

## Project References

Shandong Weifang Stadium



Hunan Loudi Stadium



Tianjin Olympic Stadium



Inner Mongolia Baotou Stadium



**LYSAGHT**  
THERE IS NO EQUIVALENT

**LYSAGHT®**  
**FLEX-LOK™**



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**BLUESCOPE**  
**LYSAGHT**

BlueScope Lysaght® is dedicated to a continuous product development and constant improvement to enhance its product range to meet the requirements of an architecturally demand market.

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## LYSAGHT® FLEX-LOK™

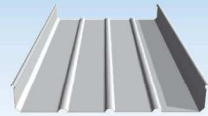
structural standing seam profile is the latest addition to the LYSAGHT® suite of products. Unlike our range of architectural standing seam profile, this roofing system requires no substrate as it is profiled with structural strength to function as a single skin roof to increase its ability in thermal resistance and sound transmission. In addition, LYSAGHT® FLEX-LOK™ can be formed into straight sheet, convex curved sheet or tapered sheet to meet increasingly sophisticated roof geometries demanded by designers today. As such, LYSAGHT® FLEX-LOK™ is the architects, engineers and contractors' ultimate choice for roofing solution.

### Advantages

- No fastener penetration ensures weather tightness performance.
- Advance concealed clip system provide excellent uplift resistance.
- Available on tapered and curved sheets to fulfill the most challenging design criteria.
- Can be roll-formed on site to avoid end overlapping and to achieve extreme length according to the project requirements.
- Available in a range over widths in ferrous and non ferrous material.
- Original clip design minimize the need for roofing thermal expansion joints.
- Specially engineered thermal pad of the clip can reduce thermal bridging effects.
- Excellent in rain drainage (high ribbed profile).
- The minimum roof pitch is 1.40.

## LYSAGHT® FLEX-LOK™

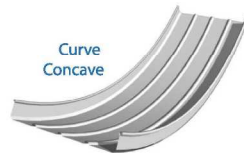
provides variety of material that can be used to create individual, modern building facades and imaginative roof landscapes.



Straight



Tapered



Curve Concave



Curve Convex

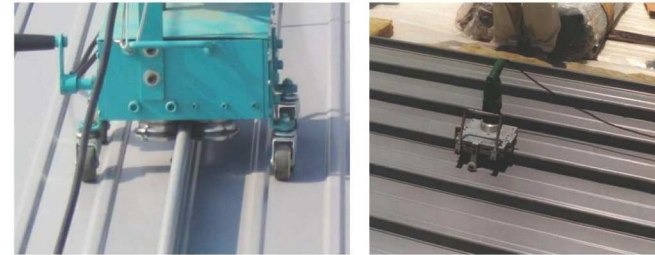


Curve Convex Tapered

## LYSAGHT® FLEX-LOK™

### Mechanical Seamer

LYSAGHT® FLEX-LOK™'s system seamed onto the clips using a mechanical seaming process. The seamer consists of two seaming rollers that are clamped onto FLEX-LOK™ panel, plus four guides to ensure the correct height is maintained.



FLEX-LOK™ Mechanical Seamer

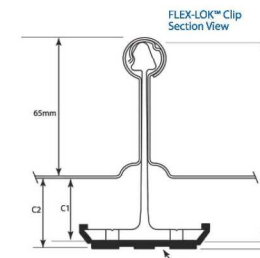
### Hand Seamer

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



FLEX-LOK™ Hand Seamer

### FLEX-LOK™ Clip



FLEX-LOK™ Clip is made from Aluminium Alloy 6005. A to AS/NZS 1866 or Aluminium Alloy 606 3-T5

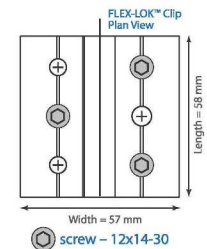
**FLEX-LOK™ Clips** are extruded from structural grade aluminum. The shape of the clip has been carefully designed to minimize the strength, in both upward (wind uplift) and downward (wind, dead load) conditions. The head of the clips accurately matches the FLEX-LOK™ sheeting to ensure the sheets slide freely during thermal movement.

### Thermal Pad

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

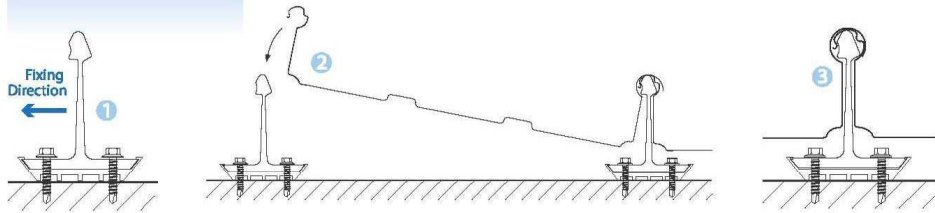


Thermal barrier pad 5 mm thick



## Fixing Clips

## LYSAGHT® FLEX-LOK™



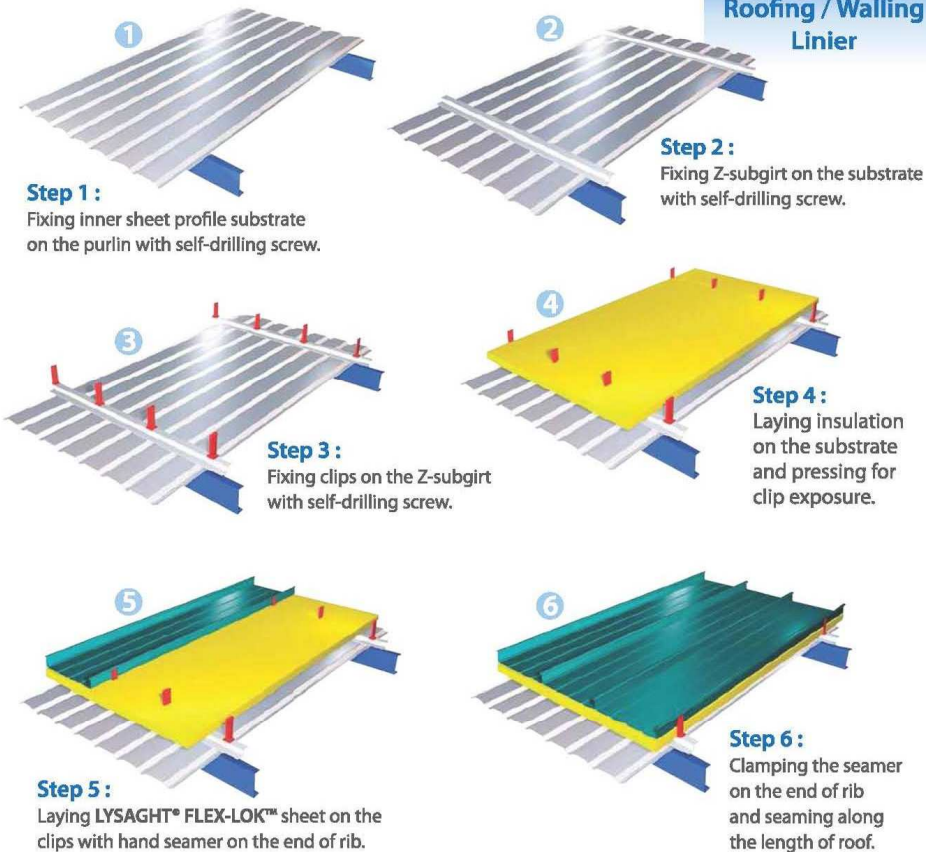
**Step 1 :**  
Fixing clips. FLEX-LOK™ is anchored onto the purlins with heat insulated concealed clips. Pay attention to the correct direction.

**Step 2 :**  
Fixing male and female ribs on the clips. Place the female rib overlapping on the male rib from the previous sheet.

**Step 3 :**  
Lock up (seam) the ribs using machine on site.

## Installation Process

Double Skin  
typical use for  
Roofing / Walling  
Linier



**Step 1 :**  
Fixing inner sheet profile substrate on the purlin with self-drilling screw.

**Step 2 :**  
Fixing Z-subgirt on the substrate with self-drilling screw.

**Step 3 :**  
Fixing clips on the Z-subgirt with self-drilling screw.

**Step 4 :**  
Laying insulation on the substrate and pressing for clip exposure.

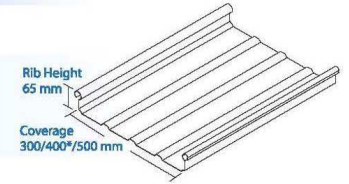
**Step 5 :**  
Laying LYSAGHT® FLEX-LOK™ sheet on the clips with hand seamer on the end of rib.

**Step 6 :**  
Clamping the seamer on the end of rib and seaming along the length of roof.

## Specification of Steel

TCT (mm)	0.60 / 0.85
Coverage	Straight 300, 400*, 500
	Tapered 240 ~ 500

Rib Height  
65 mm  
Coverage  
300/400\*/500 mm



Minimum Recommended Roof Pitch	2.5%		
Minimum Radius of Curving	Smooth Pre-Curve	Convex	14 M
		Concave	18 M
Minimum Radius of Curving	Spring Curve	Convex	55 M (0.60 mm)
			60 M (0.85 mm)
		Concave	80 M (0.60 mm)
			90 M (0.85 mm)
Recommended Support Spacing	1.5 m ~ 2.0 m		
Coating Mass	150 g/m <sup>2</sup>		
Yield Strength	300 MPa		
Meets Australian Standard	AS 1397-2001 AS/NZS 2728-2007		

\* The standard width of LYSAGHT® FLEX-LOK™ is 400 m.

\* The limitation data may differ for various material, please contact BlueScope Lysaght Technical Department for advice.

## Wind Load Capacities (Kpa)

Type of Span	Type of Clip	Span (mm)						
		900	1200	1500	1800	2100	2400	2700
End Span	Standard Clip	3.78	2.85	1.95	1.46	1.25	1.17	1.02
	Long Clip	4.16	3.13	2.15	1.56	1.4	1.24	1.099
Internal Span	Standard Clip	3.6	2.77	1.93	1.49	1.32	1.28	1.15
	Long Clip	3.96	3.04	2.13	1.59	1.43	1.35	1.23

① Support must no be less than 1.5 mm BMT.

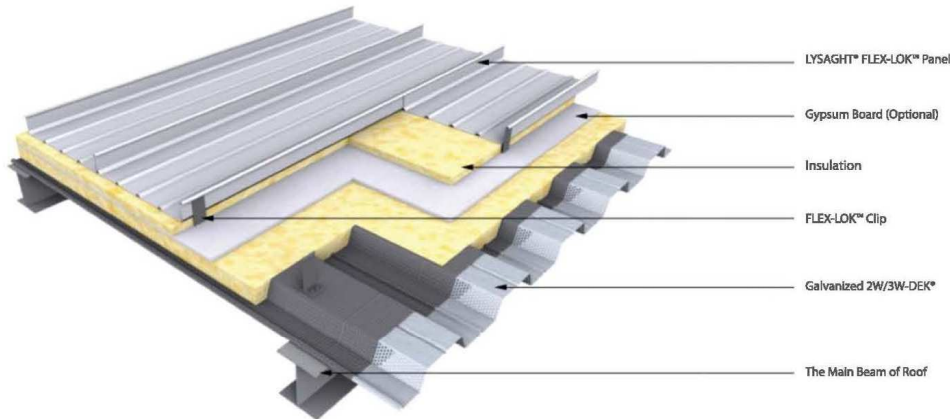
② The fastened diameter of the seam is 20 mm, tolerance should be within - 0.7mm ~ + 0.3 mm.

③ Seaming up can be finished by twice fastening, first to diameter about 21-22 mm and then to the final size.

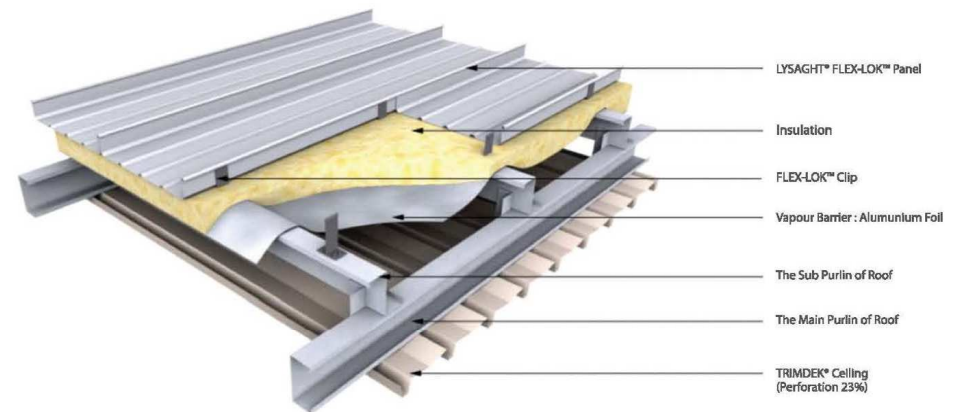
④ Values provided here are the strength of ultimate wind capacities.

The following figures show several typical LYSAGHT® FLEX-LOK™ system commonly encountered. Obviously, the system are dependent on specific and should be tailored to suit the thermal, acoustic, ventilation or economic requirements.

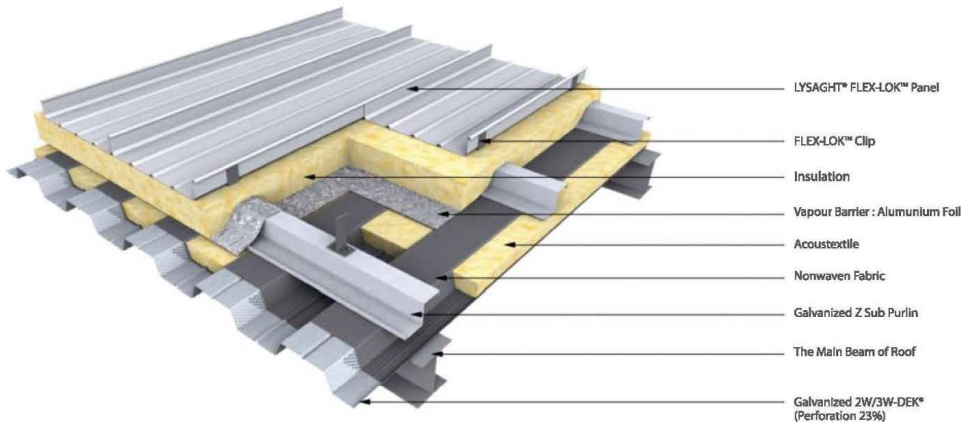
Double Skin Rafter/Truss Roof System - Clip fixed to W-DEK® rib



Double Skin Purlin Roof System - Clip fixed to sub-purlin



Double Skin Rafter/Truss Roof System - Clip fixed to sub-purlin



Single Skin Purlin Roof System

