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AS 2311-1983

**AS 2311—1979**  
UDC 698.12:667.63/.64

# Australian Standard 2311-1979

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# GUIDE FOR THE PAINTING OF BUILDINGS



**STANDARDS ASSOCIATION OF AUSTRALIA**

*Incorporated by Royal Charter*



**THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:**

**Australian Electrical Manufacturers Association  
Australian Federation of Consumer Organizations  
Australian Institute of Building  
Australian Paint Manufacturers Federation  
Commonwealth Scientific and Industrial Research Organization  
Confederation of Australian Industry  
Department of Defence  
Department of Science and the Environment  
Government Paint Committee  
Housing Commission of Victoria  
Master Painters, Decorators and Signwriters Association of NSW  
National Association of Australian State Road Authorities  
National Association of Testing Authorities  
Oil and Colour Chemists Association  
Railways of Australia Committee  
Royal Australian Institute of Architects  
South Australian Housing Trust  
State Housing Commission, Western Australia**

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**This standard, prepared by Committee CH/3, Paints, Varnishes and Related Materials, was approved on behalf of the Council of the Standards Association of Australia on 1 October 1979, and was published on 31 December 1979.**

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*This standard was issued in draft form for public review as DR 78061.*

**AUSTRALIAN STANDARD**

**GUIDE**  
**FOR THE PAINTING OF BUILDINGS**

**AS 2311-1979**

First published .. .. . 1979
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**PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA  
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.**

ISBN 0 7262 1811 1

## PREFACE

This standard was prepared by the Association's Committee on Paints, Varnishes and Related Materials to make available to architects, paint applicators and users of paint detailed information on the use and application of paint in the painting of buildings.

The standard presents a consolidation of accepted good trade practices with respect to surface preparation and painting systems, and reflects up-to-date developments in paint technology.

It is essentially confined to the painting of timber, plaster, wallboards and concrete materials used in general building construction. The standard, at this stage, does not include details on the use of special high-build coatings; however, surface preparation treatments recommended in this standard would apply equally to such coatings.

Information on the painting of metals exposed to the elements where long-term protection is of prime importance is not included. Such information may be obtained from AS 2312, Protection of Iron and Steel Against Exterior Atmospheric Corrosion\*.

In preparing this standard, the committee, which comprised representatives from paint applicators, manufacturers, builders and users, considered trade literature on the subject as well as the following documents:

NZS 2239	Recommendations for the Painting of Buildings
Department of Supply	Code of Practice for Painting of Buildings and Structures
E24†	Painting, Wall and Ceiling Finishes
E24-1	Climate and Paint Types in Australian Buildings
E24-2	Paint for Interior Surfaces and Failures in Paintwork
E24-3	Paint for Exterior Surfaces
E24-4	Surface Preparation and Maintenance for Paintwork

Acknowledgement is made to the assistance derived from these publications, particularly to the New Zealand standard upon which this standard is modelled.

In the interest of standardization and in the achievement of satisfactory performance, reference as far as practicable is made to paint types for which Australian standards exist, or are in the course of preparation.

This standard may require reference to the following Australian standards:

AS 1144	Arsenical Creosote for the Preservation of Timber
AS 1345	Rules for the Identification of Piping, Conduits and Ducts

AS 1433	Paint Colours for Building Purposes
AS 1530	Methods for Fire Tests on Building Materials and Structures Part 3 — Test for Early Fire Hazard Properties of Materials
AS 1580	Methods of Test for Paints, Varnishes, Lacquers and Related Materials (Metric units)
AS 1604	Preservative-treated Sawn Timber, Veneer and Plywood
AS 1606	Code of Practice for Water-repellent Treatment of Timber, Joinery and Other Timber Products
AS 1607	Water Repellent Solutions for the Treatment of Timber, Joinery and Other Timber Products
AS 1680	Code of Practice for Interior Lighting and the Visual Environment
AS 1728	Types of Timber Surfaces
AS 2204	Zinc-rich Organic Priming Paint
AS 2301	Wood Primer, Solvent Borne, Brushing*
AS 2302	Undercoat, Solvent Borne, Exterior/Interior*
AS 2303	Gloss Latex Paint, Interior*
AS 2304	Flat Latex Paint, Interior*
AS 2305	Semi-gloss Latex Paint, Interior*
AS 2306	Low Gloss Latex Paint, Interior*
AS 2307	Flat Paint, Solvent Borne, Interior*
AS 2308	Semi-gloss Paint, Solvent Borne, Interior*
AS 2309	Full Gloss Paint, Solvent Borne, Exterior*
AS 2310	Glossary of Paint and Painting Terms*
AS 2312	Protection of Iron and Steel Against Exterior Atmospheric Corrosion*
AS 2313	Flat Latex Paint, Exterior*
AS 2314	Low Gloss Latex Paint, Exterior*
AS 2315	Semi-gloss Latex Paint, Exterior*
AS 2316	Gloss Latex Paint, Exterior*
AS K55	Creosote Oil for the Preservation of Timber
AS K108	Metal Priming Paint, Anti-corrosive‡
AS K147	Paint, Varnish and Lacquer Remover (Non-flammable, Water-rinsable)
AS K211	Zinc Chromate Primers for Structural Steel
BS 5252	Framework for Colour Co-ordination for Building Purposes

\* In course of preparation.

† Australian Handbook of Dwelling Design and Construction prepared by the Department of Construction, obtainable from the Australian Department of Housing and Construction.

‡ In course of revision.

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## CONTENTS

	<i>Page</i>		<i>Page</i>
FOREWORD .. .. .	4	4.10 Roofing Paints .. .. .	16
SECTION 1. SCOPE AND GENERAL CONSIDERATIONS .. .. .		4.11 Special Paints .. .. .	17
1.1 Scope .. .. .	5	4.12 Timber Treatments .. .. .	17
1.2 Hazardous Materials .. .. .	5	4.13 Paint Removers .. .. .	17
1.3 Definitions .. .. .	5	SECTION 5. SYSTEMS FOR THE PAINTING OF BUILDINGS .. .. .	21
1.4 Effects of Australian Climate on Externally Exposed Paint .. .. .	5	SECTION 6. PAINT APPLICATION	
1.5 Effects of Local Conditions on Coating Systems .. .. .	7	6.1 General .. .. .	24
1.6 Wet Areas in Buildings .. .. .	7	6.2 Type of Paint .. .. .	24
SECTION 2. DESIGN FOR PAINTING		6.3 Climatic Conditions .. .. .	24
2.1 General .. .. .	8	6.4 Condition of the Substrate .. .. .	25
2.2 Timber Constructions .. .. .	8	6.5 Stopping and Filling .. .. .	25
2.3 Steel Installations .. .. .	8	6.6 Sequence of Operations .. .. .	25
2.4 Building Boards .. .. .	9	6.7 Methods of Application .. .. .	25
2.5 Colour .. .. .	9	SECTION 7. MAINTENANCE OF PAINTED SURFACES	
SECTION 3. PREPARATION OF UNPAINTED SURFACES		7.1 General .. .. .	28
3.1 General .. .. .	11	7.2 Criteria for Assessing When to Repaint	28
3.2 Timber Products .. .. .	11	7.3 Pretreatment before Repainting .. .. .	28
3.3 Building Boards .. .. .	11	7.4 Painted Surfaces in Good Condition (All Substrates) .. .. .	29
3.4 Iron and Steel .. .. .	11	7.5 Surfaces in Poor Condition .. .. .	29
3.5 Zinc and Zinc Alloy Coated Steel .. .. .	12	SECTION 8. MAINTENANCE PAINTING SYSTEMS	
3.6 Aluminium .. .. .	12	8.1 General .. .. .	33
3.7 Copper and Brass .. .. .	12	8.2 Retain Existing Paint System and Gloss and Colour .. .. .	33
3.8 Lead .. .. .	12	8.3 Retain Existing Paint System But Change Gloss and Colour .. .. .	33
3.9 Masonry .. .. .	12	8.4 Change of Paint System .. .. .	33
3.10 Set Plaster .. .. .	13	8.5 Speciality Paints .. .. .	33
3.11 Fibrous Plaster and Plaster Glass .. .. .	14	SECTION 9. PREPARATION OF PAINTING SPECIFICATIONS	
3.12 Plasterboard (Gypsum Paperfaced Board) .. .. .	14	9.1 General .. .. .	36
3.13 Plastics .. .. .	15	9.2 Content .. .. .	36
SECTION 4. GENERAL DESCRIPTION OF PAINTS AND PRETREATMENTS		9.3 Provision of Documents .. .. .	37
4.1 General .. .. .	16	9.4 Defects Liability Period .. .. .	37
4.2 Sealers .. .. .	16	APPENDICES	
4.3 Primers .. .. .	16	A Check List for the Preparation of a Painting System Specification for New Surfaces .. .. .	38
4.4 Undercoats .. .. .	16	B Check List for the Preparation of a Maintenance Painting System Specifi- cation for Previously Painted Surfaces	39
4.5 Solvent-borne Paints .. .. .	16	C Inspection and Testing .. .. .	40
4.6 Latex Paints .. .. .	16		
4.7 Varnish (or Clear Finish) .. .. .	16		
4.8 Stains .. .. .	16		
4.9 Paving Paints .. .. .	16		

## STANDARDS ASSOCIATION OF AUSTRALIA

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**Australian Standard****GUIDE FOR THE PAINTING OF BUILDINGS**

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**FOREWORD**

Painting is an accepted method of protecting materials to extend their service life, to enhance their appearance, or for reasons of hygiene.

In preparing this standard, the Association's Committee on Paints, Varnishes and Related Materials acknowledges that alternative materials and systems can also provide satisfactory service; however, the materials and systems included in this standard are known to perform satisfactorily when correct application methods have been followed.

Painting systems have been ranked in order of performance, but other criteria may take precedence thus leaving the final choice to be made by the consumer, the architect, or the paint applicator, as appropriate, depending upon the situation or conditions of contract.

Under these conditions the standard cannot be used as a painting specification, but can be used as a guide for the preparation of appropriate paint specifications to suit individual contracts. Guidance on the preparation of painting specifications is given in Section 9.

Appropriate check lists which may be a useful guide in the use of this standard are given in Appendix A and Appendix B.

## SECTION 1. SCOPE AND GENERAL CONSIDERATIONS

**1.1 SCOPE.** This standard provides a guide to procedures for the painting of buildings for general domestic, commercial and industrial use.

The standard specifically covers the following:

Design for Painting	Section 2
Preparation of Unpainted Surfaces	Section 3
General Description of Paints and Pretreatments	Section 4
Systems for the Painting of Buildings	Section 5
Paint Application	Section 6
Maintenance of Painted Surfaces	Section 7
Maintenance Painting Systems	Section 8
Preparation of Painting Specifications	Section 9
Check List for the Preparation of a Painting System Specification for New Surfaces	Appendix A
Check List for the Preparation of a Maintenance Painting Specification for Previously Painted Surfaces	Appendix B
Inspection and Testing	Appendix C

The standard does not include specific recommendations for the long-term protection of steel exposed directly to the atmosphere or to internal climates where aggressive environments may exist. The subject is dealt with more fully in AS 2312 to which cross-reference is made in the appropriate sections of this standard.

**1.2 HAZARDOUS MATERIALS.** All paints and related products should be regarded as hazardous materials. Controlling legislation for such materials is issued by State and Federal health departments on the advice of the National Health and Medical Research Council, Canberra.

Paint materials should not be left in unopened containers within the reach of small children.

Adequate ventilation in confined spaces must be provided where solvent-borne paint is used.

All solvent-borne paints are considered to be flammable and contact with flame or hot surfaces is to be avoided.

**1.3 DEFINITIONS.** For the purpose of this standard, the terms and definitions given in AS 2310 apply.

**1.4 EFFECTS OF AUSTRALIAN CLIMATE ON EXTERNALLY EXPOSED PAINT.** The effects of climate on externally exposed paint can be marked. Painted surfaces are subjected to 'weathering' and deterioration will occur both inside and outside the building. In general, atmospheric conditions to which exterior paintwork is subjected are governed by the prevailing weather of the region. Internal paintwork is affected by atmospheric conditions generated by the living activities of the occupants, and to a lesser extent, by the climate.

The main climatic factors affecting paint are rainfall, humidity and solar radiation. Solar radiation maps are available from the Bureau of Meteorology, Department of Science and the Environment.

The adequate representation of rainfall and its variability is difficult. The seasonal rainfall zones map (Fig. 1.1) attempts to classify the widely varied conditions throughout Australia. This is a simplified version of the seasonal rainfall zones based on the parameters of median annual rainfall and seasonal rainfall (Gaffney 1971).

Evaporation and the concept of rainfall effectiveness are taken into account to some extent in this classification by assigning higher median annual rainfall limits to the summer zones than the corresponding uniform and winter zones. The main features of the seasonal rainfall are —

- marked wet summer and dry winter of northern Australia;
- wet summer and relatively dry winter of south-eastern Queensland and north-eastern New South Wales;
- uniform rainfall in south-eastern Australia—much of New South Wales, parts of eastern Victoria and in southern Tasmania;
- marked wet winter and dry summer of south-west Western Australia and (to a lesser extent) of much of the remainder of southern Australia directly influenced by westerly circulation;
- arid area comprising about half of the continent extending from the north-west coast of Western Australia across the interior and reaching the south coast at the head of the Great Australian Bight.

Climatic conditions of the region must be taken into account when an appropriate paint system is being selected and the service life of that paint system is being predicted. Prolonged exposure to sunlight and high relative humidities intensify chemical and physical breakdown of a paint. Diurnal and seasonal variations in temperature and humidity are particularly significant; these cause not only expansion and contraction of the paintwork but also dimensional changes and degradation in most building materials which in turn further accelerate the deterioration of the applied paints.

Wet tropical climates are particularly severe on paints. Drying of paint is retarded, mould growth can proliferate and repainting is needed more frequently than in temperate regions.

Invariably and in all climates, external paintwork is required to be more weather-resistant than interior paintwork.

Atmospheric conditions within a building (except in air-conditioned buildings) are determined to a large extent by the climate of the region. The principal external climate factors which affect internal surfaces are temperature and humidity.

In temperate climates the low outside temperatures, which are common during the nights, cool uninsulated interior surfaces causing warm moist air generated inside the building from cooking, washing, people breathing and heating to condense on the cold inside surfaces of walls and ceilings. On days of high external humidity, the internal humidity of a building is also high.