



Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings

Part 1: Paint coatings



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- Australasian Corrosion Association
 - Australian Chamber of Commerce and Industry
 - Australian Electrolysis Committee
 - Australian Industry Group
 - Australian Paint Manufacturers' Federation
 - Australian Pipeline Industry Association
 - Austroads
 - Bureau of Steel Manufacturers of Australia
 - CSIRO Materials Science & Engineering
 - Galvanizers Association of Australia
 - Galvanizing Association of New Zealand
 - Materials Australia
 - New Zealand Heavy Engineering Research
 - SA Water
 - Water Services Association of Australia
-

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Australian Standard®

**Guide to the protection of structural
steel against atmospheric corrosion by
the use of protective coatings**

Part 1: Paint coatings

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee MT-014, Corrosion of Metals, to supersede, in part, AS/NZS 2312:2002, *Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings*.

A1 | Amendment No. 1 to this Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee MT-014, Corrosion of Metals. As a consequence of Amendment No. 1, which is published as an Australian-only amendment, the designation of this Standard has been changed from AS/NZS 2312.1:2014 to AS 2312.1:2014.

This Standard incorporates Amendment No. 1 (October 2017). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to provide guidance for architects, engineers, builders, the surface coating industry and users of protective services in general, on paint coating systems for the protection of steel work against corrosion. The designer can choose from a selection of systems based on expected service life to first maintenance for various environments. The systems recommended herein are based on good industrial practice and usage; however, local knowledge of any corrosion problem should influence the decisions taken. In providing recommendations on up-to-date protection systems, the Committee is aware of the large number of systems used commercially, but, to avoid confusion, has included only a limited range of systems for each type of environment.

It is necessary to refer to each Section of this Standard when a specification for an appropriate system is being prepared.

A1 | This Standard is part of a series for the protection of steel from corrosion as follows:

- AS 2312.1 *Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings*, Part 1: *Paint coatings* (this Standard)
- AS/NZS 2312.2 *Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings*, Part 2: *Hot dip galvanizing*

The revision of AS/NZS 2312:2002 is in three Parts. This Standard is Part 1 and it covers paint coating systems only, that is, liquid-applied paints whose main purpose is corrosion mitigation. Section 5 in the 2002 edition, which covered metallic coatings, has been deleted, along with other specific references to metallic coatings. Section 7 in the 2002 Standard, which covered factors influencing coating selection, has been moved to Section 5. Section 8, which covered powder coatings and tapes, has been edited and moved to Appendix H. These coatings may be covered by an additional part to AS/NZS 2312 in the future. Section 13 in the 2002 edition, which covered health and safety, has been deleted, as the Committee felt this important topic is too complex to cover in this guide. This Standard has also updated recommended coating systems and deleted some rarely used systems.

In preparing this revision, cognizance was taken of the International Standards in the ISO 12944 series, *Paints and varnishes—Corrosion protection of steel structures by protective paint systems*. These Standards were not adopted as the Committee felt the present document is more appropriate to Australian and New Zealand industry conditions and is more user-friendly.

This Standard has been prepared as a guide only, to provide advice and recommendations for paint coating of steelwork. Clauses in this document are written using informative terminology and should not be interpreted otherwise. Coating requirements should be determined for the individual application. This Standard should be used in conjunction with the relevant surface preparation and inspection Standards.

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

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STANDARDS AUSTRALIA**Australian Standard****Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings****Part 1: Paint coatings****SECTION 1 SCOPE AND GENERAL****1.1 SCOPE**

This Standard provides guidelines for the selection and specification of paint coating systems for the protection of structural steel work against atmospheric corrosion. Part 2 and Part 3 of the AS/NZS 2312 series of Standards cover metallic coatings.

This Standard specifically covers the following subjects:

- (a) Guidance on the use of the Standard.
- (b) Classification of atmospheric and non-atmospheric environments.
- (c) Planning and design for corrosion protection.
- (d) Surface preparation treatments.
- (e) Factors influencing coating selection.
- (f) Paint coating systems and methods of paint application.
- (g) Maintenance of protective coating systems.
- (h) Inspection and testing.
- (i) Guidance on the preparation of coating specifications.

This Standard does not cover paint coating systems for light structural steel, such as purlins, roofing or similar sections. Recommendations for paint coating these sections are available from manufacturers. Recommendations for paint coating hot dip galvanized articles are available in AS/NZS 2312.2.

The coating systems described may also be specified for the protection of items of equipment manufactured from steel which are exposed to exterior atmospheric conditions.

This Standard provides advice on, to a limited extent, the protection of steel work which is completely immersed in water or buried in soil, or which is subject to atmospheres severely contaminated with acidic or other chemical vapours such as may be encountered in some chemical manufacturing plants, and also the protection of ships. The systems recommended in this Standard can also be used on internal structures where wet or damp areas exist.

This Standard does not cover in detail powder coatings and wrapping tapes that may be used on steel in internal or external environments. These are briefly described in Appendix H.

It is necessary to understand that the systems recommended have been selected for guidance only and that life expectancy to first major maintenance is an estimate only. In practice, some minor maintenance will be required.

Because particular coating formulations and microclimates vary, the user of this Standard is advised to confirm with the manufacturer or supplier, that the selected system is suitable for the task and can be reasonably expected to protect the steel for a specified time.