

Fasteners for roofing and walling product – selection guide

INTRODUCTION

Fasteners used to fix roofing, walling and accessory products manufactured from steel strip and sheet are required to give long, trouble free service when exposed to the atmosphere in environments ranging from benign to severe in terms of corrosive effect.

CHOICE OF FASTENER FOR LONG LIFE

When a long lasting product is used for roofing, walling or accessories, it is vital the fasteners used to fix cladding and accessory materials have the same or superior service life as the BlueScope Steel product with which they are to be used. Consequently, the correct selection of fastener for fixing roof and wall cladding and accessories is of paramount importance for long term fastening performance and aesthetics. Please refer to the following Technical Bulletins for selection of appropriate roofing, walling and accessory products:

Technical Bulletin TB-1A

Steel Roofing Products – Selection Guide

Technical Bulletin TB-1B

Steel Walling Products – Selection Guide

Technical Bulletin TB-8

Flashing Materials for COLORBOND® steel and ZINCALUME® steel Sheet

Technical Bulletin TB-15

Selection and Use of Steel Gutter, Downpipe and Fascia Products

Table 1 provides a general guide to the fastener metal type recommended for various BlueScope Steel strip and sheet products. In the interest of quality assurance it is essential to select fasteners that comply with Australian Standard AS 3566.2-2002 Self-drilling screws for the building and construction industries – PART 2: Corrosion resistance requirements.

Fasteners used to fix roofing and walling manufactured from BlueScope Steel strip and sheet products must comply with AS 3566.2-2002 Class 3 or Class 4. The

corrosion resistance of Class 4 fasteners is greater than that of Class 3 fasteners and for this reason Class 3 fasteners should not be used within 400m of the ocean or other severe marine influence. ~~Please refer to Technical Bulletin TB-35 Australian Salt Marine Classifications for examples of severe marine environments.~~

Fasteners which conform to AS 3566-2002 in its entirety are sold as such and marked appropriately. IF NOT SO MARKED, THE FASTENERS DO NOT COMPLY and must not be used. Consumers should obtain written confirmation from suppliers that their fastener complies with AS 3566-2002 and seek independent test reports to support their claims.

It should be noted that recommendations made by BlueScope Steel, wherever practicable, support Australian Standards and the National Construction Code (NCC). BlueScope Steel products used for roofing,

walling or accessories are also commonly used in conjunction with materials supplied by other manufacturers e.g. fasteners and flashings. It is in the best long-term interests of both the installer and end user to ensure that all materials used in an installation are compatible and in accordance with relevant manufacturer's recommendations.

WASHERS USED WITH FASTENERS

The rubber washer component of selfdrilling screws must be manufactured from materials compatible with the roofing, walling and accessory material. Washers containing significant levels of conductive carbon black fillers are NOT suitable for use with COLORBOND® prepainted steel or ZINCALUME® aluminium/zinc/magnesium alloy coated steel products. Therefore fasteners must be assembled with washers substantially free of carbon black fillers.

Table 1: Fastener materials for use with roofing and walling manufactured from BlueScope Steel strip and sheet products.

Environment of intended use	As 3566.2-2002 corrosion resistance class	Bluescope steel roofing and walling products
External use in severe marine environments.	4 (Stainless steel screws)	COLORBOND® Stainless steel
	4 (Metallic coated steel screws)	COLORBOND® Ultra steel COLORBOND® steel COLORBOND® Coolmax® steel ZINCALUME® steel
External use in mild, moderate industrial or marine environments.	3	COLORBOND® Ultra steel COLORBOND® steel COLORBOND® Coolmax® steel ZINCALUME® steel
General use in other than external applications but where significant levels of condensation occur.	2	NOT TO BE USED IN EXTERNAL ROOFING & WALLING APPLICATIONS
General use in internal application.	1	

NOTE:

- AS 3566-2002 relates to structural screws with performance requirements, needed for fixing roofing and walling. Accessory fasteners do not have the same performance requirements and are not covered by AS 3566-2002 or this table.
- Class 3 fasteners must not be used within 400m of the ocean or other severe marine influence.
- The correct selection of product and fastener combination should be made with respect to the intended application of the product and its location.
- All fasteners used must be compatible with selected BlueScope Steel product.
- All fasteners used must have an equivalent, or superior, service life to the selected BlueScope Steel product.

TECHNICAL BULLETIN

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FIXING THE SHEETING

In accordance with Section 4.7 of Australian Standard AS 1562.1-1992 Design and installation of sheet roof and wall cladding – PART 1: Metal, unless otherwise specified, all fasteners shall be installed normal to the plane of the roof or wall and all fasteners which pierce the cladding shall be provided with adequate sealing to prevent leakage.

- Crest fasteners: shall be tightened no more than is necessary to form a weatherproof seal without deformation of the sheet profile or damage to the sealing systems.
- Valley fasteners: care shall be taken to ensure an adequate seal to prevent leakage, particularly where valley fasteners are used in roofing applications.

FASTENER SHANK CORROSION

In certain environments the fastener may be exposed to a greater risk of corrosion as a result of building design or specific internal environments (e.g. high condensation, intensive animal farming etc.). In such cases, consideration must be given to corrosion protection of the fastener shanks. Under AS 3566.2-2002, corrosion classification is based on the fastener heads, rather than the shanks. The fastener manufacturer should be consulted with regards to fastener shank corrosion resistance.

FASTENER TYPES AND COMPATIBILITY

There are two fastener designs to be considered for use with BlueScope Steel products:

1. Self drilling screws

- Used for fastening cladding to a building structure
- Use only compatible metallic coated steel screws with COLORBOND® Ultra steel, COLORBOND® steel, COLORBOND® Coolmax® steel, COLORBOND® Metallic steel, ZINCALUME® steel and zinc-coated steel (as per Table 1)
- Use only stainless steel screws with COLORBOND® Stainless steel (as per Table 1)
- Use only screws compliant with AS 3566-2002

2. Accessory fasteners

- Used for fastening accessory items such as flashings
 - Use only compatible aluminium rivets with COLORBOND® Ultra steel, COLORBOND® steel, COLORBOND® Coolmax® steel, COLORBOND® Metallic steel, ZINCALUME® steel and zinc-coated steel
 - Use only stainless steel rivets with COLORBOND® Stainless steel
- Materials that are incompatible, and must not be used with COLORBOND® Ultra steel, COLORBOND® steel and ZINCALUME® steel include stainless steel, lead, copper and copper containing alloys (such as MONEL®). ~~Similarly, lead, copper and copper containing alloys are incompatible with COLORBOND® Stainless steel and are not to be used. Use only stainless steel fasteners with COLORBOND® Stainless steel.~~ For more information, please refer

to **Corrosion Technical Bulletin CTB-12** Dissimilar Metals.

The steel strip supplied by BlueScope Steel for manufacturing into roofing, walling and accessory products is made to the highest standards, and conforms to the relevant Australian Standards. BlueScope Steel will not accept any liability for poor performance caused by installation using inappropriate and incompatible materials. In addition, BlueScope Steel accepts no liability in relation to the performance of any fastener or fastener coating.

RELATED BLUESCOPE STEEL TECHNICAL BULLETINS

Technical Bulletin TB-1A

Steel Roofing – Product Selection Guide

Technical Bulletin TB-1B

Steel Walling – Product Selection Guide

Technical Bulletin TB-8

Flashing Materials for COLORBOND® steel and ZINCALUME® steel Sheet

Technical Bulletin TB-13

General Guide to Good Practice in the use of Steel Roofing and Walling Products

Technical Bulletin TB-14

Builders Guide to Australian Steel Sheet and Strip Standards

Technical Bulletin TB-15

Selection and Use of Steel Gutter, Downpipe and Fascia Products

Technical Bulletin TB-35

Australian Salt Marine Classifications
Corrosion Technical Bulletin CTB-12
Dissimilar Metals

The information and advice contained in this Bulletin is of a general nature only, and has not been prepared with your specific needs in mind. You should always obtain specialist advice to ensure that the materials, approach and techniques referred to in this Bulletin meet your specific requirements.

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