AS 2397:2015

Safe use of lasers in the building and construction industry

This Australian Standard® was prepared by Committee SF-019, Personal Protection Against Laser Radiation. It was approved on behalf of the Council of Standards Australia on 26 October 2015.
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The following are represented on Committee SF-019:

- Australasian Faculty of Occupational and Environmental Medicine
- Australian Dental Association
- Australian Radiation Protection and Nuclear Safety Agency
- Defence Materiel Organisation (Australian Government)
- Department of Defence (Australian Government)
- Electronics Industry Association
- NSW Business Chamber
- Royal Australian and New Zealand College of Ophthalmologists
- Telstra Corporation

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Australian Standard®

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PREFACE

This Standard was prepared by the Standards Australia Committee SF-019, Personal Protection Against Laser Radiation, to supersede AS 2397—1993 and as a supplementary Standard to the series AS/NZS IEC 60825, *Safety of laser products*. The original version of this Standard was prepared following requests from interests involved in the building and construction industry, who felt that management, employees, and authorities concerned with certain tasks in that industry needed a ready reference to safety procedures appropriate for lasers in their industry without having to refer to the more complex Standards. This revision reflects industry and laser technology developments, as well as changes in the laser safety Standards since 1993.

The Standard refers exclusively to safety matters associated with lasers used for alignment, levelling, control, and survey tasks in the building and construction industry. While the general requirements of AS/NZS IEC 60825 (formerly AS/NZS 2211) apply to the design, manufacture and use of such lasers, this Standard—

(a) contains only those requirements pertinent to low risk lasers used in the construction industry for alignment, levelling, control, and survey tasks;

(b) presents such requirements in terminology familiar to or understandable by tradespeople and non-professional persons who may operate lasers in the course of their employment; and

(c) provides guidelines and a recommended syllabus for the training and appointment of laser safety officers (LSOs).

NOTE: Laser safety officers are persons trained in the elementary theory and practical application of lasers. This Standard recommends that LSOs be given the authority and responsibility for ensuring that other persons do not receive harmful exposure to laser light. For further information and guidance, see Appendix C and Appendix D.

The equipment warning labels and area warning signs to be used on the types of lasers permitted by this Standard have been reproduced in Appendix A of this Standard for information.

Significant changes incorporated in this edition include the following:

(i) The laser safety Standard in use in Australia prior to 2004 was AS/NZS 2211. That has been replaced with AS/NZS IEC 60825 (renumbered to align with international standards). The distribution of information has also changed—the topics addressed by AS/NZS 2211.1 are now split between AS/NZS IEC 60825.1 (for manufacturers) and AS/NZS IEC 60825.14 (for users).

(ii) Introduction of Classes 1M, 2M and 3R, which replace Classes 3A and 3B (restricted) used in AS/NZS 2211.1. A brief discussion of those older classifications is preserved to accommodate old equipment. Class IIIa lasers, which have been labelled to the US Standard, are also briefly discussed.

While this Standard is directed towards building and construction applications, much of the material in the Standard could be used for guidance in other laser applications such as mining, outdoor land survey, marine survey, metrology, and machine alignment.

Requirements in this Standard in no way negate or degrade the requirements specified in AS/NZS IEC 60825. Where there is conflict between this Standard and an AS/NZS IEC 60825 series Standard, the latter takes precedence.

The terms ‘normative’ and ‘informative’ have been used in this Standard 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.

CONTENTS

Page

STANDARDS AUSTRALIA

Australian Standard
Safe use of lasers in the building and construction industry

S E C T I O N 1 S C O P E A N D G E N E R A L

1.1 SCOPE

This Standard sets out safety requirements for the use of lasers for alignment, levelling, control and survey tasks in the building and construction industry.

It reproduces and supplements those requirements of the AS/NZS IEC 60825 series of standards relevant to such work, but does not cover the design and manufacture of lasers (see AS/NZS IEC 60825.1), nor the use of lasers in other applications.

Operations involving the use of potentially high risk Class 3B and Class 4 lasers are excluded from the scope of this Standard and shall be managed in accordance with the requirements of AS/NZS IEC 60825.14.

NOTE: While the vast majority of lasers marketed to the building and construction industry are low risk laser devices, there is a small subset of systems (primarily 3D scanners) promoted to the same sector that are Class 3B or Class 4 lasers. Use of such devices is not covered by this standard.

1.2 APPLICATION

This Standard is intended as a reference by persons concerned with the use of lasers for alignment, levelling, control and survey tasks in the building and construction industry.

Although this Standard is directed towards building and construction applications, much of the material in the Standard could be used for guidance in similar scenarios in which low-risk lasers are employed in applications that are not safety-critical, e.g. mining, metrology, automation and machine vision.

NOTE: Requirements in this Standard in no way negate or degrade the requirements specified in AS/NZS IEC 60825.

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1319	Safety signs for the occupational environment
1885	Measurement of occupational health and safety performance
1885.1	Part 1: Describing and reporting occupational injuries and disease (known as the Workplace injury and disease recording standard)
AS/NZS	
1680	Interior and workplace lighting (series)
AS/NZS IEC	
60825	Safety of laser products
60825.1	Part 1: Equipment classification and requirements
60825.2	Part 2: Safety of optical fibre communication systems (OFCS)
60825.14	Part 14: A user's guide