January 2026

ADDENDUM: THIRD EDITION

Electric vehicle charging safety guidelines

Introduction

This Addendum to the *Electric vehicle charging safety guidelines – third edition* (the guidelines) provides updated advice on electric vehicle charging safety to address emerging technology and applications. It should be read alongside the guidelines noting that in some instances this additional advice replaces the advice given in the guidelines.

This Addendum applies from the date of publication.

Principles of safety for EV charging

The following principles are intended to ensure that charging equipment will provide acceptable levels of safety when connected to supply of electricity in New Zealand, consistent with New Zealand supply configuration and earthing arrangements.

1. The charging supply to an electric vehicle, vessel or aircraft must provide protection from electric shock through a system that is compatible with an EV charging supply and minimises waveform distortion. The system must also provide safety if AC and/or DC leakage occurs and must also include a means of monitoring and ensuring the continuity of the earthing connection to the vehicle, vessel, or aircraft, during the charging process.
2. Where any safety function is not provided as part of the installed charging station or IC-CPD, the safety function shall be installed at the origin of the supplying final subcircuit.
3. Where an electric vehicle supply equipment (EVSE) is installed at a residential installation, the charging final subcircuit shall be protected by a type B RCD and the subcircuit shall originate from a MEN switchboard.
4. All safety function fittings operating at low voltage shall be rated to operate at 230 or 400V as applicable.
5. Every RCD shall comply with the relevant IEC Standards for that type of RCD.
6. Every charging station shall comply with IEC 61851 as appropriate.
7. Any RDC-DD shall comply with IEC 62955.
8. Every IC-CPD shall comply with IEC 62752.

Use of RDC-DDs

While the guidelines do not recognise the use of an RDC-DD incorporated into an IC-CPD, they do not prevent the use of an RDC-DD in compliance with IEC 62955 in combination with a type A RCD as an alternative to the use of a type B RCD, provided the RDC-DD and the type A RCD are installed in accordance with the relevant IEC Standards.

While the guidelines do not recognise the use of EVSE that incorporates a type B RCD, they do not restrict the use of EVSE that incorporates a type B RCD without the need to install a Type B RCD protecting the final subcircuit.

Note: *AS/NZS 3000* requires an RCD that provides protection for new final subcircuits installed in a residential installation.

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Use of 32A or similarly rated socket outlets

Installing a socket outlet to supply a 32A or higher rated IC-CPD is not restricted for residential (domestic) installations. However the impact on the supplying installation of an EVSE operating for extended periods at this current rating, including any voltage reduction, needs to be taken into account. It is unlikely that a domestic installation would have been designed for an additional, steady, 32A load. An assessment of the maximum demand is necessary, and some form of load management is recommended.

The supply of an IC-CPD fitted with a 32A supply plug, while not in accordance with the guidelines, is not restricted by the ESR. However the IC-CPD should be accompanied by a warning that some domestic installations may not be able to reliably, or safely, supply a sustained 32A changing load without taking into account the other loads being supplied during the same period.

Load management

Where advanced load management is employed with a 32A (7.5kW) or similar IC-CPD or charging station, it is likely that sufficient charge to complete a typical day's driving distance can be achieved without increasing the peak consumption of a typical domestic installation.

Likewise, there is an expectation that the same would apply to apartment building carparks.

Note: In both cases, it is expected that public high speed chargers may be required for substantially longer journeys.

For vehicles having a range of 350km or more, where a full charge is required overnight, some upgrading of the installation wiring may be required.

Home charging of employer-owned EVs

The electric vehicle charging safety guidelines discourage charging employer-owned EVs at home using Mode 2 charging with an in-cable control and protection device (IC-CPD). Charging relies on the safety and integrity of the home's wiring, which the employer has little control over.

However, if a work vehicle needs to be charged at home for business purposes, then a dedicated charging station (EVSE) should be installed.

WorkSafe recommends employers take the following steps to manage the electrical safety risks associated with charging an employer-owned EV at home:

- Carry out a risk assessment that includes consideration of the age and condition of the home's wiring, the high current draw and extra demand from EV charging, the suitability of the charging location, and any training that may be required.
- The charging station should be supplied from a dedicated final sub-circuit.
- A charging station supplying greater that 20A should have load management to prevent its operation from overloading the home wiring.
- The charging station and protective devices should be tested for safety and function annually, and the outcome recorded.

If an electric shock is received at home, immediately stop using the charger until the cause is investigated and remedied. Employees should tell their employer about any shocks received.