

AS/NZS 1680.1:2006

AS/NZS 1680.1:2006

Australian/New Zealand Standard™

## Interior and workplace lighting

### Part 1: General principles and recommendations



## **AS/NZS 1680.1:2006**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee LG-001, Interior and Workplace Lighting. It was approved on behalf of the Council of Standards Australia on 22 December 2005 and on behalf of the Council of Standards New Zealand on 13 January 2006.  
This Standard was published on 21 February 2006.

---

The following are represented on Committee LG-001:

Association of Consulting Engineers Australia  
Australian Building Codes Board  
Australian Electrical and Electronic Manufacturers Association  
Department of Commerce (NSW)  
Energy Efficiency and Conservation Authority of New Zealand  
IES: The Lighting Society  
Engineers Australia  
Institution of Professional Engineers New Zealand  
Ministry of Economic Development (New Zealand)  
Property Council of Australia  
The University of Sydney

Additional Interests:

Photometric testing laboratories

---

### **Keeping Standards up-to-date**

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at [www.standards.com.au](http://www.standards.com.au) or Standards New Zealand web site at [www.standards.co.nz](http://www.standards.co.nz) and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

---

*This Standard was issued in draft form for comment as DR 04312.*

---

AS/NZS 1680.1:2006

# Australian/New Zealand Standard™

## Interior and workplace lighting

### Part 1: General principles and recommendations

Originated in Australia as AS(E) CA501—1942.  
Revised and redesignated AS 1680—1976.  
Revised and redesignated in part as AS 1680.1—1990.  
This edition 2006.

#### **COPYRIGHT**

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 7264 1

## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee LG-001, Interior and Workplace Lighting to supersede AS 1680.1—1990, *Interior lighting*.

This Standard forms Part 1 of the AS/NZS 1680 series, which covers lighting of interiors and workplaces. The series title has recently been changed from ‘Interior lighting’ to reflect an expansion in the scope of the series.

The AS/(NZS) 1680 series currently consists of the following:

### AS/(NZS)

1680	Interior and workplace lighting
1680.0	Part 0: Safe movement
1680.1	Part 1: General principles and recommendations (this Standard)
1680.2.1	Part 2.1: Circulation spaces and other general areas
1680.2.2	Part 2.2: Office and screen-based tasks
1680.2.3	Part 2.3: Educational and training facilities
1680.2.4	Part 2.4: Industrial tasks and processes
1680.2.5	Part 2.5: Hospital and medical tasks
1680.3	Part 3: Measurement, calculation and presentation of photometric data
1680.4	Part 4: Maintenance of electric lighting systems

NOTE: Until the revision of this series is complete, some of the above Standards might have, as a main title, ‘Interior lighting’.

The significant changes that have been made in this Standard in relation to the previous publication include the following:

- A substantial editorial revision, including a re-organized presentation of many of the concepts explained.
- A significant expansion of the section on Glare (Section 8), including the addition of the CIE unified glare rating (UGR) system and further details on the (existing) luminance limiting approach.
- Addition of information to Section 9, including daylight values for New Zealand.
- Major modifications to Section 12 due to the addition of AS/NZS 1680.4 to the series.

Specific information in this Standard, including various figures and tables, has been reproduced from a number of the reference documents listed in Appendix F, and from the CIBSE Code for Interior Lighting in particular. Grateful acknowledgement is made of this assistance.

## CONTENTS

	<i>Page</i>
<b>SECTION 1 SCOPE AND GENERAL</b>	
1.1 SCOPE .....	6
1.2 OBJECTIVE.....	6
1.3 REFERENCED DOCUMENTS .....	6
1.4 DEFINITIONS .....	7
<b>SECTION 2 GENERAL REQUIREMENTS OF GOOD INTERIOR LIGHTING</b>	
2.1 THE IMPORTANCE OF QUALITY LIGHTING .....	9
2.2 OBJECTIVES OF AN INTERIOR LIGHTING SYSTEM .....	9
2.3 OTHER CONSIDERATIONS .....	10
2.4 DAYLIGHT AND ELECTRIC LIGHT .....	10
<b>SECTION 3 TASK VISIBILITY</b>	
3.1 SCOPE .....	12
3.2 VISIBILITY AND VISUAL PERFORMANCE .....	12
3.3 LUMINANCES IN THE VISUAL FIELD .....	13
3.4 THE EFFECTS OF ILLUMINANCE .....	14
3.5 THE USE OF MAGNIFICATION.....	17
3.6 RECOMMENDED ILLUMINANCES .....	17
3.7 MAINTENANCE OF ILLUMINANCE .....	17
3.8 UNIFORMITY OF ILLUMINANCE .....	20
3.9 FURTHER CONSIDERATIONS FOR TASK CHARACTERISTICS .....	21
3.10 EXAMPLES OF VISUAL PERFORMANCE .....	22
3.11 DEPARTURES FROM THE RECOMMENDED MAINTAINED ILLUMINANCES .....	23
<b>SECTION 4 DIRECTIONAL EFFECTS OF LIGHTING</b>	
4.1 GENERAL CONSIDERATIONS .....	25
4.2 MODELLING AND SHADOWS .....	25
4.3 REVEALING TASK CHARACTERISTICS .....	26
4.4 REVEALING THE ENVIRONMENT .....	26
<b>SECTION 5 UNWANTED REFLECTIONS</b>	
5.1 GENERAL CONSIDERATIONS .....	30
5.2 RELATIVE LOCATION OF TASKS, LIGHT SOURCES AND SCREENING .....	31
5.3 USE OF LOCAL LIGHTING (INCREASING TASK ILLUMINANCE) .....	31
5.4 LIMITATION OF SOURCE LUMINANCE .....	31
5.5 AVOIDANCE OF GLOSSY SURFACES IN VISUAL TASK SURROUNDS .....	32
5.6 REFLECTIONS IN SCREEN-BASED EQUIPMENT .....	32
5.7 CONTRAST RENDERING FACTOR .....	33
<b>SECTION 6 SURFACES</b>	
6.1 GENERAL CONSIDERATIONS .....	34
6.2 SURFACE REFLECTANCES FOR EFFICIENT LIGHT DISTRIBUTION .....	34
6.3 SURFACE REFLECTANCES FOR GOOD SEEING CONDITIONS .....	34
6.4 NATURE OF SURFACE FINISHES .....	37
6.5 COLOUR OF SURFACES .....	37
6.6 COLOUR FOR IDENTIFICATION AND SAFETY .....	37
6.7 AVOIDING DISTRACTING PATTERNS.....	38

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- Looking for additional Standards? Visit Intertek Inform Infostore
  - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-