FLATDEK® II

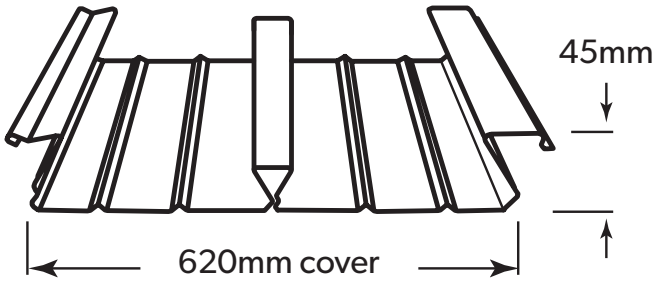
DESIGN & INSTALLATION GUIDE

INSPIRATION TO BUILD BETTER

LYSAGHT FLATDEK® II

FLATDEK® II is a long-span cladding particularly suited to home improvement projects such as room additions, carports and awnings. The underside of FLATDEK® II features clean uninterrupted lines, with an attractive gloss finish ensuring visual appeal.

FLATDEK® II may be used on pitches from as low as 2° (1 in 30). A lower pitch of 1.5° can be used if built with a gutter all around. Where the spans exceed the values in the table, higher pitches should be used.



MATERIAL SPECIFICATIONS

COLORBOND® is pre-painted steel for exterior roofing and walling. The painting complies with AS/NZS 2728 and the steel base is an aluminium/zinc alloy-coated steel complying with AS 1397. Minimum yield strengths are G550 (550 MPa), Minimum coating mass is AM100 (100g/m^2).

The base metal thickness is 0.42mm.

COLOURS

FLATDEK® II is available in an attractive range of colours in COLORBOND® pre-painted steel and is available in different combinations of top/bottom colours with a gloss finish on the underside. Ask your local sales centre for colour availability.

LENGTHS

Sheets are supplied custom cut.

Maximum length 9000mm, minimum length 850mm.

MASS (COLORBOND® STEEL)

COLORBOND® steel	0.42 mm BMT	3.28 kg/m	5.3 kg/m^2	189m^2/t

TOLERANCES

Length: +0mm, -15mm, Width: +2mm, -2mm

MAXIMUM SUPPORT SPACINGS

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

Depending on support spacings used, FLATDEK® II can be installed as either

- light foot traffic roof (incidental maintenance foot traffic acceptable); or
- no foot traffic roof (will not support the weight of a person walking on it).

The pressure considered is based on a typical flat awning attached to an enclosed structure. The pressure coefficient for this situation is based on 3 sides blocked.

The tables are based on FLATDEK® fixed to supports of 1.0mm BMT minimum. Any FIRMLOK® beam can be used. For FLATDEK® awning applications, the strength of the receiver channel method of attachment must be considered in the design of any system. An alternative method is to use a rear gutter attachment all around for greater weather-tightness.

MAXIMUM SUPPORT SPACINGS (MM)

	Wind classification to AS 4055 & BCA			
Type of Span	**N1**	**N2**	**N3**	**N4**
Spans for no foot traffic				
Single span	4000*	4000*	4000*	3800
End span	4500*	4500*	4500*	3700
Internal span	4500*	4500*	4500*	4400
Stiffened overhangs	600	600	450	400
Spans for light foot traffic				
Single span	2100			
End span	2600			
No overhang is allowed.				

Supports must not be less than 1mm BMT. For double spans, use the end span length.

*When dead load deflections need to be considered in designs, use the tabulated values. Where the higher deflections can be tolerated, then the spans can be increased to 4800mm for single spans for N1 to N3; 5000 for end and internal spans for N1 to N3.

Note: For pitched structures when dead load deflections need consideration, use a maximum span of 3300. During Installation and maintenance boards or ladders should be placed appropriately to distribute the load.

SIMPLE FIXING

The unique overlapping dovetail ribs of the FLATDEK® profile can be easily fitted together by hand.

FLATDEK® II is simply and economically fixed on top of its supporting members using self-drilling screws in the pans.

This method, using the recommended fasteners, is appropriate for open sided awnings where a high degree of weather tightness is not required.

FLATDEK® II LIMIT STATE WIND PRESSURE CAPACITIES (KPA)

Span Type	Limit State	Span (mm)												
		1500	1800	2100	2400	2700	3000	3300	3600	3900	4200	4500	4800	5100
Single	Serviceability	0.98	0.80	0.63	0.50	0.40	0.34	0.30	0.28	0.25	0.23	0.21	0.20	0.18
	Strength	7.30	6.65	6.00	5.35	4.70	4.10	3.50	3.05	2.65	2.35	2.10	1.85	1.65
End	Serviceability	1.25	1.08	0.93	0.80	0.69	0.60	0.53	0.48	0.43	0.38	0.34	0.31	-
	Strength	6.15	5.75	5.30	4.80	4.30	3.80	3.30	2.85	2.55	2.30	2.10	1.95	-
Internal	Serviceability	1.30	1.16	1.04	0.93	0.83	0.75	0.68	0.63	0.57	0.52	0.47	0.43	-
	Strength	6.75	6.10	5.50	5.00	4.55	4.15	3.85	3.50	3.20	2.90	2.60	2.30	-

Table values are based on minimum supports of 1mm BMT G550 steel.

LIMIT STATE WIND PRESSURES

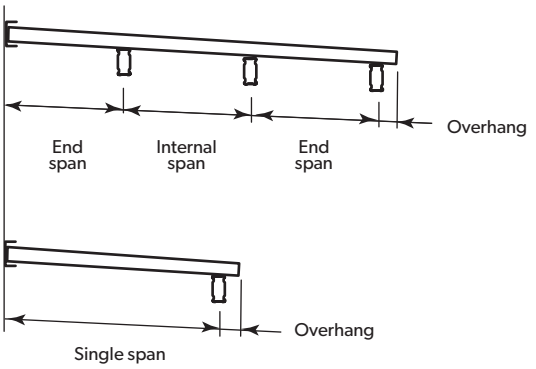
The wind pressure capacities are based on tests conducted at Lysaght's NATA registered testing laboratory. Testing was conducted in accordance with AS 1562.1 and AS 4040.2.

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

The pressure capacities for strength have been determined by testing the cladding to failure (ultimate capacity).

Note: For double spans use the end spans.

ADVERSE CONDITIONS



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

MINIMUM ROOF PITCH

2° (1 in 30).

CYCLONIC AREAS

For information on the use of lysaght products in cyclonic conditions, refer to the Cyclonic Area Design Manual, which is available by ringing Steel Direct on 1800 641 417 or on our website: www.lysaght.com.

NON-CYCLONIC AREAS

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

MAINTENANCE

Optimum product life will be achieved if all external surfaces are washed regularly: refer to our Maintenance Manual at www.lysaght.com for full details.

SAFETY, STORAGE AND HANDLING

Handling Safety - LYSAGHT® product may be sharp and heavy. It is recommended that heavy-duty cut resistant gloves and appropriate manual handling techniques or a lifting plan be used when handling material.

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

METAL & TIMBER COMPATIBILITY

Lead, copper, bare steel and green or some chemically-treated timber are not compatible with this product; thus don't allow any contact of the product with those materials, nor discharge of rainwater from them onto the product. 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 information line.

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.

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.

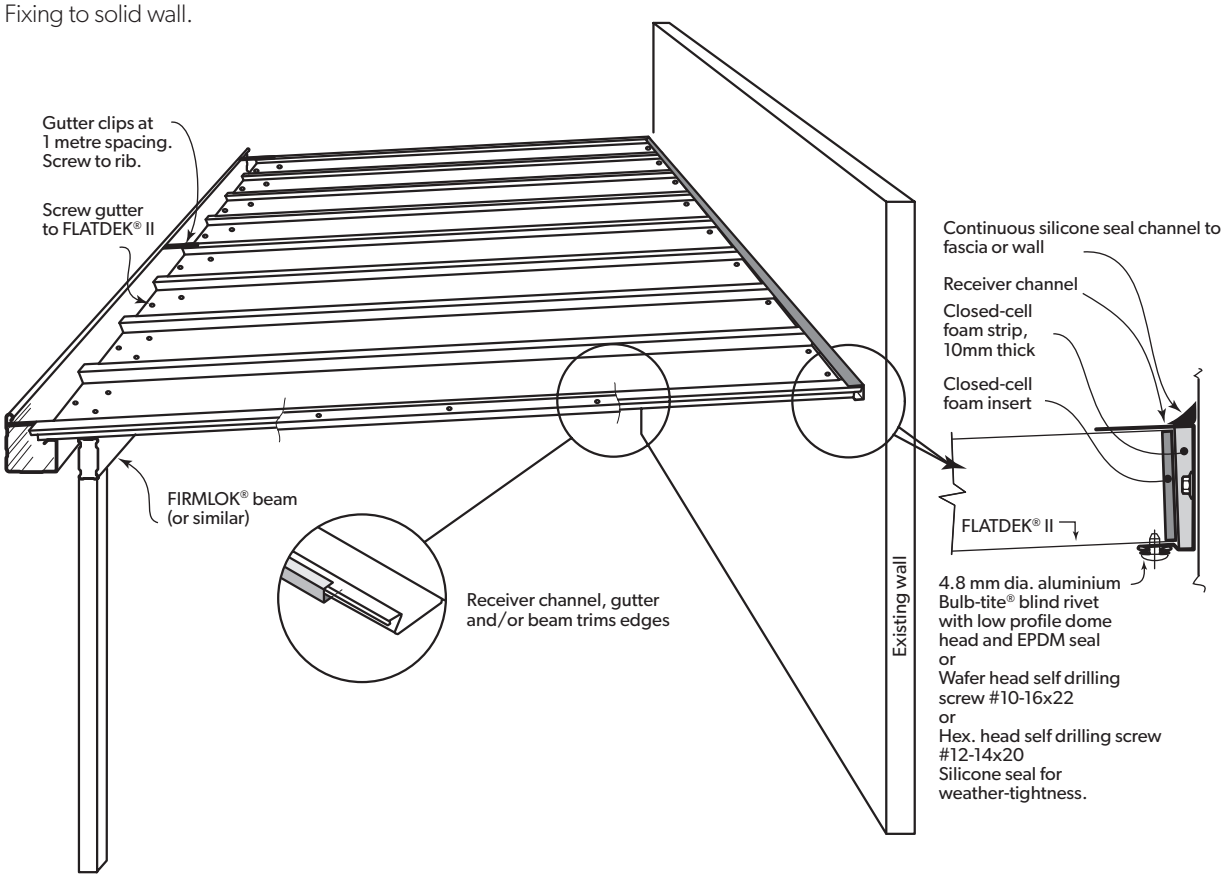
SEALANTS

Use neutral cure silicone sealants where required.

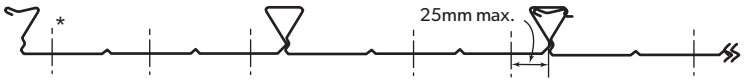
INSTALLATION OF A TYPICAL AWNING WITH RECEIVER CHANNEL

Figure 1

Fixing to solid wall.



Fastener locations



* Extra fastener at the start. Supports: 2 fasteners per pan.

FASTENERS WITHOUT INSULATION

	Fix to Steel (Up To Total 2.0mm) Single & lapped steel thickness ≥0.55 up to 1.0mm BMT	**Fix to Steel Single steel thickness ≥1.0mm BMT up to 3.0mm BMT**	**Fix to Timber Hardwood J1-J3**	**Fix to Timber Softwood J4**
Pan Fixed	12-14x20, Metal Teks, HH with EPDM seal or Roof Zips M6-11x25 with EPDM seal	12-14x20, Metal Teks, HH with EPDM seal	M5.5-11x35 Batten Zip 16mm bonded Aluminium EPDM washer	M5.5-11x35 Batten Zip 16mm bonded Aluminium EPDM washer

Notes:

1. Values given are: gauge-threads per inch x lengths (mm). HH = Hex. Head. Finish is Coating Class 4.
2. When fixing to FIRMLOK®, tighten until washer is just gripped enough to give a weathertight seal. Don't tighten any more.
3. Screw specification as above or equivalent fastener. Refer to Timber Code AS1720.2 for timber grades.
4. For awnings with double spans >3700mm for N4 wind category, 2 & 3 sides blocked, use 3 fasteners per span for middle supports. (E.g. FIRMLOK® F100 beams). For single spans for wind categories up to N4, 3 sides blocked use 2 fasteners per pan.

SHEET COVERAGE

Width of Roof (m)	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	30	40	50
Number of Sheets	5	7	9	10	12	13	15	17	18	20	21	23	25	26	28	30	31	33	49	65	81

FIT RECEIVER CHANNEL

A receiver channel is often used to securely fix the FLATDEK® II roof to the main building—usually to the building fascia, but the channel can be fixed to a solid wall if there is sufficient height to take wind uplift (Figure 1).

LAYING FLATDEK® II

1. Before you join sheets, it is important to remove the protective plastic coating otherwise the sheets won't clip together properly. Be careful to place the sheets on a soft surface to prevent scratching.
2. Insert the closed-cell foam strip into the receiver channel.
3. Push the first sheet firmly into the receiver channel, with the female (overlapping) rib to the edge of the roof (Figure 2).
4. Fix the sheet at the beam end (Figure 1). Tighten screws until washer is just gripped enough to give a weathertight seal. Don't tighten any more.
5. Squeeze a closed-cell foam insert into the receiver channel and massage it to fit neatly all round.
6. Fix the sheet at the receiver channel end (Figure 1).
7. Place the next sheet with its female (overlapping) rib on top of the male (underlapping) rib of the first sheet. Engage the ribs at the channel end for the first 100mm (Figure 3).
8. With a rubber mallet, tap the sheet into the receiver channel, ensuring the sheet beds firmly in the foam strip.
9. Complete engaging the ribs.
10. Check that the sheet fits snugly against the previous sheet by looking at the join between the sheets on the underside. Fix the sheet as previously described. Repeat the process until all sheets are laid.
11. Ensure all the closed cell foam inserts are placed between the ribs.

LIGHT PANELS

FLATDEK® II can be complemented with translucent fibreglass panels. The edges of these panels overlap the adjoining FLATDEK® II panels (Figure 4). Either side of a fibreglass panel there must be at least two FLATDEK® II panels before another fibreglass panel may be placed. Two fibreglass panels can not be laid next to each other. Slide fibreglass panels along the FLATDEK® II into the receiver channel.

Fix the light panel at the supports using 3 fasteners for each sheet and one at each rib. Remember to fix an extra tek to each side of the FLATDEK® rib as shown.

Figure 2

Sequence of laying sheets.

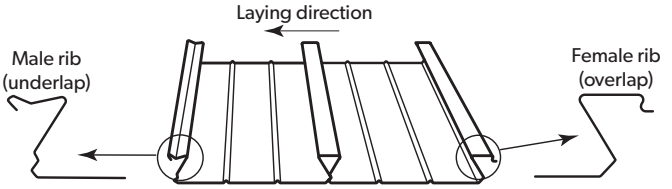


Figure 3

Engaging the side-lap ribs.

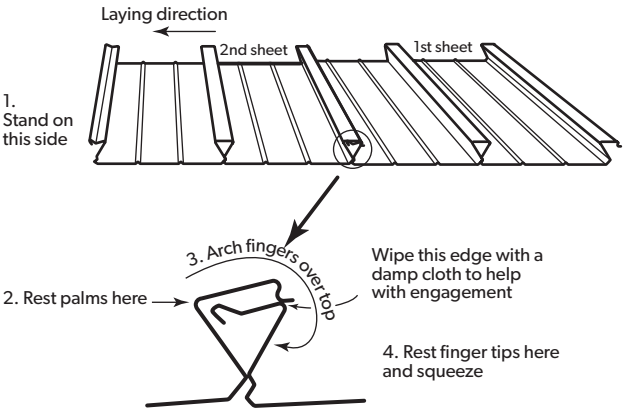
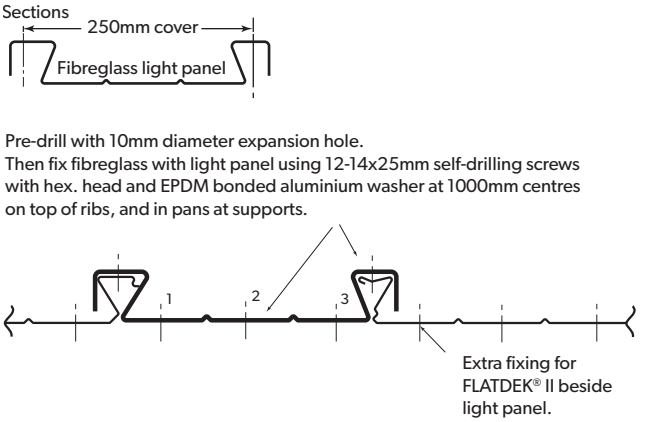


Figure 4

Fixing of fibreglass light panels.



PRODUCT DESCRIPTIONS

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AUSTRALIAN STANDARDS

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

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

WWW.LYSAGHT.COM

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