

1. INTRODUCTION

The use of any electrical appliances introduces a potential risk of electric shock.

The University has established and implemented a range of risk controls to eliminate or reduce so far as is practicable the risk of electric shock from the use of electrical appliances, including programs, procedures and processes for:

- installation, maintenance and testing of residual current devices;
- in-service electrical inspection and testing of portable electrical appliances (refer to [Health & Safety: Electrical inspection and testing requirements](#));
- removal from service damaged and unsafe equipment (refer to [Health & Safety: Unsafe plant and equipment requirements](#));
- additional guidance material including [Health & Safety: Electrical equipment in hostile environments](#).

This document provides guidance when completing standard operating procedures (SOPs) for the safe use of electrical equipment.

Additional and/or related information is referenced throughout this document and can be accessed from the [Plant and electrical equipment](#) web page.

2. INSPECTION

Experience has shown that greater than 90% of defects are detectable by visual inspection. (AS/NZS 3760)

Large numbers of electrical appliances are used throughout the University's workplaces. Additionally there are significant variations in the characteristics of these electrical appliances, including:

- age of the appliance;
- size of the appliance;
- frequency of use; and
- environmental conditions in which the electrical appliances are used.

Taking into account the variation in the characteristics and the importance of visual inspection **all** electrical appliances must be inspected by the operator prior to use to confirm that:

- the appliance has not been tagged out of service;
- the plug and lead is free of obvious damage (eg damaged lead, damaged plug, burn marks, damaged casing); and
- the socket-outlet is free of obvious damage (eg broken casing, socket-outlet not fixed to the wall, cable to suspended socket-outlets not damaged).

For **portable** electrical appliances, subject to the [Health & Safety: Electrical inspection and testing requirements](#):

1. Confirm the appliance is within current inspection and test period (i.e. check tag).

For **all** 240 volt 10-15 amp single phase electrical appliances:

1. Visually inspect the pins on the appliance plug to confirm it is insulated. Electrical appliances sold/supplied in Australia from April 2005 are required to have plugs with insulated pins (Figure 1).
2. Where the pins on the appliance plug are not insulated (typically older appliances):
 - a. assess the risks associated with continued use of the appliance to determine if any short term actions action are required; and
 - b. plan and prioritise the replacement of uninsulated plugs based on level of risk and the variation in characteristics outlined above (refer to section 5.1 for more information).

INSPECTION AND TESTING:

From October 2015, portable electrical appliance plugs with uninsulated pins identified during scheduled inspection and testing (arranged by Campus Services) will be:

- labelled; and
- added to the inspection and testing record.

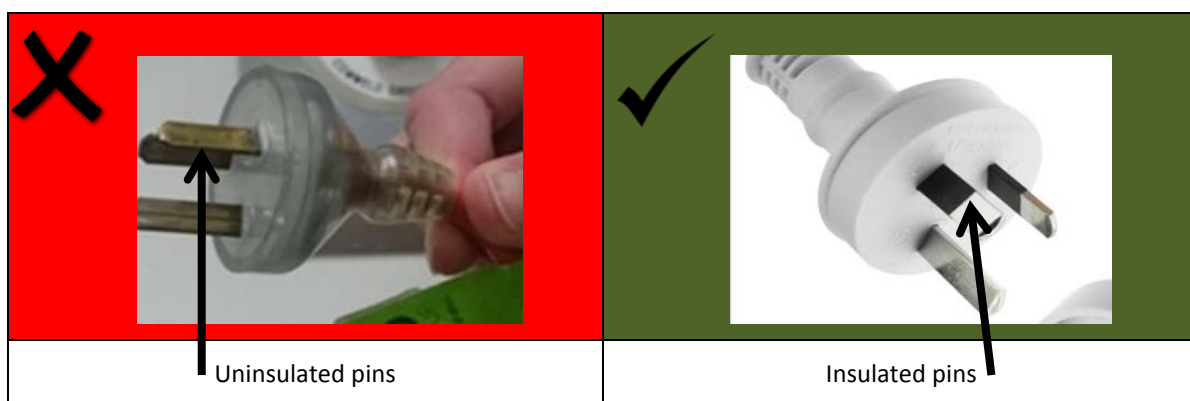


Figure 1: Uninsulated and insulated appliance plugs

3. SWITCH OFF

Prior to connecting an appliance to a socket-outlet, so far as is reasonably practicable:

1. Confirm electrical appliance is switched off.
2. Confirm socket-outlet is switched off (Figure 2).

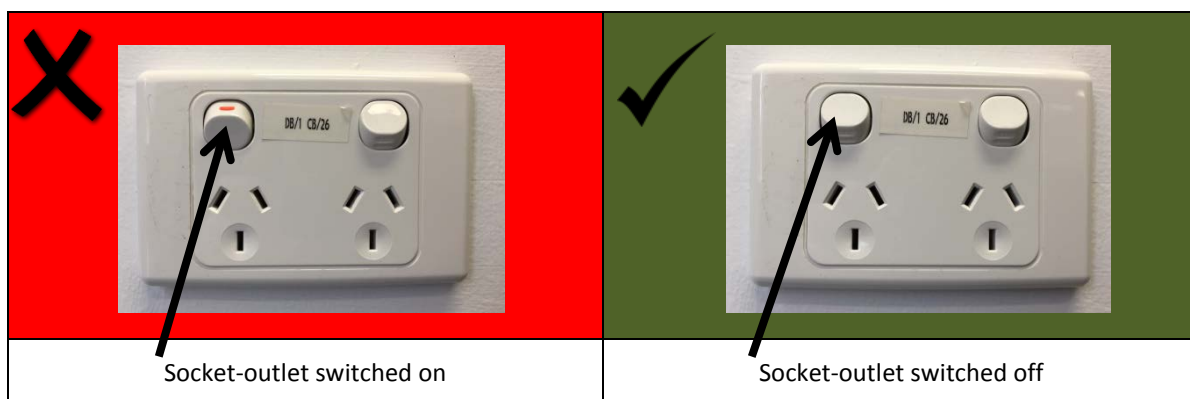


Figure 2: Confirm socket-outlet is switched off

4. TECHNIQUE

When connecting/disconnecting an appliance to a socket-outlet:

1. Ensure the plug is fully engaged in the socket-outlet.
2. Hold the plug with fingers on the outside of the plug and away from the pins (Figure 3).
3. Ensure the appliance/extension lead is not subjected to environmental damage (eg mechanical, chemical) whilst in use.
4. Ensure the appliance lead will not introduce other hazards eg trip hazards.
5. Where a screw cap fitting is installed on the plug and the socket-outlet (water/dust resistant plugs and socket-outlets) ensure the screw cap is screwed firm closed.

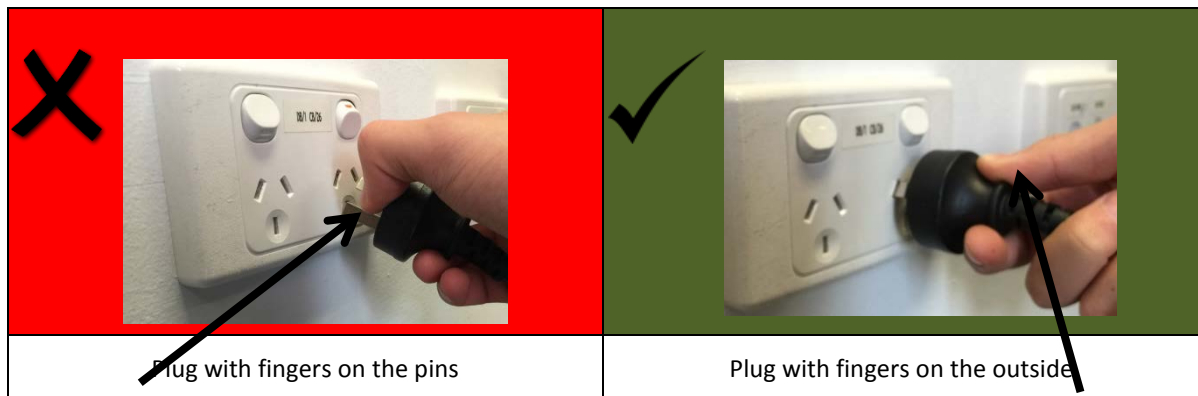


Figure 3: Hold the plug with fingers on the outside of the plug and away from the pins

5. DAMAGED OR UNSAFE ELECTRICAL APPLIANCES OR INSTALLATIONS

If an electrical appliance, plug, socket-outlet or other part of an electrical installation is damaged or identified as unsafe to use (see Figure 4), remove the item from service with an out-of-service tag (see Figure 4) in accordance with the [Health & Safety: Unsafe plant and equipment requirements](#).

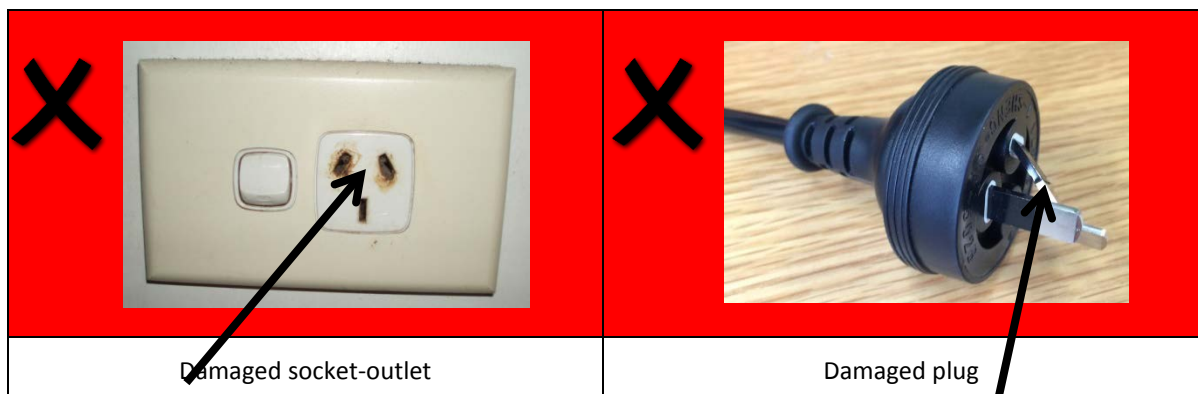


Figure 4: Damaged electrical socket-outlet and plug

In the previous examples of a damaged socket-outlet and a damaged plug an out-of service tag (Figure 5) can be attached by:

- taping the tag across the front of the socket-outlet; or
- tying the tag around the electrical lead close to the plug end.



Figure 5: Out-of-service tag

5.1 Uninsulated electrical pins

The Occupational Health and Safety Act 2004 (Vic) requires employers to, so far as reasonably practicable, to provide a safe workplace; including providing or maintaining plant or systems of work that are, so far as is reasonably practicable, safe and without risks to health.

The Electricity Safety (Equipment) Regulations 2009 (Vic) prescribes minimum standards of safety for electrical equipment, including the requirement to comply with:

- AS3820 Essential safety requirements for electrical equipment; and
- AS3112 Approval and test specification – Plugs and socket-outlets.

This includes a requirement that electrical appliance plug pins are insulated to prevent live parts of insulated pins being exposed when the plug is partially or fully engaged with the associated socket-outlet.

From April 2005 suppliers of 240 volt 10-15 amp single phase electrical appliances are required to ensure the pins on the electrical appliance plug are insulated in accordance with AS3112. However, prior to this date most electrical appliances were supplied with un-insulated plug pins.

Under certain conditions the use of electrical appliances with un-insulated plug pins may increase the risk of electric shock. Therefore it is appropriate to:

1. Provide information and instruction on safe use of electrical appliances;
2. Assess the risks associated with continued use of electrical appliances with un-insulated plug pins to determine if any short term actions are required; and
3. Plan and prioritise the eventual replacement of uninsulated plugs based on level of risk.

6. HIGHER RISK ENVIRONMENTS

Some environmental conditions or exposure to specific users can increase the risk of electric shock when connecting, operating and disconnecting electrical appliances. These include:

1. wet or dusty environments;
2. where the user does not have direct vision of the socket-outlet;
3. where electrical appliances are easily accessible to young children;
4. where the electrical appliance is frequently connected and disconnected to a socket-outlet;

5. where mechanical forces may be applied to the plug or socket-outlet; and
6. where residual current devices (safety switches) are not in use.

Risk assessment of electrical appliances with un-insulated plug pins may be undertaken on a location or electrical appliance class basis. Some examples include:

- commercial kitchens
- office kitchens
- bathrooms and washing facilities
- pools
- laboratories
- workshops
- performance theatres
- outdoor areas
- glasshouses
- electrical appliances in areas accessible to children
- portable electrical tools used outdoors
- power boards
- extension leads

Where risk of electric shock associated with uninsulated plug pins is low to moderate, then the risk should be controlled with the implementation of an SOP (as described in this section) or other similar control measures.

Where risk of electric shock associated with uninsulated plug pins is high to very high then, the item should be removed from service in accordance with the [Health & Safety: Unsafe plant and equipment requirements](#) until such time that the plug can be replaced with a plug with insulated pins or the risk can be suitably controlled so far as reasonably practicable.

For use in conjunction with the [Health & Safety: Electrical inspection and testing requirements](#).

For further information, refer to web page [Plant and electrical equipment](#) or contact your local [Health and Safety Business Partner](#).