyes. Inhaled hot gases, molten particles and toxic gases can cause serious internal burns to the respiratory system. Injury can also occur through the impact from flying debris and dislodged components.

Arc flash rated PPE, including clothing and gloves are required when exposing energised electrical switchboard components.

6.7 Working Near Energised Electrical Parts

Electrical work can pose a risk to direct or indirect contact with exposed energised parts, for example installing of testing circuits on a switchboard adjacent to exposed live electrical parts. At times the risks associated with undertaking this type of work can be equivalent to those associated with live electrical work.

Hazards associated with working near energise electrical parts need to be eliminated or controlled in accordance with the [UOW Risk Management Guidelines](#) to ensure the health and safety of those performing the work. Careful planning and preparation needs to be undertaken to ensure the safety of workers, students and visitors.

6.8 Tools and Equipment

Hazards associated with the use of tools and equipment need to be eliminated or controlled in accordance with the [UOW Risk Management Guidelines](#) to ensure the health and safety of those performing electrical work. Tools and equipment might include ladders, scaffolds, insulating barriers, insulating mats and test instruments.

6.9 Record Keeping

Records associated with work on energised electrical equipment are required to be kept and maintained in accordance with [WHS Records Handling Guidelines](#) and the [University Records Program](#).

7 Electrical Inspection and Testing

7.1 Type of Electrical Appliances to be Tested

The University must ensure that electrical equipment is regularly inspected and tested by a competent person if the electrical equipment is:

- supplied with electricity through an electrical socket outlet ('plug in' equipment), and
- used in an environment in which its normal use exposes the equipment to operating conditions that are likely to result in damage to the equipment or a reduction in its expected life span.

This includes conditions that involve exposing the electrical equipment to moisture, heat, vibration, mechanical damage, corrosive chemicals or dust. Examples may include work environments such as construction and demolition sites, however testing may also be required for items in office environments if the equipment is exposed to the conditions listed above. Table 1: Examples of electrical equipment requiring inspection and testing outlines the type of equipment and operating environments where inspection and testing is required.

The University has staff available to perform electrical testing services as required. Contact the electrical testers on email at electrical-testing@uow.edu.au.

In some situations electrical equipment may not require inspection and testing as it does not present a risk to the operator due to:

- the permanent nature of its location
- the way the equipment is used
- the working environment in which the equipment is used.

Examples of equipment that do require inspection and testing and recommended testing intervals can be found in Appendix 1: Inspection and Testing of Electrical Equipment Intervals.

Examples of equipment where electrical testing and tagging is not normally required as they are usually located in a non-hostile operating environment include:

- desktop computers and monitors
- scanners
- photocopiers
- lamps
- radios
- fridges
- microwaves
- freezers.

If there is doubt over the operating conditions of the equipment a risk assessment should be completed as outlined in section 6.2 Risk Assessment to determine whether inspection is required as a risk control measure.

Table 1: Examples of electrical equipment requiring inspection and testing

Operating Environment	Examples of Electrical Equipment Requiring Inspection and Testing
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Operating Environment	Examples of Electrical Equipment Requiring Inspection and Testing	
Workshop	<ul style="list-style-type: none"> ▪ Hand held power tools ▪ Laboratory equipment ▪ Portable electrical equipment 	<ul style="list-style-type: none"> ▪ Electronic plant ▪ Extension cords ▪ Power boards
Cleaning activity	<ul style="list-style-type: none"> ▪ Floor polishers 	<ul style="list-style-type: none"> ▪ Vacuum cleaners
Commercial kitchen	<ul style="list-style-type: none"> ▪ Commercial kitchen appliances 	<ul style="list-style-type: none"> ▪ Portable electrical equipment
Common Teaching Area	<ul style="list-style-type: none"> ▪ Laptop computers ▪ Overhead projectors 	<ul style="list-style-type: none"> ▪ Portable electronic whiteboards
Construction site	<ul style="list-style-type: none"> ▪ Extension cords ▪ Hand held power tools 	<ul style="list-style-type: none"> ▪ Portable electrical equipment ▪ Power boards
Laboratory	<ul style="list-style-type: none"> ▪ Flow Cytometer ▪ Plate Reader ▪ Gamma Counter ▪ Fast Liquid Protein ▪ Chromatography (FLPC) 	<ul style="list-style-type: none"> ▪ Hot Plates ▪ Stirrers ▪ Small Drying Oven ▪ Hair Dryer
Lecture theatre	<ul style="list-style-type: none"> ▪ AV equipment ▪ Smart Boards. 	<ul style="list-style-type: none"> ▪ Overhead projectors
Theater/Studio	<ul style="list-style-type: none"> ▪ Lanterns ▪ Lighting poles ▪ Stage lights 	
Workshop	<ul style="list-style-type: none"> ▪ Electronic plant ▪ Extension cords ▪ Power boards ▪ Powered hand tools 	

7.2 Risk Assessment

If a risk assessment is carried out as per the requirements of section 6.1 Type of Electrical Appliances to be Tested it should be done so in accordance with the [UOW Risk Management Guidelines](#). This process should involve a competent person as defined in section 3 Definitions. The results of the completed risk assessment will determine whether the electrical equipment requires testing and tagging.

A risk assessment should be conducted for any equipment that is not listed in this guideline as requiring inspection and testing to determine whether it is appropriate or not to do so. The risk assessment should take into account the conditions the equipment is exposed to, the safe operation of the equipment and previous incidents.

7.3 Equipment

7.3.1 Previously Tagged Equipment

Electrical equipment that has been previously tagged may no longer require on-going testing and tagging as per section 7.1 Type of Electrical Appliances to be Tested. Once identified the old or out of date tag may be removed by a person as identified in section 7.1 Type of Electrical Appliances to be Tested.

7.3.2 New Equipment

Where new equipment is introduced to the workplace, the supplier is responsible for providing a safe product and thus electrical testing and tagging is generally not required. Where the supplier has deemed the equipment to require electrical testing as part of the commission process, the University will perform the electrical testing.

If any new equipment is deemed to require ongoing testing it should be tagged to determine the initial test date and subsequent testing frequency thereafter.

7.3.3 Second Hand Equipment

Where second hand equipment is introduced to the workplace, the person bringing in the product must ensure that it is tested and tagged. The retesting period should be highlighted on the electrical tag.

7.3.4 Imported Equipment

All electrical items that have been imported (e.g. purchased, loaned, provided etc.) from overseas must be checked to ensure it complies with AS3000 and is safe to use in the workplace. Any equipment that originates from overseas must be inspected by a licensed electrician before it is operated or used in the workplace. If the inspection process identifies that the equipment does not conform to AS3000 then it must be serviced and modified to meet minimum requirements. This inspection process should be demonstrated by completing an [Imported Electrical Equipment Inspection Checklist](#).

7.3.5 Electrical Equipment That Is Not Able To Be Tested By a PAT

Electrical equipment requiring testing that is not able to be tested with a PAT, for example three phase equipment, voltages other than 240v, 20A single phase or lead sets where plug and socket are not same rated, should be conducted by a licensed electrician.

7.3.6 Personal Electrical Equipment

Electrical inspection and testing of personal electrical equipment is required to be tested as per Appendix 1: Inspection and Testing of Electrical Equipment Intervals. Use of personal electrical equipment at the University is to be approved by the Head of Unit. Cost for the inspection and testing of approved personal electrical equipment is the responsibility of the Unit. Personal electrical equipment which is not approved by the Head of Unit is prohibited from use at the University.

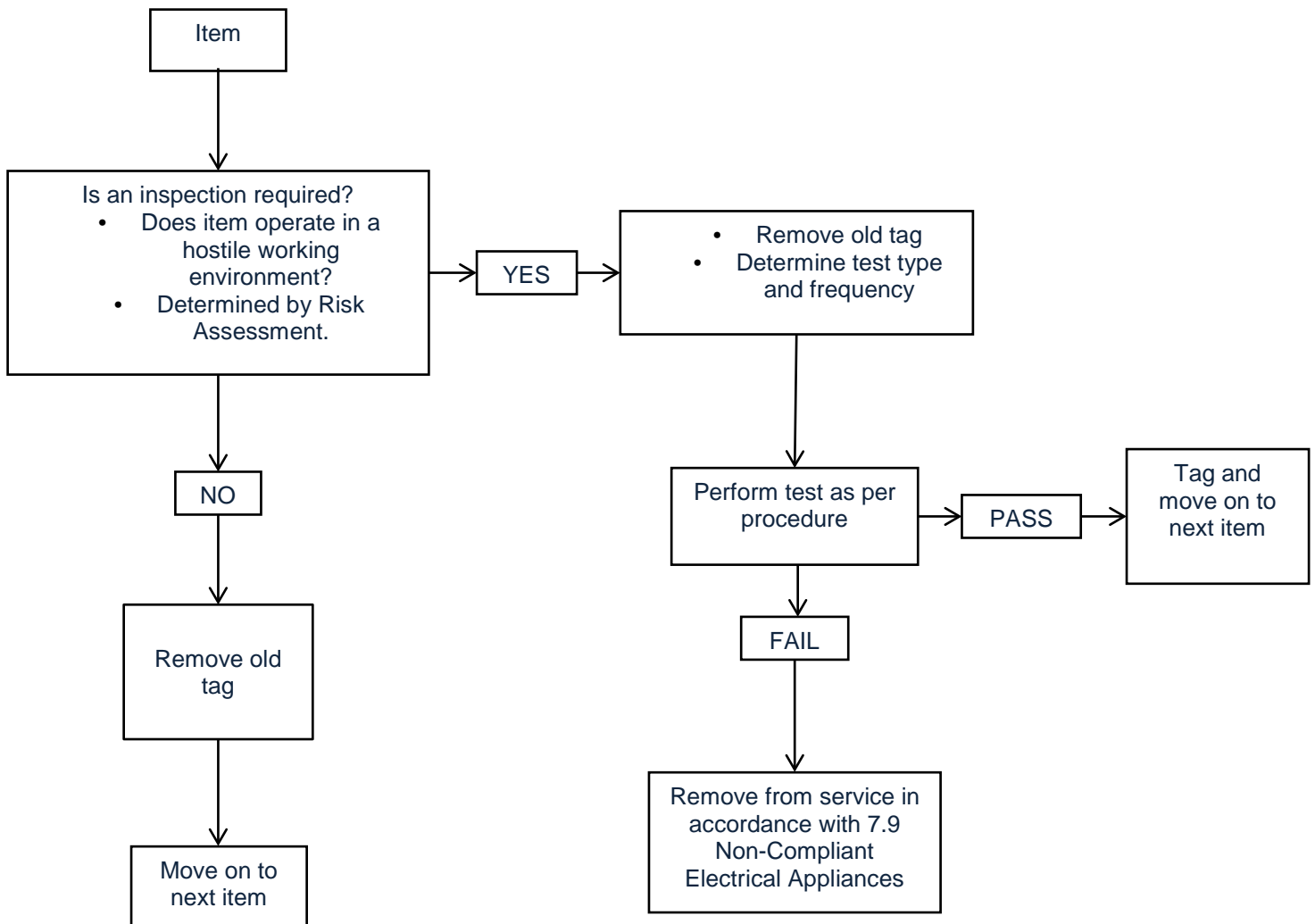
7.3.7 Patient Connect Electrical Equipment

Patient connect electrical equipment is to be tested according to AS/NZS3551 by a qualified and experienced biomedical engineering consultant.

7.4 Electrical Testing and Tagging Flowchart

A flowchart for those undertaking the testing and tagging of electrical equipment can be seen in Figure 1: Process for testing and tagging electrical equipment. This is to be used in conjunction with the Electrical Testing and Tagging Procedure.

Figure 1: Process for testing and tagging electrical equipment



7.5 Testing Intervals for Electrical Appliances

Intervals for testing and inspection of electrical appliances shall not exceed those specified in Appendix 1: Inspection and Testing of Electrical Equipment Intervals. This table has been derived from AS/NZS 3760:2010; however it has been modified to incorporate a risk management approach.

Factors considered in determining appropriate inspection and test intervals include mobility of equipment, flexion of cord and the environment where the equipment is used to evaluate the risk to health and safety.

Additional tests may be undertaken to determine the safety of electrical equipment as necessary. This is at the discretion of the relevant supervisor in consultation with staff members.

7.6 Training Requirements for Testing Personnel

AS/NZS 3760:2010 states the inspection and testing of electrical equipment should be carried out by a competent person. For this reason electrical testing will only be carried out by a qualified electrical or electronic tradesperson or any person trained to use a portable appliance tester (PAT). Training includes relevant qualifications in the in-service safety inspection and testing of electrical equipment.

Training for portable appliance testing can be organised by the University's WHS Unit.

7.7 Inspection and Test Procedure

Inspection and testing of electrical appliances is to be in accordance with AS/NZS 3760:2010 and the [University's Electrical Inspection and Testing Operating Procedure](#).

7.8 Compliant Electrical Appliances

Electrical appliances which are compliant with the inspection and testing procedure are to be fitted with an appropriate tag. The tag must include the asset identification number, the identity of the person carrying out the testing, the date tested and the date due for retest.

7.9 Non-Compliant Electrical Appliances

Electrical appliances which are non-compliant with the inspection and testing procedure are to be identified as not safe to use and removed from service. Removal from service includes:

- Fitting the item with a failed appliance test tag
- Fitting the item with an out of service tag
- Taping the plug with hazard tape

The item is to be withdrawn from service (if possible), the area supervisor is to be informed and responsible to isolate the item to ensure that it cannot be used.

7.10 Equipment Requiring Repair

Repair of equipment shall only be completed by a licensed electrician. Personal electrical equipment is to be repaired at the owner's expense. The equipment must be re-tested in accordance with AS/NZS5762 for compliance and then tagged according to this guideline prior to re-introduction to service.

Where the equipment is required to be repaired, and does not comply with AS3000 prior to work being conducted it should be verified that the equipment has an earth.

Equipment being returned to service should be accompanied by records stating the item is safe for use when returned to service. This record should include details such as date returned to service, name, signature and company of the person who undertook the repair work

7.11 Record Keeping

Records of inspection and testing of electrical equipment are required to be kept and maintained in accordance with [WHS Records Handling Guidelines](#) and the [University Records Program](#). The University recommends the use of PAT testing equipment compatible with *PatGuard Plus* (electric testing records database) to maintain testing records.

Records of maintenance should be kept throughout the working life of the equipment. Copies are to be retained by the department.

Records are to include at minimum:

- the date of inspection and test
- clear identification of the equipment tested
- the results of the test (whether the equipment passed or failed)
- the identification of the person carrying out the testing and
- the date retest is due.

Appendix 3: Form – Record of Maintenance and Appendix 4: Form – Register of Failed Equipment in Building, is an example of how records should be maintained if not using PatGuard Plus.

8 Power Boards and Extension Sets

Power boards used at the university must comply with AS/NZS 3105, Approval and Test Specification for Electrical Portable Outlet Devices. In essence, power boards are to have the following minimum features:

- current overload protection, and
- reset button.

Power boards with long leads (i.e. over 1.8m) are to have individual switches on the power board. In office environments power boards must be located in an area which does not cause damage to the board or provide a tripping hazard. In all other locations they must be securely mounted clear of the work-bench or floor. Power boards are not to be overloaded when in use, i.e. piggy back one board onto another.

Power boards that are not compliant with this guideline are to be removed from service. Due to the increased risk caused by double adaptors and ‘piggy-back’ plugs, they are not to be used under any circumstances within the university.

Extension leads should be compliant to AS/NZS 3199, Approval and Test Specification for Cord Extension Sets. Extension leads in use are to be fully extended and not placed where they could be a tripping hazard (e.g. across aisles, corridors or other trafficable areas).

Power boards and extension leads are to be inspected and tested depending on their environment and flexion as per Table 1: Examples of electrical equipment requiring inspection and testing.

9 Residual Current Devices (RCD)

Any electrical risk associated with the supply of electricity to ‘plug in’ electrical devices must be minimised by the use of an appropriate RCD in certain higher-risk workplaces. If electricity is supplied to the equipment requiring an RCD through a socket outlet not exceeding 20 amps the RCD must have a tripping current that does not exceed 30 milliamps. However this does not apply if the supply of electricity to the electrical equipment:

- does not exceed 50 volts alternating current, or
- is direct, or
- is provided through an isolating transformer that provides at least an equivalent level of protection, or
- is provided from a non-earth socket supplied by an isolated winding portable generator that provides at least an equivalent level of protection.

A RCD is required to be incorporated before or as part of the electrical outlet socket. Those areas using electrical hand-held equipment, moveable equipment or equipment used in higher risk working environments must ensure either fixed or portable safety switches are used. RCDs offer a supplementary means of protection against electrocution.

Correct selection of the type of earth leakage protection is also important to avoid an unacceptable level of circuit tripping by the devices. The minimum requirement for an RCD is a tripping current which does not exceed 30 milliamps when electricity is supplied not exceeding through a socket outlet 20 amps.

Testing and inspection of RCDs are to be completed in accordance with AS/NZS3760:2010. The intervals for testing of RCDs are set out in Appendix 2: UOW Inspection and Testing of Residual Current Devices (AS3760:2010). Records must be kept of RCD testing.

10 Reporting of Electrical Incidents

All electrical incidents with the potential to cause serious injury are required to be reported to SafeWork NSW in accordance with the [Incident Management and Reporting Guidelines](#). Any injury or incident involving electricity in the University must be reported to the WHS Unit immediately or as soon as possible after the event. This can be achieved by telephoning the Unit during normal business hours or, if after hours, telephoning Security. As soon as practicable, a [Hazard and Incident Report \(HIR\)](#) form is to be completed via the University's online reporting system, SafetyNet.

On receipt of a HIR form the WHS Unit will investigate immediately to ensure the appropriate corrective actions have been taken to prevent further injury.

It is also important that any person, who has suffered an electric shock, seeks medical treatment as soon as possible after the event, as effects from electricity may have a delayed effect.

Whenever an electrical incident has occurred, the Manager Maintenance, Facilities Management Division is to be contacted to arrange inspection of the electrical outlet and appliance. Any equipment which causes an electric shock or is faulty is to be inspected and tested prior to re-use.

The site where the serious electrical incident occurred must not be disturbed in any way, other than to assist an injured person or make the area safe, until permission has been received from an inspector.

11 Program Evaluation

In order to ensure that these guidelines continue to be effective and applicable to the University, it will be reviewed at least every three years by the WHS Unit in consultation with the WHS Committee. Conditions which might warrant a review of the guidelines on a more frequent basis would include

- reported hazards or injuries
- non-conforming systems
- WHS Committee concern.

Following the completion of any review, the guideline will be revised/updated in order to correct any deficiencies. These changes will be communicated via the WHS Committee.

12 Related Documents

- NSW Work Health and Safety Act 2011
- NSW Work Health and Safety Regulation 2011
- Electricity (Consumer Safety) Act 2004
- Electricity (Consumer Safety) Regulation 2015
- Code of Practice – Managing Electrical Risks in the Workplace

- AS/NZS 3000 Electrical installations (known as the Australian/New Zealand Wiring Rules)
- AS/NZS 3760 In-service safety inspection and testing of electrical equipment
- AS/NZS 5762 In-service safety inspection and testing – Repaired electrical equipment
- AS/NZS 3199 Approval and Test Specification - Cord Extension Sets
- AS/NZS 3105 Approval And Test Specification - Electrical Portable Outlet Devices
- AS/NZS 3551 Management Programs for Medical Equipment
- Incident Management and Reporting Guidelines
- Risk Management Guidelines
- WHS Records Handling Guidelines

13 Version Control Table

Version Control	Release Date	Author/Reviewer	Approved By	Amendment
1	May 2003		Manager WHS	Document created.
2	October 2003		Manager WHS	Minor review no significant change.
3	October 2004		Manager WHS	Scheduled review.
4	December 2005		Manager WHS	Minor review inclusion of WorkCover guidance material.
5	February 2007		Manager WHS	Scheduled review no significant change.
6	October 2007		Manager WHS	Minor review no significant change. Addition of electrical incident reporting requirements.
7	April 2010		Manager WHS	Minor review. No significant change.
8	August 2010		Manager WHS	Document updated to incorporate the Personnel name change to Human Resources Division.
9	January 2011		Manager WHS	Incorporating requirements for verification of earth on electrical equipment for voltages other than 240v.
10	March 2012		Manager WHS	Re-brand

11	November 2012		Manager WHS	Updated to incorporate WHS legislation.
12	April 2014		Manager WHS	Added Outdoor activities to Appendix 1, updated Executive Dean title.
13	July 2014	Health and Safety Advisor	Manager WHS	Referred to level of expertise required for repair as licensed electrician, referenced to Lock Out/Tag Out Guidelines and further clarification of records keeping requirements. Inclusion of design work.
14	November 2014	Health and Safety Advisor	Manager WHS	Guidance surrounding electrical testing for hire equipment has been removed from the document as it has been determined that the University does not rent equipment to people external to the organisation. Therefore this is not a requirement of AS/NZS 3760:2010.
15	November 2015	Health and Safety Advisor	Manager WHS	Reference added for Electricity (Consumer Safety) Regulation 2015. Minor changes to reporting of electrical incidents and updated SafeWork NSW.
16	October 2016	Health and Safety Advisor	Manager WHS	Update links, amendment to scope and definition of extra-low voltage. Rebrand
17	September 2017	Health and Safety Advisor	Manager WHS	Identification of non-compliant equipment updated to out of service tag and marking the plug.

Appendix 1: Inspection and Testing of Electrical Equipment Intervals

Type of environment and or equipment	Risk Factors			
	High level of cord flexion AND/OR frequency of connection	Low Level of cord flexion AND/OR frequency of connection	Wet or corrosive area or uses water or a corrosive substance in its operation	No cord flexion, no frequency of connection, fixed or stationary equipment
1. Workshops, places of work or repair, manufacturing, assembly, maintenance or fabrication.	6 months	12 months	6 months	Not Required
2. Laboratories, health care & educational establishments.	12 months	*2 years	12 months	Not Required
3. Office environment.	12 months	5 years	12 months	Not Required
4. Repaired/serviced/second hand equipment.	After repair or service which could affect electrical safety, or on re-introduction to service			
5. Equipment used for commercial cleaning.	6 months	12 months	6 months	Not Required
6. Accommodation houses.	*12 months	2 years	12 months	Not Required
7. Theatre environment.	6 months	5 years	12 months	Not Required
8. Outdoor activities e.g. fieldwork, landscape, outdoor practical classes	6 months	12 months	6 months	Not Required

* Intervals marked with an asterisk, indicate periods differing to AS3760:2010 In-service safety inspection and testing of electrical equipment

Appendix 2: UOW Inspection and Testing of Residual Current Devices (AS3760:2010)

Type of environment and or equipment	Push button Test by User		Operating Time RCD tester	
	Portable	Fixed	Portable	Fixed
1. Workshops, places of work or repair, manufacturing, assembly, maintenance or fabrication.	Daily, or before every use, whichever is longer	6 months	12 months	12 months
2. Laboratories, health care & educational establishments.	3 months, or before every use, whichever is the longer	6 months	2 years	2 years
3. Office environment.	3 months	6 months	2 years	2 years
4. Repaired/serviced/second hand equipment.	After repair or service which could affect electrical health and safety, or on re-introduction to service			
5. Equipment used for commercial cleaning.	3 months	NA	2 years	NA
6. Accommodation houses.	6 months	6 months	2 years	2 years
7. Theatre environment	6 months	6 months	5 years	5 years

Appendix 3: Form – Record of Maintenance

Date of Inspection:

Location:

Tested By:

Equipment Description	P.E	Building & Room No.	Tag Applied	Visual Inspection	Machine Test	Compliant/Non-Compliant

Next Inspection Due By:

Signature of Inspector:

Appendix 4: Form – Register of Failed Equipment in Building

Electrical Testers Use Only				Owner		
Room Number	Equipment Description	P.E	Comments	Action		Re-test
				Repair	Disposal	Compliant/ Non-Compliant

Date of Inspection:

Signature of Inspector:

