Primary Fixings

Primary fixings should have an adequate strength to resist the design load, imposed load and wind loading and maintain weathertightness. Also, where required by the cladding and support design, to provide adequate lateral restraint to substructure elements such as purlins and spacers. In addition, they may be required to accommodate some thermal movement in the direction of the profiles. This can be achieved by oversizing fixing holes, or by elastic displacement or purlins and spacers. Primary fixings are divided into two groups, rigid fixings and non-rigid fixings.

It is essential that the watertightness of fixings with fasteners penetrating the sheeting should remain effective when the sheeting is subjected to the maximum inward imposed loading including wind.

Under such loads, the sheeting and any insulating substrate will compress and thereby tend to loosen the seal in the fastener, increasing the risk of water penetration. It is therefore important to ensure that the sheeting, substrate, and fastener including sealing washer, can provide adequate performance under these conditions.

Additional security can be obtained by the use of fasteners, which secure the sheeting against inward movement as well as against outward loads.

Primary fixings should be positioned along and secured to the lines of purlins, sheeting rails or spacers. End laps in profiled sheeting should be arranged to occur over purlin, sheeting rail or spacer lines and secured by the same primary fixings.

Along the purlin, sheeting rail or spacer lines, the primary fixings should be spaced so as to maintain a tight end lap, resist the wind suction loads on the cladding and fasteners, in accordance with the manufacturers instructions and avoid vibration of the sheeting.

Where there is a head or tail lap condition the Company recommends the use of a landing/ spreader plate which should be a minimum of 100 mm wide. The thickness should be the same as the purlin section already in place. This applies where it is rooflight to rooflight, metal to rooflight and rooflight to metal.

Fasteners for primary fixings should always be fixed through the troughs. Crown fixings are sometimes used but, because of their longer lengths, they are at greater risk of not being inserted perpendicularly to the crown, this may adversely affect the effectiveness of the seal. There is also a greater risk of the profile being distorted in case of the overtightening of the fastener. Hook bolts should be profiled to match the shape of the purlin or sheeting rail.

Secondary Fixings

The main function of secondary fixings is to maintain a tight lap and seal, but they are also required to transfer concentrated load to adjacent sheets.

When required fasteners for secondary fixings, or stitch fasteners should be positioned at side laps on the crown for roof cladding and in the trough or crown for wall cladding, depending on the profile. The fastener and method of installation should be able to accommodate and compress a seal in the lap joint where a seal is used. The spacing of stitch fasteners depends on the thickness and the presence or otherwise of a sealant in the joint, but should generally be not more than 450 mm apart.

For aluminium sheeting, the use of conventional self tapping screws into sheeting less than 1 mm thickness is not recommended, but, if propriety self drilling screws designed for the purpose are used, the manufacturers instructions should be followed. For specific advice, please contact our sales office regarding suitable fasteners for secondary fixing of StepSafe and Contour sheeting.

All fixings should be of stainless steel manufacture to ensure long term non-fragility performance of the rooflights. This is however, particularly relevant in connection with the StepSafe non-fragility guarantee detailed on page 2.4.

Purlin Centres

StepSafe and Contour sheets have different properties to fibre cement, steel, and aluminium sheets and they do not necessarily have the same span capabilities.

The chart set out is a guide to the recommended maximum span in metres between purlins.

	Panel weights in kg/m²	
	1.83	2.44+
Depth of profile	**Purlin centres in metres**	
15 to 20 mm	1.25	1.50
20 to 25 mm	1.50	1.75
25 to 30 mm	1.60	1.85
30 to 35 mm	1.80	2.05
over 35 mm	2.00	2.25

Although FAIRS are more rigid than single skin sheets, recommended purlin centres should not be exceeded as any excessive deflection could strain or weaken bonding joints.

Sealing

For site assembled units which are used in conjunction with sealed metal lining systems, the translucent liner should form an integral part of the vapour sealed liners and therefore end side laps should be sealed. The shallow depths of lining panels required to match metal liner may determine purlin centres. It is recommended that closures be used around the perimeter of the rooflights to prevent the ingress of insulation materials between the translucent panels.

For FAIRS, the joints between the units and adjacent lining materials should be effectively sealed.

Structural

Rooflights cannot be considered as a structural element within a stressed skin construction.

Humidity

Where high humidity may increase condensation problems, special provision will be required and in such cases, confirmation of the suitability of rooflights should be obtained from our sales office.

Details – Typical Installations

Illustration details covering the following applications are included within the section:

Single Skin
- cross section
- fixing to steel purlins
- mono pitch ridge detail
- wall abutment detail (1)
- eaves detail
- fixing to cold rolled purlins
- fixing to timber purlins
- ridge detail
- barge board detail
- wall abutment detail (2)

Double skin
- cross section
- fixing to steel purlins
- mono pitch ridge detail
- wall abutment detail (1)
- eaves detail
- fixing to cold rolled purlins
- fixing to timber purlins
- ridge detail
- barge board detail
- wall abutment detail (2)
- FAIR end lap onto composite panel
- composite panel end lap onto FAIR

The illustrations on pages 9.3 to 9.12 depict typical installation methods covering most fixing applications, they are for illustrative purposes only and are not a true indication of scale. Please consult our sales office for assistance with specific projects.

Fixing Details

Hambleside Danelaw will provide qualification of fixing details for projects on an individual basis. The fixing details provided will help the contractor achieve the requirements of the CDM Regulations.

As profiles vary, so will the specification of fixings. Full specifications are available for every application, i.e. Single Skin, Site Assembled Double Skin and Factory Assembled Rooflights.

This specification is of a general nature only as top sheet profiles will vary and consequently there may be certain application variations in fixing.

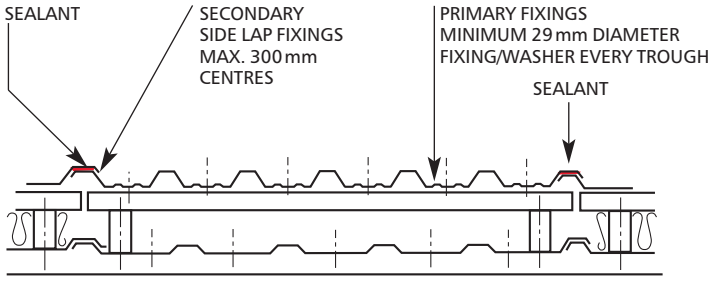
StepSafe and Contour rooflights should be fastened to the steelwork structure in every trough of the profile with a minimum 29 mm self drill/self tap fixing. Profile configurations with wide troughs will need 2 fixings per trough. Fixings are recommended to be manufactured in stainless steel, see also page 2.4.

Side laps should be stitched at maximum 300 mm centres. Head and tail laps to be 150 mm minimum. Side laps should be sealed with one run of 9 mm × 3 mm cross linked sealant (Butyl type) or equivalent.

Head and tail laps should be sealed using one run of a 18 mm × 4V cross linked sealant (Butyl type) or equivalent, or alternatively they may be sealed with two strips of sealing tape 50 mm apart of a 6 mm to 8 mm bead of cross linked (Butyl type) sealant as illustrated.

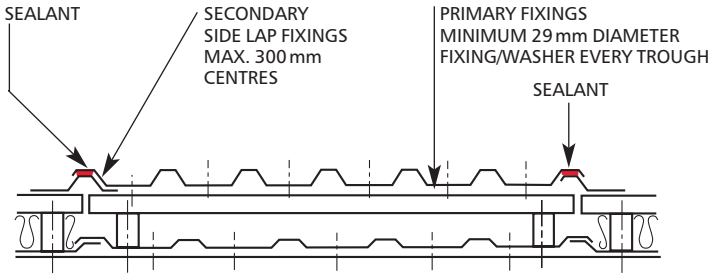
Please contact our sales office for full details on fixings.

FIXING DETAIL FOR ROOFLIGHTS – SIDE LAPS, OVERLAP/UNDERLAP

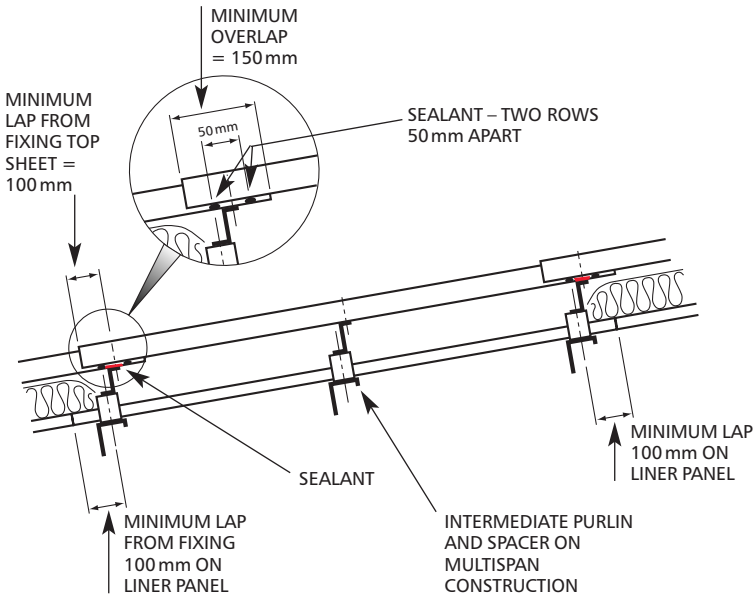


SECTION: UPSLOPE

FIXING DETAIL FOR ROOFLIGHTS – SIDE LAPS, OVERLAP/OVERLAP



SECTION: UPSLOPE

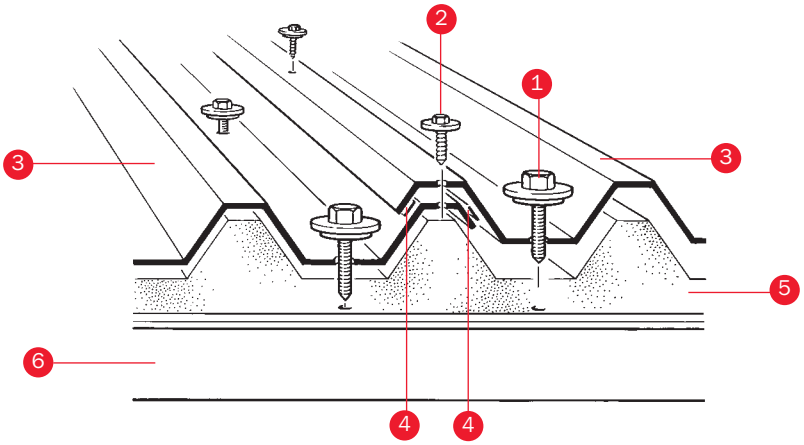


SECTION: ACROSS SLOPE

Cross Section – Single Skin

Key

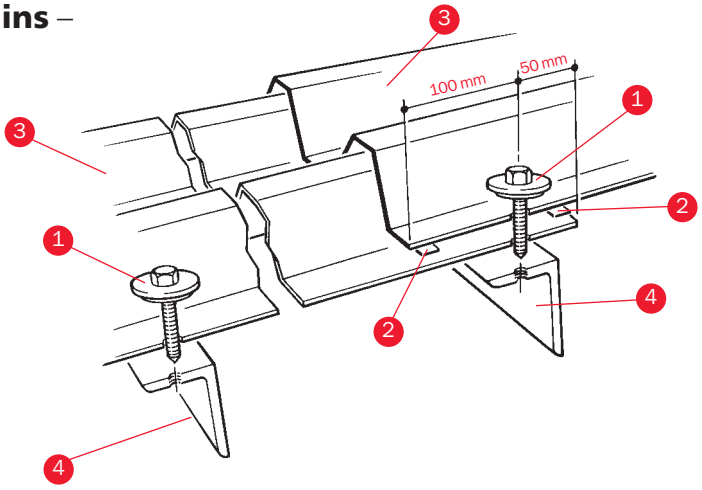
1. PRIMARY FIXINGS
2. SECONDARY FIXINGS
3. APC/GRP SHEETING
4. SEALING TAPE
5. HIGH DENSITY FOAM FILLER
6. PURLIN



Fixing to Steel Purlins – Single Skin

Key

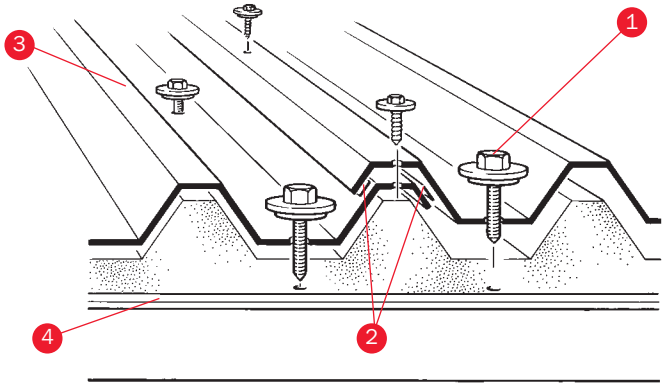
1. PRIMARY FIXINGS
2. SEALING TAPE
3. APC/GRP SHEETING
4. STEEL PURLINS



Fixing to Cold Rolled Purlins – Single Skin

Key

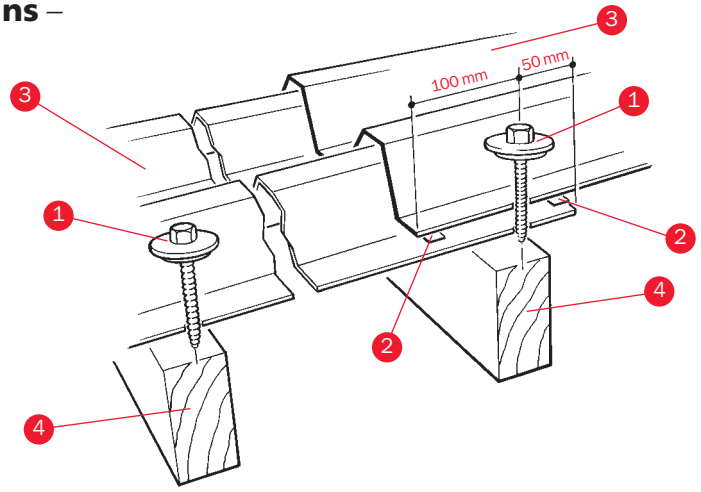
1. PRIMARY FIXINGS
2. SEALING TAPE
3. APC/GRP SHEETING
4. 'Z' SHAPE PURLIN



Fixing to Timber Purlins – Single Skin

Key

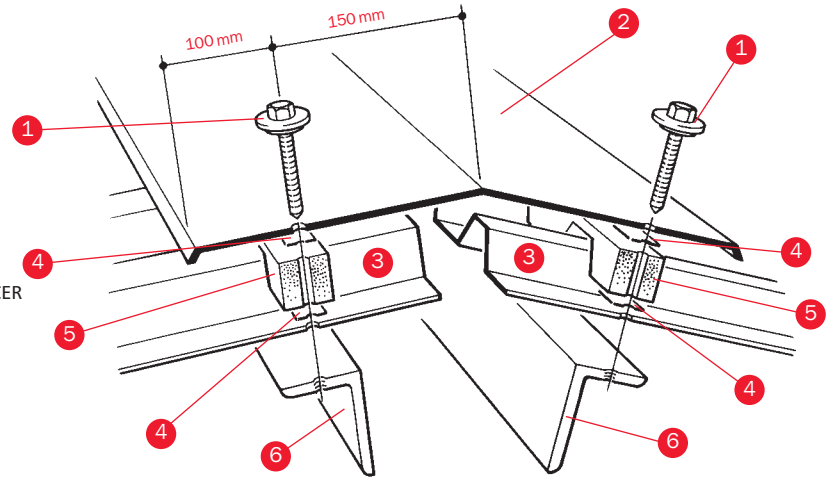
1. PRIMARY FIXINGS
2. SEALING TAPE
3. APC/GRP SHEETING
4. TIMBER PURLINS



Ridge Detail – Single Skin

Key

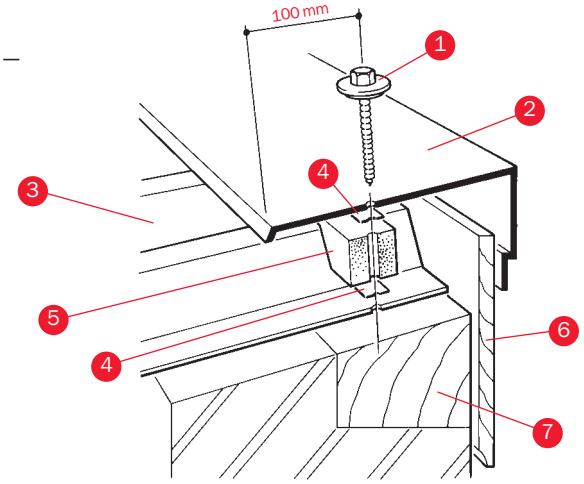
1. PRIMARY FIXINGS
2. STEEL RIDGE FLASHING
3. APC/GRP SHEETING
4. SEALING TAPES
5. HIGH DENSITY FOAM SPACER
6. PURLINS



Mono Pitch Ridge Detail – Single Skin

Key

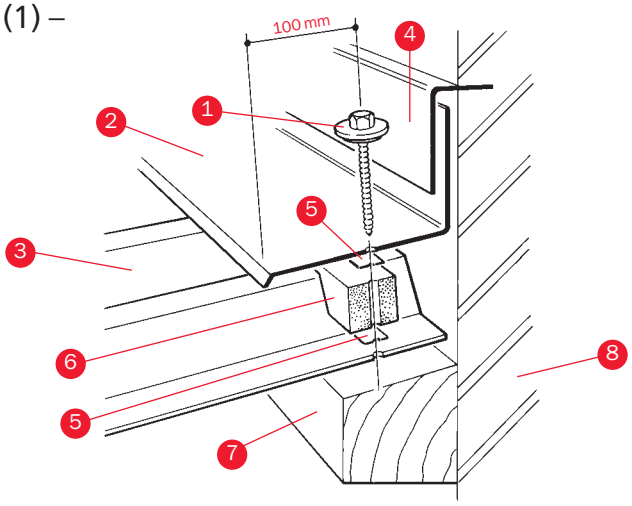
1. PRIMARY FIXING
2. STEEL RIDGE FLASHING
3. APC/GRP SHEETING
4. SEALING TAPES
5. HIGH DENSITY FOAM FILLER
6. TIMBER FASCIA BOARD
7. TIMBER WALL PLATE



Wall Abutment Detail (1) – Single Skin

Key

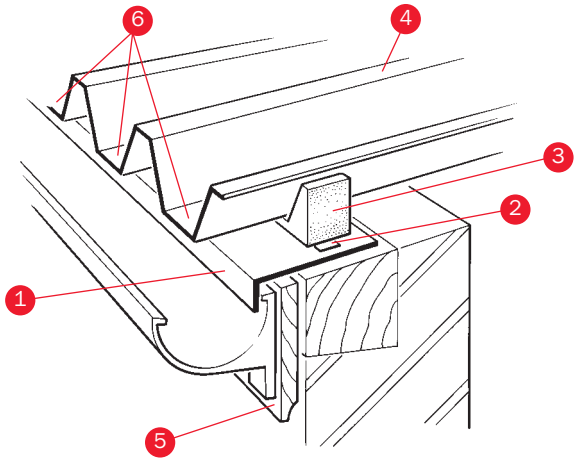
1. PRIMARY FIXING
2. STEEL FLASHING
3. APC/GRP SHEETING
4. COUNTER FLASHING
5. SEALING TAPE
6. HIGH DENSITY FOAM FILLER
7. TIMBER SUPPORT
8. WALL



Eaves Detail – Single Skin

Key

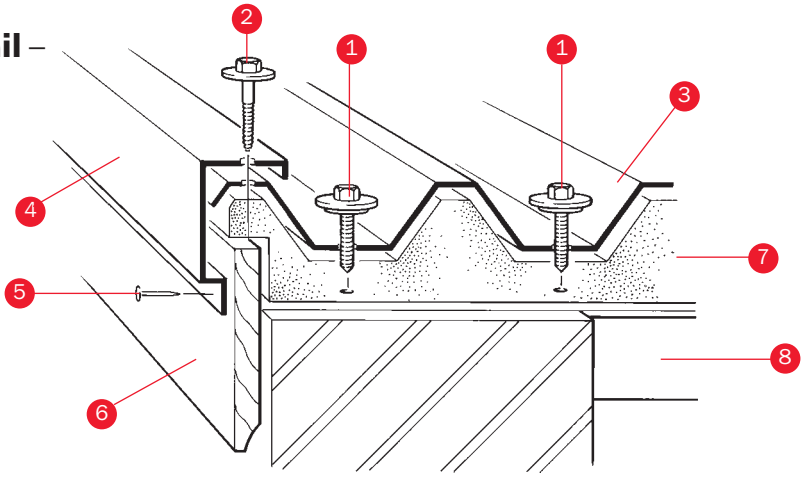
1. EAVES FLASHING
2. SEALING TAPE
3. HIGH DENSITY FOAM FILLER
4. APC/GRP SHEETING
5. FASCIA BOARD
6. PRIMARY FIXING IN TROUGHS OF SHEETING PROFILE



Barge Board Detail – Single Skin

Key

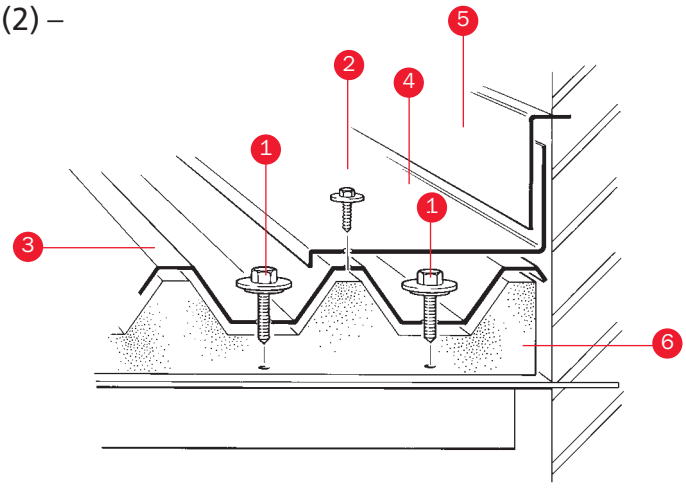
1. PRIMARY FIXINGS
2. SECONDARY FIXINGS
3. APC/GRP SHEETING
4. FLASHING
5. FLASHING FIXING
6. BARGE BOARD
7. HIGH DENSITY FOAM FILLER
8. WALL PLATE



Wall Abutment Detail (2) – Single Skin

Key

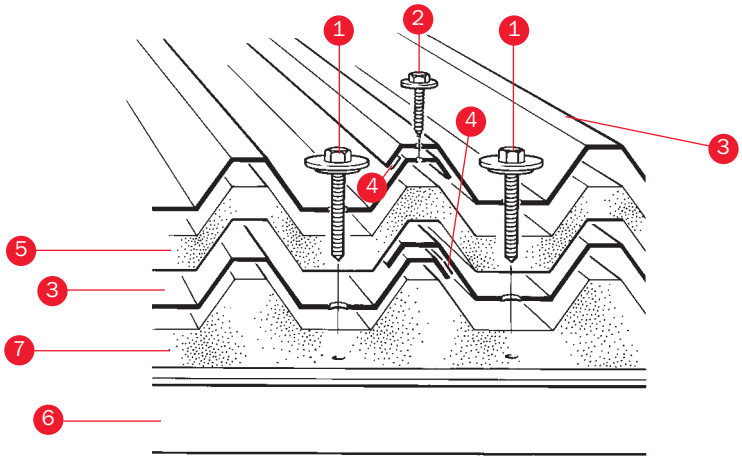
1. PRIMARY FIXINGS
2. SECONDARY FIXINGS
3. APC/GRP SHEETING
4. STEEL FLASHING
5. COUNTER FLASHING
6. HIGH DENSITY FOAM SPACER



Cross Section – Double Skin

Key

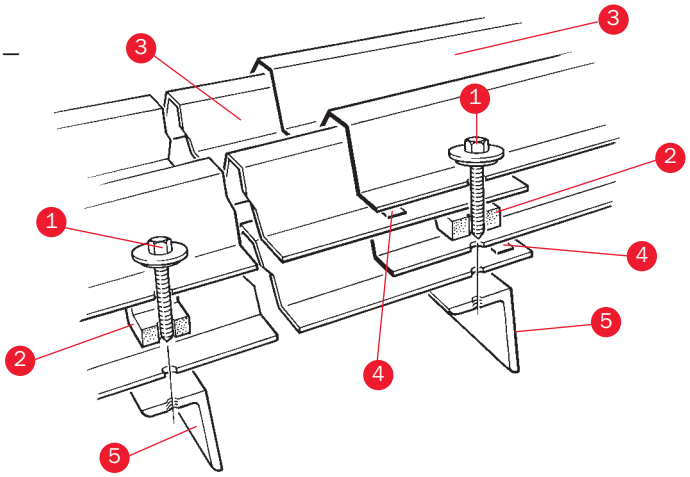
1. PRIMARY FIXINGS
2. SECONDARY FIXINGS
3. APC/GRP SHEETING
4. SEALING TAPE
5. HIGH DENSITY FOAM SPACER
6. PURLIN
7. HIGH DENSITY FOAM FILLER



Fixing to Steel Purlins – Double Skin

Key

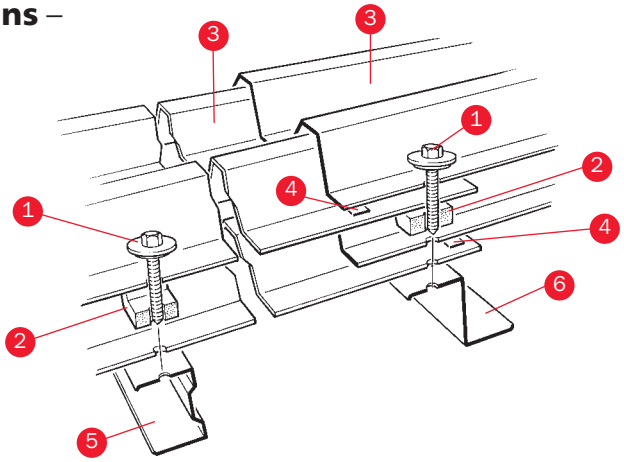
1. PRIMARY FIXINGS
2. HIGH DENSITY FOAM SPACER
3. APC/GRP SHEETING
4. SEALING TAPE
5. STEEL PURLINS



Fixing to Cold Rolled Purlins – Double Skin

Key

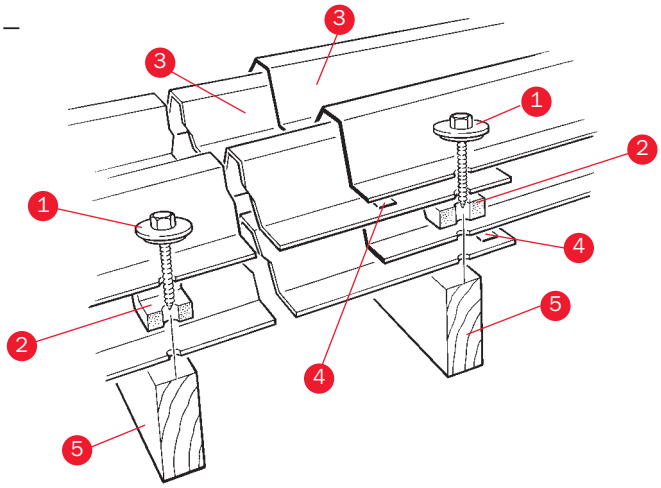
1. PRIMARY FIXINGS
2. HIGH DENSITY FOAM SPACER
3. APC/GRP SHEETING
4. SEALING TAPE
5. 'SIGMA' SHAPE PURLIN
6. 'Z' SHAPE PURLIN



Fixing to Timber Purlins – Double Skin

Key

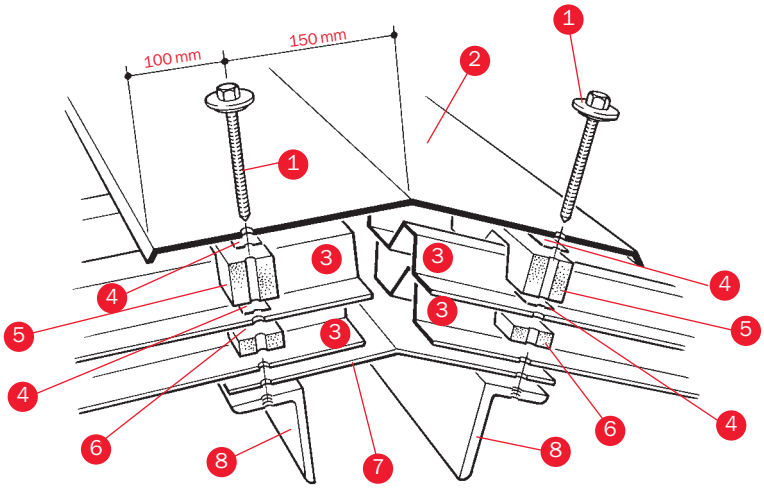
1. PRIMARY FIXINGS
2. HIGH DENSITY FOAM SPACER
3. APC/GRP SHEETING
4. SEALING TAPES
5. TIMBER PURLINS



Ridge Detail – Double Skin

Key

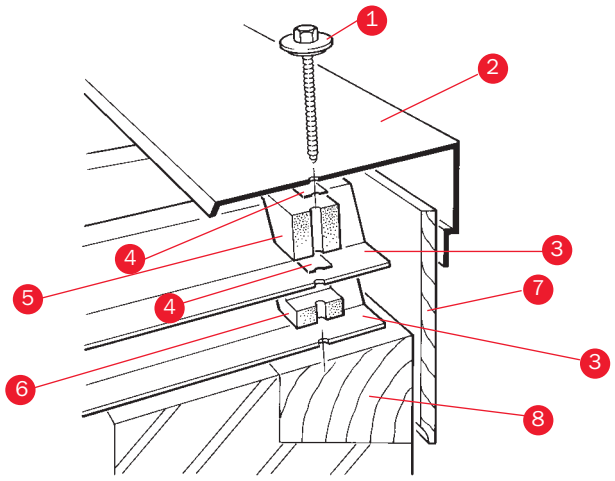
1. PRIMARY FIXINGS
2. STEEL RIDGE FLASHING
3. APC/GRP SHEETING
4. SEALING TAPES
5. HIGH DENSITY FOAM FILLER
6. HIGH DENSITY FOAM SPACER
7. LINING TRIM
8. PURLINS



Mono Pitch Ridge Detail – Double Skin

Key

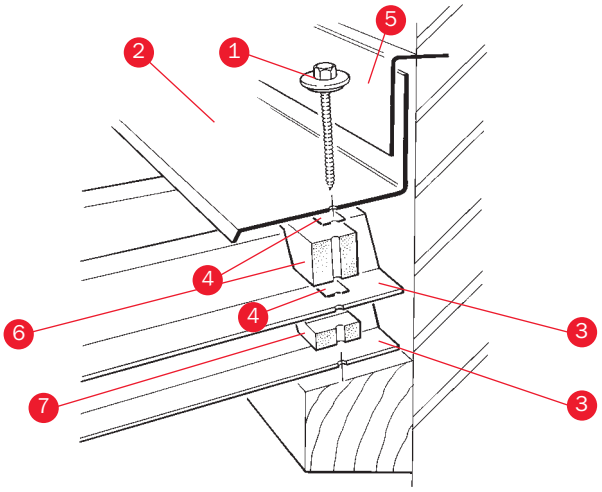
1. PRIMARY FIXING
2. RIDGE FLASHING
3. APC/GRP SHEETING
4. SEALING TAPES
5. HIGH DENSITY FOAM FILLER
6. HIGH DENSITY FOAM SPACER
7. TIMBER FASCIA BOARD
8. TIMBER WALL PLATE



Wall Abutment Detail (1) – Double Skin

Key

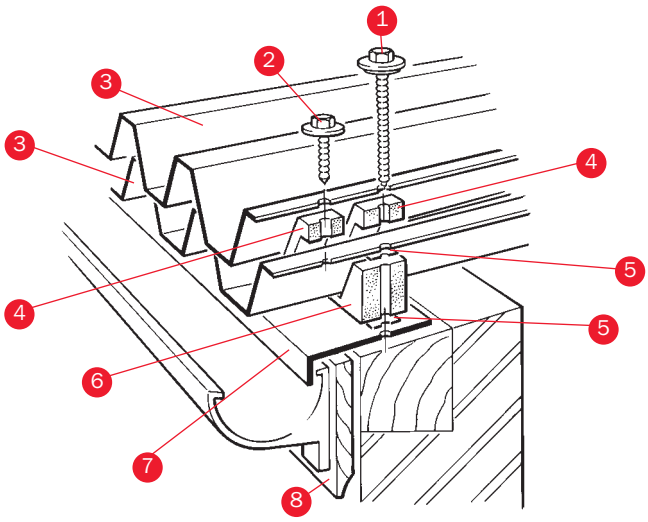
1. PRIMARY FIXING
2. STEEL FLASHING
3. APC/GRP SHEETING
4. SEALING TAPES
5. COUNTER FLASHING
6. HIGH DENSITY FOAM FILLER
7. HIGH DENSITY FOAM SPACER



Eaves Detail – Double Skin

Key

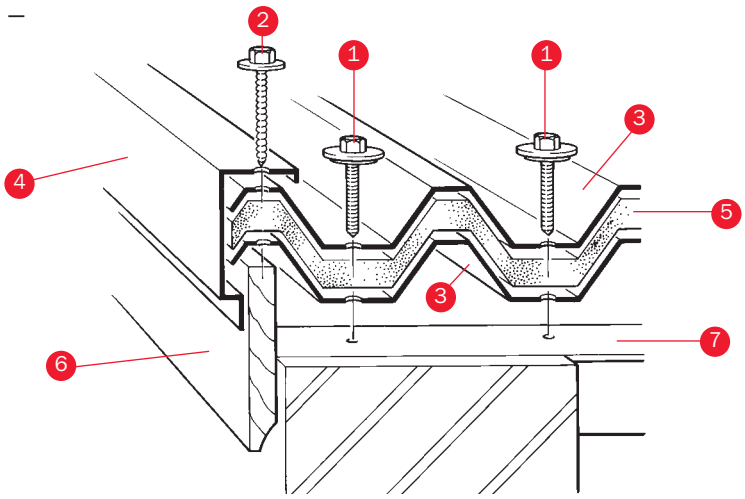
1. PRIMARY FIXING
2. SECONDARY FIXING
3. APC/GRP SHEETING
4. HIGH DENSITY FOAM SPACER
5. SEALING TAPES
6. HIGH DENSITY FOAM FILLER
7. EAVES FLASHING
8. FASCIA BOARD



Barge Board Detail – Double Skin

Key

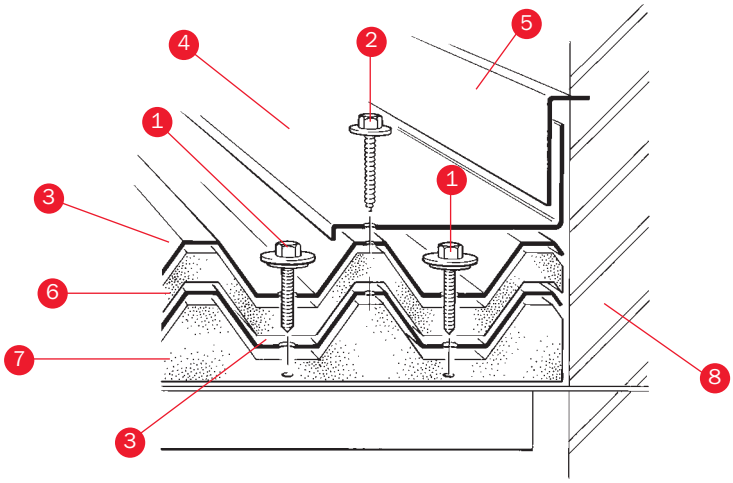
1. PRIMARY FIXINGS
2. SECONDARY FIXINGS
3. APC/GRP SHEETING
4. FLASHING
5. HIGH DENSITY FOAM FILLER
6. BARGE BOARD
7. WALL PLATE



Wall Abutment Detail (2) – Double Skin

Key

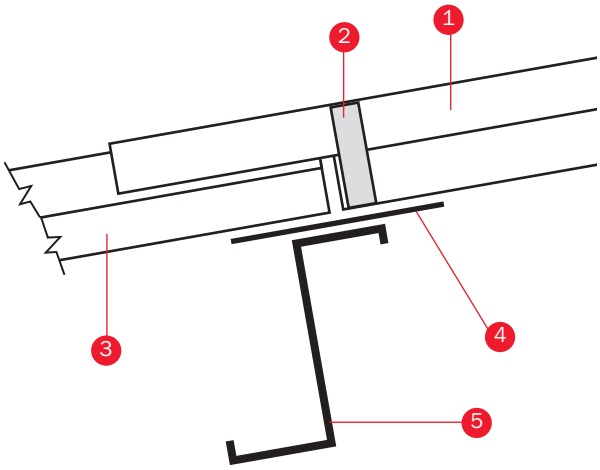
1. PRIMARY FIXINGS
2. SECONDARY FIXINGS
3. APC/GRP SHEETING
4. STEEL FLASHING
5. COUNTER FLASHING
6. HIGH DENSITY FOAM SPACER
7. HIGH DENSITY FOAM FILLER
8. WALL



FAIR End Lap onto Composite Panel –

Key

1. FAIR
2. FOAM FILLER
3. COMPOSITE PANEL
4. SPREADER/LANDING PLATE
5. PURLIN



Composite Panel End Lap onto FAIR –

Key

1. FAIR
2. FOAM FILLER
3. COMPOSITE PANEL
4. SPREADER/LANDING PLATE
5. PURLIN