

NON-CONFORMING Building Products

While on the surface, Building and Plumbing products may look the same, they are often not.

The adage 'you get what you pay for', certainly rings true when it comes to commonly used products – from insulation to windows and glass, steelwork and fixings, to paint, plumbing, gas electric and wood products, to common household products... even the kitchen sink.

An alarming trend has seen the importation and local manufacture of sub-standard building products that do not comply with the National Construction Codes (NCC) and various Australian Standards (AS), including the Building Codes of Australia (BCA) and the Plumbing Codes of Australia (PCA). These standards set out specific requirements that relate to products used by the Building Industry with respect to corrosion resistance, strength, performance and correct installation procedures etc.



A TICKING TIME BOMB

This trend towards using sub-standard building materials is based almost purely on price, and have participants who lack appreciation of what is required of the products they continue to use, without consequence and little regard for satisfying performance standards set out in the various AS/NZS Building Codes. Companies that are doing the right thing get squeezed out on cost and it becomes a race to the bottom, blatantly putting safety and lives at risk.

New NCBP Legislation

The latest State to refresh the fight against NCBPs is Queensland, announcing in late May that it would pass the nation's toughest legislation against bad practice. This legislation is due to be in place before the end of 2017. Queensland's Minister for Housing & Public Works, Hon. Mick de Brenni, has declared that new "chain of responsibility" legislation would mean all members of the supply chain, including designers, manufacturers, importers, suppliers and installers, would be required to ensure building products were safe and fit for their intended purpose. In addition, "the new laws will allow Queensland Building and Construction Commission (QBCC) officers to inspect buildings, take samples for testing and direct rectifications".

Policing and compliance of breaches to the code has to date been difficult to enforce, with building regulators not having an established chain of responsibility to investigate and address NCBPs issues. But this is about to change with obligations and responsibility placed across the entire building supply chain participants – designers, specifiers, importers, manufacturers, suppliers and installers.

Furthermore, while products may look the same, product quality has been difficult to judge from a visual perspective, i.e. whether the product being used meets the right building standards for its intended use.

For example, corrosion coatings, product composition quality, thickness and strength. These indiscretions are then often hidden behind the walls or floors of the completed constructions.

Out of sight, out of mind, until they come back to haunt the unsuspecting owners.

The resultant effect of the use of sub-standard materials is a ticking 'Time Bomb' that over time will become evident. Regardless of time limitations, it may explode in the installers face if deemed to not be in accordance with the appropriate standards at the time of construction.



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Public awareness and expectations

As consumers become increasingly aware of the performance requirements of building components, this lax, penny pinching approach could result in retrospective litigation as these Time Bombs go off.

With the high cost of construction and real estate it would seem fair and logical for consumers to expect their investments to have been constructed to the appropriate Building Standards using the correct building materials and methods. And to assume they will withstand the test of time. This brochure sets out to help designers, specifiers, manufacturers, merchants and trades to be aware of, understand and adhere to the relevant building codes and standards and their obligations.

The importance of the correct coatings on metal products

Metal products offer a significant component in the building process so it is imperative that only tested and approved products are used to ensure that they are fit for purpose to best withstand the test of time.

Without the correct protective coatings, metallic building products such as sheet and strip steel, will more quickly react with their environment and 'rust'. The speed of this deterioration is generally governed by the available moisture within the environment and will be exacerbated within corrosive industrial or coastal proximity.

Protective coatings over sheet and strip steel has come a long way and has been designed to offer various levels of protection against corrosion, and work in unison with the strength requirements that the product is deemed to require to perform satisfactorily.

NCBPs



Grenfell Apartment fire, London 2017

Non-Conforming Building Products

NCBPs are products and materials that claim to be something they are not. They don't meet required standards for their intended use and are marketed or supplied with the intent to deceive the people that purchase and use them. They pose a significant immediate and long-term risk to public health and safety. Unfortunately NCBP's and sub-standard construction practice issues are often only brought to the attention of the general public through disasters.

Remembering the 2014 Docklands Lacrosse Apartment Tower Fire and 2017 London Grenfell Apartment inferno that killed 79 residents. In both cases untested combustible wall cladding contributed to the spread and ferocity of the fire.



Lacrosse Apartment Tower fire, Docklands 2014

Coating mass

The coating mass is essential and describes the minimum coating mass per square metre of sheet steel. It is important to note that to ensure compliance to the standards, it is not enough to specify coating type only, without specifying coating mass, ie Galvanised Z275, which is the amount of corrosion protection required for the environment in which the product will be used.

Designation of common coating classes

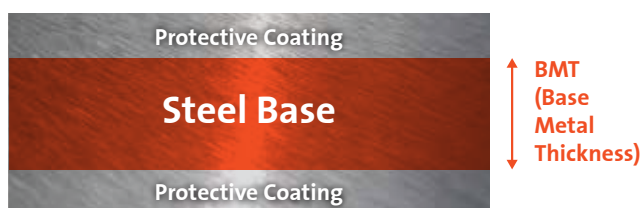
Coating Class Designation	Coating Type	Coating Mass
Galvanised Z275	Zinc	275 grams per square metre
Galvanised Z600	Zinc	600 grams per square metre

Correct material selection, handling and installation

The key to obtaining the full benefits of the corrosion resistant coatings applied to steel building products lies in correct material selection, good handling, proper installation practices, and sensible maintenance.

Base Metal Thickness

Base Metal Thickness (**BMT**) relates to the thickness of the base metal. It provides the structural load bearing capacity and integrity of the product. Structural capability is a function of base metal thickness and steel grade, whereas corrosion performance is determined by coating thickness and type.



Coating types and compatibility with other metals

Due to the corrosive nature in masonry structures, Z600 galvanised is the minimum coating class to be used. Please note, Zinalume® does not conform as it is highly corrosive in mortar.

Coating types and compatibility with corrosive environments

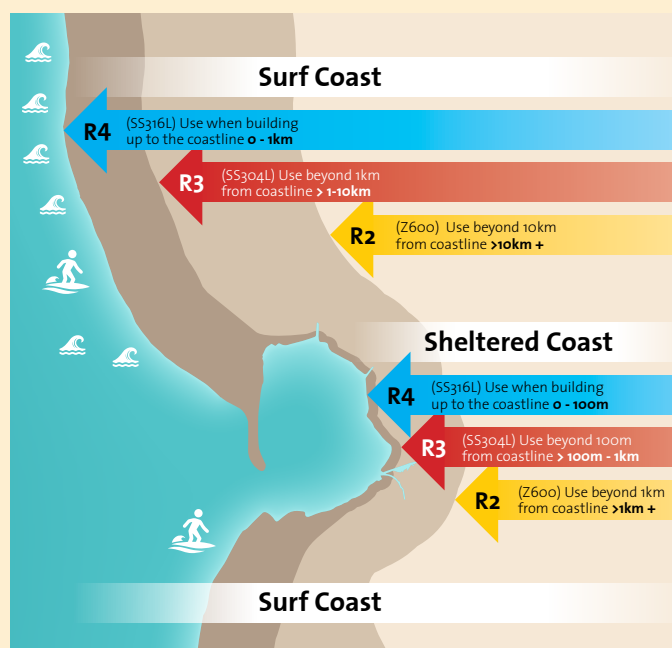
There are highly corrosive environments that require special attention – metals and coatings that come in contact with mortar such as brick ties and brick vents, and/or in corrosive industrial or coastal environments as such as plumbing clips and fasteners. In extreme corrosive environments, coated products will not offer enough protection.

In these instances a higher quality level of metal should be specified. For example, when building near corrosive coastal or industrial environments products such as stainless steel SS304L or marine grade SS316L should be specified.

Corrosion zones

The Masonry Durability Exposure Map represents an indication of corrosion zones within a coastal environment. As a general rule, the closer the dwelling is located to the sea, the more corrosive the environment, and the greater the level of corrosion resistance, steel based products need to provide.

Australian studies have shown that salt fallout from the ocean can carry in land in excess of 30 kilometres. Coated sheet steel and strip steel building products, such as brick ties, should be selected based on the distance of the structure from the coast and whether that coast opens to a sheltered bay or clear ocean. As can be seen in the case of close proximity to severe marine environment, coated steel products should not be used and Marine Grade Stainless Steel is the only option, as it offers the correct level of corrosion resistance. Coated steel products just do not offer sufficient long-term protection. (Please refer to appropriate AS/NZS Building Standards for the products being installed).



Durability Classification for Masonry Strip Steel Wall Ties

Durability Class	Material	Surf Coast	Sheltered Coast
R2	Galvanised Z600	> 10km	> 1km
R3	Stainless Steel 304L	1km to 10km	100m to 1km
R4	Stainless Steel 316L	0m to 1km	0m to 100m

Corrosion classification by Abey

Abey are a proud Australian company that have been designing and manufacturing the highest quality strip steel products for the building industry for over 50 years. These products conform to all Australian/ New Zealand Building Codes and Standards. To assist merchants, specifiers and end users to identify the corrosion resistance levels of their products, Abey have embarked on a Quality Assurance labelling program that is colour coded to show the level of coating (below), and where applicable, corrosion classification in which they can be used. When choosing an Australian Made Abey product, you can rest assured that the product you use is a quality product that conforms to all building relevant codes. It pays to support Australian Made.



Coating	Classification	Product	Use
Stainless Steel 316L	R4	Stainless Steel	Severe Marine grade corrosion resistance. Use in constructions in extreme coastal environments, Alpine or Corrosive Industrial areas.
Stainless Steel 304L	R3	Stainless Steel	Medium Duty corrosion resistance. Use in constructions environments close to Ocean or Corrosive environments.
Galvanised Z600	R2	Galvanised	Moderate Duty corrosion resistance. Use in constructions in moderate environments.
Galvanised Z275	R1	Galvanised	Mild Duty corrosion resistance.

Please note, all Australian and New Zealand Standards should be read to incorporate any updates to the most recently published versions.

The importance of buying Australian Made

Buying Australian Made products not only supports the manufacturing sector and Aussie jobs but also controls the quality of products that are being used, and the longevity and structural integrity of the dwellings that are being constructed.

Australian manufacturers are governed by stringent laws and building codes. They can be held accountable, whereas imported products do not operate under the same rules. They don't stand by their products. They don't understand or support the trades and industries they sell to and they don't employ Australians. But most importantly some of the products that are bought in to our country do not conform to our Building Laws, are of dubious and inconsistent quality, and can have unsafe and negative long-term effects on the projects that they are used in, with little retribution to the original manufacturer.



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