

## RAISING THE STANDARD

John Robinson – Editor

Collapsing insurance companies and increasingly litigious consumers have raised awareness in the building and construction industry that shoddy workmanship and poor selection of materials can no longer be fobbed off as a problem for the end-users.

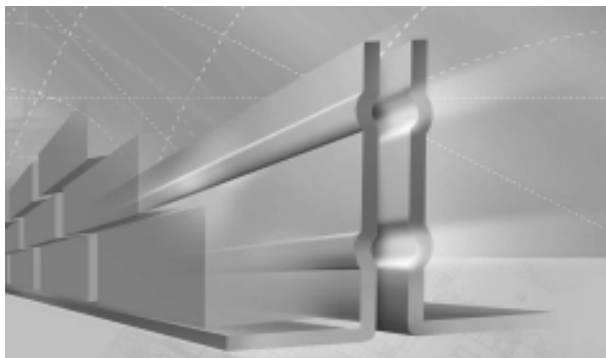
Corrosion Management's office sees examples of premature failures far too frequently, and the rectification costs can far outweigh the installation costs. Sometimes these failures arise from negligence and an attempt to take short cuts to save time or money. On other occasions, genuine errors are made because of a misunderstanding of the performance of some materials, particularly with respect to their protective coatings.

For some time, we have been campaigning for better building codes and standards, that define durability requirements rather than prescribe a particular characteristic for a product.

Construction takes place in a wide range of environments in Australia and no single economical solution is available for all circumstances. The environment on Queensland's Gold Coast will require a different durability solution to that at Ulluru.

Standards Australia has addressed this prickly issue in the draft of its latest standard – AS 2699.3 *Built-in components for masonry construction – Part 3 – Lintels and shelf angles (durability requirements)*.

This is one of the first true durability-based standards in that it defines the service life requirement for a residential building (50 years) and then details the requirements for manufacturers to produce branded products that have been certified to meet the necessary durability requirements.

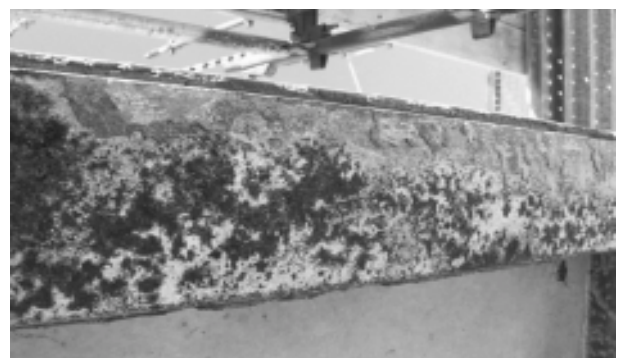


The importance of corrosion prevention of steel items embedded in masonry is obvious. The new standard addresses that by:

1. Nominating a required design life of 50 years
2. Defining the durability criteria based on atmospheric classifications.
3. Defining atmospheric classifications based on salt (chloride) deposition rates (see Table 1)
4. Requiring the coating to meet impact test requirements to ensure that it will not be compromised during transport and installation.
5. Defining coatings that are deemed to comply for use in each atmospheric classification e.g. hot dip galvanizing. (Table 2, 3 and 4)
6. Defining procedures for classifying the durability of lintel materials and coatings that are not listed as 'deemed to comply'.
7. Specifying a branding protocol to clearly identify the durability rating of lintels and shelf angles using a colour code that is visible after installation.
8. Using an independent certifying authority to classify durability (CSIRO....)

While Australian Building Codes exist, enforcement of their provisions has not, to date, been as universal as it should be, particularly in relation to steel in masonry.

In Western Australia in particular, and to a lesser extent in Victoria, very little attention is given to lintel durability issues, and builders continue to use steel lintels with coatings that do not comply with



*Hot dip galvanizing lintels and archbars to be used in building projects will achieve the life expectancies required in AS/NZS2699.3. Failure to do this could result in the lintel example (right) viewed from underneath.*

ABC requirements.

The introduction of enforceable durability based standards is the best way of ensuring that building owners get adequate maintenance-free life from their assets and that those who deliberately supply inferior products are held accountable for their decisions.

This new standard has been approved in draft and is expected to be published in late 2002. AS 2669.3 is a welcome addition to Standards Australia's library, and will set a benchmark for future standards where performance rather than prescription will define fitness for purpose. □

**TABLE 1**

**Classification of Atmosphere – Level of Salt Deposition.**

Classification	Salt deposition g/m <sup>2</sup> /day
R0	nil
R1	10
R2	20
R3	60
R4	300
R5	Specific corrosive environments

**TABLE 2**

**Durability Classification for galvanized Steel and Stainless Steel Lintels**

Durability Classification	Material or Protective Coating Specification
R0, R1, R2	Steel lintels hot-dip galvanized to comply with AS/NZS 4680 or AS/NZS 4791, except that the minimum coating mass shall be 300 g/m <sup>2</sup>
R3	Steel lintels hot dip galvanized to comply with AS/NZS 4680, with a minimum coating mass of 600 g/m <sup>2</sup>
R4	(a) For galvanized (duplex coated) lintels, see Table 3 (b) Stainless steel Grade AS 1449/316 or AS 1449/316L (UNS S31600 or S31603 respectively)

**TABLE 3**

**Durability Classification for Steel Lintels with a Duplex Coating**

Durability Classification	Protective Coating system specification	APAS Number*
R0, R1, R2, R3	Duplex coating consisting of galvanized coating complying with AS/NZS 4680 or AS/NZS 4791 except that galvanized coating shall be at least 300 g/m <sup>2</sup> , and a coating of 50 µm min. of a non-inhibitive epoxy primer (two-pack) to AS/NZS 3750.13, plus 125µm of high-build micaceous iron oxide (two-pack) to ASA/NZS 3750.14	GPC-C-29/7A
R4	Duplex coating consisting of galvanized coating complying with AS/NZS 4680 or AS/NZS 4791 except that galvanized coating shall be at least 600 g/m <sup>2</sup> , and a coating of 50 µm min. of a non-inhibitive epoxy primer (two-pack) to AS/NZS 3750.13, plus 200 µm of high-build micaceous iron oxide (two-pack) to ASA/NZS 3750.14	GPC-C-29/7A GPC-C-156

\*The APAS (Australian Paint Approval Scheme) paint specification number forms an integral part of the nominated organic coating or inorganic zinc silicate coating description. For general information on Standards on painting and the numerical index to APAS, see SAA HB73.1

**TABLE 4**

**Durability Classification for Steel Lintels with an Organic or Inorganic Zinc Silicate Coating**

Durability Classification	Protective Coating system specification	APAS Number*
R0, R1, R2	Abrasive blast clean to minimum AS 1627.4, Class 2 ½ . Apply not less than 75 µm inorganic zinc silicate in compliance with AS/NZS 3750.15 Type 3 or 4	GPC-C-29/8A
R3	Abrasive blast clean to minimum AS 1627.4, Class 2 ½ . Apply an average of 100 µm , but nowhere less than 75 µm inorganic zinc silicate in compliance with AS/NZS 3750.15 Type 3	GPC-C-29/8A
R4	(a) Abrasive blast clean to minimum AS 1627.4, Class 2 ½ . Apply an average of 100 µm , but not less than 75 µm inorganic zinc silicate in compliance with AS/NZS 3750.15 Type 3 or Type 6, plus not less than 125 µm on high-build epoxy micaceous iron oxide (two-pack) AS 3750.14 <i>or</i> (b) Abrasive blast clean to minimum AS 1627.4, Class 2 ½ . Apply not less than 400 µm of high-build epoxy mastic (two-pack) AS 3750.1	GPC-C-29/8A GPC-C-156 GPC-C-29/7A