

Submission to the Senate Economics reference committee for inquiry

Addressed to:

The effects of Non-Conforming Building Products on the Australian Building and Construction Industry

AS 3996 - 2006 Access Covers and Grates

Research Report to Regulators & Standards Australia

This report describes the growing disuse of the engineering requirements of the National Standard

AS3996 - 2006 Access Covers & Grates — Stormwater Drainage

1. Research records and report from 2 years of consultations with industry, Regulators and Standards Australia
2. Case study evidence Appendix 1 attached

Introduction— Summary of Issues

Relevant Code and Standards correlation

N C C - B C A reference -Volume Two - Part 3.1.1 Drainage

A Standard specification for drainage to be designed & constructed in accordance with A S /N Z S 3500.3 Clause 2.13.3 — this requires Metal Access Covers and Sump Grates to meet — A S 3996-2006 -Access Covers& Grates- Inclusive of 6 normative compliance appendix

Principal matters of concern

Widespread disregard of the code and its referenced Standards — the practice is however more common in private building, while being reported to be encroaching on public works.

Premature in service failures, of nonconforming Storm Water Covers and Grates

Growing record of significant repair costs which are general and not simply isolated items on a project

A series of failure reports and a recent serious cycling accident as a consequence of non-compliance

Reluctance on the part of the Insurance industry to be involved when approached on accident claims, although some Insurance companies did accept the problem and asked to be kept advised since they did not have the recourses available to investigate.

A diligent search through the Infrastructure, Construction, Building Industry, Standards Australia and regulatory bodies for a compliance authority, was to no avail. We can only conclude that with respect to enforcement or certification, no such authority exists.

Public good and Community safety appears to be unacceptably neglected.

Practical Considerations

Significant risk of structural failure

Loss of critical steel dimensions

Diminished service life expectations of surrounding masonry structures

Lack of the seamless surfaces intended, for secure vehicular, cycling and pedestrian passage required through the code, from the referencing of relevant National Standards.

Proposal to re-activate conformance with the above referenced Standards, particularly of product compliance

The effect of current practice of product supply and installation of Steel Access Covers and Grates.—*N B See Case Study evidence—Appendix 1 attached.*

This advice records responses to our previous summary report and matters arising from our continuing consultation with industry.

The project began as a technical investigation with the initial aim to examine evidence of failure and of lack of use of the applicable Codes & Standards. This showed that the relevant Standard A S /N Z S 3500 and its practitioner reference AS 3996:2006 are well recognised, responsibly developed and technically sound. They also included comprehensive compliance requirements, which are, unfortunately, being widely ignored.

It should be noted that, parallel Steel /Masonry Structures in building which have much in common with Covers and Grate are suffering a similar decline in standards product compliance

We have also been obliged to search for the Code authority in our quest to determine the lack of Australian Codes & Standards compliance and enforcement or otherwise.

Present circumstances show continued use of steel which is deficient in several respects constituting a risk to the community and to the reputation of the Australian building industry. The situation must surely be regarded as a failure to address the public good and has encouraged the current use of competing imported products which are not compliant with either Australian or International Standards.

Lack of compliance

This occurs with respect to the safety requirements for vehicular, cycling or pedestrian traffic where the following major problems arise.

Relevant Standards

Reference Identity A S -3996:2006 Access Covers and Grates—B C A Volume 2 Part 3.1.1. as- a secondary reference through A S 3500-3—Drainage.

We are advised that a Standard is not diluted by this method of entry into the code

Explicitly required in the referenced Standards— normative appendix notes that— “The long term performance of Covers and Grates is critical to the operating efficiency of roads and pavements. The long term performance of these components is similarly critical to the durability of building infrastructure, protection of public health and safety and protection of the environment.”

Specific Standards Requirements not being provided include:-

A S3996 2006 Normative Appendix A

- Current failure to meet national load tables—required by both Standards and the N C C-B C A-Code
- Industry Authority—differing opinions exist as to which-if any-authority has responsibility for product compliance and its enforcement
- Lack of the required manufacturer compliance information
- A verification trail, which includes Acceptable Quality Level (A Q L) Product Certification and Minimum Sampling & Testing.
- Frequency plan—Inspection levels—Lots or Production Batches-“a clearly identifiable collection of units manufactured consecutively or continuously under the same conditions conforming to the same specification.”

Sample—1 or more units drawn from a batch or lot, selected at random without regard to quality

Lack of this information raises serious concerns and seems to be indefensible given the case study evidence available and its potential to impact community safety and ultimate asset value.

N B - Disregard for engineering load tables, in particular, is surprising in any country of respectable building reputation. This has emerged over recent years contemporaneously with the rise of imported steel items into Australia, and is an unlikely coincidence—although some imported steel products in other structural steel sectors do meet Australian and International standards and can therefore be considered valid and legitimate competitive supply options---This issue requires urgent open and comprehensive discussion and careful regulation.

Search for a designated regulatory authority suggests that no clear line of referral exists. In effect the most likely building industry parties each advise that they do not have this authority.

The unfortunate outcome is that, without an authority, no regulation is being enforced over several building sectors.

Our research shows, however, that more control of structural specifications is still being exercised in the Public, than presently in the Private building sector.

Consequential considerations

Commercial and residential building categories are most likely to experience early and substantial maintenance cost imposts.

Diminished service life expectations of surrounding masonry structures

A significant risk of structural failure and a high probability of accidents

Context-of research—Proposition—Steel use in masonry structures

Efficient use of steel for composite design in buildings, as referenced in the N C C—B C A

In Building and Construction, steel is normally used for essential and critical purposes, to ensure structural strength, stability and cohesion, within other building products where masonry—composite construction—is a prime example.

This is generally an imperative engineering requirement which cannot be set aside arbitrarily once contained in an official building specification.

Critical steel design functions and characteristics—assumed in the use of steel in Public, Commercial and Residential building

High strength—low physical presence—for optimum structural-design capability

Reliability—of accurate steel dimensions within buildings

High strength and durability—to meet the principle of a 50 year design life to first maintenance as the minimum community service life expectation.

This is required by most Australian/New Zealand building Standards and is a widely accepted, reasonable period which is fair to the community.

Maintaining clear correlation with many associated, A S & A S /N Z S engineering standards.

Validation and Verification of products

Means of demonstrating compliance with Australian Standard and Regulatory Codes design requirements

Rationale of Building Product Risk

This subject is an essential component of planning and building material procurement.

Product supply is presumed to follow a tightly controlled manufacturing process even when it occurs overseas.

The further expectation is that matters of design, product consistency, verification, freight, delivery, installation and final certification of a building, are all relatively risk free.

This optimistic “no risk outlook” is, inevitably, not supported by all supply sources, nor is it justified in some unavoidable and variable aspects of installation.

This leads to a situation where, having enforced stringent cost containment through builder competition, we make little allowance for the many uncontrollable site circumstances affecting the practitioners on whom we depend. This may be a “building way of life” but the game is now often played on a pitch which is not only uneven, but clearly unplayable.

The use of such noncompliant products therefore, will affect at least two aspects of building; that is, reduced product life and adverse influences during building practice.

In this context of risk, even greater impact can result, if adversely triggered by circumstances affecting construction progress, many of which are unavoidable and effect site efficiency.

These include:–

Climatic and other environmental effect

Site Access

Specification integrity

Time & Cost limits

Manufacturing & supply arrangements

Design needs or changes

Site congestion and the resulting problems, when one or more of the listed problems occur

Prior to site delivery these are generally well controlled by the relative comfort of sheltered factory conditions.

Beyond this stage, however, the uneven playing field becomes active, as time constraints dictate that, for many freight or handling repairs needed, on-site remediation is the only option.

During site works competing priorities often have a negative effect on building efficiency which inflicts time and cost penalties upon practitioners.

Regardless of every planning effort, these are issues which often arise through all manner of building pressures that are seldom predictable.

Given this environment, compliant products of consistent quality are even more important where there is literally no time to allow for the effect of dubious product compliance and is a productivity issue.

Explanatory comment

It is acknowledged that off-site works generally have the benefit of predictable and reliable conditions which are largely risk free.

On the other hand optimal control is seldom available within site work which must contend with a lottery of possibilities and permutations of action, including such as access, occupation and site schedule availability, over which they have little control. This is often required within a tenuous building program which must be accepted on the ever changing priority of other parties involved.

The moral of this story is very much that those in the project construction phase of the building chain—Regulators—Building Practitioner Industry—Certifiers—property owners and ultimately all levels of Government and Local Government, carry a component of building risk.

Australian Codes and Standards current requirements

Good practice including associated methods of determining class, durability and suitability of manufactured products and their test procedure, must apply:-

Means of demonstrating product compliance by manufacturers

Compliance requirements from other Australian or International aligned Standards:-

Evaluation by statistical sampling

The use of a product certification scheme

Assurance using the acceptability of a supplier's certification scheme

A S 3996 : 2006 Reference note

“Other such means proposed by the manufacturer or supplier and acceptable to the customer, consistent with Australian Codes and Standards procedures, given that responsibility remains with the supplier or manufacturer to supply products that conform to the full requirements of the Standard—” This clearly includes compliance.

.A S-3700—Masonry Structures

Explanatory

Interrelated references that are relevant and essential for composite building inclusive of Masonry in small buildings A S 4773.1–2010 Part 1 &Part 2 which have been referenced within the B C A. On which we have been advised that secondary references are not diluted by their being accessed in this way.

Suggested—Possible Solutions

On the evidence the following have been suggested for consideration towards the necessary compliance required:-

That a proposal is put to Standard Australia to reconvene the industry technical committee, C E 029—currently inactive—as a forum to review and if required, revise compliance needs noted in this report. This committee reconvening has been accepted in principle by Standards Australia.

Such consensus work could also address the intent of existing code and standards references involved.

That Australia's stance on the World Trade Organisation (W T O) agreement on Technical Barriers to Trade also seems to have relevance.

This International agreement between countries does not encourage the one sided product import influence currently in play with regard to steel products. In this respect it has been said that reciprocal intent and by-lateral effect is intended by adoption of the agreement between countries.

Summary of salient issues

- The proposed review is to address the specialised use of steel in building and where explicitly required by A S 3996—Access covers and grates.
- Steel placement in composite construction ensures structural strength, stability and cohesion with other building materials, of which Masonry structures are a prime example.
In many cases other building products are dependent on the unique capabilities of steel to meet their respective design and performance criteria. This building practice has been developed on its long standing efficiency and reliability in masonry.
- In present context it involves, design, warranty, safety, objectives of concrete and composite components within roads, bridges, car parks, pedestrian/ cycle tracks, stadia surrounds and residential & commercial buildings.

- In building and Construction, steel is normally a specific design requirement and its specification strictly without compromise.
- There is general agreement that no major changes to the Standard are expected.

Many points here are intended for further committee discussion and arose during recent industry efforts to find a solution to the problem.

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