



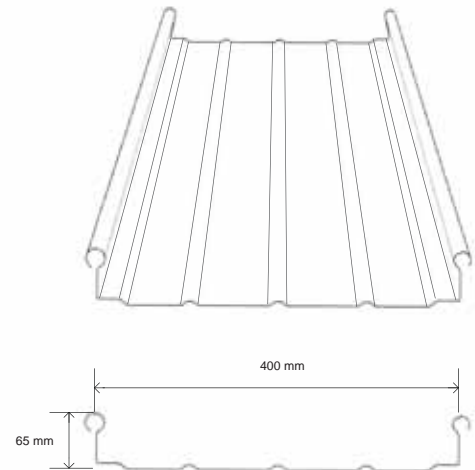
LYSAGHT



LYSAGHT® ZIPDEK®

Modern High-Ribbed
Standing Seam
Roof Profile

LYSAGHT® ZIPDEK®



MORE THAN A STANDING SEAM

The architectural capabilities of LYSAGHT® ZIPDEK® are not restricted to conventional and simple roof configurations. LYSAGHT® ZIPDEK® standing seam profile with its bold line add a sophisticated and versatile feel to the roof design.

LYSAGHT® ZIPDEK® is a concealed fixed roofing profile and has an effective cover width of 400mm with a rib height of 65mm. The tray of the profile consists of 3 stiffening flutes along the length of the pans.

LYSAGHT® ZIPDEK®, with its high-ribbed standing seam roofing profile, is specifically created to meet the requirements and specifications of various building applications ranging from commercial, residential and industrial constructions to other diverse applications such as stadium, airports and long span exhibition halls.

LYSAGHT® ZIPDEK® standing seam system requires no substrate as it is profiled with structural strength to function as a single skinned roof. However, it can still be used in double skinned construction applications to cater for acoustic needs. In addition, LYSAGHT® ZIPDEK® can be customized to suit a variety of roofs, from pitched to curved (pre-curved and sprung-curved) and tapered designs to meet increasingly sophisticated roof geometries demanded of designers today. As such, it is the architect, engineer and contractor's ultimate choice for roofing solution.

LYSAGHT® ZIPDEK® can also be manufactured at site to cater for long length roof applications without end laps. This feature is made possible through our state-of-the-art light weight and mobile rollformer which can be easily transported and set up at virtually any construction site. Sheet lengths of up to 120m can be rollformed at site for long span structures.

PHYSICAL PROPERTIES OF LYSAGHT® ZIPDEK®

	STANDARD
Base Metal Thickness (mm)	0.55
Total Coated Thickness (mm)	0.60
Mass per Unit Area - COLORBOND® Steel (kg/m ²)	6.59
Mass per Unit Area - ZINCALUME® Steel (kg/m ²)	6.51
Coating Class (min)	AZ150
Grade of Steel (MPa)	G300 (300MPa minimum yield stress)
Effective Cover Width	400mm
Rib Depth	65mm
Min Recommended Roof Pitch/ Slope	1° (1 in 50)
Tolerances	Length ± 0.75mm / Width ± 0.5mm
Custom Cut Lengths	Any measurement to a maximum transportable length. Long length is available for roll on site.
Minimum Radius of Curvature for Spring Curved	60,000mm

PRODUCT BENEFITS

- Lightweight to strength ratio.
- Structural roofing strength.
- Excellent rainwater drainage capacity (high-ribbed profile).
- Lengths up to 120 metres (on site rollforming).
- Large spans can be bridged with a variety of shapes.
- Machined edges that ensure reliable connection.
- Can be used as a single skin roof.

PERFORMANCE

Table 1: MAXIMUM ALLOWABLE SUPPORT SPACING

Type of Span		Thickness 0.55mm BMT
Roof	End Span	1800mm
	Internal Span	2050mm
Wall	End Span	2050mm
	Internal Span	2500mm

- Table 1 is based on supports of minimum 1.0mm Base Metal Thickness (BMT)

The maximum recommended support spacing's are based on testing in accordance with AS1562.1, AS4040.0 and AS4040.1. Roof spans consider both resistance to wind pressure and light foot traffic (traffic arising from incidental maintenance). The pressure considered is based on ultimate wind speed of $V_u = 40\text{ms}^{-1}$ (as defined in HB 212-2002) and multiplying factors of; $M_{2\text{cat}} = 0.83$, $M_s = 0.85$, $M_i = 1.0$ and $M_t = 1.0$ with the following pressure coefficients considered.

Roofs: $C_{pi} = +0.20$, $C_{pe} = 0.90$, $K_1 = 1.5$ for internal spans

Table 2: WIND PRESSURE CAPACITIES (kPa)

Type of Span	Limit State	Span (mm)						
		900	1200	1500	1800	2100	2400	2700
Single	Serviceability	1.10	0.99	0.89	0.80	0.71	0.63	0.56
	Strength*	2.40	1.90	1.45	1.10	0.85	0.75	0.70
End	Serviceability	0.63	0.58	0.55	0.53	0.52	0.53	0.55
	Strength*	1.40	1.20	1.05	0.95	0.85	0.80	0.80
Internal	Serviceability	0.58	0.53	0.50	0.48	0.48	0.49	0.52
	Strength*	1.20	1.10	1.00	0.95	0.90	0.90	0.90

* A capacity reduction factor of $F = 0.9$ has been applied to strength capacities.

METAL SPECIFICATION

A variety of materials can be used to create individual, modern building facades and imaginative roof landscapes through the use of LYSAGHT® ZIPDEK®:

A. COLORBOND® Steel

- Coated sheet should be factory painted and oven baked to AS2728
- Top coat: Custom formulated PVDF polyester paint system with nominal thickness of 20µm over 5µm of universal corrosion inhibitive primer.
- Reverse coat: Custom formulated Shadow Grey with nominal thickness of 5µm over 5µm of universal corrosion inhibitive primer.

B. Prepainted Aluminium

The roofing system shall be aluminium standing seam roof system according to certification: Z-14.1-182 manufactured from aluminium alloy A1 Mn1 Mg0.5 in accordance to EN AW-3005 as specified in DIN EN 573-3; material thickness of 0.70mm, 0.80mm or 0.90mm and PVF2 finish on the exposed surface. The color is to be selected and approved by the architect. The material properties of the non-profiled coil are as follows:

- Ultimate tensile strength : minimum 215N/mm²
- 0.2% Proof Stress : minimum 195N/mm²
- Elongation at failure : 3%

CLIP SYSTEM

LYSAGHT® ZIPDEK® clips are extruded from structural grade aluminium. The shape of the clip has been carefully designed to maximize strength, in both upward (wind uplift) and downward (deadload) conditions. The head of the clip accurately matches the LYSAGHT® ZIPDEK® roof sheeting, to ensure the sheets slide freely during thermal movement.

Material Specification


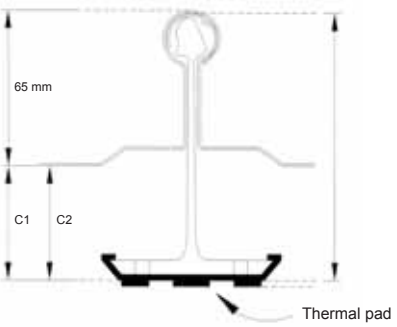
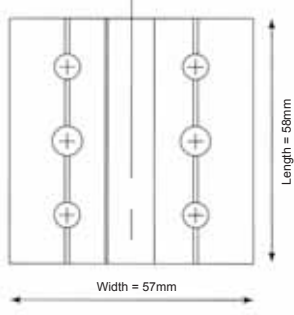
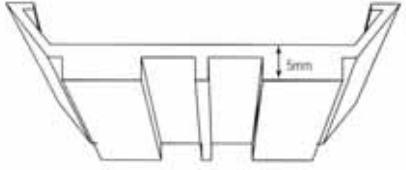
LYSAGHT® ZIPDEK® clip is made from Aluminium Alloy 6005.A to AS/NZS 1866 or Aluminium Alloy 6063-T5.

Thermal Pad

Specially engineered thermal pad slides neatly onto base of the clip which can reduce or eliminate thermal bridging effects.

Table 3: LYSAGHT® ZIPDEK® Clips

CLIP TYPE	CLIP HEIGHT (mm)	C1 (mm)	C2 (mm)
H85	85	20	25
H115	115	50	55
H140	140	75	80

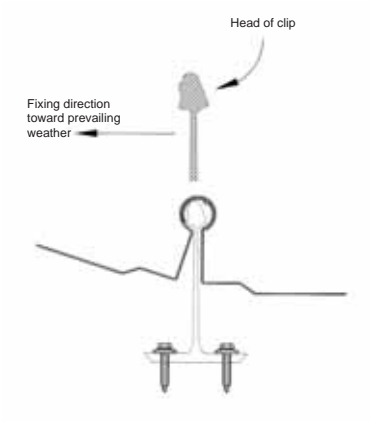
ZIPDEK® CLIP	SECTION VIEW	PLAN VIEW
		
 <p>Thermal barrier pad 5mm thick</p>	<p>H = Height of clip without thermal pad C1 = Cavity without thermal pad (between LYSAGHT® ZIPDEK® panel and bottom edge of clip) C2 = Cavity with thermal pad (between LYSAGHT® ZIPDEK® panel and bottom edge of thermal pad)</p> <p>Clip base accommodates up to 6 fixing positions depending on the substrate fixing.</p>	

ORIENTATION OF CLIPS

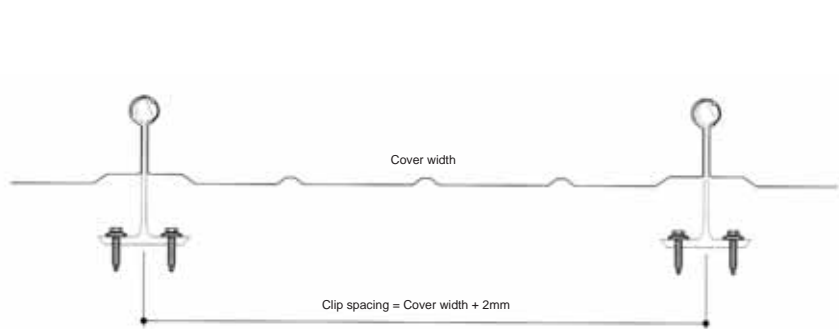
Wherever possible, the direction of installation should be towards the prevailing weather conditions to ensure that the overlap locates on the leeward side. The orientation of the ZIPDEK® clip shall be in accordance with the diagram shown i.e. the notch side of head faces in the direction of laying. Correct orientation of the clip ensures that the sheets will expand and contract smoothly during temperature changes.

LATERAL SPACING OF CLIPS

Lateral spacing of clips depends upon the LYSAGHT® ZIPDEK® profile being used. For best results, clips should be spaced at cover width plus 2.0mm.



Orientation of Clips

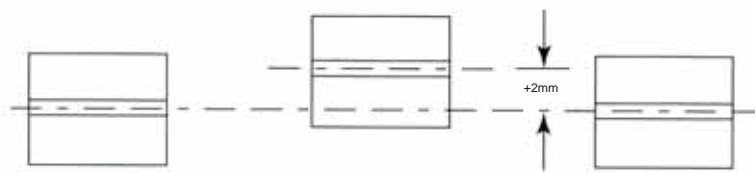


Clip Spacing = LYSAGHT® ZIPDEK® cover width +2mm (Tolerance +3mm/ -0mm).
The clip spacings for each individual panel should be the same.

Lateral Spacing of Clips

LONGITUDINAL SPACING OF CLIPS

Longitudinal spacing of clips to ensure the adequate thermal movement of the system is maintained, longitudinal spacing of clips must be carefully aligned during installation.

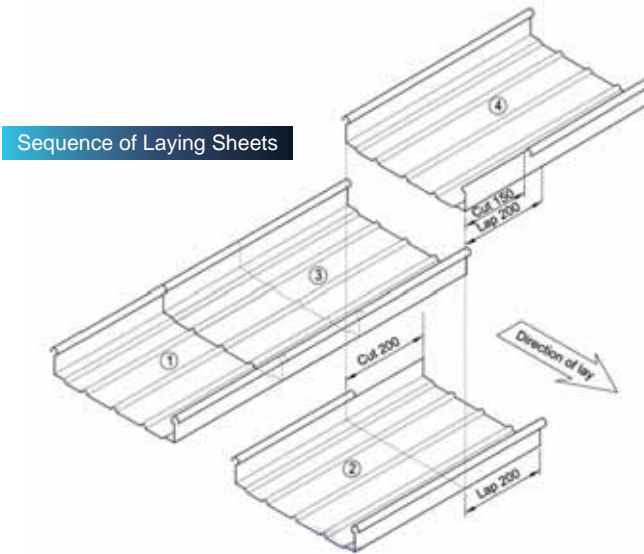


END LAPS

It is always preferred and desired to manufacture and install long continuous sheets of roofing. However, this is not feasible due to site conditions or building's geometry. In cases when sheets are factory made, the maximum sheet length is normally governed by transport.

Continuous eave to ridge runs can no longer be achieved with a single sheet. Instead, a series of shorter sheets are end lapped as required to make up the roof run.

End lapping is an extremely critical step to ensure water tightness. The illustration below describes the recommended method of end lapping the LYSAGHT® ZIPDEK® roof system.



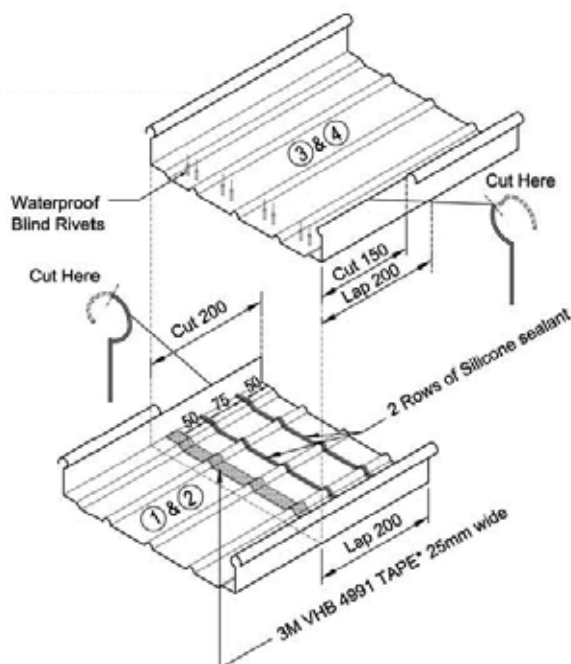
SEALED AND STITCHED LAPS

Sealed and stitched laps can only be installed on roof pitches of 3° or greater. The integrity of the lap is highly dependent on the workmanship, so care must be taken during installation.

The illustrated sequence should be followed for best result.

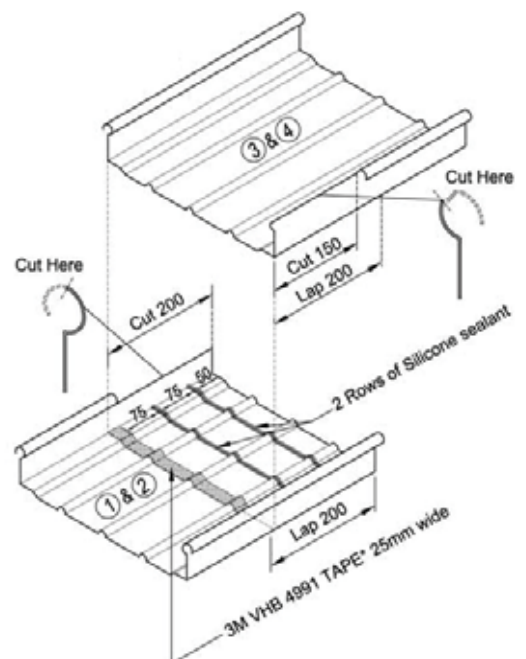
Stitched Lap

Sealed, riveted joint at end lap.
Rivets go through sealant type.



Sealed Lap

High strength tape at end lap.



SEAMER

LYSAGHT® ZIPDEK® roof system is seamed onto the clips using a mechanical seaming process. The seamer consists of two seaming rollers that are clamped onto the LYSAGHT® ZIPDEK® panel, and four-wheel guides to ensure the correct height is maintained.

HAND SEAMING TOOL

The first 200-300mm should be hand crimped to enable the seamer to be clamped onto the sheet, running along the ribs. The hand tool is used by squeezing the handles inward to close the seam.

SEAMING LYSAGHT® ZIPDEK® ROOF SHEETS

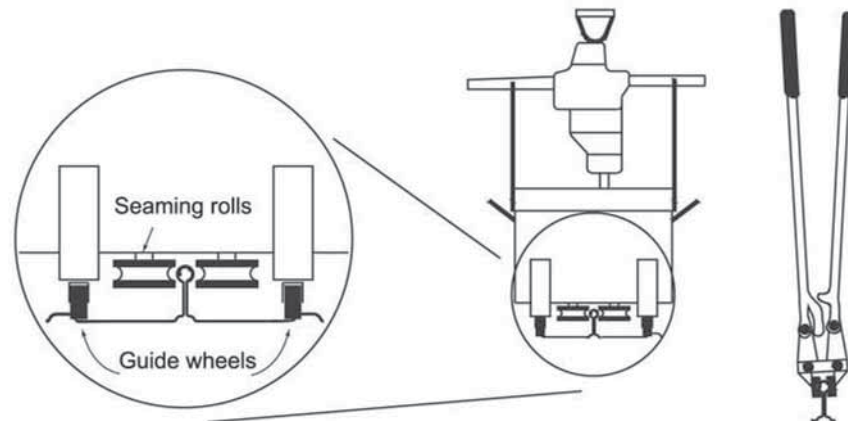
Prior to seaming, ensure the unit is set up for the correct material type and thickness. Some units have calibrated settings, while others require manual adjustment. For the latter, careful control should ensure that the seamed dimensions shown in Table 4 are achieved.

Table 4: Seamed Dimensions for Materials

Material	Thickness	Seam Size Dimension
Steel	0.55	20.0mm
Aluminium	0.90	22.0mm
	1.00	22.5mm

The seamer is clamped onto the end of the rib which has previously been hand crimped 200-300mm. The unit is tightened, and the button pressed. The seamer then travels along the lap, mechanically seaming it.

Only correctly seamed sheets will provide water tightness properties as well resistance to wind uplift and foot traffic.



Note:

Safe walking during installation

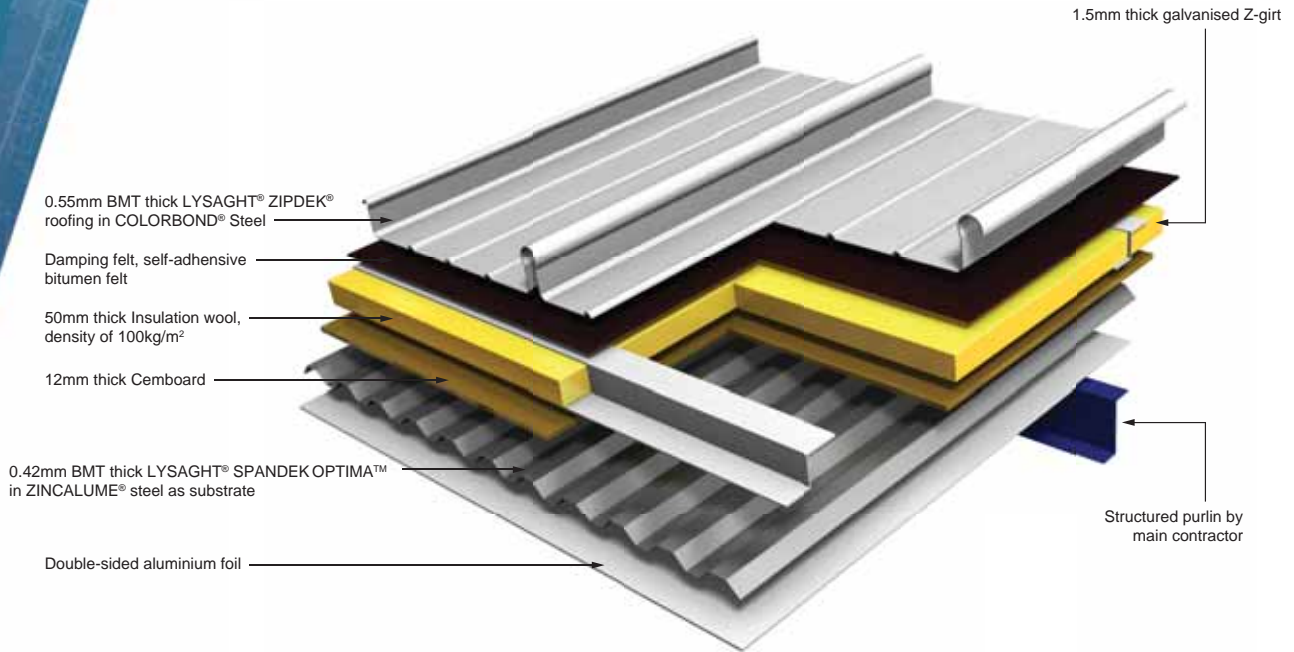
Avoid excessive concentrated point loads on the pan of the panel. The seams must be seamed before any unsupported roof traffic is permitted. The space between the brackets repeats in a cycle specified by manufacturer.

TYPICAL ACOUSTIC ROOF BUILD-UP

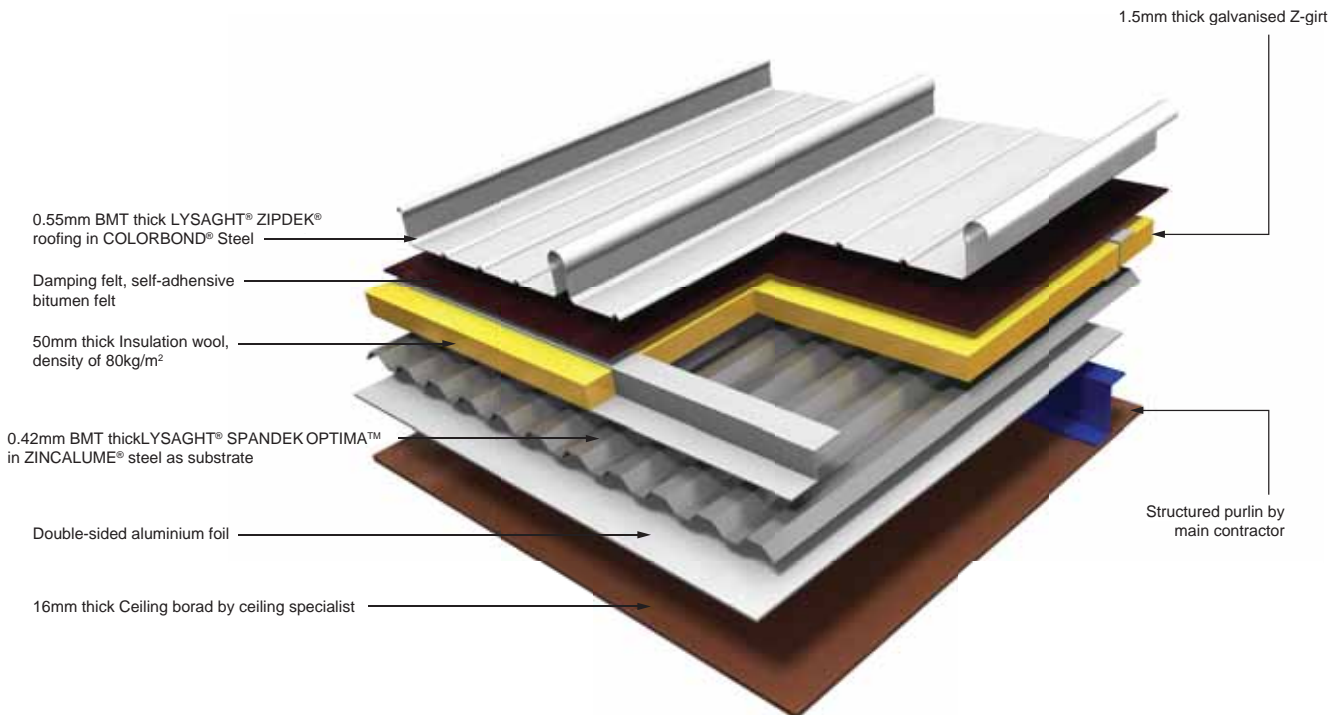
LYSAGHT® ZIPDEK® is acoustically proven and tested to meet Sound Transmission Classes (STC) of STC 45 and STC 51 from Spring Singapore.

LYSAGHT® ZIPDEK® acoustic roofing systems are suitable for construction applications with stringent acoustic requirements and have been used as such in residential houses, schools, auditorium, theatres, airports and other applications.

LYSAGHT® ZIPDEK® Roof System with STC 45



LYSAGHT® ZIPDEK® Roof System with STC 51



STRONG BRANDS, QUALITY MATERIALS

LYSAGHT® products are made of highest quality material, namely COLORBOND® steel and ZINCALUME® steel which are the leading materials for external cladding application. COLORBOND® steel and ZINCALUME® steel have been used on countless buildings to portray modern architecture works of art, ranges from the classic roofing to advance façade for industrial, commercial and residential buildings.



COLORBOND® steel is a pre-painted finished product with ZINCALUME® steel substrate to deliver both superior corrosion resistance and excellent colour performance.

It comes with the THERMATECH® solar reflectance technology and Clean technology to minimize tropical dirt staining while lowering urban heat island effect, delivering longevity and minimal maintenance to your external cladding.

COLORBOND® steel is backed by a material warranty of up to 25 years*

Product Attributes

- Pre-painted finish on top of ZINCALUME® steel substrate to deliver superior corrosion resistance.
- Superior primer technology which prevents paint delamination.
- Proprietary super polyester paint system proven to provide excellent colour performance.
- Clean technology incorporated to resist against tropical dirt staining.
- THERMATECH® solar reflectance technology to allow for lower temperature cladding.
- Wide varieties of colours and finishes to cater for your building design needs.



ZINCALUME® steel is a metallic coated steel product composed of 55% aluminium, 43.5% zinc and 1.5% silicon (aluminium-zinc alloy coating) that can provide superior corrosion resistance for your external cladding, with expected lifespan that's four times the life of generic alternatives (GI).

ZINCALUME® steel is backed by a material warranty of up to 25 years*

Product Attributes

- Superior corrosion resistance due to the minimum coating class of AZ150.
- Initial resistance to surface marking and wet storage corrosion due to the proprietary clear resin coating.
- Better aesthetics compared to generic alternatives (Al-Zn) due to less surface darkening, afforded by the proprietary clear resin coating.
- Lightweight and thermally efficient compared to conventional roofing materials (e.g. concrete and clay tiles)
- Excellent flexibility in design as steel can be bent and curved to form truly unique designs.

**Warranty terms and conditions apply*

This material warranty may vary to buildings nearer to marine or industrial environment and is subjected to prior agreement by BlueScope. For full terms and conditions and to determine the eligibility of your project for the warranty, please contact your Key Account Manager.

There are different internal and external environments affecting the longevity of COLORBOND® steel and ZINCALUME® steel, hence feel free to consult our material experts for more specialized recommendations.

Examples of recommendations:

- Direct contact between COLORBOND® steel or ZINCALUME® steel with copper, lead and stainless steel should be avoided.

If condensation on the reverse side of roofing sheet is likely, vapour barrier should be installed to shield COLORBOND® steel or ZINCALUME® steel from prolonged exposure to the condensation (moisture).

REFERENCES



Siam Square One, Thailand

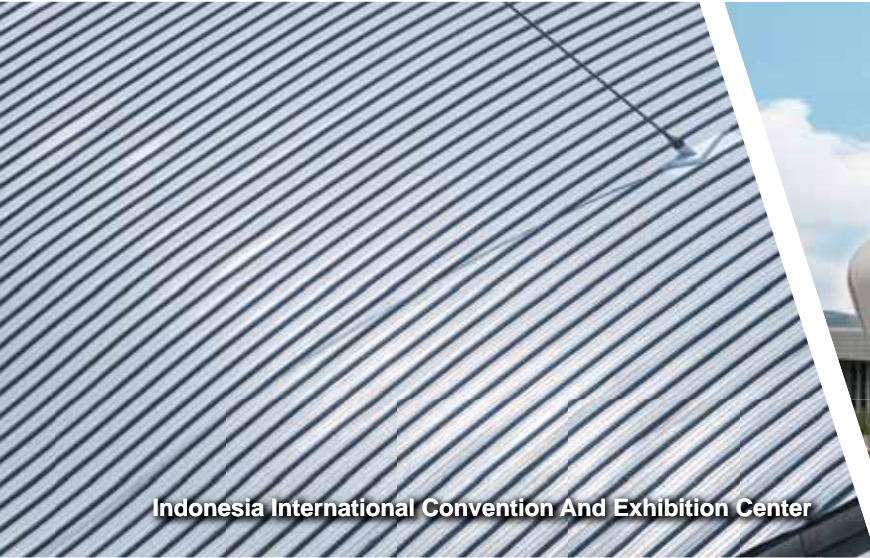


MRT Purple Line Station Thailand



The Promenade, Thailand

REFERENCES



Indonesia International Convention And Exhibition Center



Hunan Loudi Stadium, China



Tianjin Olympic Stadium, China



Tianjin Meijiang Exhibition Center, China



Fuzhou South Railway Station, China



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COATING



COLOUR CHOICES



DESIGN FLEXIBILITY



DURABILITY / SECURITY



HI-TECH PRODUCTION



RECYCLING



TERMITE PROOF



THERMAL EFFICIENCY



WARRANTY

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* Warranty terms and conditions apply.

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