COLORBOND® PERMAGARD™ INSULATED PANEL STEEL FOR COOLROOM PANELS

TECHNICAL BULLETIN TB-31

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INTRODUCTION

BlueScope Steel Limited's COLORBOND® Permagard™ Insulated Panel steel has been specifically developed for the coolroom industry. COLORBOND® Permagard™ Insulated Panel steel comprises traditional zinc-coated steel sheet coated with a custom formulated paint system.

STEEL SUBSTRATE:

ZINCFORM® G300S BFC Z275 steel is used as the substrate in the manufacture of COLORBOND® Permagard™ Insulated Panel steel.

PAINT SYSTEMS:

COLORBOND® Permagard™ Insulated Panel steel is only available in the colour Permagard™ White, which incorporates Microban® antibacterial technology.

Microban® is the world's leading antibacterial technology and is proven to inhibit the growth of surface bacteria that can cause odours, stains, food poisoning and allergies.

The specially formulated backing coat has been developed to combine with readily available adhesives to form a strong bond with the panel core.

OTHER COLOURS:

For sandwich panel applications requiring colours other than Permagard™ White, the product should be ordered as COLORBOND® Insulated Panel steel, which does not contain the Microban® antibacterial additive.

Furthermore, it is generally recommended that lighter colours be utilised for insulated panel applications, rather than darker colours. This is because the higher surface temperatures achieved on dark coloured panels, that are externally exposed in service, can cause degradation of the insulation core material, and ultimately result in delamination of the steel skin from the core. However, given that the maximum temperature of different colours can vary according to climate, and that the maximum service temperature of the core will depend upon its composition, it may still be possible to develop a suitable sandwich panel system utilising dark coloured skins. It is therefore recommended that you contact your nearest BlueScope Steel state office and insulated panel supplier, for assistance in determining the suitability of other colours for your proposed application.

ANTIBACTERIAL CHARACTERISTIC

The Microban® antibacterial additive is incorporated into the topcoat of COLORBOND® Permagard™ Insulated Panel steel, during the paint manufacturing process to provide antibacterial properties for the life of the product.

The effectiveness of COLORBOND® Permagard™ Insulated Panel steel has been independently tested in the U.K. in accordance with Japanese Industrial Standard – Harmonised JIS Z2801: 2000, globally the most widely used protocol for testing of antibacterial performance. Under such test conditions, COLORBOND® Permagard™ Insulated Panel steel was found to be extremely effective against Staphylococcus aureus and Escherichia coli 0157, both of which can be of particular concern in maintaining food hygiene standards. Even after simulated cleaning for 10 years using typical coolroom detergents, COLORBOND® Permagard™ Insulated Panel steel was still found to exhibit highly effective antibacterial performance.

For further detail on antibacterial performance test-work, please visit the following website link:

www.colorbond.com/permagard

Warning: Use of COLORBOND® Permagard™ Insulated Panel steel is not a substitute for good hygiene practices. Its proper use however, significantly increases the level of protection against bacteria in between cleanings, and regular cleaning will not wash off the antibacterial protection. However, note that any damage to the topcoat surface will result in a reduction in antibacterial properties. Also be aware that food items should not be stored in intimate contact with COLORBOND® Permagard™ Insulated Panel steel.

PERFORMANCE

COLORBOND® Insulated Panel steel has been used successfully for more than 30 years to manufacture composite panels that are used as both walls and ceilings in coolrooms. Such excellent performance can also be expected of COLORBOND® Permagard™ Insulated Panel steel, with both products now backed by a 10 year warranty* against corrosion. For full warranty terms and conditions visit www.colorbond.com

INSTALLATION GUIDE

Coolrooms manufactured from COLORBOND® Permagard™ Insulated Panel steel, are very easy to install. We recommend however, that you seek professional advice prior to designing and constructing your coolroom.

BLUESCOPE STEEL

Listed below are factors you should consider:

- The lightweight nature of a composite panel coupled with a structural capability may make the need for an internal frame for smaller projects obsolete.
- In a coolroom, moisture is ever present. It is paramount to the overall corrosion performance that water must be allowed to drain freely away from a composite panel. This is critical at the base of the panel where poor detailing can allow water to come in contact with the foam core. Once moisture is trapped in a panel, corrosion will be accelerated.
- It is recommended that a dwarf masonry wall be incorporated in the coolroom design. This will allow water to drain away and also protect the base of the coolroom wall.
- Bottom channels of the walling should be manufactured from compatible materials and be designed to allow water to drain freely.

Notice: It is a condition of the BlueScope Steel warranty, that your design, construction, installation and ongoing maintenance prevent moisture ingress into panel cores and joins throughout the life of the product. It is also a condition of the warranty that the recommendations set out in this Technical Bulletin be complied with.

Various panel manufacturers have different methods of joining panels. Most employ a variation of a male/female slip joint. Both corrosion performance and the efficiency of the coolroom will be affected if particular attention is not paid to these joints, which must fit snugly together to stop the ingress of moisture. Most panel manufacturers stipulate that sealants be incorporated into all slip-joints. This is especially important if the panels are to be washed down regularly. Mastic type vapour barriers are also recommended for some installations.

POTENTIAL CORROSION ISSUES

Corrosion Technical Bulletins CTB-2 Galvanic Protection and CTB-12 Dissimilar Metals should be consulted prior to the choice of fittings. For example, CTB-12 will explain why the run off from condensers should not be allowed to discharge via copper pipes over COLORBOND® Permagard™ Insulated Panel steel.

GOOD PRACTICE

The following good practice is recommended:

- Cleaning chemicals used for cleaning coolrooms should only be used in concentrations and contact durations, as prescribed by the chemical supplier. In any event, the concentration of the cleaning solution should not exceed 5%.
- Soft nylon bristle brooms coupled with water pressures of less than 400psi (2760kPa) is recommended.
- Regular inspection of slip joints and the general detailing of the coolroom will highlight problems before they become major concerns.
- Monitoring of sealant performance at the base of the panel is critical to prevent water ingress.
- Once moisture has entered the panel, it will expand when frozen, causing the panel to bulge. This causes the seals to be broken and moisture-laden air to enter the panel, causing the panel to bulge further, greatly diminishing the efficiency of the coolroom.
- Bulging of panels could indicate that moisture has entered the panel through the following means.
  - a poorly sealed slip joint
  - a gap that has developed between the bottom channel and the panel
  - a panel has been punctured by for example forklift tines.
- Consideration should be given to means of preventing damage to coolroom walling incurred whilst handling stock stored within and around the coolroom.

* Warranty terms and conditions apply. To determine the eligibility of your coolroom project for a BlueScope Steel warranty, visit www.colorbond.com or call your nearest BlueScope Steel Limited State Sales Office.

Please ensure you have the current Technical Bulletin as displayed at www.bluescopesteel.com.au

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Microban® antibacterial protection

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