2946

Superseded by AS 2946-1991

AS 2946—1987
UDC 692.54:628.941.3:697.922.564

Australian Standard®
2946—1987

SUSPENDED CEILINGS, RECESSED LUMINAIRES AND AIR DIFFUSERS— INTERFACE REQUIREMENTS FOR PHYSICAL COMPATIBILITY

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

STANDARDS ASSOCIATION OF AUSTRALIA SYDNEY LIBRARY

E

This Australian Standard was prepared by Committee LG/11, Recessed Luminaires for Suspended Ceilings. It was approved on behalf of the Council of the Standards Association of Australia on 16 March 1987 and published on 4 May 1987.

The following interests are represented on Committee LG/11:

Air-conditioning and Refrigeration Equipment Manufacturers Association of Australia

Australian Electrical and Electronic Manufacturers Association Limited

Building Owners and Managers Association of Australia Ltd

Confederation of Australian Industry

Council of the Air Conditioning and Mechanical Contractors Associations of Australia

Department of Housing and Construction

Electrical Contractors Associations of Australia

Electricity Supply Association of Australia

Illuminating Engineering Societies of Australia

Metal Trades Industry Association of Australia

Public Works Department, New South Wales

Public Works Department, Victoria

Royal Australian Institute of Architects

The Association of Consulting Engineers Australia

Review of Australian Standards. *To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up-to-date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.*

Full details of all SAA publications will be found in the Catalogue of SAA Publications; this information is supplemented each month by SAA's journal 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of the Association, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This Standard was issued in draft form for comment as DR 85317.

AUSTRALIAN STANDARD

SUSPENDED CEILINGS, RECESSED LUMINAIRES AND AIR DIFFUSERS— INTERFACE REQUIREMENTS FOR PHYSICAL COMPATIBILITY

AS 2946—1987

First published 1987

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.
ISBN 0 7262 4634 4

PREFACE

This Standard was prepared by the Association's Committee on Recessed Luminaires for Suspended Ceilings, at the request of the Australian Electrical and Electronic Manufacturers Association. Their request originated from difficulties experienced in the installation of recessed luminaires in suspended ceiling systems.

Problems involving non-compatibility of recessed luminaires and suspended ceiling systems arise mainly from the following:

(a) The use of luminaires with tubular fluorescent lamps based on imperial units of measurement in buildings that are constructed using metric building modules. This generally requires the use of luminaires which extend at one or both ends above the structural members of the ceiling in order to accommodate the lamps. With such luminaires it is not possible to install more than two successive luminaires, end-to-end.

(b) Differences in the form and dimensions of the members used to support the suspended ceiling. Whilst differences exist between ceilings of different type, there have been significant variations in the members used in the construction of ceilings of the same basic type.

The committee, after considering the various alternatives, concluded that the only practical way of achieving compatability between suspended ceilings and recessed luminaires was to establish 'standard' section dimensions for the ceiling runners and to specify luminaire mounting requirements by reference to these 'standard' dimensions. However, requirements have been specified only for the most commonly used types of suspended ceiling. It is recognised that the section dimensions of the ceiling runners currently used may in some instances differ from those specified in this Standard and that the adoption of the 'standard' dimensions may not be immediately possible, e.g. until replacement tooling is required.

This Standard also addresses the interface between recessed luminaires which incorporate facilities for air supply and the associated air diffusers. Requirements are specified which have the objective of ensuring physical compatability.

One of the objects of this Standard is to facilitate the availability of recessed luminaires and air diffusers on an 'off-the-shelf' basis. However, it is recognised that 'special' luminaires and air diffusers which depart from the specified requirements may occasionally be needed for particular applications.

© Copyright — STANDARDS ASSOCIATION OF AUSTRALIA 1987

Users of Standards are reminded that copyright subsists in all SAA publications. No part of this publication may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing of the Standards Association of Australia.

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

SUSPENDED CEILINGS, RECESSED LUMINAIRES AND AIR DIFFUSERS—INTERFACE REQUIREMENTS FOR PHYSICAL COMPATIBILITY

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This Standard specifies requirements for certain features of suspended ceilings, recessed luminaires and air diffusers with the object of ensuring physical compatibility when installed. A schematic illustration of the physical interactions involved is given in Fig.1.1 which also identifies the sections of this Standard that specify the applicable requirements.

The requirements of this Standard apply principally to luminaires with tubular fluorescent lamps which are designed for use in—

(a) exposed, semi-exposed and concealed ceiling systems which utilize pressed metal tiles, viz. metal pan ceilings;

(b) exposed and semi-exposed ceiling systems which utilize tiles of various materials other than pressed metal; and

(c) flush or sheeted ceilings affixed to metal or timber supports.

Certain requirements may also be applicable to luminaires designed for use with other types of suspended ceiling systems and to luminaires which utilize other lamp types. However, the requirements do not apply to suspended ceilings which are required to be of fire-rated construction.

The Standard incorporates a system for designating recessed luminaires according to the type of suspended ceiling in which they are intended to be used, the mounting method adopted and whether or not they are provided with air-handling facilities (see Table 1.1).

The Standard does not purport to cover all essential requirements for suspended ceilings, recessed luminaires or air diffusers. Attention is particularly drawn to Standards which deal with—

(i) the design and installation of suspended ceilings (see AS 2785);

(ii) essential safety requirements for luminaires (see AS 3137);

(iii) interior lighting, including the control of glare from luminaires (see AS 1680 and AS 2713); and

(iv) the ventilation and air conditioning of buildings (see AS 1668, Part 1 and Part 2).

NOTE: See Appendix A for information which should be provided to facilitate the physical compatibility of suspended ceilings, recessed luminaires and air diffusers.

1.2 REFERENCED DOCUMENTS. The following Australian Standards are referred to in this Standard:

AS 1217.1 Acoustics—Determination of Sound Power Levels of Noise Sources
Part 1—Guidelines for the Use of Basic Standards for the Preparation of Noise Test Codes

AS 1668 SAA Mechanical Ventilation and Air-conditioning Code
Part 1—Fire Precautions in Buildings with Air-handling Systems
Part 2—Ventilation Requirements

AS 1680 Code of Practice for Interior Lighting and the Visual Environment

AS 2713 Lighting and the Visual Environment for Screen-based Tasks

AS 2785 Suspended Ceilings—Design and Installation

AS 3100 Approval and Test Specification for Definitions and General Requirements for Electrical Materials and Equipment

AS 3112 Approval and Test Specification for Plugs and Plug Sockets

AS 3137 Approval and Test Specification for Luminaires (Lighting Fittings)

AS 3191 Approval and Test Specification for Electric Flexible Cords

ADC Equipment Test Code 1062 R3.*

1.3 DEFINITIONS. For the purpose of this Standard, the following definitions apply:

1.3.1 Air diffuser—a device which is designed to distribute air, supplied by an air conditioning system, into a room or interior space of a building.

NOTE: This Standard is only concerned with those forms of air diffuser which are specifically designed for use in conjunction with air-handling luminaires. Such air diffusers are sometimes described as 'air boots' or 'light/air diffusers'.

1.3.2 Air-handling luminaire—a luminaire which is designed for use in association with an air conditioning system.

1.3.3 Ceiling—the material forming the main body of the soffit of a ceiling.

1.3.4 Concealed system—a suspended ceiling system on the soffit of which the supporting system is not exposed to view.

1.3.5 Double-sided air diffuser—an air diffuser which is designed to provide an air supply to both sides of an air-handling luminaire.

1.3.6 Exposed system (two-way exposed system)—a suspended ceiling system on the soffit of which the supporting system is exposed to view in both directions.

1.3.7 Flush ceiling—a ceiling formed by the application of cementitious material to a support framework, or by the attaching of sheets to a framework and the joining of them to produce a flush finish.

* Published by the Air Diffusion Council, Chicago, U.S.A.

COPYRIGHT