AS 2293, Part 1—1979
UDC 628.978.6:696.6:621.32

Australian Standard 2293, Part 1—1979

EMERGENCY EVACUATION LIGHTING IN BUILDINGS

Part 1—INSTALLATION REQUIREMENTS

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments, together with the Governments of New South Wales, Queensland, South Australia, Tasmania, Victoria and Western Australia, were officially represented on the committee entrusted with the preparation of this standard:

Association of Consulting Engineers Australia

Australian Electrical and Electronic Manufacturers Association

Building Owners and Managers Association of Australia Limited

Confederation of Australian Industry

Department of Housing and Construction

Department of Productivity

Electricity Supply Association of Australia

Illuminating Engineering Societies of Australia

Insurance Council of Australia

State Fire Authorities

This standard, prepared by Committee LG/7, Emergency Lighting in Buildings, was approved on behalf of the Council of the Standards Association of Australia on 16 October 1979, and was published on 31 December 1979.

This standard was issued in draft form for public review as DR 77151.

AUSTRALIAN STANDARD

EMERGENCY EVACUATION LIGHTING IN BUILDINGS

Part 1
INSTALLATION REQUIREMENTS

AS 2293, Part 1—1979

First published	1979
Reprinted	1981

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.

ISBN 0 7262 1795 6

PREFACE

This standard was prepared by the Association's Committee on Emergency Lighting in Buildings.

The standard is the first of two parts, and prescribes requirements for the equipment used and practices adopted in the installation of emergency evacuation lighting in buildings. AS 2293, Part 2 specifies the periodic inspection and maintenance checks which should be carried out to ensure that the emergency evacuation lighting installation will continue to function effectively.

The standard has been prepared in a form which is intended to facilitate adoption by reference in the regulations of those organizations which have statutory or regulatory powers in relation to the provision of emergency evacuation lighting. Because of the time which will be required to arrange for the testing of emergency luminaires in accordance with the requirements of this standard, it is recommended to Statutory Authorities that the standard not be applied on a mandatory basis until 18 months after publication (see also the Note to Paragraph D2 in Appendix D).

This standard requires reference to the following Australian standards and other publications:

AS 1042	Direct-acting Indicating Electrical Measuring Instruments and Their Accessories
AS 1102	Graphical Symbols for Electrotechnology
	Part 8 — Location Symbols — Power Supply Systems and Electrical Services for Buildings and Sites
AS 1190	Photometric Data on Luminaires for Interior Lighting
AS 1319	Rules for the Design and Use of Safety Signs for the Occupational Environment
AS 1433	Paint Colours for Building Purposes
AS 1530	Methods for Fire Tests on Building Materials and Structures
	Part 4 — Fire-resistance Test of Structures
AS 1612	Paper Sizes
AS 1668	SAA Mechanical Ventilation and Air Conditioning Code
	Part 1 — Fire Precautions in Buildings with Air-handling Systems
	Part 2 — Ventilation Requirements
AS 1680G	Reflectance Gauge
AS 1735	SAA Lift Code
AS 1852	International Electrotechnical Vocabulary
AS 1981	Stationary Batteries of the Lead-acid Pasted Plate Type
AS 2005	Fuses with Enclosed Fuse-links (Up to and Including 1000 V a.c. and 1500 V d.c.)
	Part 2 — Fuses for Industrial Application
AS 2118	SAA Code for Automatic Fire Sprinkler Systems
AS 2191	Stationary Batteries of the Lead-acid Planté Positive Plate Type
AS 2220	Rules for Emergency Warning and Intercommunication Systems for Buildings.
AS 2293	Emergency Evacuation Lighting in Buildings
	Part 2 — Maintenance Procedures
AS 3000	Part 1 — SAA Wiring Rules
AS 3002	Rules for the Electrical Installations of Shows and Carnivals
AS 3137	Approval and Test Specification for Luminaires (Lighting Fittings)
AS 3147	Approval and Test Specification for PVC Insulated Electric Cables and Flexible Cables for Working Voltages of 0.6/1 kV
ISO/R 408	Safety Colours
SAA MP15	Report on Preferred Numbers and Their Use

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard for EMERGENCY EVACUATION LIGHTING IN BUILDINGS

PART 1 — INSTALLATION REQUIREMENTS

FOREWORD

The term 'emergency lighting' is commonly used to refer to the following types of lighting system, one or more of which may be provided in a building to guard against the possible loss of the normal lighting:

(a) *Standby lighting.* Standby lighting systems generally provide relatively high lighting levels such as will permit normal activities to continue.

(b) *Safety lighting.* Safety lighting systems are intended to ensure the safety of workers in proximity to hazardous equipment or processes.

(c) *Evacuation or escape lighting.* Evacuation or escape lighting systems are intended to provide visual conditions which will permit the safe evacuation of people from buildings.

This standard is concerned only with evacuation or escape lighting.

For direct lighting systems, a scheme for classifying emergency luminaires according to their light output distribution has been evolved together with associated requirements governing the maximum spacings which may be used. This approach has been adopted in preference to stating requirements directly in terms of illuminance values for the following reasons:

(i) The very low illuminance values which are involved cannot be measured with any degree of accuracy by conventional measuring instruments.

(ii) To obviate the necessity for inspection personnel to have the training and skills required to take illuminance measurements.

This approach also has the advantage of simplifying the design of emergency lighting installations since it should be possible to more readily predict compliance at the design stage.

In the formulating of requirements for the spacing of emergency luminaires, cognisance was taken of investigations conducted in the United Kingdom* which led to the adoption in BS 5266, Part 1† of a recommended minimum illuminance of 0.2 lx along the escape route and throughout the specified operating period. Appraisals of emergency lighting installations which have been conducted in Australia generally confirm the adequacy of this recommendation. The spacings given in Tables 2.1 to 2.5 have therefore been computed on the basis of the provision of an illuminance at floor level of not less than 0.2 lx between adjacent luminaires, with reference to operation of the luminaires at a voltage equivalent to that which may apply at the end of the prescribed duration of operation.

For indirect lighting systems, requirements for the installation of emergency luminaires have been derived on an empirical basis with the object of providing visual conditions at least equivalent to those afforded by the abovementioned direct lighting.

Attention is drawn to the fact that the reflectance of the main interior surfaces (especially walls and other vertical surfaces) will significantly influence the visual conditions provided by an emergency lighting installation. It is therefore recommended that these surfaces be as light in tone as practicable.

It is recognized that the presence of smoke will have a detrimental effect on the visual conditions provided by the emergency lighting. The committee is of the view that there is no practical way of ensuring that the lighting system will continue to be effective under smoke conditions, and that dependence must be placed on other measures such as building construction and ventilation to keep escape paths as free as possible from smoke.

The emergency lighting required by this standard may be provided by central systems‡ or single-point systems‡ or from a combination of the two. Both systems have particular advantages and disadvantages; consequently, no recommendation is made as to which should be employed. However, appropriate requirements are provided governing the equipment and installation methods for both types of system.

For central systems requirements for the protection of the emergency lighting distribution system against the effects of fire are specified in terms of the performance of the relevant circuit when subjected to the temperature conditions produced by application of the test prescribed in AS 1530, Part 4. However, Appendix E of this standard provides details of wiring methods which are considered acceptable on the basis of results of tests conducted at the Experimental Building Station§.

The nature of an emergency lighting system is such that one can never predict when it may be called upon to function. Consequently, while it is important that the system be correctly installed and operate satisfactorily initially, it is equally important that regular inspection and maintenance procedures be instituted to ensure that the system will be in a state of readiness for operation at all times.

* SIMMONS, R. C. Illuminance, Diversity and Disability Glare in Emergency Lighting. *Lighting Research and Technology*, 7(2), 1975: 125–132.

† BS 5266, Code of Practice for the Emergency Lighting of Premises, Part 1 — Premises Other than Cinemas and Certain Other Specified Premises Used for Entertainment.

‡ See definitions in Clauses 1.2.6 and 1.2.33.

§ Technical Record 452, 'The Fire Performance of Wiring for Emergency Lighting Systems'.