AS 2676.2:2020

Australian STANDARD®

# Guide to the installation, maintenance, testing and replacement of secondary batteries in buildings

## Part 2: Sealed cells



STANDARDS Australia

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Electrical Regulatory Authorities Council
Energy Networks Australia
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Australian STANDARD®

# Guide to the installation, maintenance, testing and replacement of secondary batteries in buildings

## Part 2: Sealed cells

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# Preface

This Standard was prepared by the Standards Australia Committee EL-005, Secondary batteries to supersede AS 2676.2—1992, *Guide to the installation, maintenance, testing and replacement of secondary batteries in building, Part 2: Sealed cells*.

The objective of this Standard is to set out minimum requirements and provide guidance for the installation, maintenance, testing and replacement of sealed secondary batteries (either valve-regulated or gastight) permanently installed in buildings, structures or premises.

It also provides guidance to determine when batteries should be replaced.

This Standard covers secondary batteries with a nominal voltage of 24 V or greater, and a capacity exceeding 10 A.h at the 1 h rate. It includes batteries comprising sealed lead-acid cells and alkaline cells (such as nickel-cadmium cells).

This Standard covers requirements for components of the d.c. system of which the battery is a part, where these components comprise an essential part of the d.c. system.

This Standard covers sealed cells only. The installation and maintenance of vented cells are covered by AS 3011.1 and AS 2676.1.

The major changes in this edition are as follows:

(a) Scope aligned to complement AS/NZS 5139.

(b) Important requirements established in text.

(c) Battery terminal connection requirements aligned with AS 3011.2.

(d) Battery protection requirements aligned with AS 3011.2.

(e) Layout, location and ventilation requirements aligned with AS 3011.2.

(f) Cell voltage test added to commissioning checks.

(g) Requirement for safety signs for open flames and smoking removed.

(h) Requirement for undefined emergency related signs removed.

The terms “normative” and “informative” are used in Standards to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

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# Introduction

Both the ampere-hour capacity and voltage of battery installations have increased to the point where some voltages now border on the medium and high voltage range. Even in extra-low voltage installations, the low internal resistances of batteries under short-circuit conditions can cause severe injuries to staff working on a battery or cell, or cause fire and explosion.

Tests have shown that batteries of 24 V d.c. and above may present problems in breaking fault currents and that additional precautions need to be taken to reduce the possibility of accidental short-circuits.

In preparing this Standard, the Committee considered the requirements of both sealed lead-acid cells and sealed alkaline cells.

# Australian Standard®

## Guide to the installation, maintenance, testing and replacement of secondary batteries in buildings

## Part 2: Sealed cells

## 1 Scope and general

### 1.1 Scope

This Standard sets out requirements and provides guidance for the installation, maintenance, testing and replacement of sealed secondary batteries (either valve-regulated or gastight) permanently installed in buildings, structures or premises.

This Standard covers secondary batteries with a nominal voltage of 24 V or greater and a capacity exceeding 10 A.h at the 1 h rate. It includes batteries comprising lead-acid cells and alkaline cells (such as nickel-cadmium cells).

This Standard covers requirements for components of the d.c. system of which the battery is a part, where these components comprise an essential part of the d.c. system.

This Standard covers sealed cells only. The installation and maintenance of vented cells are covered by AS 3011.1 and AS 2676.1.

NOTE 1 Requirements specifically applicable to the design and installation of extra-low voltage power supplies that are used by telecommunications carriers in the provision of public telecommunications networks are given in AS/NZS 3015.

NOTE 2 General installation and safety requirements for battery energy storage systems (BESSs) are given in AS/NZS 5139.

### 1.2 Application

This Standard is to be read in conjunction with AS 3011.2.

### 1.3 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents for informative purposes are listed in the Bibliography.

AS 1170.4, *Minimum design loads on structures, Part 4 — Earthquake load*

AS 1319, *Safety signs for the occupational environment*

AS 3011.2, *Electrical installations — Secondary batteries installed in buildings, Part 2: Sealed cells*

AS/NZS 3000, *Electrical installations (known as the Australian/New Zealand Wiring Rules)*

AS/NZS 61439.1, *Low-voltage switchgear and controlgear assemblies, Part 1: General rules (IEC 61439-1, Ed. 2.0 (2011), MOD)*

### 1.4 Terms and definitions

For the purpose of this document, the following terms and definitions apply.