

# Briefing paper: Residual Current Devices (RCDs)

---

## About RCDs

RCDs are often known as electrical safety switches. RCDs protect persons from death or injury by electric shock.

An RCD monitors the flow of electrical current through a circuit and, in the event of an irregularity (in particular, an 'earth fault', or the current flowing through a person's body to earth), the RCD stops the current instantly. This prevents a dangerous electric shock – though the person affected may still feel some pain.

When the danger has passed, the circuit can be reactivated by manually resetting the RCD.

RCDs are different from fuses and circuit breakers, which protect against short-circuits and current overloads. They are also different from surge protectors, which protect against surges in voltage, such as those caused by lightning strike.

Only RCDs protect persons from earth fault electric shocks.

## Installation

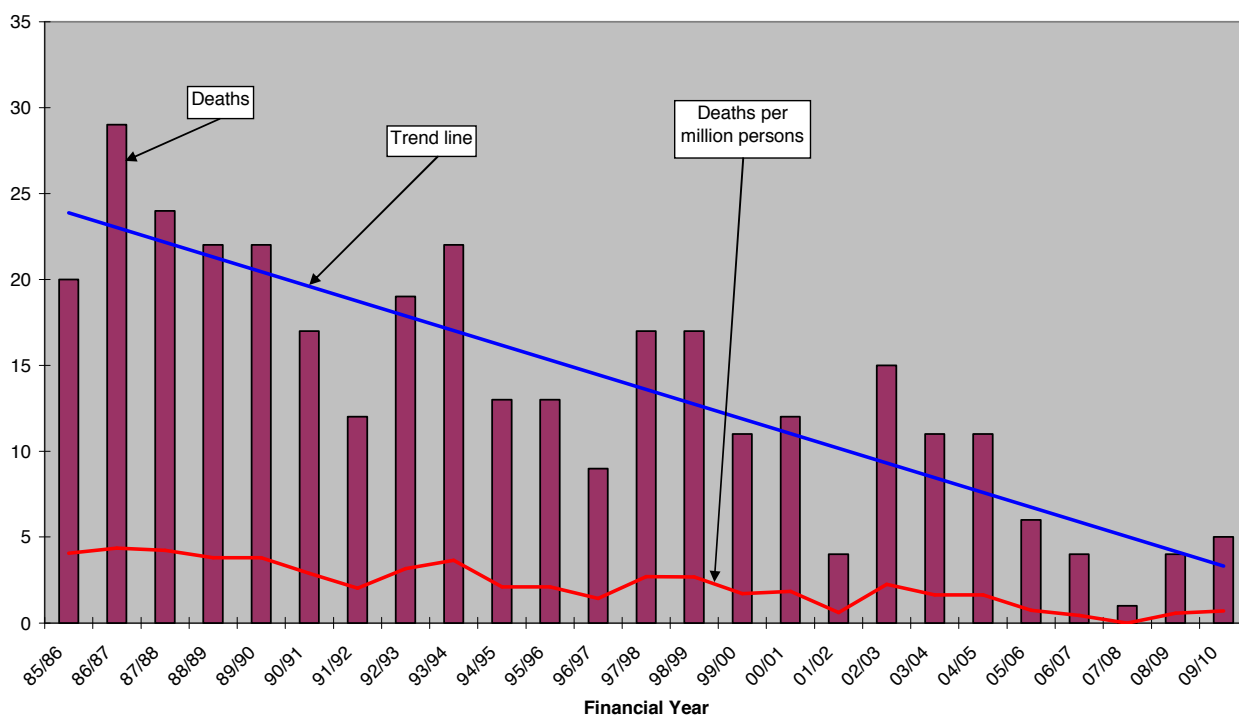
An RCD may be installed at a dwelling's power-box or at the first light or power-point in each circuit. If installed at the power-box, a pair of RCDs may be installed so that in the event of one RCD being triggered, circuits on the second RCD will remain operational.

The cost of installing a single RCD is usually about \$200.

## The incidence of death by electric shock

Over the period 1985/86-2009/10, a total of 340 persons in New South Wales died as a result of electric shock.<sup>1</sup> The rate of death is declining, at least in part because of safety improvements, including the use of RCDs.

Electrical Fatalities in NSW



Source: NSW Fair Trading (2011) 'Electrical Accidents in NSW 2009 to 2010'

Nonetheless, in the most recent year reported, five persons were killed by electric shock, and four of those deaths may have been prevented had an RCD been installed.

## Requirements

NSW Fair Trading strongly recommends the use of RCDs, but under current New South Wales laws RCDs are not required to be installed in all dwellings.

Under New South Wales law<sup>2</sup>, RCDs have been required on new power-point circuits since 1991. In addition, RCDs have been required on new light circuits since 2000.

<sup>1</sup> NSW Fair Trading (2011) 'Electrical Accidents in NSW 2009 to 2010'.

Conversely, this means that unless they have been recently rewired, dwellings built before 2000 are not required to have RCDs on their light circuits, and dwellings built before 1991 are not required to have RCDs on any of their circuits.

We estimate that about 75 per cent of dwellings in New South Wales are not required to have RCDs installed. Master Electricians Australia estimates that about 40 per cent of Australian dwellings are in fact without RCDs.<sup>3</sup>

Some other Australian States have stronger requirements.

In Queensland, all rental dwellings must have an RCD installed (cl 80A *Electrical Safety Regulation 2002* (Qld)).

In Western Australia, all rental dwellings and all dwellings that are sold must have two RCDs installed (r 13 and 14, *Electricity Regulation 1947* (WA)).

## Options for extending requirements for the installation of RCDs

There are a number of ways in which requirements for the installation of RCDs might be extended to more dwellings (particularly dwellings built before 1991).

1. *The Queensland model.* All rental dwellings, regardless of age, must have an RCD (or two) installed by a certain date. This would mean, conversely, that some dwellings (in particular, owner-occupied dwellings built before 1991) would not be required to have an RCD, but over time and as dwellings pass from rental into owner-occupation, an increasing number of them would have RCDs installed.
2. *The Western Australian model.* All dwellings must have an RCD (or two) installed when sold or let, and rental dwellings that are already let must have an RCD (or two) installed by a certain date. Like the Queensland model, this would mean that some

---

<sup>2</sup> Presently the *Electricity (Consumer Safety) Act 2004* (NSW) and *Electricity (Consumer Safety) Regulation 2006*, and the Australian/New Zealand Wiring Rules; previously the *Electrical Safety Act 1945* (NSW) and Australian and New Zealand Standard AS3000.

<sup>3</sup> Master Electricians Australia (2013) 'Spate of electrical safety incidents in NSW prompts urgent call to action', media release 8 April 2013, accessed at [www.masterelectricians.com.au/page/About/News/Spate\\_of\\_electrical\\_safety\\_incidents\\_in\\_NSW\\_prompts\\_urgent\\_call\\_to\\_action/](http://www.masterelectricians.com.au/page/About/News/Spate_of_electrical_safety_incidents_in_NSW_prompts_urgent_call_to_action/)

dwellings (owner-occupied dwellings built before 1991 that have not been sold) would not be required to have an RCD, but over time – and more quickly than under the Queensland model – an increasing number of them would have RCDs installed.

3. *The New South Wales smoke alarms model.* All dwellings must have an RCD (or two) installed by a certain date. This model is based on *Building Legislation Amendment (Smoke Alarms) Act 2005* (NSW), which introduced into environmental planning legislation the requirement that smoke alarms be installed in all dwellings in New South Wales.

Each of these models would involve amendments to the *Electricity (Consumer Safety) Regulation 2006* (NSW).

Upon commencement of such requirements (by whichever model), tenants would be entitled to insist on the installation of RCDs under their tenancy agreements. This is because the *Residential Tenancies Act 2010* (NSW) provides that it is a term of every tenancy agreement that the landlord 'must comply with the landlord's statutory obligations relating to the health or safety of the residential premises' (section 52(3)). Tenants would be able to seek Tribunal orders for the installation of RCDs, rather than rely on government agencies to take enforcement action.

## Recommendations

- RCDs should be required to be installed in all dwellings.
- This requirement should be implemented along the lines of New South Wales smoke alarms model of legislation, such that two RCDs would be required to be installed in all dwellings.
- Alternatively, the requirement could be implemented along the lines of the Western Australian model or, alternatively again, along the lines of the Queensland model.