

Preventing electric shocks when working in ceiling spaces

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This document provides information on how to reduce the risk of receiving an electric shock, for persons (including employees, contractors and self-employed persons) who access or work in ceiling spaces for non-electrical purposes.

Background

In most buildings, especially houses, much of the building's electrical wiring for lights, socket-outlets, air-conditioning and other electrical equipment is run (or partly run) through the ceiling space.

Many people have to physically enter, walk or even crawl through ceiling spaces to undertake installation, repair or maintenance work; putting them at increased risk of electric shock. Numerous people have been electrocuted inside ceiling spaces.

Electric shock hazards can arise for various reasons, including:

- electrical wiring insulation which has deteriorated due to age or after being exposed to excessive heat. The wiring can become brittle and could break into pieces when disturbed, exposing the live conductors
- electrical wiring damaged by:
 - vermin, which chew off the insulation exposing the live conductors
 - other works which have occurred in the ceiling space (eg installation of air conditioning or heating ducts, or telecommunications or television cabling)
- damage to the main earth conductor or earth electrode
- main neutral faults, which may cause current to flow in the earth conductors or metallic parts
- illegal or sub-standard electrical work on the electrical installation, or
- older properties where lower standards applied at the time of previous electrical work (eg lights were not required to be earthed).

Controlling risk of electric shock

Employers must eliminate any risk to health and safety, so far as is reasonably practicable. If it is not reasonably practicable to eliminate all or part of the risk then it must be reduced so far as is reasonably practicable. The above requirements also apply to a self-employed person if there is a risk to another person from their undertaking.

In the past, mains electricity was required to supply power for work lights and for any power tools that had to be used in the ceiling space. However, the introduction of a broad range of battery power tools, such as drills, impact drives and various saws, and battery powered LED lights, it is no longer necessary to have mains electricity on when accessing or working in the ceiling.

It is possible to eliminate part of the risk by turning the main switch or switches off at the switchboard. Electric hot water may have a separate hot water main switch which also should be turned off.

For circuit breaker type switchboards (especial in dwellings), turn off all the circuit breakers to ensure that all mains switches are turned off.

Once the main switches are turned off, further reduce the risk by ensuring that:

- the switches are locked out if possible, or taped over if not, and
- a sign is attached to the switchboard that:
 - warns against turning on the power (such eg "Danger working in ceiling do not turn on power"), and
 - is legible (printed or handwritten), with lettering of large enough to be easily read.

Residual Current Devices

Residual current devices (RCDs or safety switches) do not eliminate electric shock risks; they only reduce the risk that the shock will be fatal. It is probable not all wiring in the ceiling space will be protected by RCDs. In addition, RCDs will only function in specific electric shock situations. Therefore RCDs should not be relied on to control the risk of electric shock in ceiling spaces.

Safe Work Method Statements

If the work in the ceiling space is construction work, it is likely to be high risk construction work (HRCW) as it involves work near an energised electrical installation. If so, a safe work method statement (SWMS) must be prepared for the work and the work must be done in accordance with the SWMS.

The SWMS must describe what controls will be implemented for the electric shock risks, how they will be implemented and how they will be maintained during the works. Working in a ceiling space may also include other HRCW that must also be addressed in the SWMS.

For further information on SWMS, go to worksafe.vic.gov.au.

Other Risks

While not addressed in this information sheet accessing and working in ceiling spaces have other hazards which have to be controlled, such as:

- falls from height
- excessive heat
- dust
- biological (vermin, insects, moulds)

Further information

Contact the WorkSafe Victoria Advisory Service on **1800 136 089** or go to worksafe.vic.gov.au.

For information on electricity safety law, contact Energy Safe Victoria or go to esv.vic.gov.au.

Legislation

- *Occupational Health and Safety Act 2004*
- *Occupational Health and Safety Regulations 2007*

WorkSafe publications

- *Working Safely in General construction*
- *Working Safely in Housing construction*
- *Information sheet – Safe work method statements*.

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