

LYSAGHT®

Global Excellence since 1857


**TATA BLUESCOPE
STEEL**



FLEX-LOK® 400

Design and Installation Guide



Standing seam roof system

LYSAGHT FLEX-LOK® concealed standing seam system is a roofing system with an innovative architectural appearance. It is available in steel or aluminium and provides a flexible design. It can be slope, curved or tapered to achieve various architectural requirements and provides architects with more creative resource.

Profile

LYSAGHT FLEX-LOK® standing seam profile comes with 400 mm effective cover width, three stiffener symmetrically spaced (100mm c/c) parallel to 65mm deep rib. The profile lapping is mechanically field seamed using electric steamer tool to achieve increased weatherability and greater resistance to wind uplift.

Note: FLEX-LOK® standing seam profile is also available in 300mm and 500mm wide profile.

Profile Shapes



Concave

Min. Curve Radius

Steel - 8 m

Aluminium - 6 m



Convex

Min. Curve Radius

Steel - 8 m

Aluminium - 4 m



Tapered

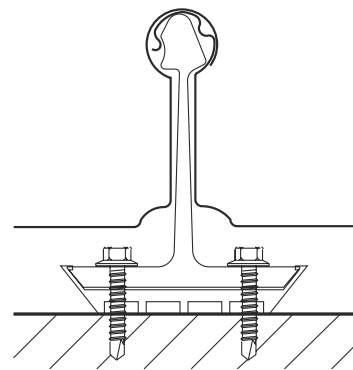
Tapered width -

250 mm at one end and upto 500 mm at other end.

Tapered length - 3500 mm (min.)

Insulated clip for Better thermal performance

The FLEX-LOK® profile panel is fixed to every purlin with the help of structural grade Aluminium clip with UPVC thermal pad at the bottom of the clip. The head of clips accurately matches the roof sheeting; ensuring the sheet slides freely during thermal movement.



Panel Overlap



FLEX-LOK® Clip



Material Specifications:

ZINCALUME® steel resin coated, minimum metallic coating mass is AZ150 (150g/m²), minimum yield strengths of G550 (550MPa) complies with AS1397 or IS15961.

COLORBOND® XRW is pre-painted steel for exterior roofing and walling. It is the most widely used, minimum metallic coating mass is AZ150 (150g/m²), minimum yield strengths is G550 (550 MPa), Super Durable Polyester exterior paint system, total 25um DFT on topside and 10um DFT on reverse side complying with AS/NZS 2728- type 4 or IS15965- class 3

COLORBOND® Ultra is pre-painted steel for severe coastal or industrial environments (closer to source), minimum metallic coating mass is AZ200 (200g/m²), minimum yield strengths is G550 (550MPa), Super

Durable Polyester exterior paint system, total 25um DFT on topside and 15um DFT on reverse side complying with AS/NZS 2728- type 4 or IS15965- class 3.

(Please contact Tata BlueScope steel office for COLORBOND® spectrum series (metallic finish) and COLORBOND® XPD (PVDF) specification)

COLORBOND® steel with THERMATECH™ Technology

COLORBOND® steel with THERMATECH™ technology reflects more of the sun's heat, allowing both roofs and buildings stay cooler in summer. In moderate to hot climates, compared to roofing materials of similar colour with low solar reflectance, COLORBOND® steel with THERMATECH™ can reduce annual cooling and energy consumption by up to 15%*and also reduces peak roof temperature by up to 6°C**.

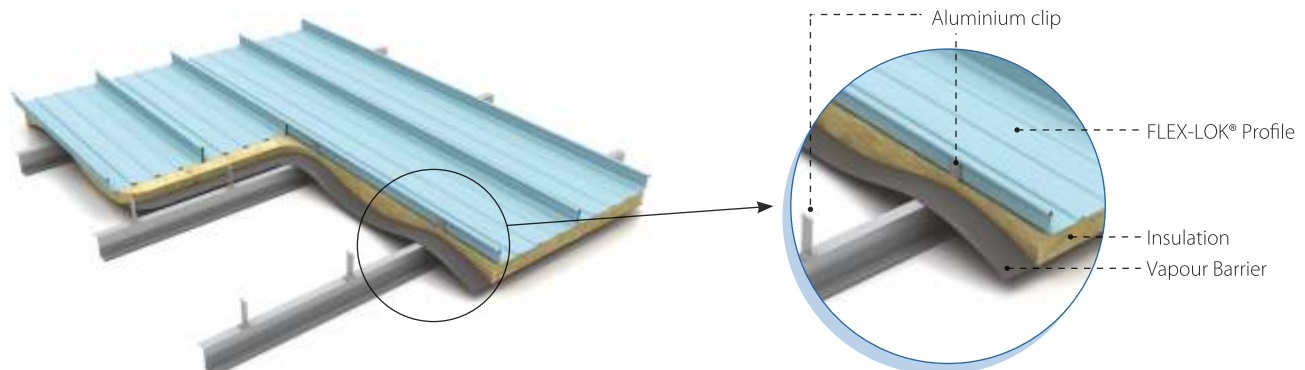
*Depending on level of insulation, colour, building shape, orientation and function.
**Depending on the colour.



Insulated Roof Systems with FLEX-LOK® 400

FLEX-LOK®400 profile can be used in Single Skin and Double skin Insulated Roof systems. These systems are dependent on specific requirements and are to be tailored to suit the thermal, acoustic, ventilation or economic requirements. Below are some Typical Insulated roof systems with FLEX-LOK® profile.

1. Single Skin insulated Roof System (FLEX-LOK® 400 + Insulation)



Maximum allowable support spacings

Steel Thickness (TCT) 0.55 mm 0.60 mm

Roof application

End Zone (mm) 1200 1500

Internal Zone (mm) 1500 1800

(All dimensions are in mm)

Roof pitch

Minimum recommended pitch 2°

Grade of steel G300 (300 MPa
Yield strength)

Coating class (min.) AZ150

Note: FLEX-LOK® standing seam profile is tested at LYSAGHT® BlueScope R & D NATA approved Lab as well as IIT Chennai for wind uplift pressure (strength and serviceability parameter)
Above spans are applicable up to wind speed of 44m/sec. Supports must be not less than 1 mm BMT. Please contact Tata BlueScope Steel office considering the above for designs.

Steel Thickness (TCT)

0.55 mm 0.60 mm

Base metal thickness (BMT) 0.50 0.55

Total coated thickness (TCT) 0.55 0.60

Effective coverage width 400 400

Rib depth 65 65

(All dimensions are in mm)

Mass

ZINCALUME® steel

Mass per unit area Kg/m² 5.92 6.49

Mass per unit length Kg/m 2.37 2.60

Coverage m²/tonne 169 154

Mass

COLORBOND® steel

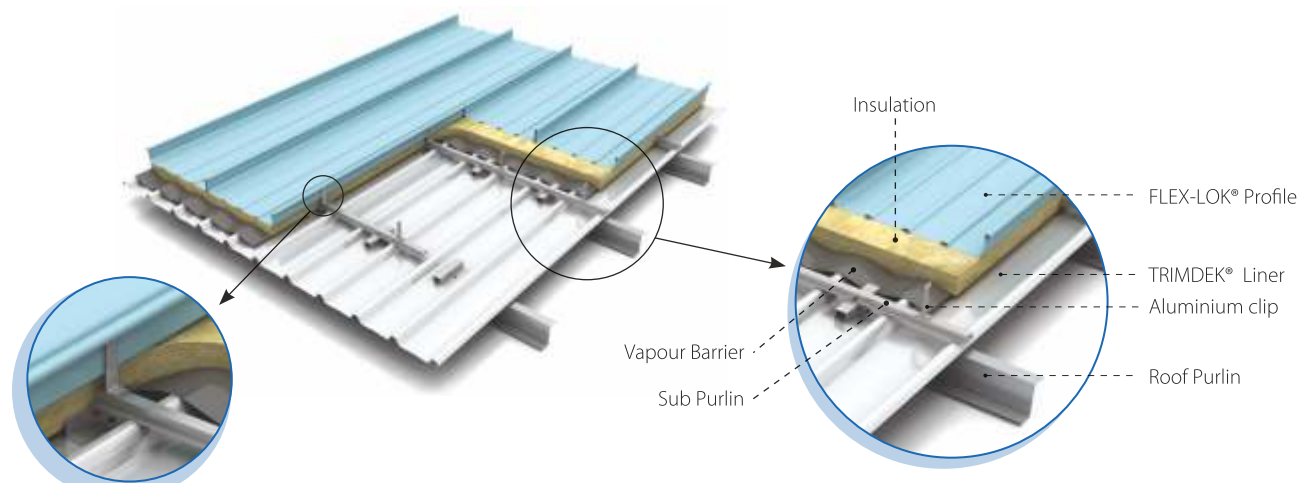
Mass per unit area Kg/m² 6.00 6.58

Mass per unit length Kg/m 2.40 2.63

Coverage m²/tonne 166.5 152



2. Double Skin Insulated Roof System (FLEX-LOK® 400 + Insulation+ TRIMDEK®1015)

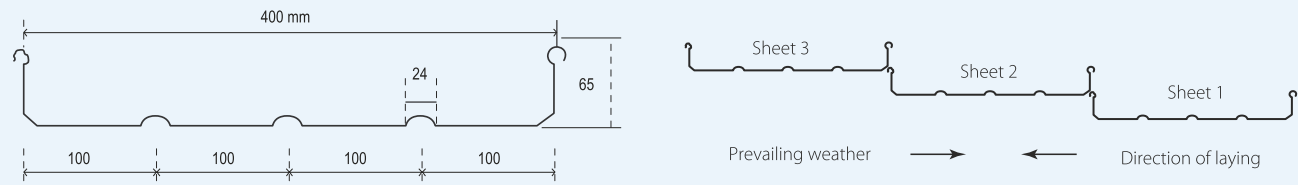


Note: Sub purlin are not required for VARYDEK™ liner panel system

Installation of FLEX-LOK® 400 roof system

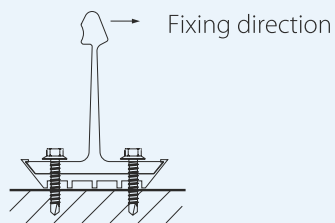
FLEX-LOK® standing seam roof system installation

Step 1: Direction of laying for side laps under prevailing weather conditions



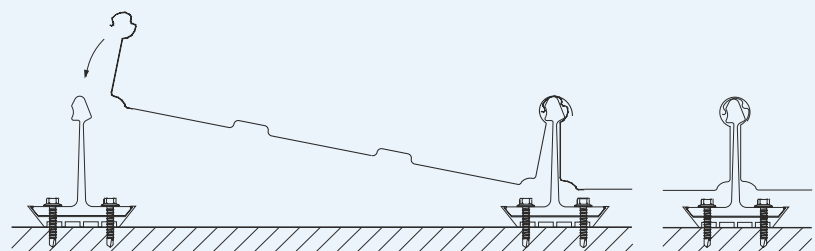
Step 2: Fixing clips:

LYSAGHT FLEX-LOK® is anchored onto the purlins with heat insulated concealed clips. Pay attention to the correct direction



Step 3: Fixing Sheets on the clips:

Place the female rib overlapping the male rib of the previous sheet



Step 4: Locking the ribs

Final locking of overlapped ribs is done by using seamer machine on site





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Benefits

- FLEX-LOK® system gives real design freedom and provides a choice of solutions for modern architectural requirement.
- A specially designed, concealed clip system requires no through fasteners. This provides excellent weather and uplift resistance
- The original heat insulated clip allows for movement which results from the thermal effect. This minimizes the need for step expansion joints
- Specially engineered thermal pad, slides neatly onto base of the clip, which can reduce or eliminate thermal bridging effects
- Can be roll-formed on site to achieve extreme long length according to project requirements
- It can be used as single skin roofing as well as double skin roofing. (FLEX-LOK® made from Aluminium material require metal liner sheet)

Product Descriptions

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Standard Colour Range

Explore More



The above colours are only for illustrative purpose and actual colours may vary.

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