

ROOFING & WALLING INSTALLATION MANUAL



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Note: All the product images used in this brochure are for reference purposes only and does not reflect the actual configuration of the product. Kindly note that the product images are indicative and for illustration purposes only. Lysaght reserves the right to make any change to product images without prior notice. For accurate and up-to-date information, seek advice from Lysaght representative.



1. DELIVERY

Always check the material upon delivery. Check for damages and check material quantities against the delivery order. Note any damages or shortages at the time of delivery.

2. WALKING ON ROOFS

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.

Whatever direction you walk, always walk in the pans. When walking across the width of the roof, walk over, or close to, the roof supports.

3. ADVERSE CONDITIONS

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

4. METAL & TIMBER COMPATIBILITY

Lead, copper, free carbon, bare steel and green or some other chemically treated timbers are not compatible with this product. Don't allow any contact of the product with those materials, nor discharge of rainwater from them onto the product. Supporting members should be coated to avoid problems with underside condensation. If there are doubts about the compatibility of other products being used, ask for advice from our Lysaght representative.

5. MAINTENANCE

Optimum product life will be achieved if all external walls are washed regularly. Areas not cleaned by natural rainfall (such as the tops of walls sheltered by eaves) should be washed down every six months.

6. SAFETY, STORAGE AND HANDLING

LSYAGHT's 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 off the ground. If stacked or bundled product becomes wet, separate it, wipe it with a clean cloth to dry thoroughly.

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

7. TURN UP-DOWN TOOLS

On all roofs of pitches less than 15 degrees, the high end of all sheets must be turned up to stop water from being driven under the flashing and into the building.

Similarly, the pans at the gutter end must be turned down to stop water running back along the underside of the sheets.

Tools are available for both applications.

8. NOTCHING TOOL

A tool is available for on-site notching of transverse flashings and cappings.

9. 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 a carborundum disc does.

Cut materials over the ground and not over other materials. 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.

SPECIFICATIONS OF ROOFING & WALLING PROFILES

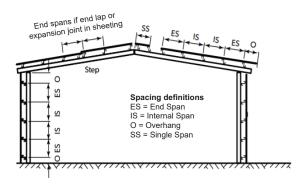
										Max F	Recommend	led Support	Spacing	[1]		
		BMT	Steel	Mass	Cover Width	Rib	Min Roof			Roofin	g			Wa	alling	
LYSAGH	LYSAGHT® Profiles		Grade	(kg/m²)	vviatn	Depth	Pitch	Single	End	Internal	Unstiffened Overhang	Stiffened Overhang [2]	Single	End	Internal	Overhang
		mm	MPa	COLORBOND® Steel	mm	mm	Degree	mm	mm	mm	mm	mm	mm	mm	mm	mm
		0.42	G550	4.39	980	43	2°	850	1050	1450	150	450	1900	1900	3075	150
KLIP-LOK OPTIMA™		0.48	G550	4.98	980	43	2°	1000	1200	2200	200	500	2400	2500	3600	200
		0.60	G550	6.15	980	43	2°	1500	1500	3500	250	550	2500	2700	3600	250
SPANDEK	//////////////////////////////////////	0.42	G550	4.60	935	24	3°	1500	2100	2300	200	450	2200	3100	3300	150
OPTIMA™		0.48	G550	5.21	935	24	3°	2200	2400	3300	250	500	2300	3200	3300	150
TRIMDEK		0.42	G550	4.24	1015	28.5	3°	1200	1900	2500	150	250	2200	2500	3300	150
OPTIMA™		0.48	G550	4.80	1015	28.5	3°	1600	2100	3000	150	250	2300	2700	3300	150
HR-29®	///////	0.42	G550	4.43	970	38	2°	1500	2100	1500	-	-	-	-	-	-
OPTIMA		0.75	G550	7.69	970	38	2°	2100	2500	1500	-	-	-	-	-	-
LID 00®	0.42	0.42	G550	4.54	730	38	2°	-	1700	2200	150	300	3600	3900	4500	-
HR-29®		0.75	G550	7.88	730	38	2°	2100	3800	4600	250	400	3600	3900	4500	-
CUSTOM	//////////////////////////////////////	0.42	G550	4.35	762	16	5°	700	900	1200	200	300	1800	2500	2700	200
ORB®		0.48	G550	4.93	762	16	5°	800	1300	1700	250	350	1800	2700	2700	250
CUSTOM BLUE	//////////////////////////////////////	0.60	G300	6.09	762	16	5°	1600	1600	1800	200	300	2400	3000	3300	200
ORB®		0.80	G300	8.03	762	16	5°	1800	1800	2600	400	600	2400	3200	3600	400
360		0.55	G300	5.21	521	25	3°	_								-
SEAM® [3]		0.55	G300	5.48	495	38	3°	_						-	-	
SELECT SEAM II [®] [3]		0.55	G300	5.25	517	25	7.5°	-	-	-	-	-	-	-	-	-
ZIPDEK® [3]		0.55	G300	6.59	400	65	1°	-	1800	2050	-	-	-	2050	2500	-
V VEDCE®		0.55	C200	6.08	200	25	-	-	-	-	-	-	1200	1200	1500	100
X-VERGE®		0.55	G300	6.03	300	25	-	-	-	-	-	-	1200	1200	1500	100
MULTICLAD® OPTIMA		0.42	G550	3.87	1110	12	-	-	-	-	-	-	1200	1600	10	150

 $^{^{\}mbox{\tiny [1]}}$ See Figure 1 for spacing definations.

See Figure 2 for explanation of 'stiffened'.
 The max support spacing is not applicable to Standing Seam roofing panels due to the profiles are intended for use as outer cladding only.



Walling Profiles Only



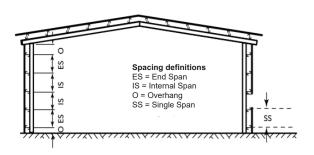
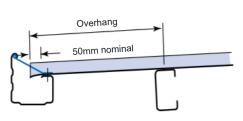
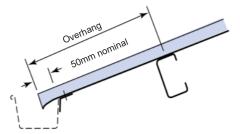


Figure 1
Spacing Definations

Methods of stiffening roof overhangs.



Sheerline gutter fixed to underside of roofing (200mm centres)



Galvanised or ZINCALUME® / COLORBOND® steel angle 50x50x1.2mm fixed to underside of roofing (200mm centres).

Gutter may be fixed to angle.

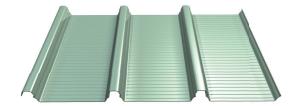
Figure 2 Roof overhang with edge stiffener

For the stiffened overhangs listed in the table, you need to stiffen the gutter ends of the roofing. The gutter fixed through the return lip to the underside of roofing at 200mm centres will provide the required stiffening. Alternatively, you can use a 50 \times 50 \times 1.2mm ZINCALUME® / COLORBOND® steel angle fixed at 200mm centres to the underside of the roofing about 50mm from the end.









Before starting work ensure that:

- The supports for your cladding are truly in the same plane.
- The minimum roof slopes conform to our recommendations; and

Scan for

online resources

• The overhangs of sheets from the top and bottom supports don't exceed our recommendations.

Make any necessary adjustments before you start laying sheets, because they will be difficult to rectify later.

1.2 ORIENT SHEETS BEFORE LIFTING

Consider which end of the building is best to start from. For maximum weather-tightness, start laying sheets from the end of the building that will be downwind of the worst-anticipated or prevailing weather (Figure 1).



Figure 1 Lay sheets towards prevailing weather

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.

1.3 CHECK ALIGNMENT OCCASIONALLY

Occasionally check that the sheets are still parallel with the first sheet, by taking two measurements across the width of the fixed sheeting.

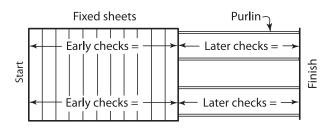


Figure 2 Check alignment occasionally

1.4 FASTENERS WITHOUT INSULATION

Fixing to steel up to 0.75mm BMT	Fixing to steel > 0.75mm to 3mm BMT	Fixing to timber
Self-drilling, self-tapping screws 12 - 14 x 30 OR Type 17 Self screws with hex & washer-head 12 - 11 x 25	Self-drilling, self-tapping screws with hex & washer-head 12 - 14 x 30	Self-drilling, self-tapping wood screws with hex & washer-head Softwood: 12 – 11 x 40 Hardwood: 12 – 11 x 25

Note: Use two screws per clip.

Where insulation is to be installed, you may need to increase the length of the screws given above, depending on the density and thickness of the insulation.

When the screw is properly tightened:

- into metal: there should be at least three threads protruding past the support you are fixing to, but the Shankguard must not reach that support.
- into timber: the screw must penetrate the timber by the same amount that the recommended screw would do if there were no insulation.
- · Fasteners should comply to AS3566, Class 3 or Class 4.

1.5 SEALED JOINTS

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

1.6 END LAPS/ EXPANSION JOINTS

LYSAGHT® KLIP-LOK OPTIMA™ is designed to minimize water penetration, and therefore, highly not recommended for end-lapping. If you are designing for more than maximum transportable length, LYSAGHT® KLIP-LOK OPTIMA™ can be rolled on-site. Please contact Lysaght representative for more information.

1.7 FIX THE LAST SHEET

If the final space is less than the full width of a sheet, you can cut a sheet along its length and shorten the clips as appropriate. It is desirable to fix the sheet at one end.

1.8 STEPS FOR INSTALLATION

- 1. Lay and fix wire mesh to the supports in accordance with the appropriate building requirements. (Figure 3)
- 2. Position the first clips on each support by placing onto the support nearest the gutter. (Figure 4)

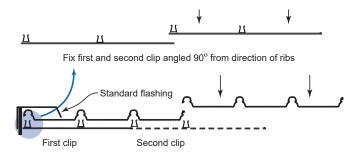


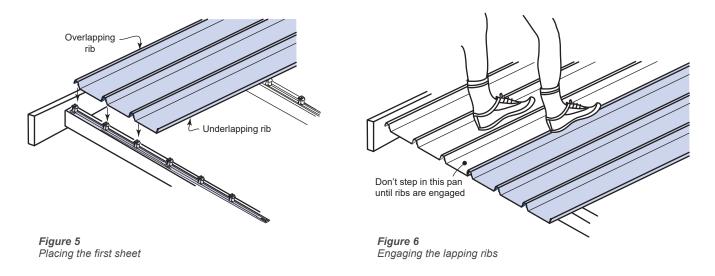
Figure 3
Place first sheet on clip and snap onto clip.
Add subsequent clips and sheets as required.



Figure 4
Fix the first rows of clips. Fix the next (and subsequent) clips and sheets.

- 3. Fix the first clip on the support so they point in the direction of laying. Ensure the clip is 90 degrees to the edge of the sheet.
- 4. Align the clips with the spacer using a string line (or the first sheet as a straight edge) to align the clips as you fix a clip to each support working towards the high end of the roof.
- 5. Drive hex-head screws through the top of the clip, into the support.
- Work along the edge of the gutter, ensuring it aligns correctly at its ends in relation to the gutter and ridge (or parapet or transverse wall).
- 7. Place the glass wool insulation between the supports.

- 8. Measure the distance from the gutter end of the sheet to the support.
- 9. Position the first sheet so that it overhangs the desired amount (usually 50mm) to the gutter. It is important to ensure this first sheet is placed square to adjacent edges. (Figure 5)
- 10. Engage the sheet with clips using vertical foot pressure on all the ribs over each clip. (Figure 6)
- 11. Fix the next row of clips, one to each support with the slots and tabs engaged. Be sure the clip is 90 degrees to the edge of the sheet.
- 12. As before, place the next sheet over its clips ensuring you also engage the edge of the preceding sheet.
- 13. Accurately position the sheet so that it overhangs the desired amount into the gutter. It is important that you keep the gutter-end of all sheets in a straight line.
- 14. Fully engage the two sheets along the overlapping rib. You can do this by walking along the full length of the sheet with one foot in the center pan of the previous sheet and the other foot applying vertical pressure to the top of the interlocking ribs at regular intervals. It is important that you don't walk in the unsupported pan beside the overlap (Figure 6)
- 15. Similarly, engage all the clips by applying vertical foot pressure to the top of the other two ribs over each clip.



16. It is essential that the sheets interlock completely. It is important that your weight is fully on the sheet you are installing.





Before starting work ensure that:

- The supports for your cladding are truly in the same plane.
- The minimum roof slopes conform to our recommendations; and
- The overhangs of sheets from the top and bottom supports don't exceed our recommendations.

Make any necessary adjustments before you start laying sheets, because they will be difficult to rectify later.

2.2 ORIENT SHEETS BEFORE LIFTING

Consider which end of the building is best to start from. For maximum weather-tightness, start laying sheets from the end of the building that will be downwind of the worst-anticipated or prevailing weather (Figure 1).



Figure 1
Lay sheets towards prevailing weather

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.

2.3 CHECK ALIGNMENT OCCASIONALLY

Occasionally check that the sheets are still parallel with the first sheet, by taking two measurements across the width of the fixed sheeting.

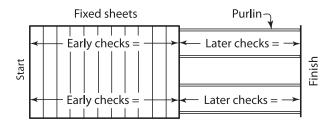


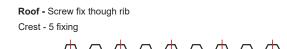
Figure 2
Check alignment occasionally

2.4 FASTENERS

LYSAGHT® SPANDEK OPTIMA™ requires 5 fasteners per sheet per support as shown below. Fastener should comply to AS3566, Class 3 or Class 4.

Fasteners without insulation						
	Fixing to steel up to 0.75mm BMT	Fixing to steel >0.75mm to 3mm BMT	Fixing to timber			
Crest fixed	Self-drilling screws with hex. washer-head & EPDM seal, 12 - 11 x 50 (M5.5 – 11 x 50)	Self-drilling screws with hex. washer-head & EPDM seal, 12 - 14 x 50 (M5.5 - 14 x 50) or 12 - 14 x 55 (M5.5 - 14 x 55)	Type 17 Self drilling screws with hex. washer-head & EPDM seal, Softwood: 12 - 11 x 65 (M5.5 - 11 x 65) Hardwood: 12 - 11 x 50 (M5.5 - 11 x 50)			
Valley fixed	Self-drilling screws with hex. washer-head & EPDM seal,	Self-drilling screws with hex. washer-head & EPDM seal, 12 - 14 x 20 (M5.5 - 14 x 20) or 12 - 14 x 30 (M5.5 - 14 x 30)	Type 17 Self drilling screws with hex. washer-head & EPDM seal Softwood: $10-12\times30\;(\text{M4.8}-12\times30)$ Hardwood: $10-12\times20\;(\text{M4.8}-12\times20)$			
Side lap & accessories	Self-drilling screws with hex. washer-head & EPDM seal	10 – 16 x 16 or EPDM seal: 8 – 15 x 15				

Fasteners with	insulation		
	Fixing to steel up to 0.75mm BMT	Fixing to steel >0.75mm to 3mm BMT	Fixing to timber
Crest fixed	Self-drilling screws with hex. washer-head & EPDM seal, 12 - 11 x 50 (M5.5 - 11 x 50)	Self-drilling screws with hex. washer-head & EPDM seal, 12 - 14 x 65 (M5.5 - 14 x 65) or 12 - 14 x 68 (M5.5 - 14 x 68)	Type 17 Self drilling screws with hex. washer-head Softwood: 12 – 11 x 65 (M5.5 – 11 x 65) Hardwood: 12 – 11 x 50 (M5.5 – 11 x 50)
Valley fixed	Self-drilling screws with hex. washer-head & EPDM seal, 10 - 12 x 20 (M4.8 - 12 x 20) or Self-drilling screws with hex. washer-head & EPDM seal, 10 - 16 x 16 (M4.8 - 16 x 16)	Self-drilling screws with hex. washer-head & EPDM seal, 12 - 14 x 30 (M5.5 - 14 x 30)	Type 17 Self drilling screws with hex. washer-head & EPDM seal Softwood: 10 – 12 x 30 (M4.8 – 12 x 30) Hardwood: 10 – 12 x 20 (M4.8 – 12 x 20) Softwood: 12 – 14 x 30 (M5.5 – 14 x 30) Hardwood: 12 – 14 x 20 (M5.5 – 14 x 20)
Side lap & accessories	Self-drilling screws with hex. washer-head & EPDM seal	10 – 16 x 16 or EPDM seal: 8 – 15 x 15	





2.5 FASTENING SHEETS TO SUPPORTS

LYSAGHT® SPANDEK OPTIMA™ profile is pierced-fixed to timber or steel supports. This means that fastener screws pass through the sheeting.

You can place fasteners for LYSAGHT® SPANDEK OPTIMA™ through the crests or in the pans. To maximize watertightness, always place roof fasteners through the crests.

Always drive the fasteners perpendicular to the sheeting, and in the center of the corrugation or rib. Don't place fasteners less than 25mm from the ends of sheets.

2.6 SEALED JOINTS

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

2.7 SIDE-LAPS

The side of LYSAGHT® SPANDEK OPTIMA™ with the anti-capillary groove is always the underlap (Figure 3 & 4). It is generally considered good practice to use fasteners along side-laps. However, when cladding is supported as indicated in Maximum Support Spacings, side-lap fasteners are not usually needed for strength.

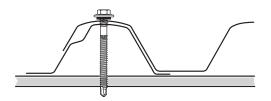


Figure 3
Crest fixing for roof or walls

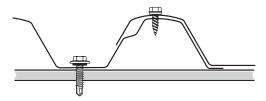


Figure 4
Valley fixing for walls only

2.8 END LAPS

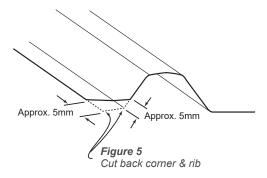
End-laps are not usually necessary because LYSAGHT® SPANDEK OPTIMA™ is available in long lengths. If you want end-laps, seek advice from our Lysaght representative on the sequence of laying and the amount of overlap.

2.9 END OF SHEETS

It is usual to allow roof sheets to overlap into gutters by about 50mm. If the roof pitch is less than 25° pr extreme weather is expected, the pans of sheets should be turned-down at lower ends and turned-up at upper ends by about 80°.

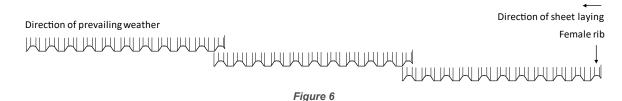
2.10 SHEET-ENDS ON LOW SLOPES

When LYSAGHT® SPANDEK OPTIMA™ is laid on slopes of 5 degrees or less, cut back the corner of the under-sheet, at the downhill end of the sheet, to block capillary action (Figure 5).



2.11 STEPS FOR INSTALLATION

1. When lifting roofing sheets onto roof frames for installation, make sure all male and/or female ribs face the same direction (Figure 6). If not, sheets will have to be turned end-for-end during fixing.



- 2. The first sheet of LYSAGHT® SPANDEK OPTIMA™ profile must be positioned with care before fastening with hex head self-tapping screws to ensure that it lies straight and square.
- 3. When the first sheet of LYSAGHT® SPANDEK OPTIMA™ profile is fastened to positions, a string line can be stretched across the lower end of the roof alignment. The line will then be used as a guide for the subsequent installation of roof panels.
- 4. Position and fasten the next roofing sheet to each support of the male rib of the installed sheet. Place the second sheet over the second run of the roofing sheets and fastened the sheets together before proceeding to the next sheet.
- 5. Make sure the side lapping is installed correctly. The side rib with the longitudinal anti-capillary flute (male rib) is supposed to be covered by the side rib without a longitudinal flute (female rib).
- 6. Each sheet should be fully fastened before proceeding to the next sheet. The side lap with preceding sheet should be fastened last.
- 7. In the case that two or more shorter sheets are installed to provide full length coverage due to handling or transport considerations, lay each complete line of sheets in turn from gutter/ eaves to ridge, as shown in the Figure 7.

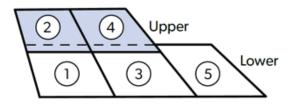
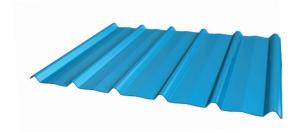


Figure 7
Numbers show laying sequence.





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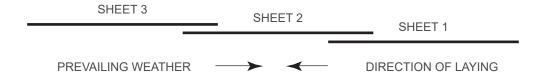


Figure 1
Lay sheets towards prevailing weather

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.

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Occasionally check that the sheets are still parallel with the first sheet, by taking two measurements across the width of the fixed sheeting.

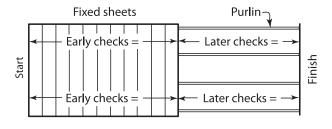


Figure 2
Check alignment occasionally

3.4 FASTENERS

LYSAGHT® TRIMDEK OPTIMA™ requires 5 fasteners per sheet per support as shown below. Fastener should comply to AS3566, Class 3 or Class 4.

Fasteners with	Fasteners without insulation					
	Fixing to steel up to 0.75mm BMT	Fixing to steel >0.75mm to 3mm BMT	Fixing to timber			
Crest fixed Valley fixed	Self-drilling screws with hex. washer-head & EPDM seal, 12 - 11 x 50 (M5.5 – 11 x 50) Self-drilling screws with hex. washer-head & EPDM seal, 10 - 12 x 20 (M4.8 – 12 x 20) or Self-drilling screws with hex. washer-head & EPDM seal,	Self-drilling screws with hex. washer-head & EPDM seal, 12 - 14 x 50 (M5.5 - 14 x 50) or 12 - 14 x 55 (M5.5 - 14 x 55) Self-drilling screws with hex. washer-head & EPDM seal, 12 - 14 x 20 (M5.5 - 14 x 20)	Type 17 Self drilling screws with hex. washer-head Softwood: 12 - 11 x 65 (M5.5 - 11 x 65) Hardwood: 12 - 11 x 50 (M5.5 - 11 x 50) Type 17 Self drilling screws with hex. washer-head & EPDM seal Softwood: 10 - 12 x 30 (M4.8 - 12 x 30) Hardwood: 10 - 12 x 20 (M4.8 - 12 x 20)			
	10 - 16 x 16 (M4.8 – 16 x 16)					
Side lap & accessories	Self-drilling screws with hex. washer-head & EPDM seal	10 – 16 x 16 or EPDM seal: 8 – 15 x 15				

	Fiving to stool	Fixing to steel Fixing to steel				
	up to 0.75mm BMT	>0.75mm to 3mm BMT	Fixing to timber			
Crest fixed	Self-drilling screws with hex. washer-head & EPDM seal, 12 - 11 x 50 (M5.5 – 11 x 50)	Self-drilling screws with hex. washer-head & EPDM seal, 12 - 14 x 65 (M5.5 - 14 x 65) or 12 - 14 x 68 (M5.5 - 14 x 68)	Type 17 Self drilling screws with hex. washer-head Softwood: 12 – 11 x 65 (M5.5 – 11 x 65) Hardwood: 12 – 11 x 50 (M5.5 – 11 x 50)			
Valley fixed	Self-drilling screws with hex. washer-head & EPDM seal, 10 - 12 x 20 (M4.8 - 12 x 20) or Self-drilling screws with hex. washer-head & EPDM seal, 10 - 16 x 16 (M4.8 - 16 x 16)	Self-drilling screws with hex. washer-head & EPDM seal, 12 - 14 x 30 (M5.5 – 14 x 30)	Type 17 Self drilling screws with hex. washer-head & EPDM seal Softwood: 10 – 12 x 30 (M4.8 – 12 x 30) Hardwood: 10 – 12 x 20 (M4.8 – 12 x 20) Softwood: 12 – 14 x 30 (M5.5 – 14 x 30) Hardwood: 12 – 14 x 20 (M5.5 – 14 x 20)			
Side lap & accessories	Self-drilling screws with hex. washer-head & EPDM seal	10 – 16 x 16 or EPDM seal: 8 – 15 x 15				





3.5 FASTENING SHEETS TO SUPPORTS

LYSAGHT® TRIMDEK OPTIMA™ profile is pierced-fixed to timber or steel supports. This means that fastener screws pass through the sheeting.

You can place fasteners for LYSAGHT® TRIMDEK OPTIMA™ through the crests or in the pans. To maximize watertightness, always place roof fasteners through the crests.

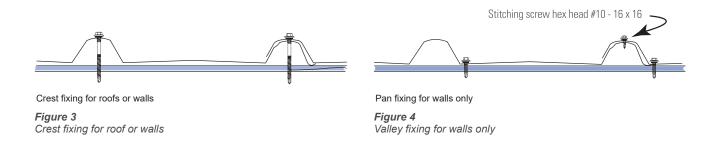
Always drive the fasteners perpendicular to the sheeting, and in the center of the corrugation or rib. Don't place fasteners less than 25mm from the ends of sheets.

3.6 SEALED JOINTS

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

3.7 SIDE-LAPS

The side of LYSAGHT® TRIMDEK OPTIMA™ with the anti-capillary groove is always the underlap (Figure 3 & 4). It is generally considered good practice to use fasteners along side-laps. However, when cladding is supported as indicated in Maximum Support Spacings, side-lap fasteners are not usually needed for strength.



3.8 END LAPS

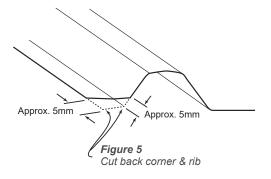
End-laps are not usually necessary because LYSAGHT® TRIMDEK OPTIMA™ is available in long lengths. If you want end-laps, seek advice from our Lysaght representative on the sequence of laying and the amount of overlap.

3.9 END OF SHEETS

It is usual to allow roof sheets to overlap into gutters by about 50mm. If the roof pitch is less than 25° pr extreme weather is expected, the pans of sheets should be turned-down at lower ends and turned-up at upper ends by about 80°.

3.10 SHEET-ENDS ON LOW SLOPES

When LYSAGHT® TRIMDEK OPTIMA™ is laid on slopes of 5 degrees or less, cut back the corner of the under-sheet, at the downhill end of the sheet, to block capillary action (Figure 5).



3.11 STEPS FOR INSTALLATION

1. When lifting roofing sheets onto roof frames for installation, make sure all male and/or female ribs face the same direction (Figure 6). If not, sheets will have to be turned end-for-end during fixing.



Figure 6

- 2. The first sheet of LYSAGHT® TRIMDEK OPTIMA™ profile must be positioned with care before fastening with hex head self-tapping screws to ensure that it lies straight and square.
- 3. When the first sheet of LYSAGHT® TRIMDEK OPTIMA™ profile is fastened to positions, a string line can be stretched across the lower end of the roof alignment. The line will then be used as a guide for the subsequent installation of roof panels.
- 4. Position and fasten the next roofing sheet to each support of the male rib of the installed sheet. Place the second sheet over the second run of the roofing sheets and fastened the sheets together before proceeding to the next sheet.
- 5. Make sure the side lapping is installed correctly. The side rib with the longitudinal anticapillary flute (male rib) is supposed to be covered by the side rib without a longitudinal flute (female rib).
- 6. Each sheet should be fully fastened before proceeding to the next sheet. The side lap with preceding sheet should be fastened last.
- 7. In the case that two or more shorter sheets are installed to provide full length coverage due to handling or transport considerations, lay each complete line of sheets in turn from gutter/ eaves to ridge, as shown in the Figure 7.

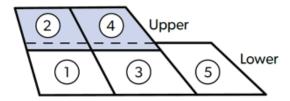
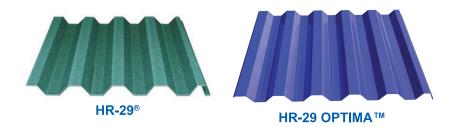


Figure 7
Numbers show laying sequence.







Before starting work ensure that:

- The supports for your cladding are truly in the same plane.
- The minimum roof slopes conform to our recommendations; and
- The overhangs of sheets from the top and bottom supports don't exceed our recommendations.

Make any necessary adjustments before you start laying sheets, because they will be difficult to rectify later.

4.2 ORIENT SHEETS BEFORE LIFTING

Consider which end of the building is best to start from. For maximum weather-tightness, start laying sheets from the end of the building that will be downwind of the worst-anticipated or prevailing weather (Figure 1).

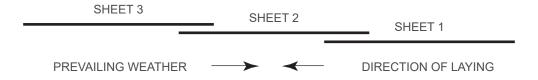


Figure 1
Lay sheets towards prevailing weather

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.

4.3 CHECK ALIGNMENT OCCASIONALLY

Occasionally check that the sheets are still parallel with the first sheet, by taking two measurements across the width of the fixed sheeting.

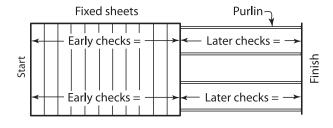


Figure 2
Check alignment occasionally

4.4 FASTENERS

LYSAGHT® HR-29® Series requires 4 fasteners per sheet per support as shown below. Fastener should comply to AS3566, Class 3 or Class 4.

Fasteners without insulation						
Location		Type of Fastener	Drilling Capacity	Maximum Attachment		
Roof	Crest fixed	12 - 14 x 55 HGS	6.5mm	40mm		
		12 - 14 x 68 HGS	6.5mm	53mm		
Wall	Valley fixed	12 - 14 x 20 HGS	6.5mm	<6mm		
		12 - 14 x 30 HGS	6.5mm	<16mm		
	Side lap fixing	10 – 16 x 16 HGS	4.5mm	1.2 – 4.5mm		

Roof - Screw fix through rib

Wall - Screw fix through pan





Where insulation is to be installed, you may need to increase the length of the screws given above, depending on the density and thickness of the insulation.

When the screw is properly tightened:

- into metal: there should be at least three threads protruding past the support you are fixing to, but the Shankguard must not reach that support.
- into timber: the screw must penetrate the timber by the same amount that the recommended screw would do if there were no insulation.
- Fasteners should comply to AS3566, Class 3 or Class 4.

4.5 FASTENING SHEETS TO SUPPORTS

LYSAGHT® HR-29® Series profile is pierced-fixed to timber or steel supports. This means that fastener screws pass through the sheeting.

You can place fasteners for LYSAGHT® HR-29® Series through the crests or in the pans. To maximize watertightness, always place roof fasteners through the crests.

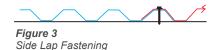
Always drive the fasteners perpendicular to the sheeting, and in the center of the corrugation or rib. Don't place fasteners less than 25mm from the ends of sheets.

4.6 SEALED JOINTS

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

4.7 SIDE-LAPS

The side of LYSAGHT® HR-29® Series with the anti-capillary groove is always the underlap (Figure 3). It is generally considered good practice to use fasteners along side-laps. However, when cladding is supported as indicated in Maximum Support Spacings, side-lap fasteners are not usually needed for strength.



4.8 END LAPS

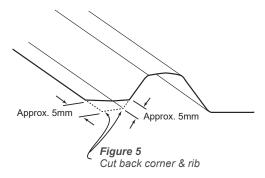
End-laps are not usually necessary because LYSAGHT® HR-29® Series is available in long lengths. If you want end-laps, seek advice from our Lysaght representative on the sequence of laying and the amount of overlap.

4.9 END OF SHEETS

It is usual to allow roof sheets to overlap into gutters by about 50mm. If the roof pitch is less than 25° pr extreme weather is expected, the pans of sheets should be turned-down at lower ends and turned-up at upper ends by about 80°.

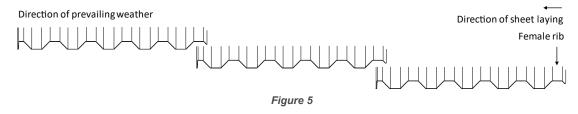
4.10 SHEET-ENDS ON LOW SLOPES

When LYSAGHT® HR-29® is laid on slopes of 5 degrees or less, cut back the corner of the under-sheet, at the downhill end of the sheet, to block capillary action (Figure 4).



4.11 STEPS FOR INSTALLATION

1. When lifting roofing sheets onto roof frames for installation, make sure all male and/or female ribs face the same direction (Figure 5). If not, sheets will have to be turned end-for-end during fixing.



- 2. The first sheet of LYSAGHT® HR-29® Series profile must be positioned with care before fastening with hex head self-tapping screws to ensure that it lies straight and square.
- 3. When the first sheet of LYSAGHT® HR-29® Series profile is fastened to positions, a string line can be stretched across the lower end of the roof alignment. The line will then be used as a guide for the subsequent installation of roof panels.
- 4. Position and fasten the next roofing sheet to each support of the male rib of the installed sheet. Place the second sheet over the second run of the roofing sheets and fastened the sheets together before proceeding to the next sheet.
- 5. Make sure the side lapping is installed correctly. The side rib with the longitudinal anticapillary flute (male rib) is supposed to be covered by the side rib without a longitudinal flute (female rib).
- 6. Each sheet should be fully fastened before proceeding to the next sheet. The side lap with preceding sheet should be fastened last.
- 7. In the case that two or more shorter sheets are installed to provide full length coverage due to handling or transport considerations, lay each complete line of sheets in turn from gutter/ eaves to ridge, as shown in the Figure 6.

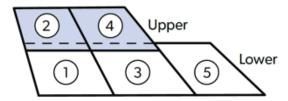


Figure 6
Numbers show laying sequence.







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5.1 CHECK FLATNESS, SLOPE AND OVERHANG

Before starting work ensure that:

- The supports for your cladding are truly in the same plane.
- The minimum roof slopes conform to our recommendations; and
- The overhangs of sheets from the top and bottom supports don't exceed our recommendations.

Make any necessary adjustments before you start laying sheets, because they will be difficult to rectify later.

5.2 ORIENT SHEETS BEFORE LIFTING

Consider which end of the building is best to start from. For maximum weather-tightness, start laying sheets from the end of the building that will be downwind of the worst-anticipated or prevailing weather (Figure 1).

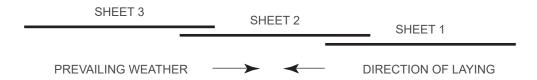


Figure 1
Lay sheets towards prevailing weather

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.

5.3 CHECK ALIGNMENT OCCASIONALLY

Occasionally check that the sheets are still parallel with the first sheet, by taking two measurements across the width of the fixed sheeting.

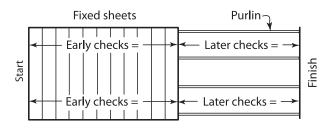


Figure 2
Check alignment occasionally

5.4 FASTENERS

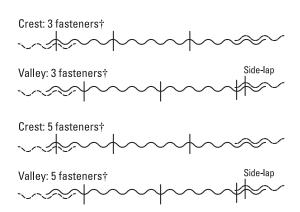
LYSAGHT® CUSTOM ORB® and CUSTOM BLUE ORB® requires 3 fasteners per sheet per support for internal spans and 5 fasteners for single and end spans. Fastener should comply to AS3566, Class 3 or Class 4.

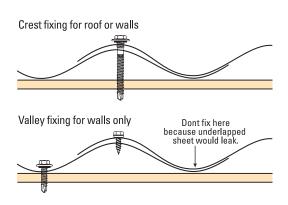
	Fix to Steel up to 0.75mm BMT	Fixing to Steel 0.75 to 3.0mm BMT	Fixing to Timber
Crest fixed	Self-drilling, self-tapping screws with hex. washer head and EPDM seal and shank guard 13-13x41 or Type 17 screws with hex. washer head EPDM seal & shank guard 12-11x40	Self-drilling, self-tapping screws with hex. washer head and EPDM seal and shank guard 12-14x35	Type 17 screws with hex. washer head EPDM seal Softwood: 12-11x50 with higrip & shank guard Hardwood: 12-11x40 with shank guard
Valley fixed	Self-drilling, self-tapping screws with hex. washer head and EPDM seal and shank guard 10-16x16 or Type 17 screws with hex. washer head EPDM seal & shank guard 10-12x20	Self-drilling, self-tapping screws with hex. washer head and EPDM seal and shank guard 10-16x16	Type 17 screws with hex. washer head EPDM seal Softwood: 10-12x30 Hardwood: 10-12x20
Side lap (if required)	10-16x16, Metal Teks, HH or Roof Zips N	M6-11x25 or M5-16x25 Designer Head or	Sealed blind rivet ø4.8mm aluminium

Where insulation is to be installed, you may need to increase the length of the screws given above, depending on the density and thickness of the insulation.

When the screw is properly tightened:

- into metal: there should be at least three threads protruding past the support you are fixing to, but the Shankguard must not reach that support.
- into timber: the screw must penetrate the timber by the same amount that the recommended screw would do if there were no insulation.
- Fasteners should comply to AS3566, Class 3 or Class 4.





5.5 FASTENING SHEETS TO SUPPORTS

LYSAGHT® CUSTOM ORB® profile is pierced-fixed to timber or steel supports. This means that fastener screws pass through the sheeting.

You can place fasteners for LYSAGHT® CUSTOM ORB® through the crests or in the pans. To maximize watertightness, always place roof fasteners through the crests.

Always drive the fasteners perpendicular to the sheeting, and in the center of the corrugation or rib. Don't place fasteners less than 25mm from the ends of sheets.

5.6 SEALED JOINTS

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

5.7 SIDE-LAPS

The side of LYSAGHT® CUSTOM ORB® (and CUSTOM BLUE ORB®) is overlapped at the sides not less than 1.5 corrugations. It is generally considered good practice to use fasteners along side-laps however, when cladding is supported as indicated in maximum support spacings, side-lap fasteners are not usually needed for strength.

5.8 END LAPS

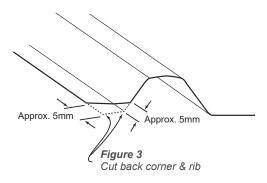
End-laps are not usually necessary because LYSAGHT® CUSTOM ORB® and CUSTOM BLUE ORB® are available in long lengths. If you want end-laps, seek advice from our Lysaght representative on the sequence of laying and the amount of overlap.

5.9 END OF SHEETS

It is usual to allow roof sheets to overlap into gutters by about 50mm. If the roof pitch is less than 25° pr extreme weather is expected, the pans of sheets should be turned-down at lower ends and turned-up at upper ends by about 80°.

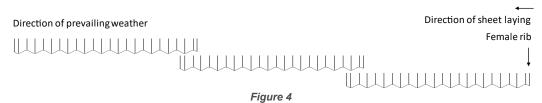
5.10 SHEET-ENDS ON LOW SLOPES

When LYSAGHT® CUSTOM ORB® and CUSTOM BLUE ORB® is laid on slopes of 5 degrees or less, cut back the corner of the under-sheet, at the downhill end of the sheet, to block capillary action (Figure 3).



5.11 STEPS FOR INSTALLATION

1. When lifting roofing sheets onto roof frames for installation, make sure all male and/or female ribs face the same direction (Figure 4). If not, sheets will have to be turned end-for-end during fixing.



- 2. The first sheet of LYSAGHT® CUSTOM ORB® profile must be positioned with care before fastening with hex head self-tapping screws to ensure that it lies straight and square.
- 3. When the first sheet of LYSAGHT® CUSTOM ORB® profile is fastened to positions, a string line can be stretched across the lower end of the roof alignment. The line will then be used as a guide for the subsequent installation of roof panels.
- 4. Position and fasten the next roofing sheet to each support of the male rib of the installed sheet. Place the second sheet over the second run of the roofing sheets and fastened the sheets together before proceeding to the next sheet.
- 5. Make sure the side lapping is installed correctly. The side rib with the longitudinal anticapillary flute (male rib) is supposed to be covered by the side rib without a longitudinal flute (female rib).
- 6. Each sheet should be fully fastened before proceeding to the next sheet. The side lap with preceding sheet should be fastened last.
- 7. In the case that two or more shorter sheets are installed to provide full length coverage due to handling or transport considerations, lay each complete line of sheets in turn from gutter/ eaves to ridge, as shown in the Figure 5.

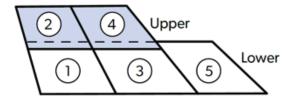
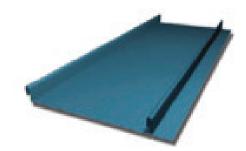


Figure 5
Numbers show laying sequence.







Before starting work ensure that:

- The supports for your cladding are truly in the same plane.
- The minimum roof slopes conform to our recommendations; and
- The overhangs of sheets from the top and bottom supports don't exceed our recommendations.

Make any necessary adjustments before you start laying sheets, because they will be difficult to rectify later.

6.2 ORIENT SHEETS BEFORE LIFTING

Consider which end of the building is best to start from. For maximum weather-tightness, start laying sheets from the end of the building that will be downwind of the worst-anticipated or prevailing weather (Figure 1).



Figure 1
Lay sheets towards prevailing weather

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.

6.3 CHECK ALIGNMENT OCCASIONALLY

Occasionally check that the sheets are still parallel with the first sheet, by taking two measurements across the width of the fixed sheeting.

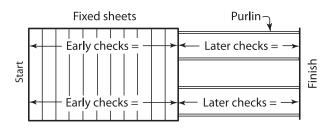


Figure 2
Check alignment occasionally

6.4 SEALED JOINTS

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

6.5 END LAPS

End-laps are not usually necessary because LYSAGHT® 360 SEAM® is available in long lengths. If you want end-laps, seek advice from our Lysaght representative on the sequence of laying and the amount of overlap.

6.6 END OF SHEETS

It is usual to allow roof sheets to overlap into gutters by about 50mm. If the roof pitch is less than 25° pr extreme weather is expected, the pans of sheets should be turned-down at lower ends and turned-up at upper ends by about 80°.

6.7 STEPS FOR INSTALLATION

Installation of underlayer (substrate) and insulations

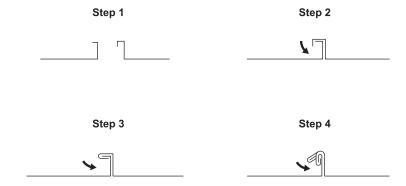
- 1. Roof structure must be accordance to the required design and purlins in the right plane and straightness prior handing over to roofing trades for installation.
- 2. Any findings on the non compliance on (1) prior to the commencement of the roof installation, the roofers would report to the main contractor. The main contractor would be responsible for the arrangement with the roof structure trade for the necessary adjustment.
- 3. When lifting roofing sheet onto the structure, care must be taken to make sure all sheets are the correct way up with the overlapping side towards the edge of the roof from which the installation will commence.
- 4. A lifting boom shall be utilized when hoisting roofing sheets with length of more than 16 meters.
- 5. To lay aluminium foil over the roof structure.
- 6. To lay first sheet of LYSAGHT® SPANDEK OPTIMA™ or TRIMDEK OPTIMA™ in position with particular care to ensure it lie straight and square before fastening.
- When the first sheet is fastened into position, a string can be stretched across the lower end of the roof to be used as a gauge for subsequent panels.
- 8. Each sheet should be fastened before proceeding to the next sheet.
- 9. To lay insulation wool over LYSAGHT® SPANDEK OPTIMA™ or TRIMDEK OPTIMA™ together with zed spacer.
- 10. To lay 12mm cement fibre board and secure board over the zed spacer.
- 11. Fasten 1mm metal strip with the same position of zed spacer.
- 12. To lay bitumen felt over the cement board and ensure proper lapping require and mitigate blister occur.

Installation of top layer LYSAGHT® 360 SEAM® roofing

- The necessary roofing materials, insulations and accessories required for the application of the roof system shall be hoisted on top of the under layer (LYSAGHT® SPANDEK OPTIMA™ or TRIMDEK OPTIMA™).
- 2. The bitumen felt shall come in protective packing to prevent any damages if left on the roof prior to its application.
- 3. The completed LYSAGHT® SPANDEK OPTIMA™ or TRIMDEK OPTIMA™ substrate would be use as a working and storage platform for the next roof layer installation.
- 4. Flat strip and bitumen felt shall be lay and fix onto the fibre cement board.
- 5. Eave flashing shall be placed first before proceeding to lay the bitumen felt.
- 6. With the bitumen felt laid, the LYSAGHT® 360 SEAM® roof cladding (top layer) will be fixed on top of the metal strip.
- 7. The first piece of LYSAGHT® 360 SEAM® both male ribs must be located as indicated in shop drawing if available. Otherwise, the first piece shall start at end capping.
- 8. After the first piece must be located, aligned, and hold down by the clips that fix onto the flat strip by means of screws and to be in alignment and square to the eave of roof with the required overhang.
- 9. Positioned the next piece of LYSAGHT® 360 SEAM® and hold down by the clips that fix on the strip by fastener.
- 10. Install subsequent sheets by following item (8) onwards and make periodic checks that the sheets are in line, parallel and square to prevent out of alignment during installation.
- 11. After the LYSAGHT® 360 SEAM® is completed, the ribs are then fold along the overlapping rib with first fold 90 degree. Consequences with the second folding process with 180 degrees to close the seam into double-locked to ensure the roof watertightness.
- 12. The above process can be done by using manually or mechanical seaming machine. Auto seaming machine shall be adjusted before using.
- 13. The string line mentioned earlier can be used to ensure that the eave end of the roofing sheets is in line.
- 14. Upon the completion of the whole roofing systems, flashing suited to the requirement on site to complement and improve the total waterproof/watertightness of the roof shall be measured, manufactured, and installed.

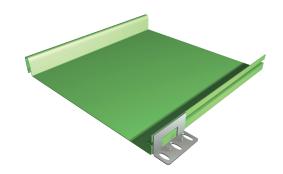
6.8 THE MECHANICAL SEAMING PROCESS

The seams are mechanically field seamed using the Double Lock (360) method, producing strong, watertight joints.



Note: Seaming process can be completed at step 3 or step 4.





Before starting work ensure that:

- The supports for your cladding are truly in the same plane.
- The minimum roof slopes conform to our recommendations; and
- The overhangs of sheets from the top and bottom supports don't exceed our recommendations.

Make any necessary adjustments before you start laying sheets, because they will be difficult to rectify later.

7.2 ORIENT SHEETS BEFORE LIFTING

Consider which end of the building is best to start from. For maximum weather-tightness, start laying sheets from the end of the building that will be downwind of the worst-anticipated or prevailing weather (Figure 1).



Figure 1
Lay sheets towards prevailing weather

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.

7.3 CHECK ALIGNMENT OCCASIONALLY

Occasionally check that the sheets are still parallel with the first sheet, by taking two measurements across the width of the fixed sheeting.

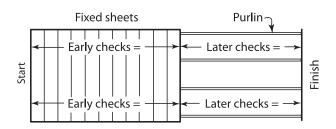


Figure 2
Check alignment occasionally

7.4 SEALED JOINTS

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

7.5 END LAPS

End-laps are not usually necessary because LYSAGHT® SELECT SEAM® II is available in long lengths. If you want end-laps, seek advice from our Lysaght representative on the sequence of laying and the amount of overlap.

7.6 END OF SHEETS

It is usual to allow roof sheets to overlap into gutters by about 50mm. If the roof pitch is less than 25° pr extreme weather is expected, the pans of sheets should be turned-down at lower ends and turned-up at upper ends by about 80°.

7.7 STEPS FOR INSTALLATION

Installation of underlayer (substrate) and insulations

- 1. Roof structure must be accordance to the required design and purlins in the right plane and straightness prior handing over to roofing trades for installation.
- 2. Any findings on the non compliance on (2.1) prior to the commencement of the roof installation, the roofers would report to the main contractor. The main contractor would be responsible for the arrangement with the roof structure trade for the necessary adjustment.
- 3. When lifting roofing sheet onto the structure, care must be taken to make sure all sheets are the correct way up with the overlapping side towards the edge of the roof from which the installation will commence.
- 4. A lifting boom shall be utilized when hoisting roofing sheets with length of more than 16 meters.
- 5. To lay aluminium foil over the roof structure.
- 6. To lay first sheet of LYSAGHT® SPANDEK OPTIMA™ or TRIMDEK OPTIMA™ in position with particular care to ensure it lie straight and square before fastening.
- 7. When the first sheet is fastened into position, a string can be stretched across the lower end of the roof to be used as a gauge for subsequent panels.
- 8. Each sheet should be fastened before proceeding to the next sheet.
- 9. To lay insulation wool over LYSAGHT® SPANDEK OPTIMA™ or TRIMDEK OPTIMA™ together with zed spacer.
- 10. To lay 12mm cement fibre board and secure board over the zed spacer.
- 11. Fasten 1mm metal strip with the same position of zed spacer.
- 12. To lay bitumen felt over the cement board and ensure proper lapping require and mitigate blister occur.

Installation of top layer LYSAGHT® SELECT SEAM® II roofing

- The necessary roofing materials, insulations and accessories required for the application of the roof system shall be hoisted on top of the under layer (LYSAGHT[®] SPANDEK OPTIMA™ or TRIMDEK OPTIMA™)
- 2. The bitumen felt shall come in protective packing to prevent any damages if left on the roof prior to its application.
- 3. The completed LYSAGHT® SPANDEK OPTIMA™ or TRIMDEK OPTIMA™ substrate would be use as a working and storage platform for the next roof layer installation.
- 4. Flat strip and bitumen felt shall be lay and fix onto the fibre cement board.
- 5. Eave flashing shall be placed first before proceeding to lay the bitumen felt.
- 6. With the bitumen felt laid, the LYSAGHT® SELECT SEAM® II roof cladding (top layer) will be fixed on top of the metal strip.
- 7. The first piece of LYSAGHT® SELECT SEAM® II must be located as indicated in shop drawing if available. Otherwise, the first piece shall start at end capping.
- 8. After the first piece must be located, aligned, and hold down by the clips that fix onto the flat strip by means of screws and to be in alignment and square to the eave of roof with the required overhang.
- 9. Positioned the next piece of LYSAGHT® SELECT SEAM® II and hold down by the clips that fix on the strip by fastener.
- 10. Install subsequent sheets by following item (8) onwards and make periodic checks that the sheets are in line, parallel and square to prevent out of alignment during installation.
- 11. After the LYSAGHT® SELECT SEAM® II is completed, the ribs are then capped with batten to ensure roof watertightness.
- 12. The string line mentioned earlier can be used to ensure that the eave end of the roofing sheets is in line.
- 13. Upon the completion of the whole roofing systems, flashing suited to the requirement on site to complement and improve the total waterproof/watertightness of the roof shall be measured, manufactured, and installed.





Before starting work ensure that:

- The supports for your cladding are truly in the same plane.
- The minimum roof slopes conform to our recommendations; and
- The overhangs of sheets from the top and bottom supports don't exceed our recommendations.

Make any necessary adjustments before you start laying sheets, because they will be difficult to rectify later.

8.2 ORIENT SHEETS BEFORE LIFTING

Consider which end of the building is best to start from. For maximum weather-tightness, start laying sheets from the end of the building that will be downwind of the worst-anticipated or prevailing weather (Figure 1).



Figure 1
Lay sheets towards prevailing weather

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.

8.3 CHECK ALIGNMENT OCCASIONALLY

Occasionally check that the sheets are still parallel with the first sheet, by taking two measurements across the width of the fixed sheeting.

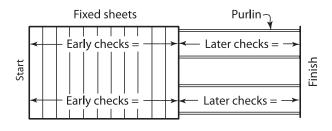


Figure 2
Check alignment occasionally

8.4 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 or 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.

8.5 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.

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

High strength tape at end lap.

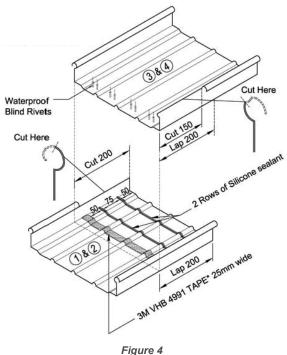


Figure 4 Stitched Lap

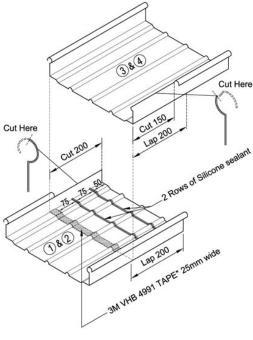


Figure 5 Sealed Lap

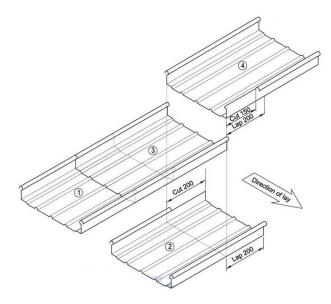


Figure 6 Sequence of Laying Sheets

8.3 STEPS FOR INSTALLATION

- 1. Roof structure must be in accordance with the required design with purlins in the right plane and straightness prior handing over to roofing trader for installation.
- 2. Any non compliance with (step 1) prior to the commencement of the roof installation, the roofers shall report to the main contractor. The main contractor shall be responsible for the arrangement with the roof structure trader for the necessary adjustment.
- 3. When lifting the roofing sheet onto the structure, care must be taken to ensure all sheets are in the correct way up with the overlapping side towards the edge of the roof from which the installation will commence.
- 4. A lifting boom shall be utilized when hoisting roofing sheets with length of more than 16 meters.
- 5. Install the thermal pad on ZIPDEK® clip (if required), by using two screws to fix the ZIPDEK® clip on purlin.
- 6. For a straight roof, allow an extra 2mm spacing between the ZIPDEK® to accommodate the thickness of clip (see Figure 7) and allow an extra 5mm for a curved roof for expansion of the roofing sheet. ZIPDEK® clips can be installed first followed by roofing sheets. Alternatively, install the ZIPDEK® clip concurrently with the installation of Zipdek® roof sheets until the installation is completed.

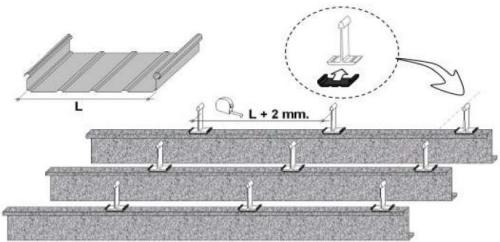


Figure 7

- 7. The first piece of LYSAGHT® ZIPDEK® must be located as indicated in shop drawing if available. Otherwise, the first piece shall start at end capping.
- 8. After the first piece is located and aligned to the eave of roof with the required overhang, use hand seamer tool to clamp the rib of ZIPDEK® sheet (Figure 8).

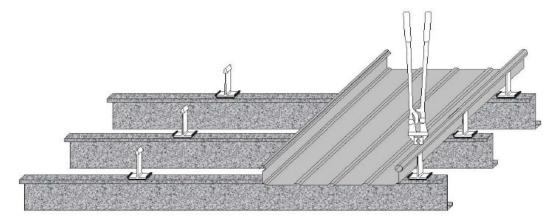
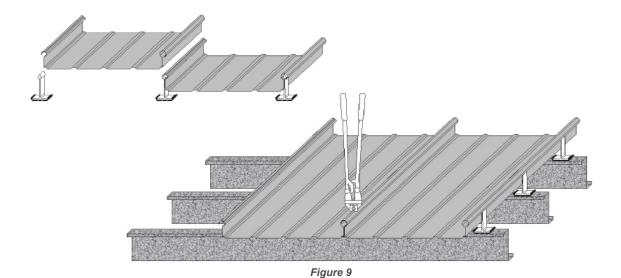


Figure 8

- 9. When the first sheet is installed into position, a string can be stretched across the lower end of the roof to be used as a gauge for subsequent sheets.
- 10. Install subsequent sheets (Figure 9) onwards and make periodic checks to ensure that the sheets are in line, parallel to the previous sheets to prevent misalignment during installation.



11. Use a seamer machine to seam the rib twice to ensure the roof watertightness (Figure 10). This mechanical seaming process can be done after the manual seaming on roofing areas are fully or partially completed.

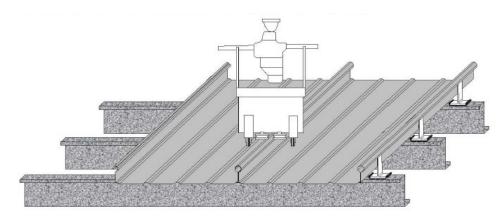


Figure 10

- 12. The string line mentioned earlier can be used to ensure that the eave end of the roofing sheets is in line.
- 13. Upon the completion of the whole roofing systems, install flashing according to the requirement on site to improve the total water tightness of the roof.







Before starting work ensure that:

- The supports for your cladding are truly in the same plane.
- The minimum roof slopes conform to our recommendations; and
- The overhangs of sheets from the top and bottom supports don't exceed our recommendations.

Make any necessary adjustments before you start laying sheets, because they will be difficult to rectify later.

9.2 ORIENT SHEETS BEFORE LIFTING

Consider which end of the building is best to start from. For maximum weather-tightness, start laying sheets from the end of the building that will be downwind of the worst-anticipated or prevailing weather (Figure 1).



Figure 1
Lay sheets towards prevailing weather

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.

9.3 CHECK ALIGNMENT OCCASIONALLY

Occasionally check that the sheets are still parallel with the first sheet, by taking two measurements across the width of the fixed sheeting.

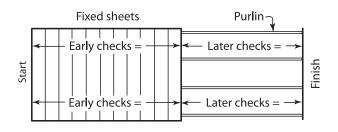


Figure 2
Check alignment occasionally

9.4 SIDE-LAPS

The side lap is engaged using a tongue and groove joint. Ensure the joint is correctly slot in and the gap between panels are uniform.

9.5 END LAPS

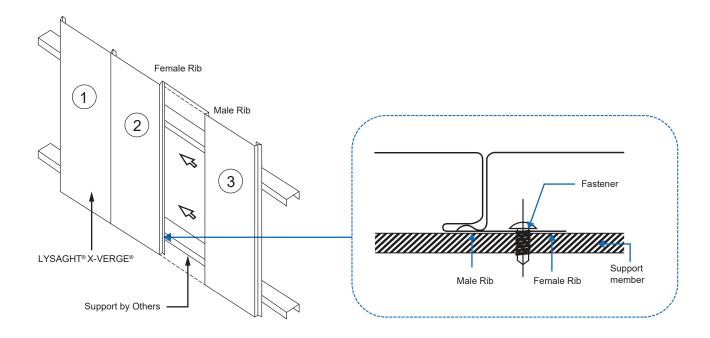
End-laps are not usually necessary because LYSAGHT® X-VERGE® is available in long lengths. If you want end-laps, seek advice from our Lysaght representative on the sequence of laying and the amount of overlap.

9.6 FASTENING PANELS TO SUPPORTS

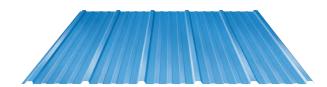
LYSAGHT® X-VERGE® profile is pierced-fixed to timber or steel supports. Fasteners for LYSAGHT® X-VERGE® fix through the female rib of panel. Always drive the fasteners perpendicular to the panels. Fastener should comply to AS3566, Class 3 or Class 4.

9.7 STEPS FOR INSTALLATION

- 1. LYSAGHT® X-VERGE® steel cladding is designed to be fastened to the support member with fasteners (e.g., No. 10 16 x 16mm wafer head) on female rib.
- 2. Then insert the male rib into female rib and fasten the female rib again before proceeding with the next sheet.
- 3. The first layer of LYSAGHT® X-VERGE® steel cladding shall be positioned with particular care before fastening it onto the support member. To ensure that it lies straight and square, shall be checked against the member that is perpendicular to the LYSAGHT® X-VERGE® orientation.
- 4. Each sheet shall be fully fastened before proceeding to the next sheet.







Before starting work ensure that:

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- The overhangs of sheets from the top and bottom supports don't exceed our recommendations.

Make any necessary adjustments before you start laying sheets, because they will be difficult to rectify later.

10.2 ORIENT SHEETS BEFORE LIFTING

Consider which end of the building is best to start from. For maximum weather-tightness, start laying sheets from the end of the building that will be downwind of the worst-anticipated or prevailing weather (Figure 1).



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Lay sheets towards prevailing weather

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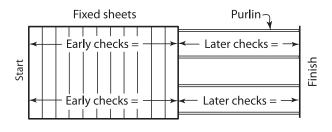


Figure 2
Check alignment occasionally

10.4 FASTENERS

Fasteners without installation							
	Fixing to steel up to 0.75mm BMT	Fixing to steel > 0.75mm to 3mm BMT	Fixing to timber				
Valley Fixed	Type 17 screw with hex & washer head 10-12 x 20	Self-drilling self-tapping screw with hex & washer head 10-16 x 16	Type 17 screws hex & washer head Softwood: 10-12 x 30 Hardwood: 10-12 x 20				



Valley fix 5 fasterners to each rib

When insulation is to be installed, you need to increase the length of the screws given below, depending on the density and thickness of the insulation. When the screw is properly tightened:

- Into metal: there should be at least three threads protruding past the support you are fixing to, but the Shankguard must not reach the support.
- Into timber: the crew must penetrate the timber by the same amount that the recommended screw would do if there were no insulation.
- Fastener should comply to AS3566, Class 3 or Class 4.

10.5 SEALED JOINTS

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

10.6 SIDE-LAPS

Installation of LYSAGHT® MULTICLAD® OPTIMA is generally considered a good practice to use fasteners along side-laps.

10.7 END LAPS

End-laps are possible for LYSAGHT® MULTICLAD® OPTIMA. Recommended overlap length-100mm. Ensure the end laps are fix at support members/ wall girt / purlins.

10.8 STEPS FOR INSTALLATION

You can use LYSAGHT® MULTICLAD® OPTIMA for walls, soffit linings or ceilings.

- 1. Position first sheet with particular care, position the first sheet before fixing to ensure that it is correctly located in relation to other parts of the building. Check that the sheet is aligned with the end-wall (or its barge or fascia), bearing in mind the type of flashing or capping treatment to be used and position other sheets.
- 2. After fixing the first sheet in position, align the following sheets using the long edge of the previous sheet and a measurement from the end of the sheet to the wall support by purlin/ wall girt.
- 3. Fix the sheet by either fixing each sheet completely, before laying the next; or fix the sheet sufficiently to ensure it can't move, complete laying all sheets, then return to place all the intermediate fasteners later.



COATING



COLOUR CHOICES



DESIGN FLEXIBILITY



DURABILITY / SECURITY



HI-TECH PRODUCTION



RECYCLING



TERMITE PROOF



THERMAL EFFICIENCY



WARRANTY



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