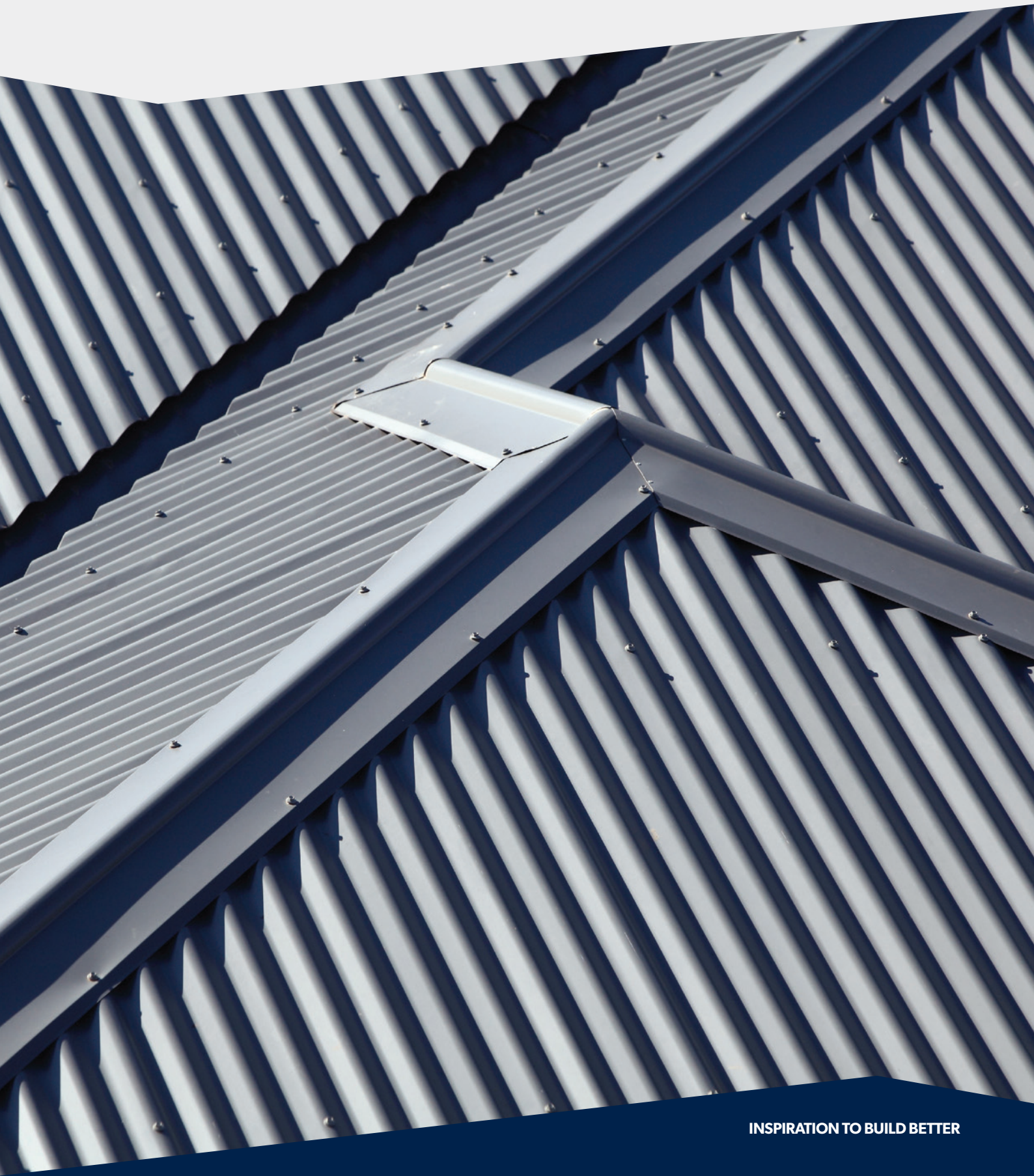
CUSTOM ORB ACCENT® 21

DESIGN & INSTALLATION GUIDE



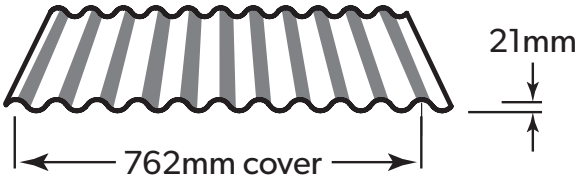
INSPIRATION TO BUILD BETTER

LYSAGHT CUSTOM ORB ACCENT® 21

Equally at home on a traditional or contemporary design building CUSTOM ORB ACCENT® 21 is the perfect alternative to traditional corrugated steel roofing. The deeper profile of CUSTOM ORB ACCENT® 21 steel roofing not only gives a striking visual effect but also delivers real benefits to the architect, builder and owner alike.

With the same 762mm cover width as traditional corrugated steel roofing CUSTOM ORB ACCENT® 21 can be easily utilised on existing and new roofs without the need for changes to supporting structures.

The 21mm deep corrugations of CUSTOM ORB ACCENT® 21 give it a greater water carrying capacity than traditional CUSTOM ORB® meaning it can be used on roof pitches as low as 3°. These deeper, stronger corrugations also result in a tougher roof meaning less damage from foot traffic both during installation and over the life of the building.



MATERIAL SPECIFICATIONS

ZINCALUME® aluminium/zinc alloy-coated steel complying with AS 1397 G550 (550MPa minimum yield stress), AZ150 (150g/m^2).

Next Generation ZINCALUME® aluminium/zinc/magnesium alloy-coated steel complies with AS 1562.1 and AS 1397 G550, AM125 (550 MPa minimum yield stress, 125 g/m^2 minimum coating mass).

COLORBOND® steel is prepainted steel for exterior roofing and walling. It is the most widely used. The painting complies with AS/NZS 2728 and the steel base is an aluminium/zinc alloy-coated steel complying with AS 1397.

COLORBOND® Metallic steel is prepainted steel for superior aesthetic qualities displaying a metallic sheen.

COLORBOND® Ultra steel is prepainted steel for severe coastal or industrial environments (generally within about 100-200 metres of the source). The painting complies with AS/NZS 2728 and the steel base is an aluminium/ zinc alloy-coated steel complying with AS 1397. Minimum coating mass is AM150 (150g/m^2).

SUPERDURA® Stainless steel is pre-painted stainless steel and is used for severe and coastal environments. The painting complies with AS/NZS 2728 and the steel base is a stainless steel complying with AISI/ASTM Type 430; UNS No. S43000.

COLORBOND® Metallic steel, COLORBOND® Ultra steel and SUPERDURA® Stainless steel have minimum order quantities and longer lead times.

COLORBOND® STEEL WITH THERMATECH® TECHNOLOGY

COLORBOND® steel's core colour range in the Classic and Matt finish features our specially designed Thermatech® solar reflectance technology. Thermatech® reflects more of the sun's heat on hot, sunny days which may help increase your comfort while reducing your dependence on air conditioning*. Thermatech® is available in all core colours except Night Sky®.

LENGTHS

Sheets are supplied custom cut. Sheet lengths of up to 23m can be used before an expansion joint is required.

MASSES

The mass will vary slightly depending upon the metallic coating and the COLORBOND® steel paint system selected. Indicative masses are:

BMT (mm)	kg/m	kg/m^2
0.40	3.4	4.4
0.48	4.0	5.2

TOLERANCES

Length: + 10mm, – 10mm, Width: + 4mm, – 4mm

MINIMUM ROOF PITCH

Use CUSTOM ORB ACCENT® 21 for roof pitches as low as 3° (1 in 20).

METAL & TIMBER COMPATIBILITY

Lead, copper, bare steel and green or some chemically-treated timber are not compatible with this product; thus don't allow any contact of the product with those materials, nor discharge of rainwater from them onto the product. If there are doubts about the compatibility of products being used, ask for advice from our information line.

MAXIMUM SUPPORT SPACINGS

The maximum recommended support spacings are based on testing in accordance with AS 1562.1, AS 4040.1 and AS 4040.2.

Roof spans consider both resistance to wind pressure and light roof traffic (traffic arising from incidental maintenance). Wall spans consider resistance to wind pressure only. The pressure considered is based on buildings up to 10m high in Region B, Terrain Category 3, M_s=0.85, M_i=1.0, M_t=1.0 with the following assumptions made:

ROOFS:

C_{pi}=+0.20, C_{pe}=-0.90, K_l=2.0 for single and end spans, K_l=1.5 for internal spans.

WALLS:

C_{pi}=+0.20, C_{pe}=-0.65, K_l=2.0 for single spans and end spans, K_l=1.5 for internal spans.

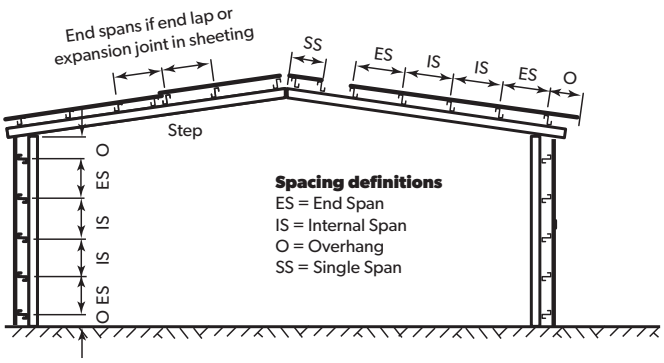
These spacings may vary by serviceability and strength limit states for particular projects.

MAXIMUM SUPPORT SPACING (MM)

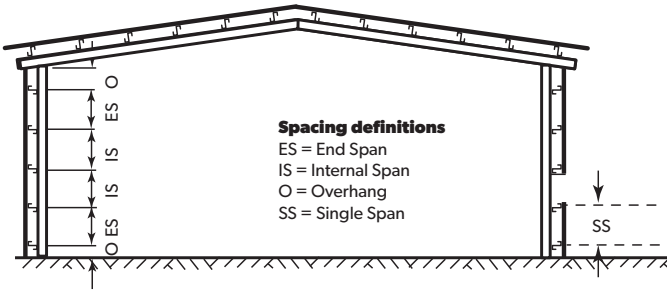
	BMT	
Type of Span	**0.40mm**	**0.48mm**
Roofs		
Single span	750	950
End span	950	1500
Internal span	1350	1900
Unstiffened eaves overhang	150	200
Stiffened eaves overhang	400	450
Walls		
Single span	1800	1800
End span	2400	2700
Internal span	2400	2700
Overhang	150	200

For roofs: the data are based on foot-traffic loading. For walls: the data are based on pressures (see wind pressure table). Table data are based on supports of minimum 1mm BMT. Refer to the TOPSPAN® Design and Installation Guide and Selection Tables for support thickness less than 1.0 mm BMT, or seek advice from our information line.

Roofing & Walling Profiles



Walling Profiles Only



SHEET COVERAGE

Width of Roof (m)	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	30	40	50
Number of Sheets	4	6	7	8	10	11	12	14	15	16	18	19	20	21	23	24	25	27	40	53	66

INSTALLATION

FASTENING SHEETS TO SUPPORTS

CUSTOM ORB ACCENT® 21 is pierce-fixed to timber or steel supports. This means that fastener screws pass through the sheeting.

You can place screws through the crests or in the valleys. To maximise watertightness, always place roof screws through the crests. For walling, you may use either crest or valley-fixing.

Always drive the screws perpendicular to the sheeting, and in the centre of the corrugation or rib.

Don't place fasteners less than 25mm from the ends of sheets.

SIDE-LAPS

CUSTOM ORB ACCENT® 21 is overlapped at the sides 1.5 corrugations. It is generally considered good practice to use additional side-lap fasteners along side-lap between the support, however when cladding is supported as indicated in maximum support spacings, side-lap fasteners are not usually needed for strength.

END LAPPING

End-laps are not usually necessary because CUSTOM ORB ACCENT® 21 is available in long lengths.

If you want end-laps, seek advice from our information line on the sequence of laying and the amount of overlap.

ENDS OF SHEETS

It is usual to allow roof sheets to overlap into gutters by about 50mm. The valleys of sheets should be turned-up at upper ends.

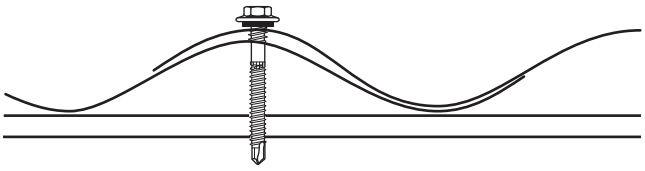
LAYING PROCEDURE

For maximum weather-tightness, start laying sheets from the end of the building that will be in the lee of the worst-anticipated or prevailing weather.

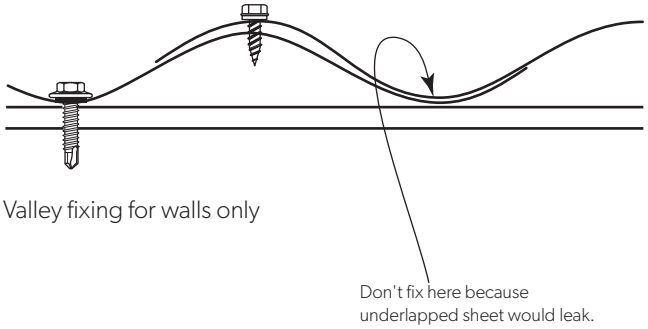
Lay sheets toward prevailing weather. Also, it is much easier and safer to turn sheets on the ground than up on the roof.

Before lifting sheets on to the roof, check that they are the correct way up and the overlapping side is towards the edge of the roof from which installation will start.

Place bundles of sheets over or near firm supports, not at mid span of roof members.



Crest fixing for roof or walls

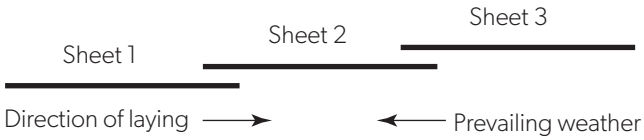


Valley fixing for walls only

Crest: 3 fasteners †

Valley: 3 fasteners †

† Fasteners per sheet per support.

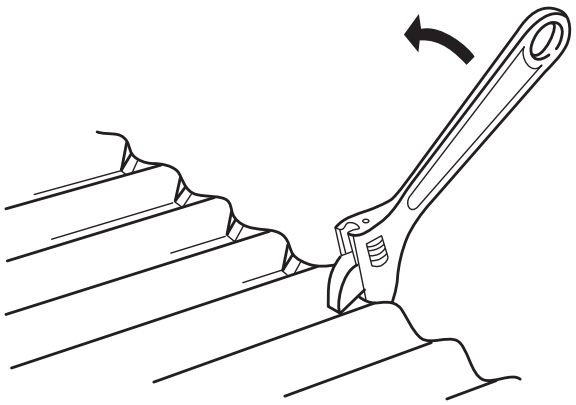


FASTENERS WITHOUT INSULATION

	Fix to Steel Single & lapped steel thickness ≥0.55 up to 1.0mm BMT	Fix to Steel Single steel thickness ≥1.0mm BMT up to 3.0mm BMT	Fix to Steel Total lapped thickness ≥1.00 BMT up to 3.8mm BMT	Fix to Timber Hardwood J1-J3	Fix to Timber Softwood J4
Crest Fixed	Roof Zips M6-11x50	12-14x35, Metal Teks HG, HH or AutoTeks M5.5 - 14x39	12-14x35, Metal Teks HG, HH or AutoTeks M5.5 - 14x39	12-11x50, Type 17 HG, HH	12-11x50, Type 17 HG, HH or Roof Zips M6-11x50 HG, HH
Pan Fixed	10-16x16, Metal Teks, HH or 10-16x25 Designer Head or Roof Zips M6-11x25	10-16x16, Metal Teks, HH or 10-16x25 Designer Head	10-16x16, Metal Teks, HH	10-12x25, Type 17, HH 10-16x25 Designer Head or 12-11x25, Type 17, HH	10-12x30, Type 17, HH 12-11x25, Type 17, HH 10-16x25 Designer Head or Roof Zips M6-11x25
Side Laps	(If required) 10-16x16, Metal Teks, HH or Roof Zips M6-11x25 or 10-16x25 Designer Head or Sealed blind rivet ø4.8mm aluminium				

Notes:

1. For other steel thicknesses not specified please seek advice from screw manufacturer.
2. Values given are: gauge/threads per inch/ lengths (mm). HH = Hex. Head, WH = Wafer Head, HG = Hi-Grip
3. Care is required during installation to prevent stripping of thin material. (Single ply.)
4. Screw specification as above or equivalent fastener.
5. All screws with EPDM sealing washer.



TURNING-UP CUSTOM ORB ACCENT® 21

This section describes how you can treat the ends of sheets to maximise waterproofing, or to stop vermin entering.

At the high end of roofing, wind can drive water uphill, under the flashing or capping, into a building. To minimise this problem, you turn up the valleys (or pans) at the high end of roofing. (The process is called turning-up (or stop-ending).

All roofing on low slopes (≤25°) should be turned-up.

During the turn-up operation, care should be exercised to prevent tearing or puncturing the steel sheets.

You can turn-up sheets before or after they are fixed on the roof. If you do the latter, you must have sufficient clearance for the turn-up tool at the top end of the sheets (about 50mm).

With a shifting spanner or other appropriate tool closed down to approximately 2mm, grip the valley corrugations 20mm in from the end of the sheet and turn up as far as possible. Be careful not to tear the sheet.

SEALED JOINTS

For sealed joints use screws or rivets and neutral-cure silicone sealant branded as suitable for use with galvanised or ZINCALUME® steel.

MAINTENANCE

Optimum product life will be achieved if all external surfaces are washed regularly. Areas not cleaned by natural rainfall (such as the tops of walls sheltered by eaves) should be washed down according to our maintenance guidelines.

STORAGE AND HANDLING

Handling Safety - LYSAGHT® product may be sharp and heavy.

It is recommended that heavy-duty cut resistant gloves and appropriate manual handling techniques or a lifting plan be used when handling material.

Keep the product dry and clear of the ground. If stacked or bundled product becomes wet, separate it, wipe it with a clean cloth and stack it to dry thoroughly.

Handle materials carefully to avoid damage: don't drag materials over rough surfaces or each other; carry tools, don't drag them; protect from swarf.

WALKING ON ROOFS

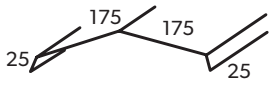
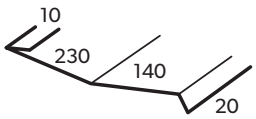
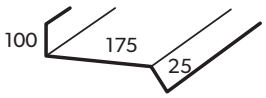
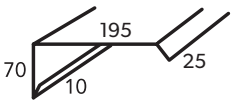
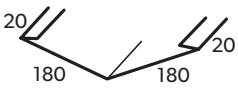
Always walk on or near the support lines. Generally, keep your weight evenly distributed over the soles of both feet to avoid concentrating your weight on either heels or toes. Always wear smooth soft-soled shoes; avoid ribbed soles that pick up and hold small stones, swarf and other objects.

SIMPLE, LOW-COST FIXING

CUSTOM ORB ACCENT® 21 can be fixed with hex head screws ensuring fast and simple installation. The standard overlap is 1.5 corrugations.

CUSTOM ORB ACCENT® 21 FLASHINGS AND CAPPINGS

Standard flashings and cappings are available. (See below.)

Standard Flashing	Description
	Ridge Capping
	Tile Flashing
	Apron Flashing
	Barge Capping
	Valley Gutter

SWARF

Sweep all metallic swarf and other debris from roof areas and gutters at the end of each day and at the completion of the installation. Failure to do so can lead to surface staining when the metal particles rust.

CUTTING

For cutting thin metal on site, we recommend a circular saw with a metal-cutting blade because it produces fewer damaging hot metal particles and leaves less resultant burr than does a carborundum disc. Cut materials over the ground and not over other materials.

MAXIMUM ROOF LENGTH FOR DRAINABLE (M)

Peak Rainfall Intensity (mm/hr)	Roof Slopes (degrees)			
	3	5	7.5	10
100	38	46	53	60
150	25	31	35	40
200	19	23	27	30
250	15	18	21	24
300	13	15	18	20
400	10	11	13	15
500	8	9	11	12

LIMIT STATES WIND PRESSURES

CUSTOM ORB ACCENT® 21 offers the full benefits of the latest methods for modelling wind pressures. The Wind Pressure capacity table is determined by full scale tests conducted at Lysaght's NATA-registered testing laboratory, using the direct pressure-testing rig.

Testing was conducted in accordance with AS 1562.1, and AS 4040.2.

The pressure capacities for serviceability are based on a deflection limit of (span/120) + (maximum fastener pitch/30).

The pressure capacities for strength have been determined by testing the cladding to failure (ultimate capacity). These pressures are applicable when the cladding is fixed to a minimum of 1.0mm, G550 steel. For material less than 1.0mm thick, refer to the TOPSPAN® Design and Installation Guide and Selection Tables, or seek advice from our information line.

NON-CYCLONIC AREAS

The information in this brochure is suitable for use only in areas where a tropical cyclone is unlikely to occur as defined in AS/NZS 1170.2.

ADVERSE CONDITIONS

If this product is to be used in marine, severe industrial, or unusually corrosive environments, ask for advice from our information line.

CUSTOM ORB ACCENT® 21 LIMIT STATE WIND PRESSURE CAPACITIES (KPA) 0.40 BMT

Span Type	Limit State	Span (mm)						
		600	900	1200	1500	1800	2100	2400
Single	Serviceability	1.42	1.24	0.99	0.88	0.85		
	Strength	11.42	9.5	7	5.2	4.55		
End	Serviceability	1.49	1.31	1.18	1.10	0.96	0.81	0.66
	Strength	10.47	6.9	5.3	4.32	3.4	2.65	2.05
Internal	Serviceability	1.33	1.17	1.03	0.90	0.78	0.70	0.65
	Strength	11.61	8.5	6.7	5.5	4.45	3.55	2.8

CUSTOM ORB ACCENT® 21 LIMIT STATE WIND PRESSURE CAPACITIES (KPA) 0.48 BMT

Span Type	Limit State	Span (mm)							
		600	900	1200	1500	1800	2100	2400	2700
Single	Serviceability	2.73	2.46	1.85	1.30	0.92			
	Strength	12.06	10.95	8.93	7.40	6.15			
End	Serviceability	1.71	1.45	1.23	1.03	0.89	0.8	0.74	0.72
	Strength	11.87	9.60	8.03	6.65	5.48	4.32	3.32	2.38
Internal	Serviceability	1.80	1.59	1.40	1.25	1.13	0.8	0.74	0.72
	Strength	12.13	9.80	8.10	6.38	4.88	3.85	3.20	2.97

Table data are based on supports of minimum 1mm BMT. For material less than 1.0mm thick, refer to the TOPSPAN® Design and Installation Manual and Selection Tables, or seek advice from our information line.

Notes

PRODUCT DESCRIPTIONS

- All descriptions, specifications, illustrations, drawings, data, dimensions, and weights contained in this publication and websites containing information from Lysaght are approximations only. They are intended by Lysaght to be a general description for information and identification purposes and do not create a sale by description. Lysaght reserves the right at any time to:

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  b) Alter specifications shown in its publications and websites to reflect changes made after the date of publication.

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- This publication is intended to be an aid for all trades and professionals involved with specifying and installing LYSAGHT® products and not be a substitute for professional judgement.
- Terms and conditions of sale are available at lysaght.com/terms
- Except to the extent to which liability may not lawfully be excluded or limited, BlueScope Steel Limited will not be under or incur any liability to you for any direct or indirect loss or damage (including, without limitation, consequential loss or damage such as loss of profit or anticipated profit, loss of use, damage to goodwill and loss due to delay) however caused (including, without limitation, breach of contract, negligence and/or breach of statute), which you may suffer or incur in connection with this publication.

AUSTRALIAN STANDARDS

Australian Standard	Definition
AS/NZS 2728:2013	Prefinished/pre-painted sheet metal products for interior/exterior building applications — Performance requirements
AS 1397:2021	Continuous hot-dip metallic coated steel sheet and strip — Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 1562.1:2018	Design and installation of metal roof and wall cladding, Part 1: Metal
AS 4040.1-1992 (Reconfirmed 2016)	Methods of testing sheet roof and wall cladding - Method 1: Resistance to concentrated loads
AS 4040.2-1992 (Reconfirmed 2016, Amendment 1:2018)	Methods of testing sheet roof and wall cladding, Part 2: Resistance to wind pressures for non-cyclone regions
AS/NZS 1170.2:2021	Structural design actions, Part 2: Wind actions
AS/NZS 3500.1:2021	Plumbing and drainage, Part 1: Water services

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FOR DETAILED PRODUCT INFORMATION, MANUALS AND PROJECT CASE STUDIES VISIT:

WWW.LYSAGHT.COM

Thermatech® solar reflectance technology is not available in Night Sky®, or non-standard colours, and is not available in SUPERDURA® Stainless steel, COLORBOND® Metallic steel, or COLORBOND® Coolmax® steel.

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