

Electrical Installations

Electrical installations must comply with Australian Standards AS – 3001 Electrical Installations – Movable premises (including caravans) and their site installations and will need to be inspected by a licensed electrical contractor by NSW Fair trading.

A Certificate of Compliance for Electrical Work (CCEW) must be provided for all 240V installations.

Batteries

Batteries need to be rechargeable and have a minimum capacity of 40Ah at a 20h discharge rate.

Securing of batteries can have no greater than 25mm of movement under a pulling force of twice the battery weight, clearance to metallic services of 300mm around battery terminals or appropriate shielding or terminal covers.

Lead-Acid Batteries

Lead-acid battery requirements apply to all lead-acid types, including sealed, maintenance-free, gel and AGM batteries.

Lead-acid batteries installed externally must be either open to the environment with a spill tray or installed in a battery compartment with a spill tray and ventilation. The ventilation must prevent gases from entering the habitable area.

Lead-acid batteries installed internally must be in an enclosed battery compartment with a spill tray. The battery or compartment must be vented to the exterior of the vehicle by an approved method, such as a battery venting kit, an upper vent tube, or high-level and low-level vents to the exterior. The compartment must be protected against acid-laden gases and, if it opens into the interior, the lid must seal from the habitable area.

Lithium Ion Batteries

Lithium-ion batteries must be installed outside the habitable area, or behind a wall, compartment, enclosure or barrier that prevents gases from entering the habitable area. They must be installed within the manufacturer's temperature and IP-rating limits and in a suitable battery container where the cells are not already encapsulated.

Lithium-ion battery compartment design and any required venting should be determined from the battery manufacturer/supplier, taking into account the battery chemistry, construction and thermal runaway behaviour. the lithium battery can be installed in a fully sealed enclosure or compartment vented to outside atmosphere, where this is required by the manufacturer or considered necessary for the specific installation.

A generic upper/lower vent requirement should not be stated for all lithium batteries unless required by the manufacturer or the specific installation design.

Each lithium-ion battery must have a battery management safety system that monitors voltage, current and temperature and automatically disconnects under critical conditions. A visible battery monitor must display state of charge.

Solar must comply with AS/NZS 5033 & AS/NZ3001, if it does not exceed 60 volts DC or 35.4 volts AC (low voltage), there is no requirement that it needs to be certified by a licensed electrical contractor (CCEW). It is recommends using a normal 12 or 24-volt automotive system.

All solar panels are known as PV (Photovoltaic) arrays, these need to have individual overload and short circuit protection by adequately voltage rated fuses separately installed on their power side and have an input protection device (manually switching not automatic isolator) between the regulator and the PV array of fuses.

This applies to all vehicles with low voltage mounted solar panel installations. (IE: 12volt systems in Motorhomes, 4WD, Goods vehicles, Passenger Vehicles, Heavy vehicles and caravans.)

Source – AS/NZS 3001.2:2022 - 5.5.2.2 Photovoltaic arrays

