

General guide to good practice in the use of exterior BlueScope coated steel products

INTRODUCTION

This Technical Bulletin sets out the general principles of good installation practice. More detailed information on most of these points can be obtained from other Technical Bulletins, which are given as references in the text. Information and specific detail is also available from manufacturer's installation manuals and *Standards Australia Installation code for metal roof and wall cladding SA HB39:2015*.

Attention to the following factors should ensure satisfactory performance and good service life. Manufacturers' specific recommendations about their particular products should be followed.

1. For correct material selection for the environment and any special corrosive influences, refer to:
[Technical Bulletin TB-1A](#) Steel roofing products – selection guide.
[Technical Bulletin TB-1B](#) Steel walling products – selection guide.
2. For design: Minimum roof pitch, support spacings, metal thickness, refer to:
[Technical Bulletin TB-14](#) Professional's guide to Australian Standards for steel sheet and strip products, and [Corrosion Technical Bulletin CTB-8](#) Product performance considerations for exterior BlueScope coated steel products.
3. Site storage before erection, refer to:
[Technical Bulletin TB-7](#) Care of BlueScope coated steel products during transport and storage.

4. Handling steel sheet on site:
 - Ensure appropriate safety precautions are taken when handling steel roofing and walling products on site;
 - Wear clean, dry, cut-resistant gloves that are suitable for the task;
 - Don't drag sheets over rough surfaces or over each other;
 - Carry tools, don't drag them;
 - Choose sunscreens that won't damage painted surfaces, for more information refer to:
[Technical Bulletin TB-37](#) Prevention of sunscreen damage.
5. For laying procedure, refer to roofing manufacturer recommendations.
6. Type of fastener, including life expectancy and compatibility, refer to:
[Technical Bulletin TB-16](#) Fasteners for roofing, walling and accessory products – selection guide.
7. Cutting and avoidance of swarf damage, refer to:
[Technical Bulletin TB-5](#) Swarf staining of steel profiles.
8. Compatibility of accessories including flashings and sealants, refer to:
[Technical Bulletin TB-8](#) Flashing materials for COLORBOND® steel and ZINCALUME® steel sheet,
[Technical Bulletin TB-9](#) Sealants for exterior BlueScope coated steel products, and

[Corrosion Technical Bulletin CTB-12](#)
Dissimilar metals.

Maintenance procedures to prolong service life, refer to:
[Technical Bulletin TB-4](#) Maintenance of COLORBOND® steel and ZINCALUME® steel.

CORRECT SELECTION OF MATERIAL

The correct selection of roofing and walling materials is the first step in achieving the maximum service life of a building. The range of products manufactured by BlueScope is designed to give optimum performance in a range of environments, from benign rural areas to more corrosive industrial or salt-laden coastal atmospheres. It is a matter of choosing the right product for its intended location. Selection of the appropriate steel roofing and walling products for a given environment is covered in: [Technical Bulletin TB-1A](#) Steel roofing products – selection guide, and [Technical Bulletin TB-1B](#) Steel walling products – selection guide. These Technical Bulletins not only cover atmospheric influences but also the special requirements for industrial activities and animal housing. If there is any doubt, it is essential to consult Steel Direct for advice on the appropriate product for a given location and application.

DESIGN

There are a number of aspects to be considered with regard to design that will influence the service life of the product. Three important factors are listed below:

1. Minimum Pitch

Minimum pitch has an important influence on the life expectancy of the product. Specified minimum pitch varies according to the depth of the roofing profile and the means of fixing, such as concealed-fixed or, pierced-fixed. Always follow manufacturers' recommendations. Profiles designed for roofs with low pitches have deeper pans which allow the roof to effectively drain water without flooding the side laps. Concealed-fixed profiles further enhance the capability of the roof to effectively drain water by not breaching the roof sheet with fastener holes.

2. Correct Support Spacings

The correct spacing of supports is a critical component of the structural integrity of the building. Support spacing near the eaves and the ridge is usually less than the intermediate spacings to handle the increased lift and forces created by wind turbulence at these positions. Information regarding the correct spacing for specific profiles can be obtained from the relevant supplier. Supports must be carefully aligned to avoid creating low spots in the roof where ponding will occur, which ultimately leads to reduced service life.

3. Steel Thickness – Base Metal Thickness

The thickness of BlueScope products is specified as base metal thickness (BMT) not total coated thickness (TCT). See Figure 1. It is important to note that structural capability is a function of BMT and steel grade whereas corrosion performance is afforded by metallic coating thickness and type. Always ensure that the BMT specified is as per recommendations. For further guidance, refer to: [Technical Bulletin TB-14](#) Professional's guide to Australian Standards for steel sheet and strip products.

SITE STORAGE BEFORE BUILDING

Steel roofing and walling products must be kept dry during transit and storage. Failure to do so can result in moisture being drawn by capillary action into closely packed bundles that can cause irreparable damage and a significantly reduced service life. This of course is not just confined to steel sheet but applies to other premium building products. Dry site storage

Figure 1: Schematic of BMT vs TCT for COLORBOND® steel (not to scale)



must always be a consideration with building materials. For more complete details, refer to: [Technical Bulletin TB-7](#) Care of BlueScope coated steel products during transport and storage.

LAYING PROCEDURE

Follow manufacturer's recommended instructions. The proven practice of laying sheets with overlaps away from the prevailing weather is the most effective method and is described in: *Australian Standard AS 1562. 1:2018 Design and installation of sheet roof and wall cladding – Metal (Section 4.3 Laying the Sheeting)*. In some unlined COLORBOND® steel roofing applications, such as patios, it is often desired that the colour of the finish coat be visible on the underside. This results in the sheeting being installed so that the backing coat, i.e. the branded surface, is exposed to direct sunlight on the top surface of the roof. This practice is not recommended as the backing coat does not have the same level of resistance to chalking and degradation from UV light as the non-branded coloured finish coat. For applications where it is desired that the bottom surface has a colour other than the backing coat it is recommended that enquiries be made regarding availability of double-sided products that have a finish coat on both surfaces. In cases where the desired colour combination is not available then it is recommended that COLORBOND® steel sheeting be installed with finish coat exposed to sunlight and backing coat (underside) be post-painted to the desired colour as per: [Technical Bulletin TB-2](#) Overpainting and restoration of exterior BlueScope coated steel products.

FASTENERS – TYPE, LIFE EXPECTANCY AND COMPATIBILITY

The expected service life of the fasteners should be equivalent to that of the roofing and walling material. For fastener selection refer to: [Technical Bulletin TB-16](#) Fasteners for roofing, walling and accessory products - selection guide.

Special washers have been designed for fixing roofs in areas prone to cyclones and are readily available. There are some commercially available fasteners with only minimal corrosion protection. These will quickly corrode and may affect the integrity of the roof sheeting. Fasteners made of some alloy materials are highly corrosion resistant in their own right (e.g. stainless steel) but, when in contact with carbon steel, forms a galvanic couple, which results in the corrosion of the steel sheeting. Fastener manufacturers/suppliers should be consulted to ensure correct usage in accordance with: [Technical Bulletin TB-16](#) Fasteners for roofing, walling and accessory products – selection guide.

CUTTING AND AVOIDANCE OF SWARF DAMAGE

The process of cutting roof sheeting to size, or drilling to fix with fasteners, can create debris, or small metallic particles called "swarf". If left on the roof, swarf is not only unsightly but can create localised corrosion and shorten service life. Any debris, including swarf, should be carefully removed at the end of each working day. BlueScope do not recommend the use of abrasive discs when cutting steel roofing and walling products. Such cutting methods can damage the edges of the material and may result in premature corrosion of the edge. For further details, refer to: [Technical Bulletin TB-5](#) Swarf staining of steel profiles.

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December 2019. Revision 10.
This issue supersedes all previous issues



COMPATIBILITY OF ACCESSORIES INCLUDING FLASHING AND SEALANTS

There are certain materials that are incompatible with BlueScope's products. These materials can lead to premature failure of the steel product. For a comprehensive guide to compatible materials, refer to:

[Technical Bulletin TB-8](#) Flashing materials for COLORBOND® steel and ZINCALUME® steel sheet, and

[Corrosion Technical Bulletin CTB-12](#) Dissimilar metals.

BlueScope recommends the use of neutral cure silicon sealants. Sealants with adverse reactions, such as acid release, should never be used. For recommendations on sealant usage, refer to:

[Technical Bulletin TB-9](#) Sealants for exterior BlueScope coated steel products.

MAINTENANCE PROCEDURES TO CONTRIBUTE TO LONG LIFE

Areas not subject to the natural washing action of rainfall are known as "unwashed areas". In these regions, dust, dirt and pollutants that would otherwise be removed by rain, tend to build up. Regular maintenance and removal of these contaminants by cleaning with fresh potable water (in accordance with local regulations), will help prevent the formation of localised areas where premature corrosion might occur. Accumulations of windborne salty deposits in seaside localities can have a particularly aggressive effect on steel products. For further recommendations on maintenance procedures, refer to: [Technical Bulletin TB-4](#) Maintenance of COLORBOND® steel and ZINCALUME® steel.

SUMMARY

This Technical Bulletin is not a complete or exhaustive guide to all techniques and trade practices, many of which are common practice.

It is the responsibility of the relevant contractor to comply with good building practices. This Technical Bulletin is intended as a guide only.

RELATED BLUESCOPE TECHNICAL BULLETINS

[Technical Bulletin TB-1A](#)
Steel roofing products – selection guide

[Technical Bulletin TB-1B](#)
Steel walling products – selection guide

[Technical Bulletin TB-2](#)
Overpainting and restoration of exterior BlueScope coated steel products

[Technical Bulletin TB-4](#)
Maintenance of COLORBOND® steel and ZINCALUME® steel

[Technical Bulletin TB-5](#)
Swarf staining of steel profiles

[Technical Bulletin TB-7](#)
Care of BlueScope coated steel products during transport and storage

[Technical Bulletin TB-8](#)
Flashing material for ZINCALUME® steel and COLORBOND® steel sheet

[Technical Bulletin TB-9](#)
Sealants for exterior BlueScope coated steel products

[Technical Bulletin TB-14](#)
Professional's guide to Australian Standards for steel sheet and strip products

[Technical Bulletin TB-16](#)
Fasteners for roofing, walling and accessory products – selection guide

[Technical Bulletin TB-37](#)

Prevention of sunscreen damage

[Corrosion Technical Bulletin CTB-8](#)

Product performance considerations for exterior BlueScope coated steel products

[Corrosion Technical Bulletin CTB-10](#)

Roof penetrations

[Corrosion Technical Bulletin CTB-12](#)

Dissimilar metals

REFERENCED AUSTRALIAN STANDARDS

AS 1562.1:2018 - Design and installation of sheet roof and wall cladding – Metal

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