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



STANDARDS ASSOCIATION OF AUSTRALIA
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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
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AUSTRALIAN STANDARD

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

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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 compatibility 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 compatibility.

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.

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CONTENTS

	<i>Page</i>
SECTION 1. SCOPE AND GENERAL	
1.1 SCOPE	5
1.2 REFERENCED DOCUMENTS	5
1.3 DEFINITIONS	5
1.4 LUMINAIRE TYPE DESIGNATIONS	6
SECTION 2. SUSPENDED CEILINGS	
2.1 DESIGN AND INSTALLATION	8
2.2 SECTION DIMENSIONS OF CEILING RUNNERS	8
2.3 CEILING GRID DIMENSIONS	8
2.4 SUPPORT OF CEILING RUNNERS	8
2.5 DEAD LOAD DUE TO LUMINAIRES	8
SECTION 3. LUMINAIRES (OTHER THAN AIR-HANDLING)	
3.1 METHOD OF MOUNTING AND ASSOCIATED DIMENSIONS	10
3.2 VERTICAL CLEARANCE FOR INSERTION AND WITHDRAWAL	10
3.3 PROVISION FOR CONNECTION TO THE SUPPLY	10
3.4 LIGHT CONTROLLING DEVICES FOR TYPE T2.1 LUMINAIRES	10
3.5 MARKING AND PROVISION OF INFORMATION	10
SECTION 4. AIR-HANDLING LUMINAIRES	
4.1 METHOD OF MOUNTING AND ASSOCIATED DIMENSIONS	17
4.2 VERTICAL CLEARANCE FOR INSERTION AND WITHDRAWAL	17
4.3 PROVISION FOR CONNECTION TO THE SUPPLY	17
4.4 MARKING AND PROVISION OF INFORMATION	17
4.5 PROVISION FOR AIR DIFFUSERS	17
SECTION 5. AIR DIFFUSER	
5.1 FORM AND DIMENSIONS	23
5.2 FINISH OF SURFACES EXPOSED TO VIEW	23
5.3 INLET DUCT CONNECTION	23
5.4 REPORTING OF ACOUSTIC AND AIR FLOW TEST DATA	23
5.5 MARKING	23
APPENDIX A INFORMATION TO BE PROVIDED	26
TABLE 1. TYPE DESIGNATIONS FOR RECESSED LUMINAIRES	7
FIGURES	
1.1 SCHEMATIC ILLUSTRATION OF PHYSICAL INTERACTION BETWEEN SUSPENDED CEILINGS, RECESSED LUMINAIRES AND AIR DIFFUSERS	6
2.1 SECTION DIMENSIONS OF CEILING RUNNERS	9
3.1 PHYSICAL INTERFACE REQUIREMENTS FOR TYPE T1 LUMINAIRES	11
3.2 PHYSICAL INTERFACE REQUIREMENTS FOR TYPE M1 LUMINAIRES	12
3.3 PHYSICAL INTERFACE REQUIREMENTS FOR TYPE T2.1 LUMINAIRES	13
3.4 PHYSICAL INTERFACE REQUIREMENTS FOR TYPE T2.2 LUMINAIRES	14
3.5 PHYSICAL INTERFACE REQUIREMENTS FOR TYPE MC LUMINAIRES	15

	<i>Page</i>
3.6 PHYSICAL INTERFACE REQUIREMENTS FOR TYPE F LUMINAIRES	16
4.1 PHYSICAL INTERFACE REQUIREMENTS FOR TYPE T1/A LUMINAIRES	18
4.2 PHYSICAL INTERFACE REQUIREMENTS FOR TYPE M1/A LUMINAIRES	19
4.3 PHYSICAL INTERFACE REQUIREMENTS FOR TYPE T2/A LUMINAIRES	20
4.4 PHYSICAL INTERFACE REQUIREMENTS FOR TYPE MC/A LUMINAIRES	21
4.5 AIR SLOT DETAIL FOR AIR-HANDLING LUMINAIRES	22
5.1 FORM AND DIMENSIONS OF SINGLE-SIDED AIR DIFFUSERS	24
5.2 FORM AND DIMENSIONS OF DOUBLE-SIDED AIR DIFFUSERS	25

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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 Plug and Plug Sockets
- AS 3137 Approval and Test Specification for Luminaires (Lighting Fittings)
- AS 3138 Approval and Test Specification for Electric Flexible Cords
- ALC 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.