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| **ELECTRICAL – INSPECTING AND TESTING** |

Please also refer to [Electrical Safety Information Sheet](https://www.adelaide.edu.au/hr/hsw/hsw-faqs/plant-equipment-safety-management-faqs) for frequently asked questions and operational tips.

**Inspection of cords**

Where damage is likely to occur to a cord, and it is accessible, you will need to check the cord during your workplace inspection.

If there is damage to the cord then the item must be removed from service (tagged out) and either repaired or disposed of. These items must be electrically tested if they are brought back into service.

**Electrical testing requirements**

Please refer to [pages 4-6 (Appendix H)](#AppendixH4) when applying the categories below.

Electrical equipment which is supplied through an electrical socket outlet (i.e. not hard wired) **and** have one or more of the elements below will require electrical testing.

* Is used in an environment which is likely to result in damage to the equipment or a reduction in its expected life span (e.g. exposure to moisture, heat, vibration, mechanical damage, corrosive chemicals or dust).
* Can be damaged by regular flexing (crushing or crimping) of the cables (see [definitions section 3.7.17](#Crushing)).
* Can be damaged by abuse (rough handling).
* Is second-hand.
* Is hired.
* Is medical electrical equipment, medical electrical systems and non-medical electrical equipment used in the patient environments (including dental clinics).
* Has been modified or repaired.
* Where your building/floor does not have fixed RCD protection (please speak to your [local HSW team](https://www.adelaide.edu.au/hr/hsw/hsw-advice)).

**Missing items requiring testing**

All reports from external testing companies are to be checked by the Schools/Branches for missing items. These items must be accounted for and tested.

**Tagging**

Tags must be attached to the electrical equipment or flexible supply cords to make it easier to identify tested equipment and must include:

* Date of the last examination and test.
* Date of the next examination and test.
* Name of person who performed the examination and test.

**Failed items**

Failed items must be dealt with as soon as reasonably practical that the failure is identified. The item must be either:

* Tagged out using an Out of Service tag (see [Appendix D](#AppendixD)); or
* Decommissioned and disposed of (see [Appendix J](#AppendixJ)).

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| **ELECTRICAL – INSPECTING AND TESTING** |

**Electrical testing frequencies**

The University for the majority of items is following [AS 3760 (2010) *In service safety inspection and testing of electrical equipment* for electrical equipment.](https://subscriptions-techstreet-com.proxy.library.adelaide.edu.au/) Please refer to [Table 1](#Table1) and [Table 2](#Table2) for electrical testing frequencies. Please read the tables below in conjunction with [pages 4-6 (Decision trees)](#AppendixI4) to determine what constitutes the minimum required testing.

**Note** for those items which require testing if the School/Branch Head wishes to test less frequently than what is outlined below, then a risk assessment must be completed (please speak to your [local HSW team](https://www.adelaide.edu.au/hr/hsw/hsw-advice) for assistance).

**Table 1. Electrical equipment**

|  |  |
| --- | --- |
| **Environment or type of equipment** | **Frequency of testing** |
| Workshops (places of manufacture, assembly, maintenance or fabrication) | 6 months. |
| * Flexing1 of the cord in normal use.
* Exposure to abuse (rough handling).
* Hostile2 environment.
 | Every 12 months. |
| None of the environmental conditions below:* Flexing1 of the cord in normal use.
* Exposure to abuse (rough handling).
* Hostile2 environment1.
 | None unless they are being repaired, serviced, hired or are second-hand (see below and pages 4-6). |
| Medical electrical equipment; medical electrical systems and non-medical electrical equipment used in the patient environments (including dental clinics). | Electrical testing (and other testing) will be conducted in accordance with [AS 3551 *Technical management programmes for medical devices*.](https://subscriptions-techstreet-com.proxy.library.adelaide.edu.au/) The frequency of testing will be determined at the time of acceptance and is determined by the supplier or manufacturer. Hired medical equipment will be tested before introducing into service and the ongoing frequency is decided by agreement with the hirer and hiree. |
| Hire3 Equipment. | Before introduction into service. |
| Repaired and serviced equipment. | After the repair or service4 refer to [AS 5762 *In-service safety inspection and testing – repaired electrical equipment*.](https://subscriptions-techstreet-com.proxy.library.adelaide.edu.au/) |
| Second-hand equipment. | Before introduction into service. |
| Item which has been involved in an incident/accident (exposed to water, damage, chemicals etc) | * Before the item is returned to service.
* If the item required regular testing then apply the frequency as stated above.
 |

1. Flexing is this circumstance means crushing/crimping not kinking/coiling/wrapping (see [definitions section 3.7.17](#Crushing) for more details).

2. A hostile environment is an environment which is likely to result in damage to the equipment or a reduction in its expected life span (e.g. exposure to moisture, heat, vibration, mechanical damage, corrosive chemicals or dust).

3 The test should be conducted by the person hiring the equipment to the University.

4 This test is required to be conducted by the company or individual who repaired/serviced the equipment.

Continued

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| **ELECTRICAL – INSPECTING AND TESTING** |

**Electrical testing frequencies continued**

**Table 2. Residual Current devices (RCD)**

|  |  |  |
| --- | --- | --- |
| **Environment** | **Type of RCD** | **Frequency of testing** |
| * Flexing1 of the cord in normal use.
* Exposure to abuse (rough handling).
* Hostile2 environment.
 | Portable RCDs * Tested by the incorporated self-test function.
* Tested by the trip current and trip time test.
 | Every 3 months. Every 12 months. |
| Fixed RCDs *(Campus Services only)** Tested by the incorporated self-test function.
* Tested by the trip current and trip time test.
 | Every 6 months.Every 12 months. |
| **None** of the environmental conditions below:* Flexing1 of the cord in normal use.
* Exposure to abuse (rough handling).
* Hostile2 environment.
 | Portable RCDs * Tested by the incorporated self-test function.
* Tested by the trip current and trip time test.
 | Every 3 months. Every 2 years. |
| Fixed RCDs *(Campus Services only)** Tested by the incorporated self-test function.
* Tested by the trip current and trip time test.
 | Every 6 months.Every 2 years. |

1 Flexing is this circumstance means crushing/crimping not kinking/coiling/wrapping ( see [definitions section 3.7.17](#Crushing) for more details)

2 A hostile environment is an environment which is likely to result in damage to the equipment or a reduction in its expected life span (e.g. exposure to moisture, heat, vibration, mechanical damage, corrosive chemicals or dust).

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| **ELECTRICAL – INSPECTING AND TESTING** |

**Electrical Safety Testing Decision Tree – Office/Kitchen/Common Spaces**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Is your building/floor RCD** **protected?** | **Yes** | **Is the equipment second** **hand?** | **No** | **Is the** **equipment** **hired, leased, or has been** **serviced/****repaired****recently?** | **No** | **Has the equipment been damaged or operating abnormally? (smoking, sparking, strange noises, faulty, etc)** | **No** | **Is the** **electrical cord subjected to crushing or crimping?****(Refer to definitions)** | **No** | **Will the** **equipment be exposed to** **water?****(beyond** **what the** **manufacturer intended)** | **No** | **Are you going to use the item outdoors or for an event?** | **No** | **Electrical****Safety** **Testing****IS NOT****required**  |
|  |  |
| **No** |  | **Yes** |  |  **Yes** |  |  | **Yes** |  | **Yes** |  | **Yes** |  | **Yes** |  |  |
| **Speak to** **your Faculty/****Division** **HSW Manager** |  |  |  | **Has the item** **been electrically tested?** **(by the hire company or service agent?** |  |  |  |  |  |  |  |  | **Refer to the decision** **tree on** **events/****outdoors** |  |  |
| **Yes** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **Electrical safety testing IS required****(Refer to testing frequency Appendix H page 2)** |  |  |  |

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| **ELECTRICAL – INSPECTING AND TESTING** |

**Electrical Safety Testing Decision Tree – Events/Outdoors**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Are you** **using** **a fixed or** **portable** **RCD?** | **Yes** | **Is the** **equipment second hand?** | **No** | **Is the** **equipment** **hired, leased or** **has been serviced/****repaired recently?** | **No** | **Will the equipment** **be exposed****to water, mechanical damage,** **dust,** **or heat?** | **No** | **Has the equipment been damaged or is operating abnormally?****(smoking, sparking, strange noises,** **faulty etc)** | **No** | **Is the electrical** **cord** **damaged or subjected** **to crushing** **or crimping?****(Refer to definitions)** | **No** | **Electrical** **safety testing****IS NOT****required** |
|  |  |
| **No** |  | **Yes** |  | **Yes** |  |  | **Yes** |  | **Yes** |  | **Yes** |  |  |
|  |  |  |  | **Has the item been electrically tested?****(by the hire company or service agent)** |  |  |  |  |  |  |  |  |  |
|  **Yes** |
|  |  |  |  | **N**o |  |  |  |  |  |  |  |  |
| **Electrical safety testing IS required** **(Refer to testing frequency Appendix H page 2)** |  |

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| **ELECTRICAL – INSPECTING AND TESTING** |

**Electrical Safety Testing Decision Tree – Laboratory/Workshop/Medical/Dental**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Is your building/****floor RCD protected?** | **Yes** | **Is the equipment second hand?** | **No** | **Is the equipment hired or has been serviced/****repaired recently?** | **No** | **Is the equipment used with human patients/****research subjects?** | **No** | **Is it likely that the equipment will be chewed on by animals?** | **No** | **Is the electrical cord subjected to crushing or crimping? (Refer to definitions)** | **No** | **Will the equipment be in direct contact with dust, vibration, heat, or corrosive chemical such that it will cause damage to the item?** | **No** | **Has the equipment been damaged or is operating abnormally?****(smoking, sparking, strange noises, faulty, or an incident has occurred.)** | **No** | **Is the** **equipment immersed in water or in an environment where there** **is water/****condensation** **on the floors** **or walls?** | **No** | **Electrical Safety Testing** **IS NOT****required** |
|  |  |
| **No** |  | **Yes** |  | **Yes** |  |  | **Yes** |  | **Yes** |  | **Yes** |  | **Yes** |  | **Yes** |  | **Yes** |  |  |
| **Contact your Faculty/****Division HSW Manager** |  |  | **Has the item been electrically tested?****(by the hire** **company or** **service agent)** |  |  |  |  |  |  | **Incident** **Only** |  | **Is the identified exposure under normal conditions or only in the event of an incident?****Normal** **Conditions** |  |  |  |  |  |  |
| **Yes** |  |  |
|  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | **Testing will only be required if an incident occurs** |  |  |  |  |  |  |
|  |  |  |  | **No** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | **Electrical safety testing IS required****(Refer to testing frequency Appendix H, page 2)** |  |  |