

SMOKE DETECTOR REQUIREMENTS FOR BATTERY SYSTEMS IN RESIDENTIAL APPLICATIONS

Electrical Note July 2019

Access Canberra Electrical Inspections team provide this guidance to electricians in the ACT on some emerging issues affecting the electrical industry.

General Information

Where grid connected battery backup systems are installed as part of a renewable energy system or part of a standalone energy export system, there could be additional risks of fire from the battery storage system that should be mitigated by the installer. This guide is intended to provide advice to the installer on how to mitigate some of the risks in residential applications. This guide is only for Building Code of Australia (BCA) Class 1 and 10 buildings, as building class 2 through to 9 fire detection requirements is covered in volume 1 of the National Construction Code (NCC).

The National Construction Code Volume 2, which covers Building class 1 residential housing, has no specific requirements for battery storage systems. The Australian Wiring Rules (AS/NZS 3000:2018) clause 1.5.12 has a requirement that *“Protection shall be provided against fire initiated or propagated by components of the electrical installation”*

This guide has been developed in conjunction with ACT Fire & Rescue; and the Access Canberra electrical inspections team, and is designed to give the installer information on how compliance with the Australian Wiring Rules can be achieved and to provide a best practice solution to mitigating some of the risks in residential applications that battery storage systems pose.

Location of battery storage systems

The Clean Energy Council (CEC) and the Access Canberra electrical inspections advise electricians that battery storage systems should not be installed;

- in the living areas of a residence,
- in a storage room under the living area of a residence where they are separated by combustible material.



Smoke Detector Requirements

A smoke detector is required where battery storage systems;

Are in a garage under the same roof as the residence, or attached to the residence.

In a storage space under the same roof as the residence.

A smoke detector can be omitted, where battery storage systems;

Are externally mounted on an outside wall of the residence.

Inside a shed or garage (class 10) that is separated from the residence (class 1)

In an open car port.

Types of smoke detectors

The smoke detector used must be suitable for the location to avoid nuisance alarms. In all locations it is recommend that Photo-Electric smoke detectors are used as they provide the best method of detecting small smouldering fires.

For example; in a garage, a smoke detector that activates on Carbon Monoxide would most likely cause nuisance alarms from a car exhaust. A Photo-Electric smoke detector works on smoke particles, so a car exhaust is less likely to activate the alarm.

Connection methods for smoke detectors

Where the residence has existing interconnected/linked AC-mains hardwired smoke detectors, an AC-mains hardwired smoke detector for the battery storage system is required. The smoke detector installed for the battery storage system is to be connected to the existing interconnected/linked smoke detection system. (Typically in houses built from 2014)

Where the residence has existing AC-mains hardwired smoke alarms not interconnected, an AC-mains hardwired smoke detector for the battery storage system is required, but need not be interconnected, but is recommend where possible.

Where the residence has no existing AC-mains hardwired smoke alarms, an AC-mains hardwired smoke detector for the battery storage system is required for the battery storage system.

Please Note:

Consideration should be where possible, to link the battery storage system smoke detector to at least one internal living areas smoke detector, to provide an early warning of a fire to the occupants.

Contact us

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Previous electrical notices are available at:

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