

Monash University Procedure

Procedure Title	Electrical Safety: Inspection, Testing, Tagging and Repairing of Electrical Equipment Procedures (Australia only)
Parent Policy	Electrical Safety Policy (Australia only)
Date Effective	24-November-2014
Review Date	24-November-2017
Procedure Owner	Maintenance and Minor Works Manager, Buildings and Property Division
Category	Operational
Version Number	1.0
Content Enquiries	F-SPolicy@monash.edu
Scope	<p>These procedures apply to all Electrical Equipment used on the Australian campuses of Monash University and within the Monash controlled entities listed in the policy scope statement. It covers University sanctioned activities by staff and students of Monash University, contractors, visitors, hire companies or any other person or agency associated with university activities.</p> <p>The inspection, testing and tagging of Electrical Equipment used at Monash University must be conducted in accordance with the requirements of <i>AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment</i> and the Occupational Health and Safety Act (2004).</p> <p>Only equipment in use needs to be tested. Equipment not in use and/or beyond its testing date should have an isolation tag to indicate that tagging is required and must be completed prior to use.</p>
Purpose	Sets out a framework for the management and use of Electrical Installations and equipment at Monash University in compliance with the Occupational Health and Safety Act 2004 and the Electrical Safety Act 1998.
PROCEDURE STATEMENT	

1. Who can test and tag appliances?

The testing and tagging of equipment must be done either by a qualified electrician or by someone who has successfully completed an approved course at a VET (Vocational Education and Training) provider. There are also a number of electrical contractors who specialise in the checking and tagging of Electrical Equipment.

To carry out testing and tagging in the workplace:

- a) **Train a staff member:** The area manager selects an appropriate staff member to complete the relevant VET unit(s) of competency. The area may purchase or hire testing equipment.
- b) **Engage Buildings and Property Division staff:** The area raises a [BEIMS](#) request to Facilities and Services to organise a contractor to test and tag the equipment.

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- c) **Employ an external contractor:** The area independently contracts a company to test and tag the equipment.

Responsibility

All managers/supervisors requiring testing and tagging of electrical devices on Monash University property

2. Frequency of testing and tagging

The frequency of testing relates directly to the environment in which the equipment is used, the level of hazard and the degree of abuse to which the equipment is typically exposed. The frequency of testing is, in most cases, determined by the approved electrician/trained tester.

Electrical appliances must be inspected and tested:

- At intervals not exceeding those in Table 4 of AS3760:2010 (a tolerance of two weeks is acceptable). A summary of Table 4 of AS3760:2010 is provided below.
- Before being returned to service or after any repair or servicing that could have affected the electrical safety.

<u>Type of environment and/or equipment</u>	Interval between inspection and tests		
	Equipment including Class I and Class II equipment, cord sets, cord extension sets and EPODs	RCDs	
		Push button test by user (Portable/Fixed)	Operating time and push button test (Portable/Fixed)
1. Factories, workshops, places of manufacturing, assembly, maintenance or fabrication	6 months	Daily, or before every use, whichever is the longer / 6 months	12 / 12 months
2. Environment where the equipment or supply flexible cord is subject to flexing in normal use OR is open to abuse OR is in a hostile environment	12 months	3 / 6 months	12 / 12 months
3. Environment where the equipment or supply cord is NOT subject to flexing in normal use and is NOT open to abuse and is NOT in a hostile environment	5 years	3 / 6 months	2 / 2 years
4. Residential type areas of hotels, residential institutions, motels, boarding houses, halls, hostels, accommodation houses, and the like	2 years	6 / 6 months	2 / 2 years
5. Equipment used for commercial cleaning	6 months	Daily, or before every use, whichever is the longer / N/A	6 months / NA
6. Hire equipment Inspection	Prior to hire	Including push-button test by <u>hirer</u> prior to <u>hire</u>	N/A / N/A
	3 months	N/A	3 / 12 months
7. Repaired, serviced and second hand equipment	After any repair or service that could affect electrical safety, or on reintroduction to service		

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Notes:

- A hostile environment is one in which the equipment or appliance is normally subject to events or operating conditions likely to result in damage to the equipment or a reduction in its expected life span. This includes, but is not limited to mechanical damage, exposure to moisture, heat, vibration, corrosive chemicals and dust.
- The actual sub-environment in which the equipment is located determines the row for the environment to be used in the above table - eg, a computer within a non-hostile environment in an office within a workshop or laboratory would attract a test/inspection action in accordance with Row 3.
- Regulatory authorities, other standards, workplace safety requirements or manufacturer's instructions may specify intervals appropriate to particular industries or specific types of equipment.
- Only equipment in use needs to be tested - equipment that is used irregularly can be tested immediately prior to use.
- All workshop hand tools should be double-insulated.
- Unique experimental equipment: testing regime and frequency to be determined by work area for each case.
- Fixed/stationary equipment connected by a cable or flexible cord, which is not flexed in normal use or exposed to damage nor in a hostile environment, is not normally considered to represent a hazard sufficient to warrant routine in-service electrical safety testing. However, where the flexible cable or cord is flexed on equipment which is moved for restocking, maintenance, cleaning, etc., in-service testing is considered to be required.

A documented risk assessment taking into consideration any relevant legislative requirements or guidelines must be conducted if it is deemed necessary to diverge from the standard testing frequency. Information and instructions on how to undertake a risk assessment for the proposed work are available at https://www.monash.edu/data/assets/pdf_file/0019/126082/risk-management-program.pdf

A copy of this assessment should be kept with the records of testing.

Responsibility

All managers/supervisors of other staff, students, contractors or visitors using electrical devices on Monash University property

3. New Equipment

Brand-new electrical equipment that is 'out of the box' and unused (i.e. new equipment that is *not* second-hand) does not have to be tested before first use, but should still be visually inspected to ensure that no damage occurred during transport, delivery, installation or commissioning.

The date when the new electrical item was placed into service should be recorded, if there is no record of installation or similar record. In that case it should also be fitted with a tag that states:

- that the equipment is 'new to service';
- the date of entry into service; and
- the date when the first electrical safety test is due.

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Taking these steps will ensure that brand-new electrical equipment does not miss its first required electrical safety test.

Any equipment purchased second-hand must be tested and tagged before first use.

Responsibility

All managers/supervisors of other staff, students, contractors or visitors using electrical devices on Monash University property

4. Appliances brought in from home

Electrical appliances brought in by contractors, or from home by staff, students or visitors, for use on a Monash property are subject to the same testing and tagging procedure as for appliances owned or leased by the University. Appliances should be tested and tagged prior to their use on university property.

While there is no requirement to test and tag personal laptops, staff and students are encouraged to have their laptops tested and tagged using an approved person or company.

In both situations above the testing and tagging is the responsibility and at the expense of the owner.

Responsibility

Any staff member, student, contractor or visitor using electrical devices that they have brought onto Monash University property

5. Hire equipment

While it is the responsibility of the person hiring equipment to ensure that the equipment is inspected and tested at the commencement of each hire, the person or company who hires out the equipment to the university must ensure that the equipment - for the period of the hire - meets all relevant inspection and testing requirements.

Responsibility

Any person hiring out, or procuring the hire of, electrical devices for use on Monash University property

6. Testing of test equipment

Test equipment, including leads and probes, must be appropriate and adequate for the tests being performed, and must be suitable for use in accordance with its operating instructions.

- 6.1. **Condition of equipment** - Testing equipment must be in good condition and working order, must be clean and have no cracked or broken insulation, and must be suitable for any voltages that could be found during fault conditions on the equipment being tested. Particular care must be taken with respect to the condition of the insulation on leads, probes and clips of test equipment.\
- 6.2. **Accuracy of equipment** - Instruments such as multi-meters, RCD performance testers, earth loop impedance testers, voltage testers, insulation resistance testers and the like must be regularly tested for accuracy of operation.
- 6.3. **Suitability of equipment** - Testing equipment must pose no danger of electrocution to those using it or of damage to the electrical equipment being tested. Test probes and other equipment must be

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designed and selected so that they cannot inadvertently short circuit between live conductors or live conductors and earth. The terminals of test equipment should be shrouded and all other test sockets on measuring instruments should be designed so as to prevent inadvertent contact with any live test socket and/or conductor when equipment is in use. Where appropriate, test leads and testing devices need to be provided with suitable fuse protection. Testing equipment, where used in hazardous flammable areas, must be designed and clearly marked as being suitable for use in such locations.

- 6.4. **Proof of operation** - Testing equipment used for detecting a live (energised) source should undergo trial operation to prove that it is functioning correctly immediately before and after the test has taken place.

Responsibility

Buildings and Property Division, appropriately trained testing and tagging contractor engaged to undertake the testing and tagging or appropriately trained staff member

7. Hazard and incident reporting

All hazards and injuries relating to electrical safety must be reported **immediately** to the supervisor, local safety officer and Occupational Health and Safety. A [Hazard and Incident Report Form](#) should be completed within 24 hours. Information on the reporting process is available from the Occupational Health and Safety [website](#).

Responsibility

Any person who becomes aware of a hazard or injury relating to electrical safety

8. Records of inspection and testing

Record to be kept by	Academic/administrative unit/controlled entity
Records	Records of inspection and testing of electrical equipment, including: <ul style="list-style-type: none"> • a register of all electrical equipment; • a record of formal inspection and tests; • a repair register; • a record of all faulty equipment; and • a record of testing of all electrical testing equipment.
To be kept for:	5 Years

Responsibility

All managers/supervisors of other staff, students, contractors or visitors using electrical devices on Monash University property

Responsibility for implementation	Executive Director, Buildings and Property Division
Status	New

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Approval Body	<p>Name: Chief Operating Officer and Senior Vice-President (Administration)</p> <p>Date: 28-November-2014</p>
Definitions	<p>BEIMS (Building Engineering Information Management System): The online system used throughout Monash University for the logging and tracking of maintenance and minor works requests.</p> <p>Electrical Equipment: Any apparatus, appliance, cable, conductor, fitting, insulator, material, meter or wire that: a) • is used for controlling, generating, supplying, transforming or transmitting electricity at a voltage greater than extra-low voltage; b) • is operated by electricity at a voltage greater than extra-low voltage; c) • is part of an electrical installation located in an area in which the atmosphere presents a risk to health and safety from fire or explosion; or d) • is, or is part of, an active impressed current cathodic protection system.</p> <p>Electrical Installation: A group of items of electrical equipment that are permanently electrically connected together and can be supplied with electricity from the works of an electricity supply authority or from a generating source.</p> <p>Residual Current Device (RCD): A device, often referred to as a 'safety switch', intended to isolate supply to protected circuits, socket outlets or electrical equipment in the event of a current flow to earth that exceeds a predetermined value. The RCD may be fixed or portable.</p> <p>Socket Outlet: A device that enables a detachable electrical connection of equipment to an electrical power supply.</p> <p>Voltage - Extra Low Voltage: Voltage that does not exceed 50 volts alternating current or 120 volts ripple-free direct current.</p> <p>Voltage - Low Voltage: Voltage that exceeds extra-low voltage and does not exceed 1000 volts alternating current or 1500 volts direct current.</p> <p>Voltage - High Voltage: Voltage that exceeds low voltage.</p>
Legislation Mandating Compliance	<p>Occupational Health and Safety Act 2004</p> <p>Electricity Safety Act 1998</p>
Related Policies	<p>Occupational Health and Safety Policy</p>
Related Documents	<p>AS/NZS 3000:2007: Electrical installations</p> <p>AS/NZS 3008.1.1:2009 : Electrical installations - Selection of cables</p> <p>AS/NZS 3017:2007 : Electrical installations - Verification guidelines</p> <p>AS/NZS 3760:2010 : In-service safety inspection and testing of electrical equipment</p> <p>AS/NZS 4024.1:2006 – Safety of Machinery</p> <p>Safe Work Australia – Managing Electrical Risks at the Workplace</p>