

# TIP sheet

## Electrical safety

T009 – AUGUST 2006



### Minimum requirements

Managers and Supervisors must implement measures to minimise the health and safety risks associated with working with electrical installations, electrical equipment and associated plant. OHS Regulation Clause 41 and associated documentation e.g. Code Of Practices.

RTA worksites shall:

- identify and register all electrical plant used in the workplace.
- ensure that all electrical installations, electrical plant and equipment are fit for purpose, tested, inspected and tagged in accordance with AS/NZS 3760 and manufacturer's recommendations.
- provide adequate signposting positioned to warn of areas containing electrical hazards, and where necessary restricting access to those areas.
- develop an 'Electric Shock Response' protocol, document and communicate.
- identify and risk assess potential personnel exposure to electrical energy and record.
- implement measures to control exposure to electrical energy.
- develop written Safe Work Method Statements (SWMS) for all tasks involving interaction with electricity.

- ensure that all staff and contractors who may interact with electrical energy, are trained in the nature of the hazards involved, the means adopted to control exposure and emergency procedures in place.

### Hazards

Hazards associated with electricity may include:

- unqualified persons undertaking electrical work.
- absence of earth leakage protection.
- faulty/damaged electrical equipment
- live electrical apparatus.
- overhead utilities - [TIP Sheet T003](#)
- underground utilities.
- untagged and untested electrical equipment.
- incorrect fire extinguisher used on electrical fire.

### Risk assessment

A risk assessment must be completed by a technically competent person prior to working on electrical plant or equipment. This includes non-electrical work undertaken near underground or overhead electrical installations or where a significant change is proposed at the place of work, or in work practices or procedures to which the assessment relates.

The risk assessment of tasks involving such work shall comply with the RTA Risk Management procedure.

### Risk controls

Where it is not practicable to eliminate the need for electrical energy then reduce (minimise) the risk by observing the following hierarchy of control (use multiple controls where necessary):

- Isolate, lockout and tag the source of electrical energy during operations or maintenance functions. De-energise and earth conductors when working on them.
- Substitute – if feasible, utilise non electrical plant in high risk areas.
- Use engineering controls such as circuit breakers and residual current devices (RCDs) (earth leakage protection).
- Implement administrative controls such as safe work methods (SWMS), and where applicable, utilise safety observers to ensure safe working practices are undertaken in the vicinity of sources of electrical energy.
- Use PPE as identified in the Risk Assessment or as added protection.



### Competency based training

Employees who work with or in the vicinity of electrical equipment/installations must be trained in methods of controlling exposure to the hazards associated with electrical energy.

Training shall be recorded and include:

- basic electrical awareness.
- RCDs and other 'control' devices and their use.
- exclusion and safety observer zones and PPE use, care, maintenance and storage.
- associated emergency procedures.
- refresher training every 2 years.
- employees who work on electrical installations shall be trained, competent and appropriately qualified by the NSW Department of Fair Trading.

## Review

Risk Assessments, SWMS, and work procedures must be reviewed and revised when there is evidence that:

- the original assessment is no longer valid or older than 3 years.
- injury or illness results from exposure or.
- a significant change is proposed at the place of work, or in work practices or procedures to which the assessment relates.

## Electrical safety principles

The following should be observed where practicable:

- All mains and apparatus shall be regarded as live until proven at zero energy potential – 'dead'.
- Earth all power supply systems, electrical circuits/equipment and all exposed metal parts of equipment before working on them.
- Use fit for purpose and where possible double insulated tools.
- Never use equipment outdoors that is designed for indoor use.
- Never use circuit breakers or fuses with the wrong rating for over current protection.
- Never perform temporary repairs. Have repairs done by qualified persons or replace equipment.
- All circuits including portable generators shall be protected by Residual Current Devices (RCD'S).
- Double adaptors or similar fittings on construction sites shall not be used.
- Don't overload power outlets.
- Use non-conductive ladders, tools, equipment, clothing and footwear.

- Protect leads, circuits, appliances and equipment from damage and from contact with water, corrosive substances, heat or friction.
- Report any electrical hazard or unsafe equipment immediately.
- Do not use power tools in the rain or while standing on wet ground.
- Defective tools or cords are to be tagged 'Out of Service'.
- Leads must be kept off walkways and access ways, raised or otherwise protected from damage.
- The flexible 'extension' cord must be 10 Amps, be of a heavy duty sheath type and no longer than 32 metres.
- Do not join extension cords together.
- Generators must be effectively earthed. Failure to do this will cause the RCD/Safety Switches not to function as they are designed.
- Welder earth return connection shall be kept as close to the job as possible, Voltage Reduction Devices (VRD) shall be used and all leads and connections are maintained in good condition.

## First aid – electric shock

Refer to the Electric Shock Response protocol and specifically:

- do not touch the victim if they are in contact with live conductors.
- if possible, disconnect the power source or use a LV Rescue Kit to remove victim from electric source if disconnection not possible.
- relocate victim to safe environment and call for medical assistance.
- commence and maintain resuscitation until arrival of emergency services.

## Inspections and testing

As part of their duties, trained and qualified persons must regularly inspect/test electrical equipment used in construction work and hostile operating environments and conduct risk assessments where required.

Electrical equipment	Test period
RCDs	Pushbutton test before each use RCD Tester (30mA) monthly
Flexible extension cords, portable tools and electrical plant – hostile operating environments	Monthly Portable Appliance Tester

- These inspections should be scheduled in advance, and be as often as determined necessary by the risk assessment.
- The outcomes of these inspections should be used to trigger any review of work practices and SWMS.

## Reporting of incidents

All incidents are to be reported to the OHS Helpdesk on 1300 131 469.

If the incident presents an immediate threat to life or major damage to plant and equipment as advised by the OHS Helpdesk, then:

- the incident must be reported to WorkCover (by the OHS Helpdesk).
- the incident may be classified a non disturbance occurrence and advice by WorkCover must be obtained prior to touching the affected site.

## References

*NSW OHS Act 2000* and [OHS Regulation 2001](#) Part 7.7 Chapter 8.

[WorkCover COP](#) – Low Voltage Electrical Work.

[WorkCover COP](#) – Electrical Practices Construction Work.

[WorkCover guideline](#) – electrical equipment risk assessment

[WorkCover FAQs](#) – testing and tagging of electrical equipment

[RTA OHS Policy 2.0](#) – Risk Management Policy

[RTA OHS Policy 4.0](#) – Personal Protective Equipment

AS/NZS 3012 – Electrical Installations Construction and Demolition Sites

