

FLATDEK®

DESIGN AND INSTALLATION GUIDE

LYSAGHT



LYSAGHT FLATDEK®

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



Simple fixing

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

FLATDEK 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.

Material specifications

- COLORBOND® is prepainted steel for exterior roofing and walling. The painting complies with AS/NZS 2728:2013 and the steel base is an aluminium/zinc alloy-coated steel complying with AS 1397:2011. Minimum yield strength is G550 (550MPa) Minimum coating mass is AM100 (100g/m²).

The base metal thickness is 0.42mm.

Mass (COLORBOND® steel)

5.2kg/m² based on 25um/25um (painted both sides)

5.4kg/m² based on 80um/25um (Hi Gloss one side)

Lengths

Sheets are supplied custom cut.

Maximum length 9000mm, minimum length 850mm

Tolerances

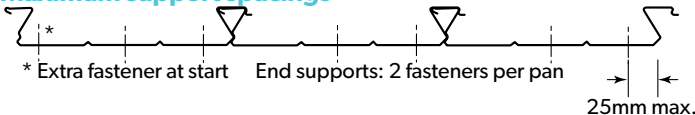
Length +0mm, -15mm

Width +2mm, -2mm

Colours

FLATDEK 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.

Maximum support spacings



Fasteners without Insulation

| | Fix to Steel (Total up to 2.0mm) * Single & lapped steel thickness ≥0.55 up to 1.0mm BMT | Fix to Steel Single thickness steel >1.0mm BMT up to 3.0mm BMT | Fix to Timber Hardwood (J1-J3) | Fix to Timber Softwood (J4) |
|------------------|---|--|---|---|
| Pan Fixed | 12-14x20, Metal Tek's, HH with EPDM seal or RoofZips M6-11x25 with EPDM seal | 12-14x20, Metal Tek's, HH with EPDM seal | M5.5-11x35 Batten Zip with EPDM seal | M5.5-11x35 Batten Zip with EPDM seal |

- 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 pan for middle support where steel thickness is less than 2 x 0.75 BMT (eg: FIRMLOK F100). For single thickness of 1mm BMT or above 2 fastener per pan is sufficient. For all spans other than the above, 2 fasteners per pan are sufficient.

The maximum recommended support spacings are based on testing in accordance with AS 1562.1:1992, Design and installation of sheet roof and wall cladding, and AS 4040.1:1992, Resistance to concentrated loads.

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

- light foot traffic roof (one maintenance person walking on roof); or
- no foot traffic roof (will not support the weight of a person walking on it), see tables below.

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 round for greater weather-tightness.

Maximum support spacings (mm)

| Type of span | Wind classification to AS 4055 & BCA | | | |
|-------------------------------------|--------------------------------------|-------|-------|------|
| | N1 | N2 | N3 | N4 |
| Spans for no foot traffic | | | | |
| Single | 4500* | 4500* | 4500* | 3800 |
| End | 4500* | 4500* | 4500* | 3700 |
| Internal | 4500* | 4500* | 4500* | 4400 |
| Stiffened overhangs | 600 | 600 | 450 | 400 |
| Spans for light foot traffic | | | | |
| Single | 2100 | | | |
| End | 2600 | | | |

No overhang is allowed.

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

* 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 & internal spans for N1 to N3.

NOTE: For pitched structures when dead load deflections need consideration, use a maximum span of 3300.

FLATDEK 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 supports of 1mm BMT.

Minimum Roof Pitch

2 degrees (1 in 30)

Limit states wind pressures

FLATDEK offers the full benefits of the latest methods for modelling wind pressures. The wind pressure capacity table is based on full scale tests conducted at Lysaght's NATA-registered testing laboratory, using the direct air pressure testing rig.

Testing was conducted in accordance with AS 1562.1:1992 Design and installation of sheet roof and wall cladding—Metal, and AS 4040.2:1992 Resistance to wind pressure for non-cyclone regions.

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

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

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.

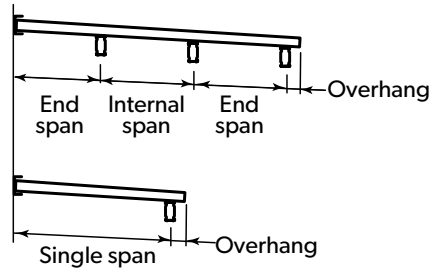
Handle materials carefully to avoid damage: don't drag materials over rough surfaces or each other; don't drag tools over material; protect from swarf.

Metal & timber compatibility

Lead, copper, bare steel and green or some chemically-treated timbers 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. If there are doubts about the compatibility of products being used, ask for advice from our information line.

Adverse conditions

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



Maintenance

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

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.

Sealants

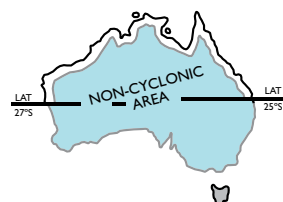
Use neutral cure silicone sealants.

Pipe penetration

Flashing round small pipe penetrations is fairly simple using flanged sleeves or proprietary EPDM sleeves. Be careful to insulate incompatible materials.

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 1170.2:2011.



Installation of a typical awning

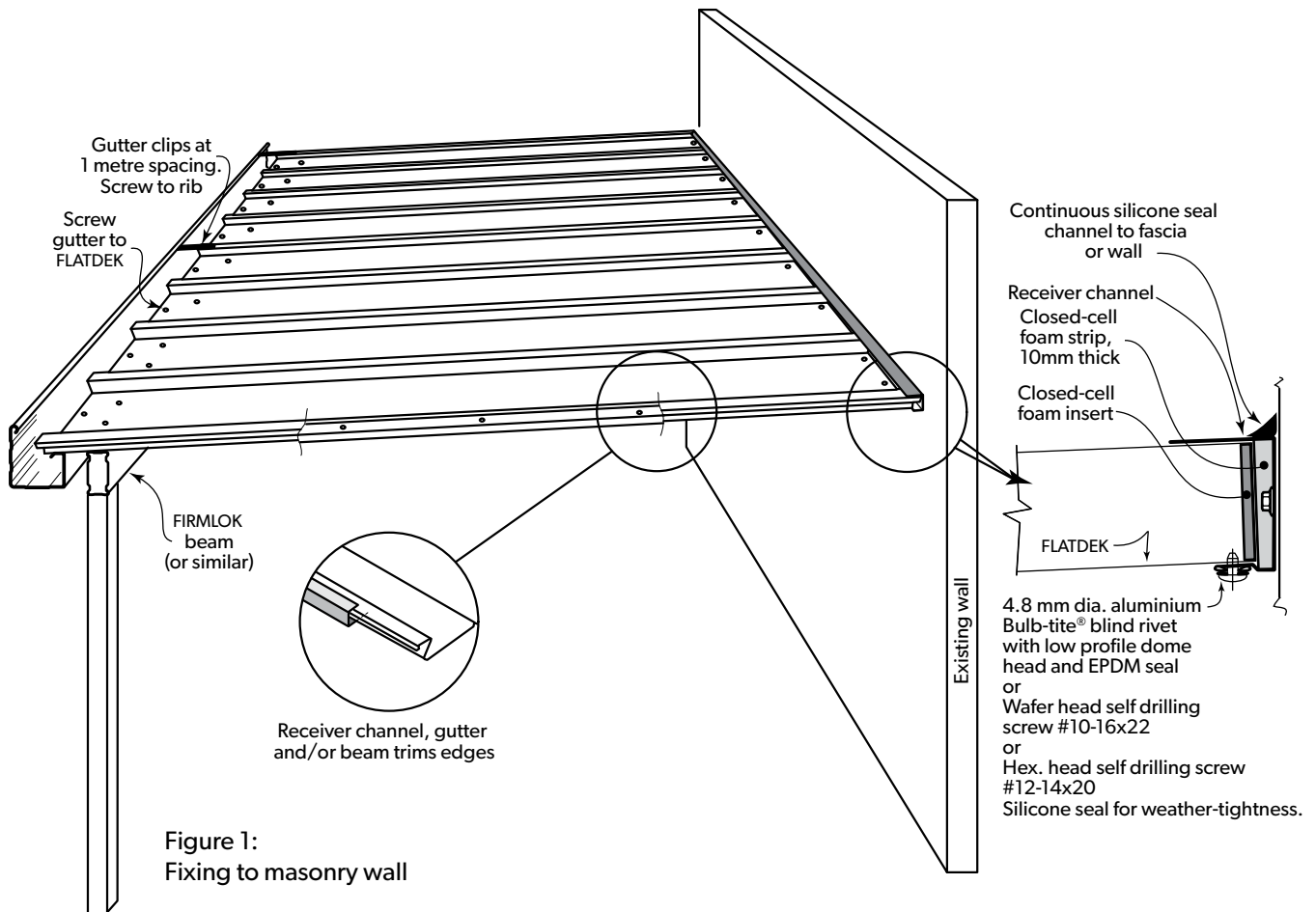


Figure 1:
Fixing to masonry wall

Fit receiver channel

A receiver channel is often used to securely fix the FLATDEK 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

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. Place the closed cell foam insets between the ribs.

Light panels

FLATDEK can be complemented with translucent fibreglass panels. The edges of these panels overlap the adjoining FLATDEK panels (Figure 4). Either side of a fibreglass panel there must be at least two FLATDEK 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 into the receiver channel.

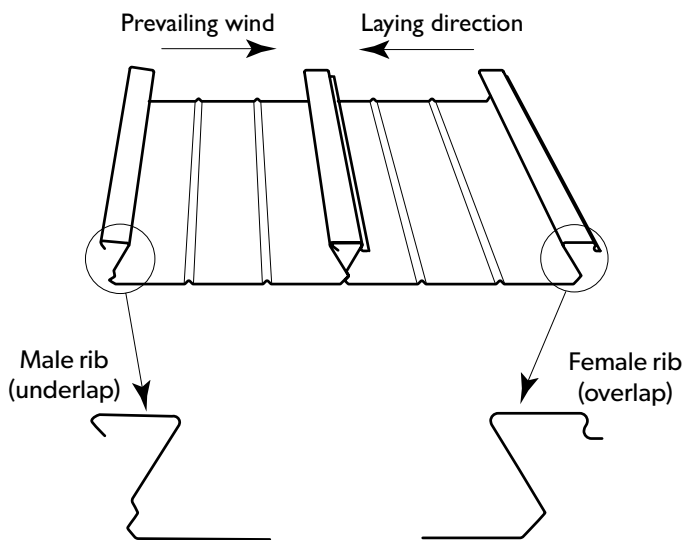
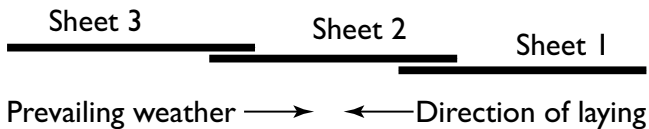


Figure 2: Sequence of laying sheets

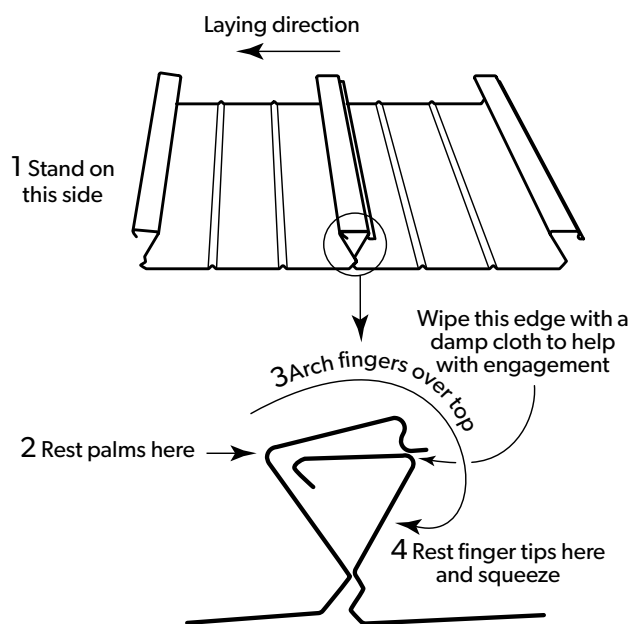


Figure 3: Engaging the ribs

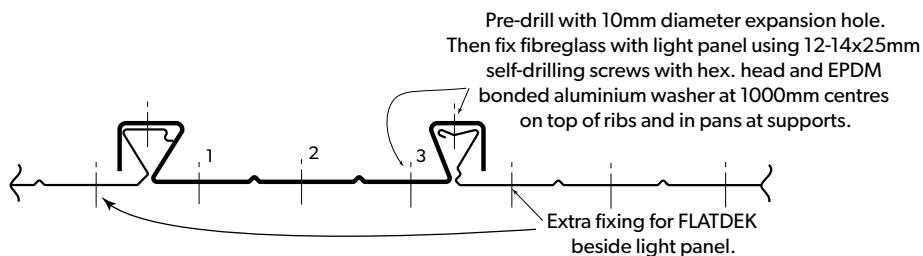
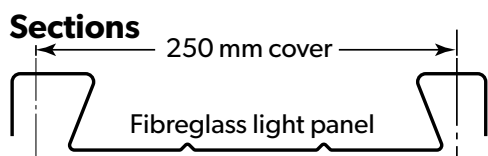


Figure 4: Fixing of light panels

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 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 60 | 64 | 68 | 72 | 76 | 80 | 120 | 160 | 200 |

Product Descriptions

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