

An Overview of the New Zealand Steelwork Corrosion Coatings Guide

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Introduction

This article provides an overview of the New Zealand Steelwork Corrosion Coatings Guide, HERA R4-133, (Clifton and El Sarraf, 2005) as well as the topics covered in the Guide.

New Zealand Steelwork Corrosion Coatings Guide

The New Zealand Steelwork Corrosion Coatings Guide (NZCCG) provides guidance on selection of appropriate and cost-effective coatings systems for structural steelwork. The Guide is written to be used in conjunction with the *Guide to the Protection of Structural Steel against Atmospheric Corrosion by the Use of Protective Coatings*, AS/NZS 2312: 2002, (SAA, 2004).

To achieve this objective, this Guide covers:

- **Basis of Protective Coatings:** This covers the corrosion process, protection mechanisms of coatings systems and the composition of paint coating systems.
- **Introduction to the Corrosion Protection Standard, AS/NZS 2312**
- **General Steps to Determining an Appropriate Coatings System Using the Corrosion Protection Standard**
- **Determining the Atmospheric Corrosivity Category for External and Internal Steelwork:** This covers the macroclimate and microclimate effects, determining the atmospheric corrosivity category for general and defined special applications, as well as a design example for the external case. As for the internal steelwork, the topic covered are dry internal environments, covered steelwork within the external wall and roof capacity of dry environment, wet internal environments, steelwork near openings in external walls and steelwork in car parking buildings.
- **Determining the Years to First Maintenance:** This covers state of the coating system when first maintenance is reached, durability ratings given in the standard and recommended years to first maintenance.
- **Types of Protective Coatings, Their Appearance and Indicative Costs:** This covers the difference coating system available in New Zealand both metallic and paint coatings systems, the finished appearance and estimating rates of coatings systems.
- **Use of the Coatings Selection Tables in AS/NZS 2312:** This covers the use of the tables, an example of application, some coatings systems for various applications and a procedure to follow when the coatings system can not be maintained.
- **Specification of Coatings Systems:** This covers weld splatter, surface preparation, coatings systems and material used, application of coatings, transportation arrangements, and inspection procedure requirements.
- **Important Factors to Consider:** This covers substrate and surface condition, environment, design, shop or site application of coating systems, surface preparation, conditions during application, maintenance considerations, inspection, steel to concrete interfaces and other matters.

- Guidance on the Inspection of Coatings Systems Before, During and After Application
- Maintenance and Recoating: This covers repair of damaged areas of galvanised coatings, steel surface preparation on site, maintenance washing to suppress unwashed effects and repair of fire damaged coatings.
- Protection of Steel in Non-Atmospheric Environments: this covers the guidance given in AS/NZS 2312.
- Design Corrosion Rates for Steel Piles
- Macroclimate Steel Corrosion Rates for New Zealand: This is covered by detailed maps of the North and South Island as well as the corrosion rate for Auckland, Wellington, Christchurch and Dunedin.

The New Zealand Steelwork Corrosion Coatings Guide is available through the HERA Information Centre, P (09) 262 2885 or refer to the HERA website www.hera.org.nz

References

Clifton, C., El Sarraf, R., New Zealand Steelwork Corrosion Coatings Guide. HERA Report R4-133, N.Z. Heavy Engineering Research Assn (Inc.), Manukau City, 2005

SAA / SNZ, *Guide to the Protection of Structural Steel against Atmospheric Corrosion by the Use of Protective Coatings, incorporating Amendment No 1, AS/NZS 2312:2002*, Standards Australia / New Zealand, Wellington, 2004