

# CLADDING: BACK<sup>to</sup> Basics

by BSi Steel

If one discusses cladding, I am quite certain that it would be up to individual interpretation what that actually means. Some may interpret it as flashings, some a material coating, some actual material with a coating. I have tried to cover all interpretations and kept the following information as simple and precise as possible to provide some insight into the meaning of “cladding.” In essence cladding is the waterproof envelope of a building.

In the case of roofing it would either be a pierced fix or concealed fix profile produced a steel coated material in the desired profile (Corrugated, IBR, Widespan and/or a number of patented concealed fix designs).

The steel base material is most commonly protected by a galvanized (Z) or Aluminium-Zinc Coating (AZ) both of which offer different types of protection.

## **Galvanized coating**

The mild steel is continuously hot-dipped into an almost pure zinc formula to cover the material and this provides a sacrificial layer in the form of a shiny zinc coating, which can be supplied in various spangles to create a different surface appearance. As zinc has a corrosion rate one tenth that of steel a Z275 coating will protect the mild steel substrate for between 10 and 15 years, depending on environment.

## **Aluminum zinc coating**

The mild steel is continuously hot-dipped in a formulation of aluminum, zinc and silicon. The addition of aluminum increases the protection factor by almost 4 times in a marine environment thereby providing a tougher barrier between the mild steel substrate and the elements.

The above materials are available with an organic coating, in a range of colours, under

various copyrighted names e.g. in the coated and painted mild steel substrates in the form of Chromadek (Mittal produced) and Colorplus (Safal produced). These coatings in addition to being aesthetically pleasing provide an additional barrier to corrosion.

## **Flashings**

The generic term for a number of specially formed designs which in broad terms are roofing components to seal the transition of areas of cladding (valleys, hips, ridges, barge, etc.) or where cladding joins masonry or decorative trim.

These flashings are produced from the above materials to ensure compliance and compatibility with the cladding materials to ensure the roof sheeting flows in design. It is advisable not to mix colour coated materials from different suppliers as each paint system has unique weathering characteristics.

Bullnosing and curving of roofing sheets is a process that is applied after the production of the profiled roof sheets and is a process rather than additional component as is the case in in Flashings.

*BSi Steel (Pty) Ltd Roofing, is located at Kliprivier (Meyerton R59) and produce an IBR, Corrugated and Widespan Profiles in the mentioned materials. Bullnosing, curving and flashings are supplied to your specification.*

# Are you getting WHAT you specified?

by Dennis White, SAMCRA Director



You've chosen a profile (cladding system). You've selected a material grade and thickness plus a coating system. You've included all these details in your specification, so... the cladding is sorted... right? Not quite.

To an increasing number of entrepreneurs this is merely an invitation to do business and let the buyer beware. Specifiers are particularly vulnerable when it comes to generic profiles (systems) or copyrighted brands that have or are in the process of becoming generic by misuse.

First off you need to understand the difference between a cladding profile and cladding system. The profile defines the geometric shape of the individual lengths of material whilst a system pertains to the profile together with the anchoring system plus all the ancillary items that combine to provide the waterproof envelope to a building.

The most common generic components are:

- 1) Cladding systems-corrugated (iron), IBR or box rib and concealed-fix.
- 2) Grade of material-CQ (commercial

quality) and fullhard

- 3) Thickness - 0.4 0.45 0.47 0.50 0.53 0.55 0.58 0.60 and 0.80mm
- 4) Coatings - galvanized, Aluzinc (Zincalume), colour-coated (Chromadek), aluminium and stainless steel.

Theoretically we have a single corrugated cladding profile available in two widths 8,5/76 and 10,5/75. The 8,5 and 10,5 are the number of pitches between corrugations and the 76 is the pitch (distance) between the crests of individual corrugations measured in millimetres. The depth is fixed at 18mm ( $\pm 1$ mm). In recent times numerous widths and/or depths as low as 16mm have been foisted on an unsuspecting public. There is a noticeable difference in the spanning capabilities of 18 and 16mm deep corrugated cladding. IBR was a copyrighted name of a box-rib (trapezoidal) profile with specific geometry that was introduced in the 1960's which has subsequently become the generic name for all box-rib profiles. The original profile had a cover width of 686mm, five ribs spaced equally at 171,5mm, the ribs were 37mm deep, 35mm wide at the top and 69.5mm at the base. Today there are profiles with much shallower and narrow ribs being passed off as IBR. Most reputable roofing profilers produce an IBR that complies with the original and market a variety of weaker profiles under various brand names.

It must be remembered that the spanning capabilities of a profile are directly proportional to the square of the depth of the ribs. There have been several generations of concealed-fix profiles ranging from narrow standing seams to trapezoidal ribs or a combination of the two. Klip-Lok although a copyrighted profile is trending toward becoming a generic name (with numerous corruptions of the spelling) for concealed-fix profiles with trapezoidal spring snap ribs.

BELOW: 0.58mm Chromodek Charcoal, 26 200m Klip-Tite sheening was used to clad the Cell C Warehouse, an entry in the 2015 Steel Awards.



Grades of material are now described, in line with international practice, by minimum yield strength measured in megapascals (MPa). CQ has become 230 and fullhard 550. An intermediate grade of 300 MPa has been introduced. Unfortunately there is no uniformity in the prefix used to describe the grades e.g. G550, ISQ500

etc. generally material up to and including 0.53/5mm is 550 MPa, 0.55/8 is 300MPa and thicker material 230MPa.

Thickness is the total coated thickness of the coated material (steel core plus coating) rolled to a tolerance of  $\pm 0.02\text{mm}$ . Certain unscrupulous roll formers are substituting 0.48mm material for 0.50mm etc. In an attempt to address this problem the National Regulator for Compulsory Specifications has agreed that the shortly to be published revision to SANS 10400 Part-L will require: *all coil used for the manufacture of metal cladding to be indelibly marked 50mm in from each edge and at not more than three metre intervals, with amongst other data the weight and type of any metallic coating and identification of any other coating applied to the coil.* Local cladding manufacturers refer to this indelible marking as branding.

A large portion of the population are not aware that galvanized (or more correctly zinc coated) material is available with different thicknesses of the coating ranging from Z100 to Z600. The Z denotes the coating is zinc and the number the total mass of the coating, measured in grams, to both sides of a square metre of material. As the durability of a coating is basically proportional to thickness a Z275 coating will have a service life expectancy 2.75 times that of a Z100 coating. Zinalume, ZinCAL and Aluzinc (which has effectively become a generic name) are all copyrighted names for 55% aluminium-zinc coatings. Similar to zinc coatings they are available with different thicknesses of the coating ranging from AZ100 to AZ200 with durability being proportional to thickness. There are other aluminium-zinc coatings available with the percentage aluminium varying from as low as 5%. These coatings are normally denoted as ZA. Colour coated (pre-painted) material is available with either a galvanized or 55% aluminium-zinc

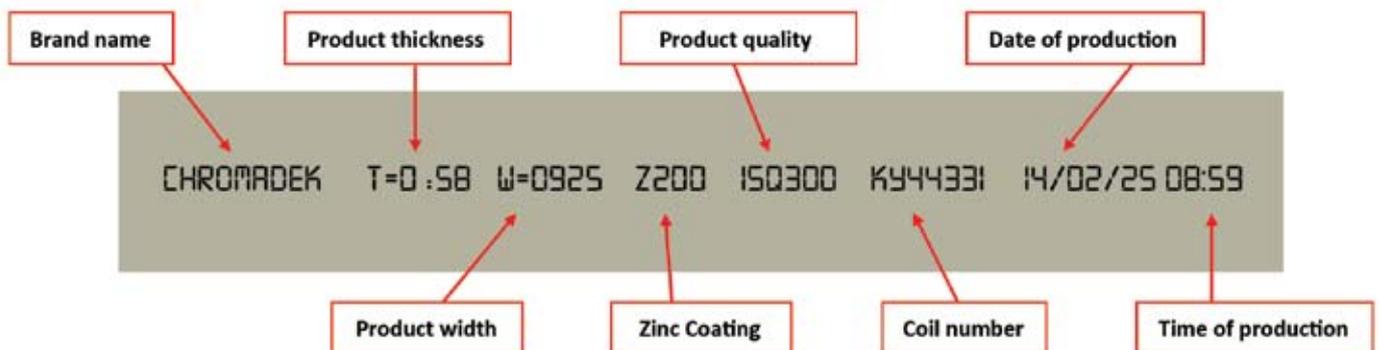
coated substrate. The overall performance of these products in a given environment is dependent on the combination of paint system, the thickness of individual layers plus type and thickness of the underlying metal coating. Not all paint systems are equal. Performance of paints is directly linked to their formulation plus quantity and quality of the ingredients used. Paint systems with the same formulation composed of lesser quantity and quality of materials will not have the same durability as those made with better quality materials. The extremely high levels of UV radiation experienced in Southern Africa quickly reveal the quality of the pigments and resins used. It is therefore advisable to specify brands with a proven track record rather than accept an unproven paint system.

Prior to the RSA becoming a member of the World Trade Organization (WTO) cladding products available locally were comparable, however, that is no longer the case. Our market is being flooded with inferior materials and products where price is considered over performance. When considering the life cycle of products never has the expression penny wise, pound foolish been more relevant.

The growing incidence of counterfeit documents pertaining to quality and composition of materials is cause for concern. We therefore encourage the insistence of branded materials as a means of ensuring the components supplied are what were specified.

Branded coil has been available in the RSA for over fifteen years, mainly as an option to the more reputable cladding manufacturers. Fortunately two local and one foreign mill have adopted a policy of supplying branded product only. In addition to the minimum data detailed above their branding contains the name of the producer mill, production date and batch number.

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# High praise for SAMCRA standard setting

By Alan Browde

The Southern African Metal Cladding and Roofing Association (SAMCRA) has received high praise for the way it is helping to set industry standards in the metal cladding and roofing industry in the SADC region. This is according to Sally Stromnes, Marketing Planner and Co-ordinator for the Safal Group in Africa.

“SAMCRA - and specifically its director Dennis White - is closely involved in the writing of improved building standards and providing significant guidance on best practise installation methodologies to the metal roofing and cladding industry throughout the region,” Stromnes says. “In order to have a world-class metal cladding and roofing industry it is essential that construction standards and materials are not only appropriate to Southern African conditions, but that they are also commonly understood and adhered to. In this regard Dennis, with his decades of experience in the field, is doing a sterling job to raise awareness and knowledge levels in the industry.”

She adds that correct and appropriate specifications are at the foundation of a successful installation. “Plain ignorance or a lack of compliance can lead to installation failures which have a hugely negative impact on the reputation of the roofing industry throughout the region. Although we still have a long way to go, there is no doubt that Dennis and his SAMCRA team are making a palpable difference to the situation,” Stromnes says.

Stromnes emphasises that the two most critical areas where standards have to be effective, is in the installation detailing, and in tight materials specification.

“Installation detailing and fastidious attention to on-site standards are areas where measures to save time or money will backfire very quickly. Flashings that restrict or can't cope with roof drainage, compromises on material thickness, swarf and debris collection on the roof during installation, and poor sheet alignment

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are just some examples of problems that will lead to the need for expensive and unnecessary remedial work within a short space of time.

“Fasteners are another small but critical component that is vastly under-rated. It is incredibly short sighted economy to save a few cents on a fastener if it cannot offer a life span at least equal to that of the sheeting. Many contractors try to save money on the fastener as it is seemingly such a small part of the total cost of the roof but, in fact, it is the fastener, not the sheeting, that is the most frequent cause of roofing failure” Stromnes says.

Fasteners are also critical to obtaining a fire rating on cladding, and South African standards require that side-laps are stitched together to protect buckling between purlins in the unfortunate event of fire. This needs to be written into specifications by the professionals, and needs to be adhered to by the installer.

“Unfortunately, ‘best practice’ is often not common practice, because profit gets in the way. In the long term, this undermines the perceptions created for the entire industry. We must find ways to promote the

adoption of best practice, to develop a code for the industry as a whole, and to ensure that it is enforced, to the benefit of those who work with metal cladding systems, and those who invest in them.

“SAMCRA is playing a huge part in making building standards mandatory or, at the very least, in ensuring that they are a series of very strong recommendations which investors have a right to insist upon” Stromnes says.

Stromnes continued by saying that this applies equally to any market, and particularly emerging African markets. The Safal Group as a whole, with operations in 12 countries in Southern and Eastern Africa, is committed to being part of the upliftment of standards in all its markets.

“SAMCRA regularly conduct training session for our technical, sales and marketing personnel in order to improve their technical knowledge and their familiarity with building standards. From Safal Group’s point of view, our expertise is critical to enable us to guide our clients in the appropriate and correct specification, installation and maintenance of our products, giving them the investment value they have a right to expect and demand.”

Stromnes maintains that, given the increasing number of projects being undertaken by South African professionals, contractors and roofing installers in African countries, the quality of locally supplied products and the availability of technical

support services is a critical differentiator for the Safal Group. “Every one of our Group Operations is able to support our clients with technical advice and guidance, from design and specification stages through to installation and sign off,” she says.

Stromnes has rolled out SAMCRA training for technical and sales staff in Safal Group operations in SADC (South Africa, Namibia and Botswana) as well as Tanzania, Kenya, Uganda, Rwanda and Ethiopia. “Dennis White has the professional knowledge and field experience to provide indispensable insights on installation best practice in the field and on the engineering of metal roof and side cladding systems for specific conditions in Eastern and Southern Africa,” she says.

“The Safal Group will continue to partner with SAMCRA in the training of its staff and of practitioners in the Metal Roofing and Cladding industry in all its operating countries. The raising of standards will improve value for all players in the value chain and will improve the reputation of steel roofing and cladding as a material of choice for durability and performance,” she concludes.

The Safal Group is the largest metal sheeting company in Africa and has been a key player in the industry for over 50 years. It is able to provide the key components of a complete metal roofing system, all from one trusted source.

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## CALENDAR OF Courses and Events

### SEPTEMBER

- 15 Steel Awards (JHB, DBN, CT)
- 16 Steel Day
- 26 September – 1 October  
SASFA Builders Course (CT)

### OCTOBER

- 6 Member Breakfast (JHB)

### NOVEMBER

- 3 SAISC AGM (JHB)
- 7 POLASA AGM (JHB)

### ENQUIRIES:

Events: [marle@saisc.co.za](mailto:marle@saisc.co.za)  
 Courses: [tiana@saisc.co.za](mailto:tiana@saisc.co.za)  
 SASFA: [john.barnard@saol.com](mailto:john.barnard@saol.com)  
 POLASA: [kobus@saisc.co.za](mailto:kobus@saisc.co.za)  
 SAMCRA: [dennis@saisc.co.za](mailto:dennis@saisc.co.za)