



Single skin roofing help guide

Accord 32/1000 box profile

Accord 34/100 box profile

Accord 20/1000 box profile

Accord 333 box profile

14/3 traditional 3" corrugated

Disclaimer

All the information in this guide is for reference only.

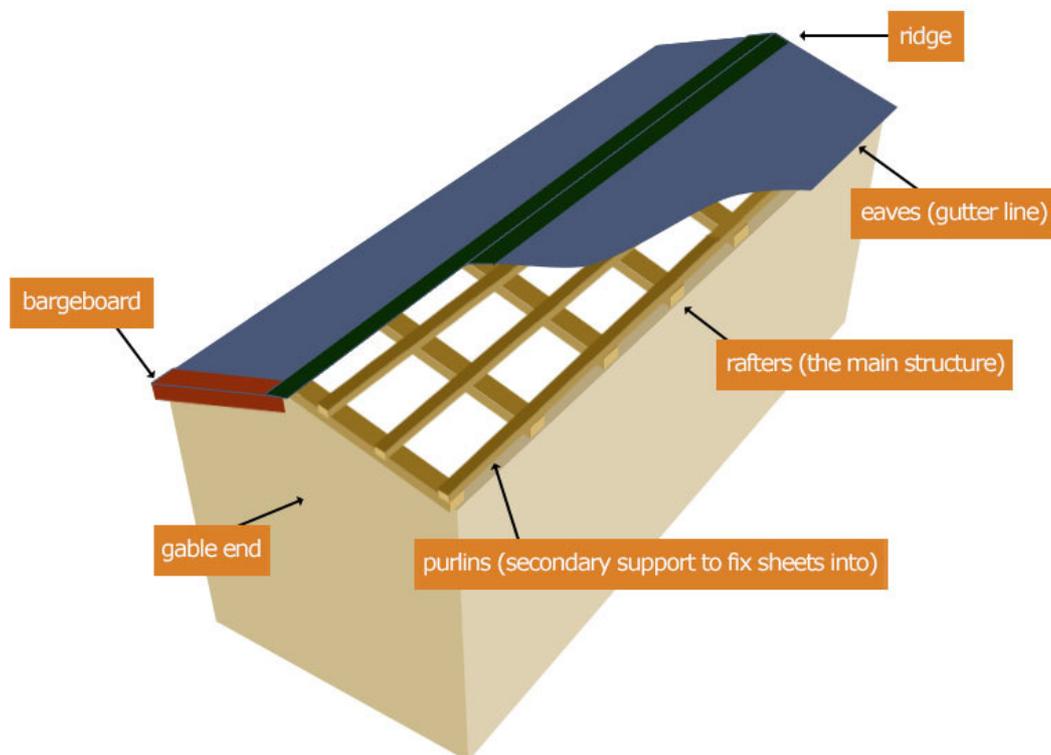
This guide provides general advice of how to measure up and install a single skin roofing system. Due to the complex nature of some buildings, the information in this guide is not comprehensive and different techniques will be applicable depending on the building scenario. More specific guidance can be obtained by contacting our sales team on 01384 273 811

Using the information in this guide is at your own risk.

Accord Steel Cladding Ltd accept no liability for any loss or injury caused by following the information in this guide.

If you are unsure about how best to install your roof, we would recommend contacting an experienced builder/roofer.

Common roofing terms



Safety first

Working with steel and on roofs can be hazardous. Safety precautions, including the wearing of P.P.E. (Cut resistant gloves, clothing, footwear and a Hard Hat) is highly recommended.

Crawling boards should be used while working on a roof to keep your weight evenly distributed and minimise the risk of damage to the roofing sheets.

Employers and self-employed contractors are required by UK Law to carry out a risk assessment before the commencing of any roofing work. More information on this can be found on the Health and Safety Executives website www.hse.gov.uk

Specification

We manufacture our steel roofing sheets to specification, meaning we will manufacture sheets to the lengths you require. One of the biggest benefits to having your sheets manufactured to order is that you will have minimal waste and installation time is decreased as you do not have to cut the sheets down or worry about sealing end laps.

We can also accommodate lengths from 0.500m up to 12.000m long meaning even on very large projects joins can be kept to a minimum.

Measuring your roof correctly

In order to manufacture sheets to your specification we will need accurate measurements for your roof. Sometimes confusion arises when supplying this information. Please see below for a brief explanation of these terms.

Common measuring terms

Pitch

The roof pitch is the angle of the slope of the roof. This is used to calculate flashing angles at the ridge and eaves.

Mono pitch roofs

Width

When calculating roof cladding the width measurement will refer to the direction of lay. This allow us to calculate the number of sheets required based on the cover width of each sheet.

Length

The length will refer to the length of each sheet. This will correspond to the fall or the distance the water with travel from ridge to eaves. Always remember to include an overhang of around 50mm to 100mm to allow water to run off.

Sometimes the width and length may seem the wrong way round. (e.g. The width of the roof may be more than the length of the sheets) It is very important that the correct measurements are supplied to ensure your roof sheets are manufactured correctly.

Apex roofs

Ridge length

Similar to the width measurement on mono pitch the length of ridge is required to determine the amount of sheets required each side of the roof.

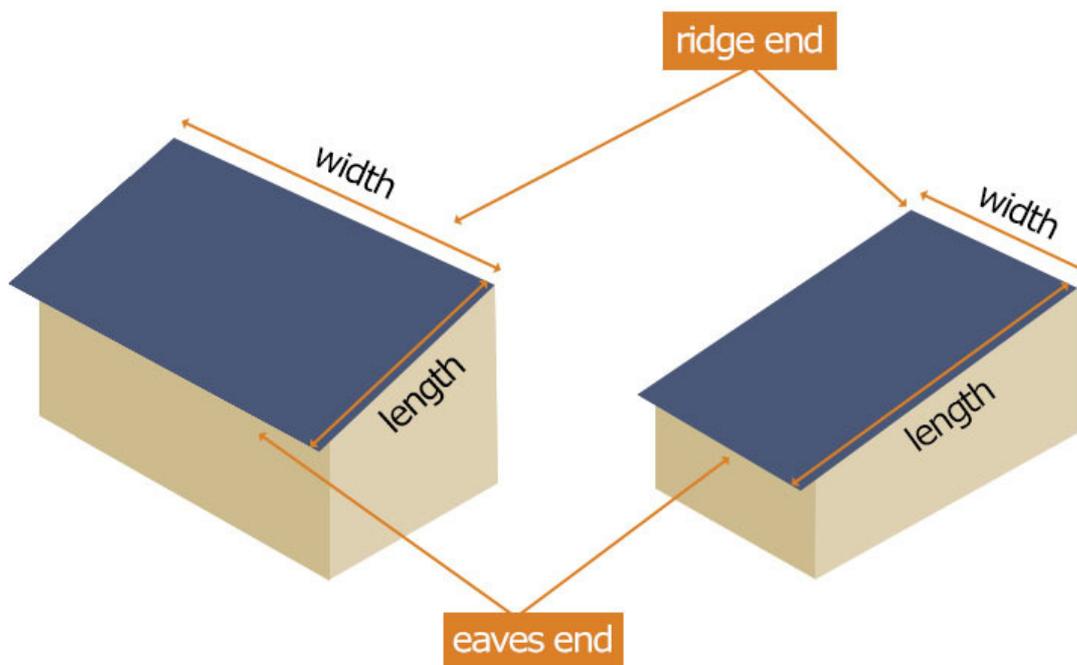
Ridge to eaves measurement

The ridge to eaves measurement will determine the length of the sheets required. A gap of approx. 50mm should be left at the ridge (or tip of the apex) as sheets from both sides should not be touching. Also an overhang at the eaves (or gutter end) for water to run off should be accounted for.

Different types of roof

Mono pitch (single slope)

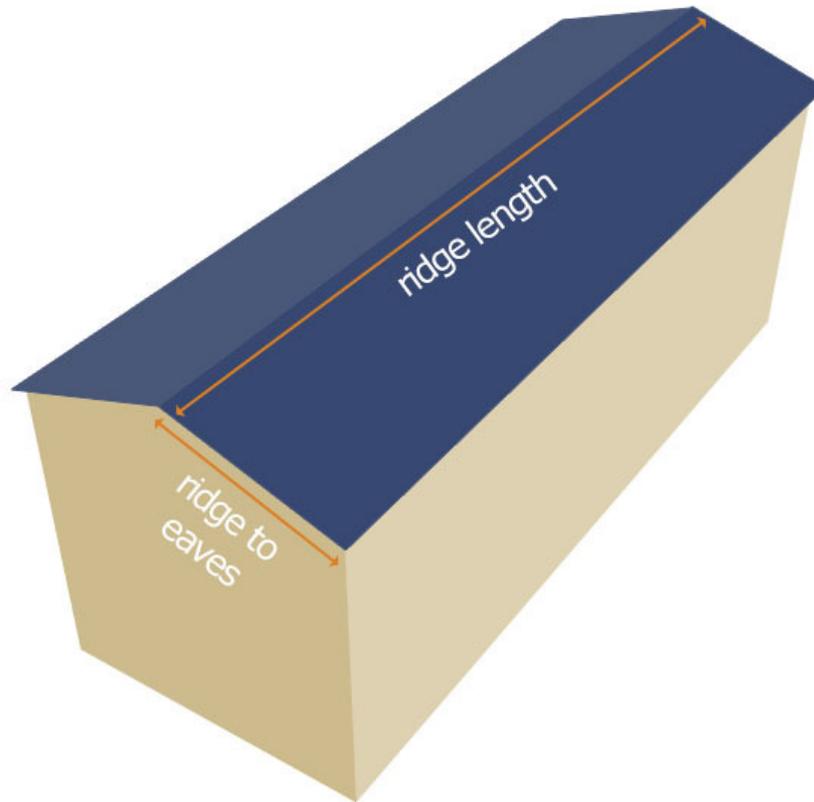
Mono pitch roofs are very common in garages and car ports. Sometimes the width of a mono pitch roof is more than the length of the sheets required. The examples below gives guidance on the measurements that should be taken to correctly specify your roofing sheets.



Mono pitch roofs are usually the easiest to measure. A width measurement is required to calculate the number of sheets. The length measurement is required to calculate the length of sheets. Flashings can be used at the ridge end and sides if required. They types of flashing can differ depending on situation.

Apex (double slope)

Apex roofs are usually even sided but can be uneven (sheet lengths will differ from one side to the other). The diagram below gives guidance on the measurements that should be taken to correctly specify your roofing sheets.



The ridge length is used to calculate the number of sheets required for each side. The ridge to eaves measurement is used to calculate the sheet lengths. If the apex is uneven ridge to eaves will need to be taken on both sides.



quick tip

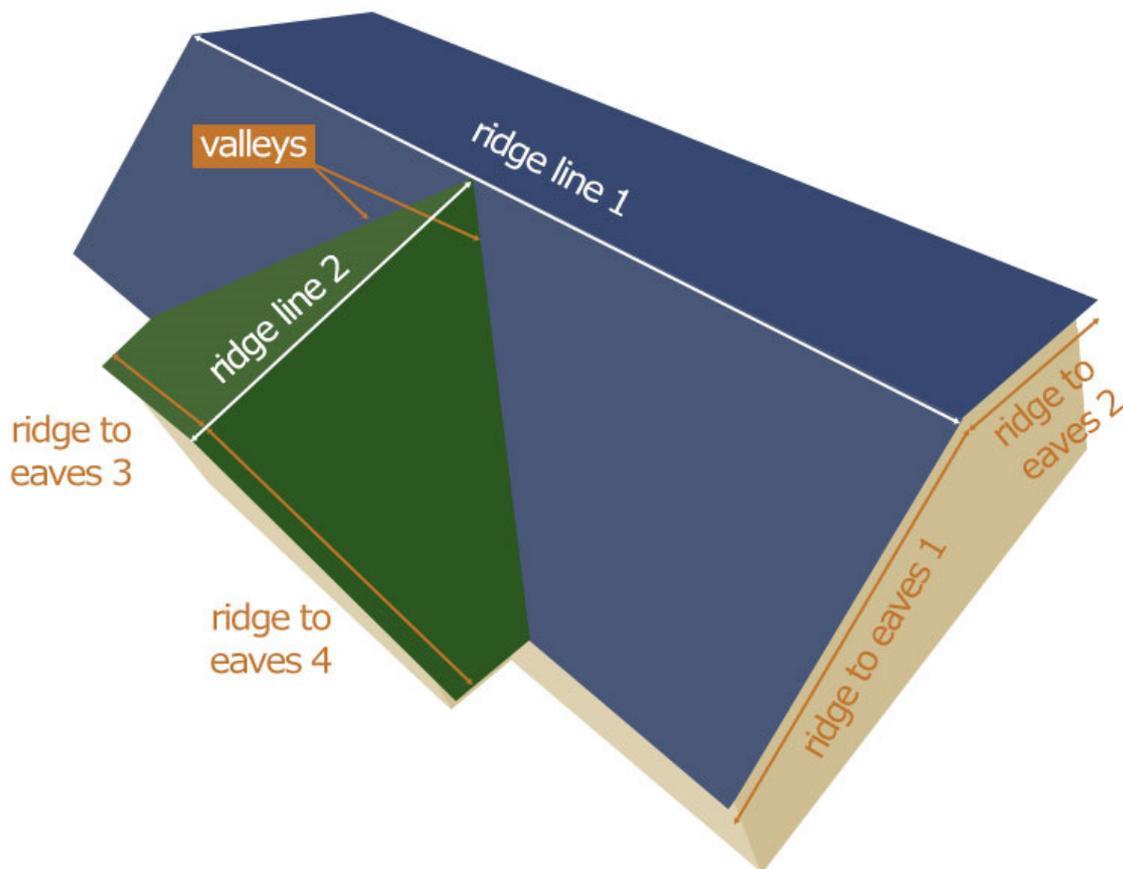
When measuring your roof always measure in more than one place to ensure your roof is in square. If you find you have differing measurements always order your sheets to the longest length.

Adjoining apex

Adjoining apex roofs incorporate more than one apex roof connected to each other. Measurements on these roofs need to be taken a little differently from an ordinary apex roof. Sheets will need to be cut on site where the roofs join and valley or hip flashing should be fitted at the joins. The following examples give guidance on the measurements that should be taken to correctly specify your roofing sheets.

Example 1 T-shaped

The below example is a common form of an adjoining apex roof commonly known as T-shaped. The joins form two valleys which will require flashing.



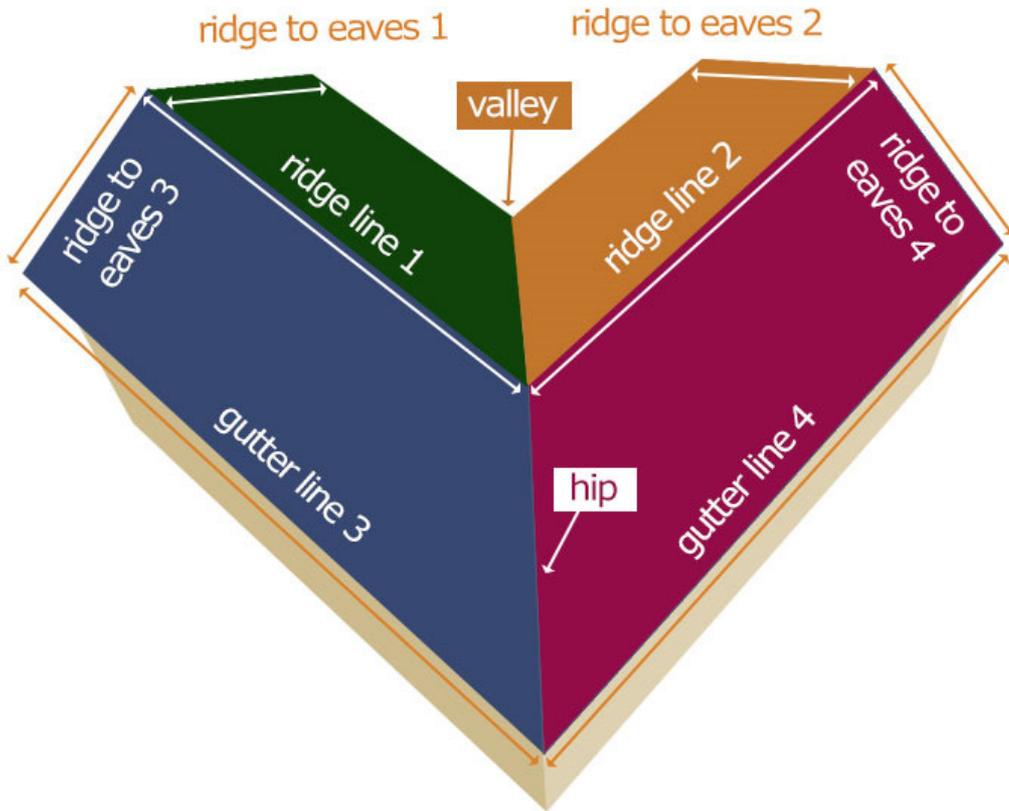
Measurements are essentially taken as two roofs (indicated above in blue and green)

To calculate the sheets required for the main apex (blue) ridge line 1 must be taken to calculate the number of sheets required whilst ridge to eaves 1 and 2 are used for the sheet lengths each side of the apex.

The process is then repeated for apex 2 (green) using ridge line 2 and ridge to eaves 3 and 4.

Sheets are cut down on site to create the valleys. Two piece valley gutter flashings are recommended to divert water away and provide a neat finish where sheets meet at the valley. Ridge flashings are used at the ridge lines (tip of the apex). Bargeboards can be used along the gable ends.

Example 2 L-shaped



The above example is slightly more complex than the T-shaped roof and should essentially be treated as four separate areas.

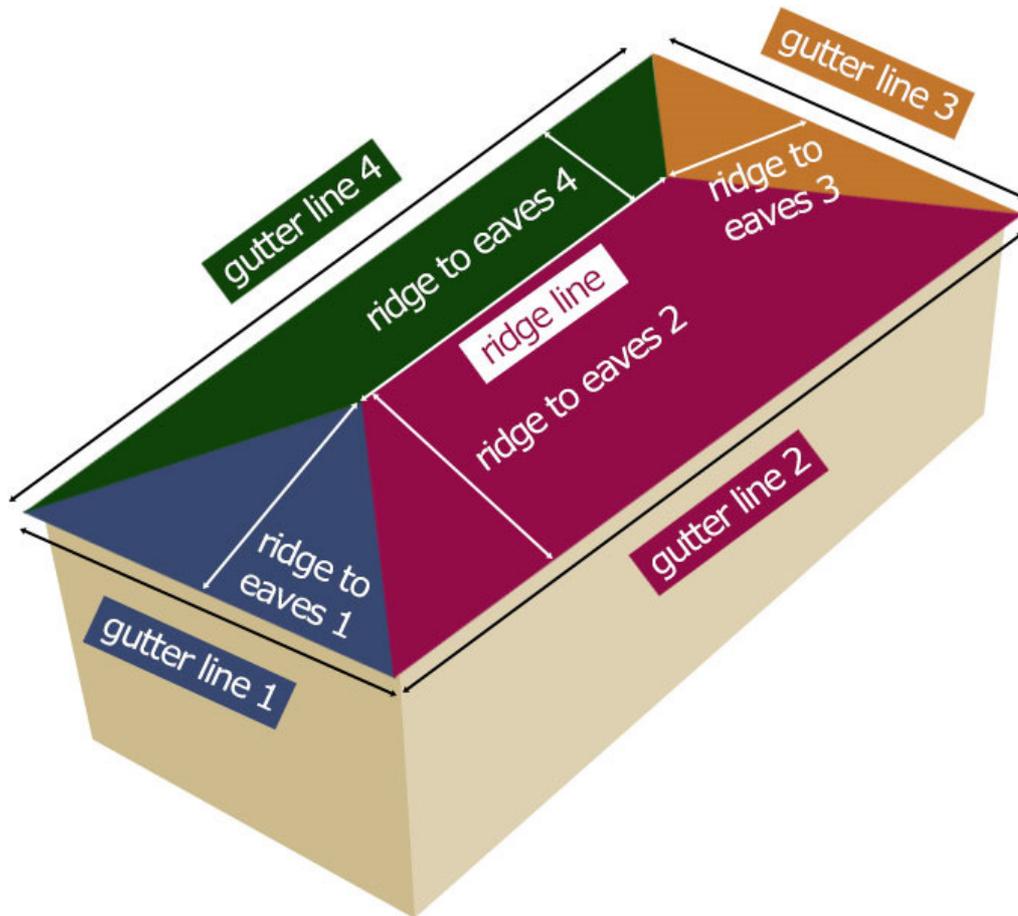
To calculate sheets requirements measurements must be taken along ridge line 1 and ridge to eaves 1. This process should then be repeated for ridge line 2 and ridge to eaves 2. This will give you sheet size specification for the inside section of the L-shaped roof (green and orange areas)

You can then move onto the outside section (blue and purple) Measurements should be taken from gutter line 3 and ridge to eaves 3 followed by gutter line 4 and ridge to eaves 4.

The above example forms a valley on the inside and a hip on the outside. Two piece valley flashings and hip flashings should be used where sheets meet at the valley and hip. Ridge flashings are used at the ridge line (tip of the apex). Bargeboards can be used along the gable ends.

Hipped

Hipped roofs will require cladding at the gable ends as well as the two sides of the apex. This will mean that four areas will require cladding. Measurements on these roofs need to be taken a little differently from an ordinary apex roof. Sheets will need to be cut on site where each cladded area meets and hip flashing should be fitted at these joins. The diagram below gives guidance on the measurements that should be taken to correctly specify your roofing sheets.



Hipped roofs require four sections of cladding (indicated above as blue, green, purple and orange areas). Measurements must be taken along the gutter line for all four sections as well as ridge to eaves.

Hip flashings are should be used where sheets meet. The amount of hip flashing is calculated by measuring each separate hip join.

Ridge flashings are used at the ridge line (tip of the apex). The amount of ridge flashing is calculated by measuring the ridge line.

Ordering

Our website www.steelroofsheets.co.uk is constantly updated and provides you with the ability to obtain a fully delivered quote and order online. If you are unsure of your materials list you can use our online quote calculator to enter your measurements and specification. This will provide you with a no obligation quote with the ability to proceed with an online order if you wish.

If you are unsure about the roof size or are not comfortable using the website please call our sales team on 01384 273811 to talk through your requirements and obtain a quote.

As our roof sheets are manufactured to order there is a typical lead time of 7 to 10 working days. Please ensure you have allowed sufficient time prior to placing your order to ensure any deadlines will not be missed.

Delivery

We deliver using our own fleet of trucks wherever possible, it is important to let us know of any access restrictions to ensure we send the correct vehicle.

All deliveries will be handball offload unless you have access to mechanical offload machinery. Sheets and flashings will be packed together and packs of sheets can be very heavy and difficult to handle, as such it is important to have someone on site to assist the driver offloading the vehicle. We strongly recommend the wearing of cut resistant gloves as steel sheets and flashings have sharp edges.

Upon receipt of your order, you should check all items are correct to the delivery note and report any discrepancies to our offices on 01384 273 811 immediately.

Handling sheets

In order to reduce the risk of injury or damage to any sheets mechanical handling equipment is recommended. When lifting packs of sheets onto a roof the weight should be distributed evenly across the roof purlins to reduce unnecessary strain.

Sheets should always be lifted clear of the pack and not dragged across other sheets as this causes scratches and damage to the sheets.

Extra care should be taken in windy or exposed areas.

Cutting sheets

Manufactured to length sheets should require minimum cutting. When cutting on site is required, it is important to use a tool that generates as little heat as possible as to not melt the coating of the sheets. A nibbler is the ideal steel cutting tool as it can be used for cutting shapes and leaves a good edge. Disc cutters and reciprocating saws are not recommended, as heat can damage the coating leaving a raw edge.

Purlins

Purlins provide horizontal support for the sheets and form part of the framework for the building. Minimum recommended purlin size is 4"x 2" (50mm x 100mm) in timber or Z140mm x 1.6mm in steel*. All purlin joints must be supported by a rafter. Z Purlins are connected to the rafters using cleats.

* *Minimum purlin size will vary according to span.*

Purlin Spaces:

- 0.5mm gauge, 32/1000, 34/1000, 14/3 Corrugated, 20/1000, 333 profile
 - Recommended 600mm
 - Maximum 1000mm*
- 0.7mm gauge, 32/1000, 34/1000 14/3 Corrugated, 333 profile
 - Recommended 1000mm
 - Maximum 1400mm*

Maximum purlin spaces are not suitable in all scenarios. You will need to consult a structural engineer to see if these will be appropriate to your building. Purlin spaces are for box profile and corrugated sheets only. See out tile effect help guide for tile effect steel sheets.

Laying sheets

Sheets can be laid left to right or right to left. Sheets should be laid perpendicular to and starting at the eaves. Don't forget to leave an overhang to go into the gutter or beyond the wall plate (usually 50mm (2") is sufficient).

When laying sheets on an apex roof (double sided) remember to leave a gap of approx. 2" (50mm) at the ridge (tip of the apex). Also, if you are using profiled g.r.p rooflights on an apex roof and wish to keep them in the same position on both sides you will have to lay right to left on one side and left to right on the other.

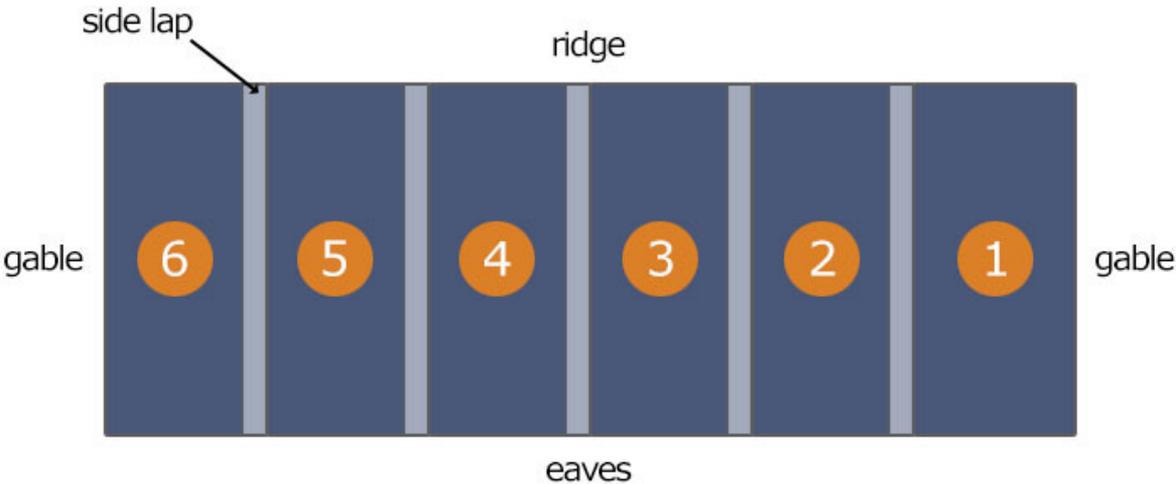
On the following pages we have provided numbered diagrams showing you the recommended lay pattern for each direction of lay.

If you are unsure about these layouts please speak to a qualified roofer or contact our technical team before attempting to lay and fix the cladding as mistakes made at these point could result in the need to order additional sheets.

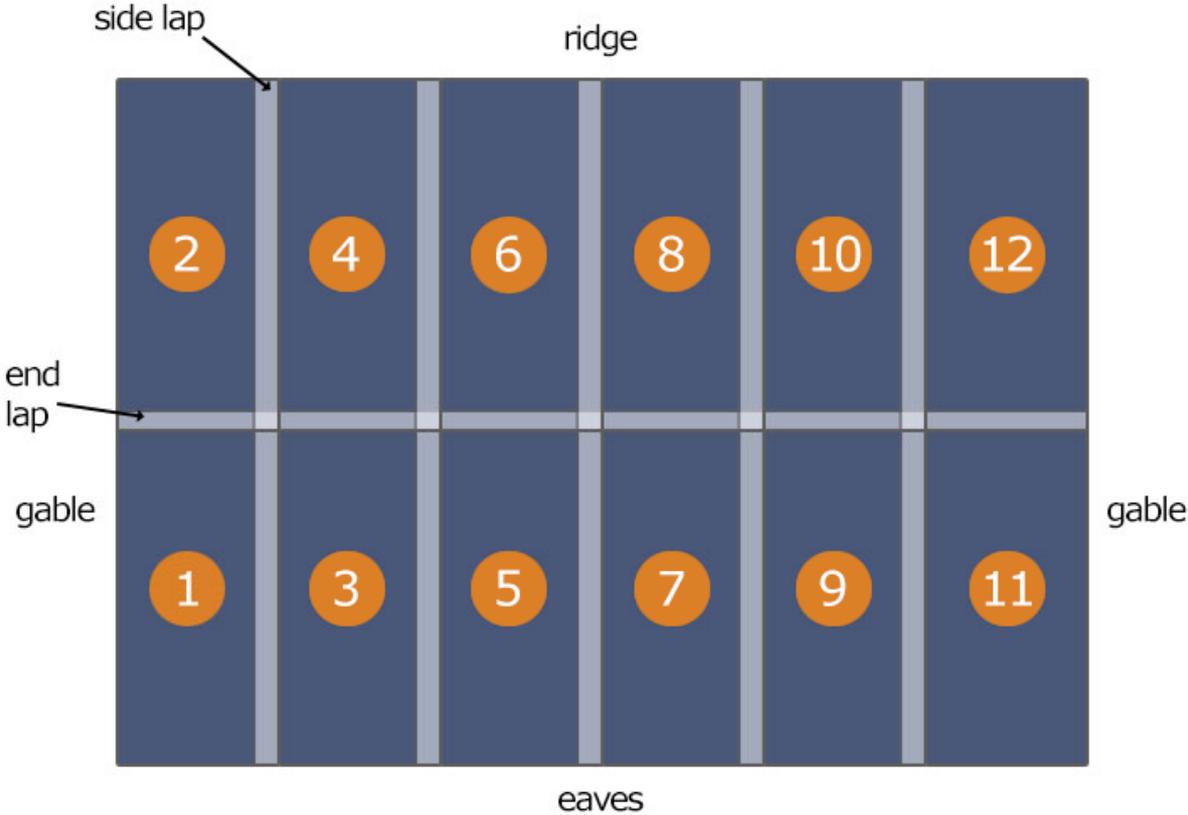
One run of sheets from ridge to eaves left to right lay (L/R)



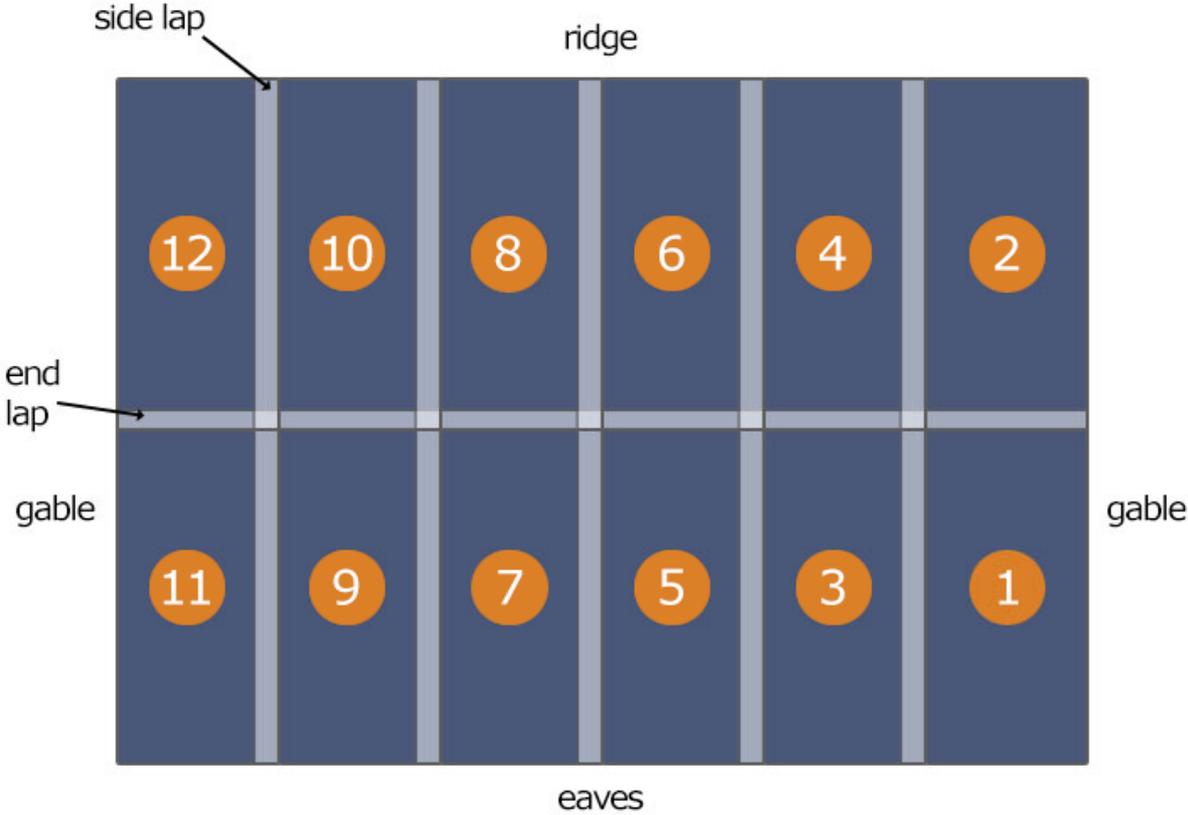
One run of sheets from ridge to eaves right to left lay (R/L)



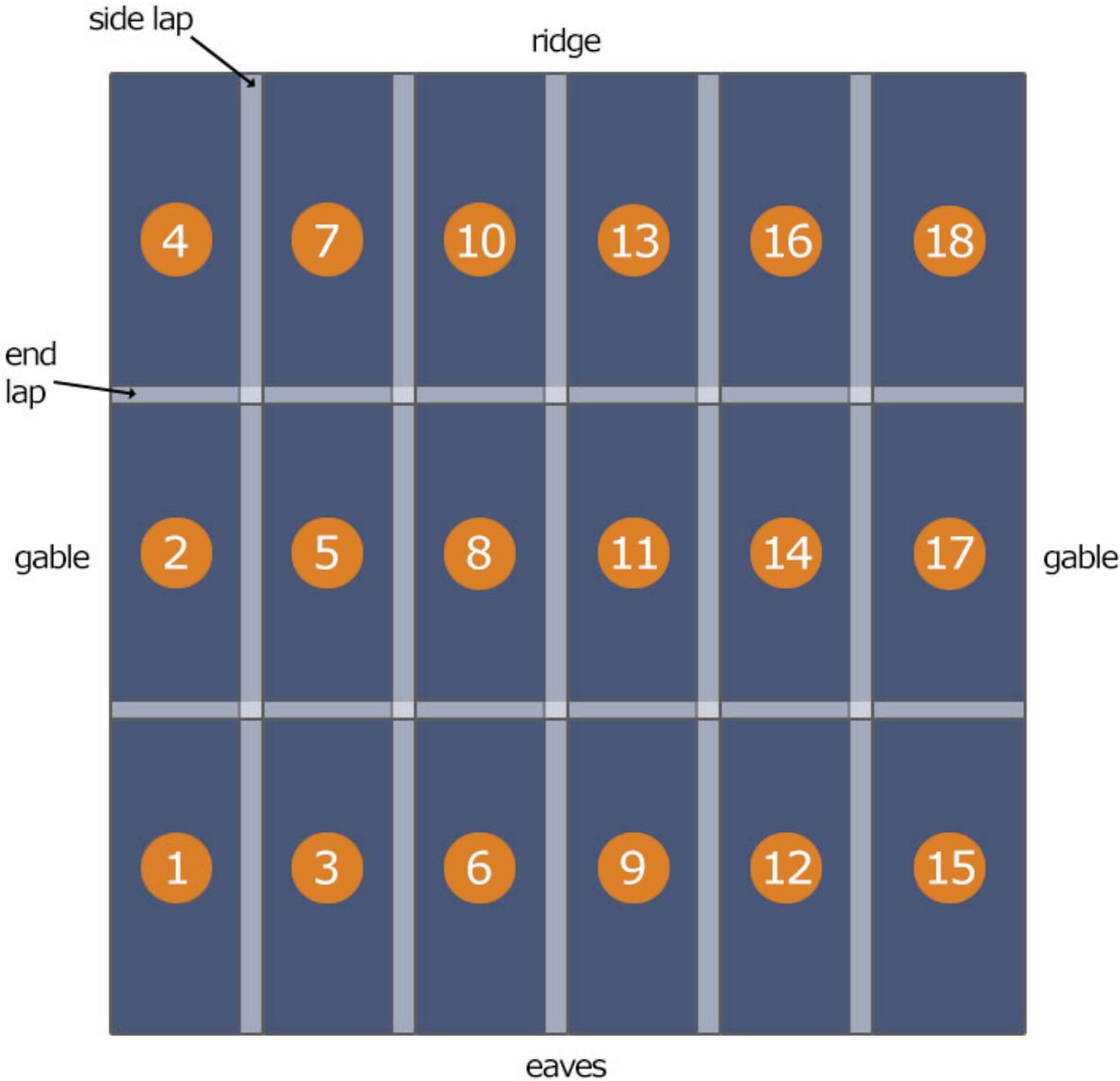
Two runs of sheets from ridge to eaves left to right lay (L/R)



Two runs of sheets from ridge to eaves right to left lay (R/L)



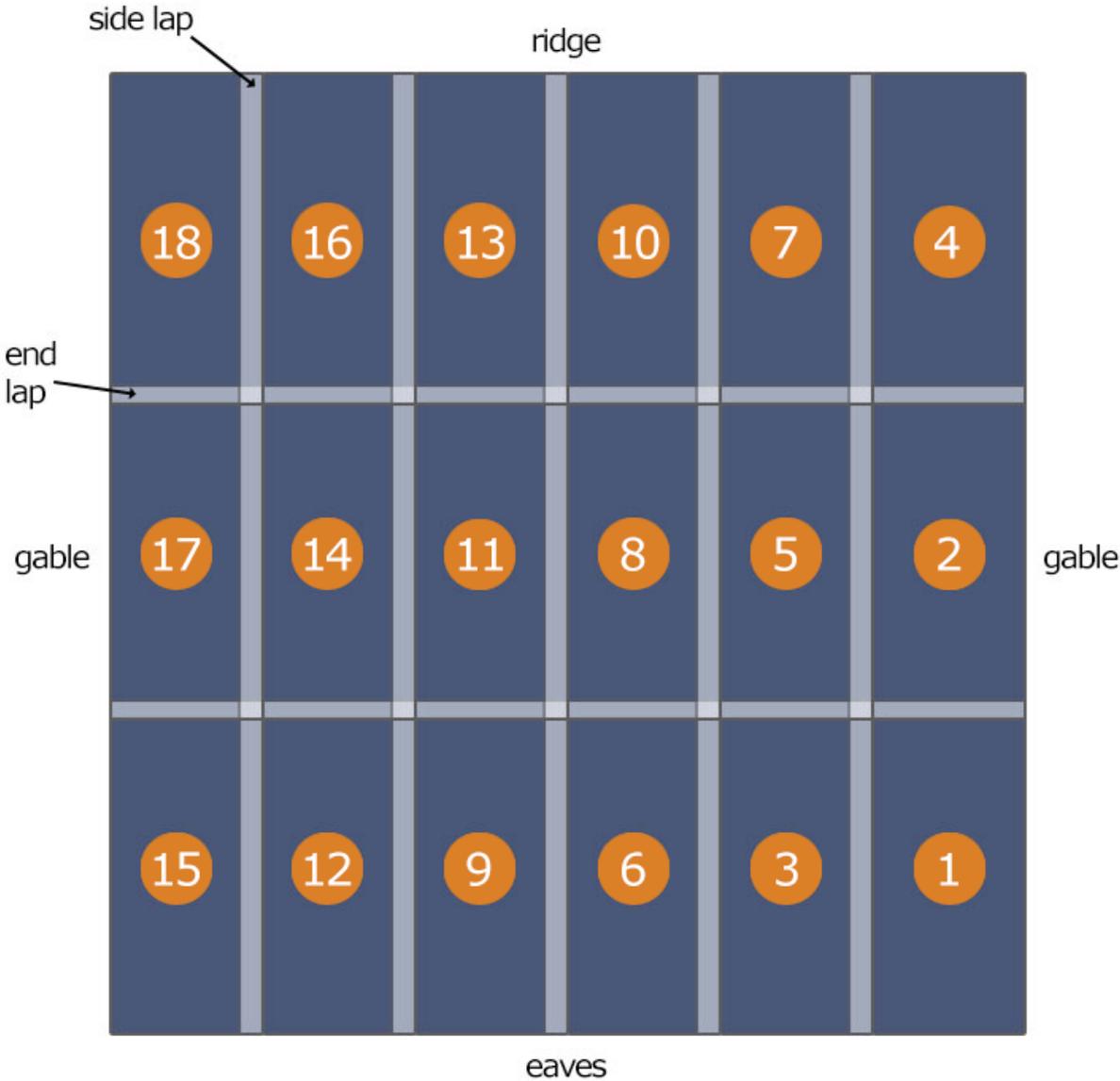
Three runs of sheets from ridge to eaves left to right lay (L/R)



quick tip

Prevailing wind direction may be used to determine whether you lay your roofing sheets left to right or right to left. Please bear in mind, however, that wind directions can change and the decision on the laying of sheets is ultimately up to the fitter.

Three runs of sheets from ridge to eaves right to left lay (R/L)



quick tip

It is always a good idea to not fully fix when laying the first sheets of your roof, until you are sure they are correctly aligned. Once you have checked and are confident the sheets are aligned fix down each sheet securely. This will minimise the chances of incorrect fixing positions and misaligned sheets.

Overlapping sheets

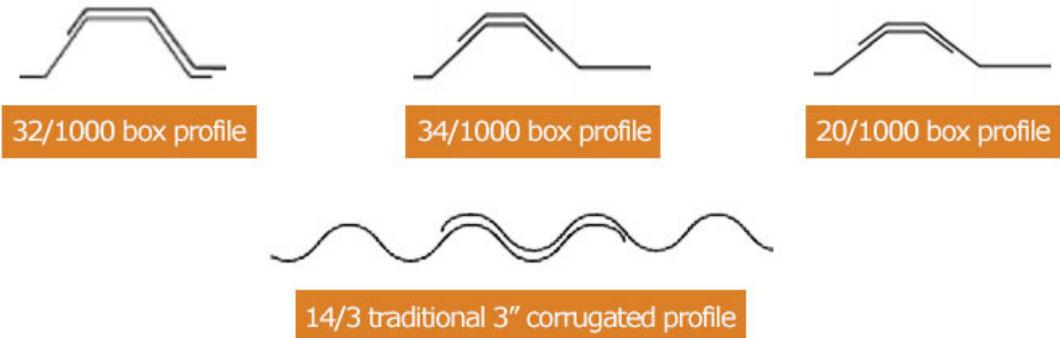
Side laps

Side laps are created when you lay the sheet side to side. You must always remember to lay the overlap detail over the previous sheet. Overlap details are the shorter unfinished sides of the sheets which help prevent capillary action drawing water in through the overlaps.

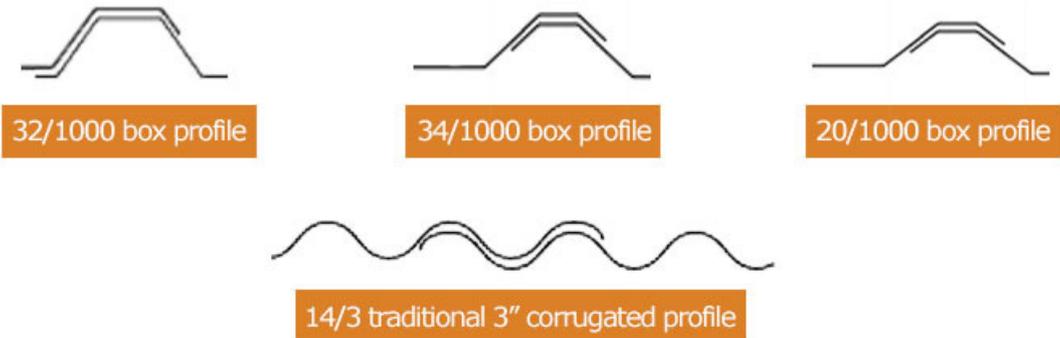
Please be aware that you can overlap sheets by additional corrugations if you need to reduce cover width rather than cut sheets down the full length.

Below you will find examples of side lap details for our most popular profile types.

Left to right lay (L/R)

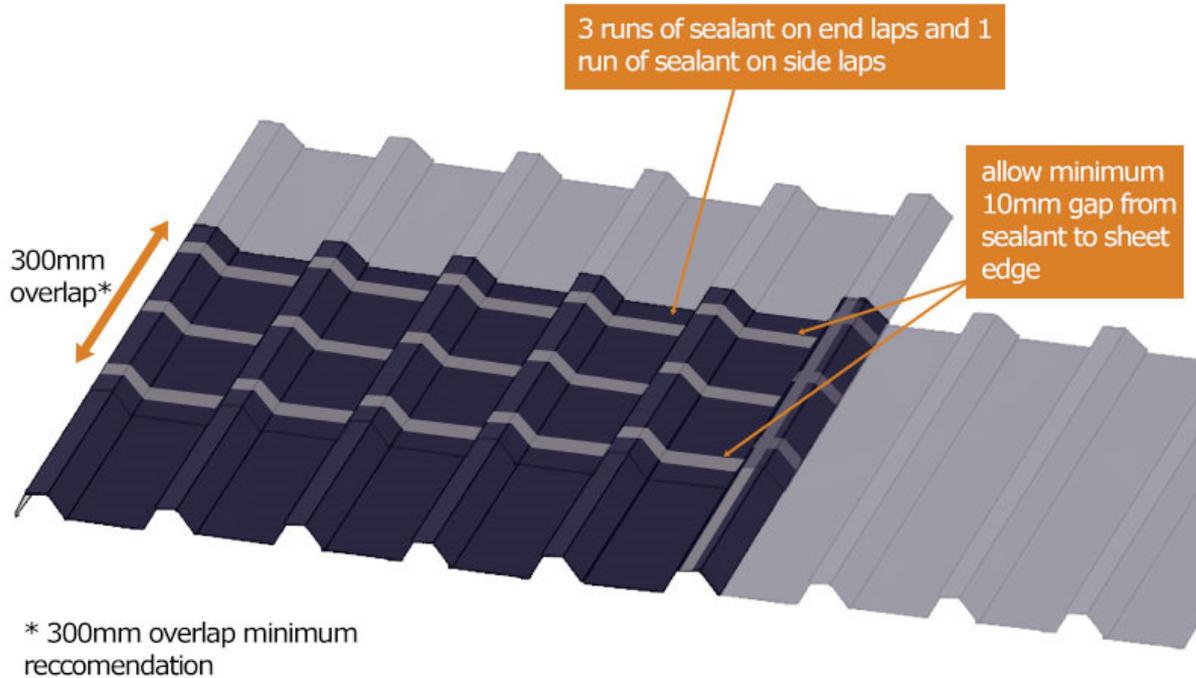


Right to left lay (R/L)



End laps

If end laps are required you should allow 300mm minimum overlap, sealed with butyl sealant tape 10mm from the edge of each overlapping sheet as well as in the middle of the overlap. Any end laps must be supported by a suitable purlin.



Overlapping anti-condensation lined sheets

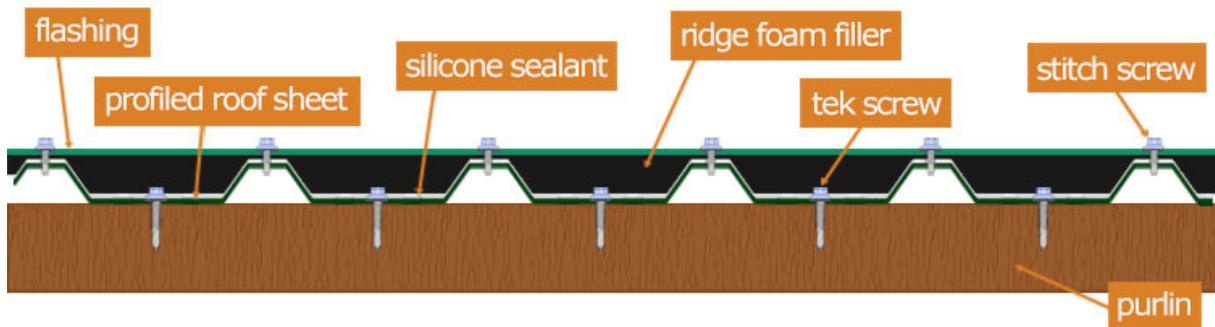
When using anti-condensation lined sheets it is very important that you remove the liner on any part of the sheet that is going to be overlapped. This will ensure that the liner will not draw water into the building. The most effective way to remove anti condensation liner is to burn it off with a heat gun. When burning the liner it will turn black meaning that its absorbent properties will be negated. Alternatively you can scrape the liner from the sheets or coat it with a varnish and allow it to dry prior to fitting.

Gaps at eaves and ridge

Foam fillers should be used to fill the gaps at the ridge and eaves ends of sheets. Eaves fillers fitted underneath the sheets whilst ridge fillers are fitted on top of the sheets and underneath the flashing*. Foam fillers are supplied in pairs with a ridge and eaves profile for each sheet.

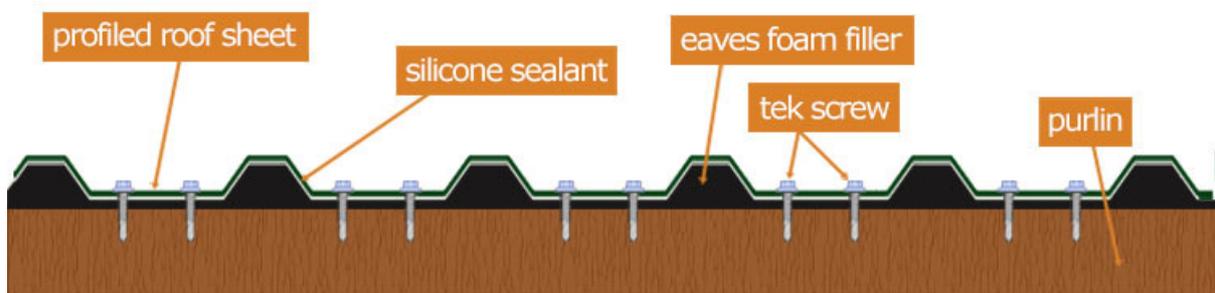
For added protection foam fillers can also be bonded to the sheets using a waterproof sealant such as silicone.

Fitting foams at the ridge



* Whilst not advised, if you are not using a flashing at the ridge end of a building you can use a foam underneath the sheet. Please be aware that you will need to double the amount of foams ordered for box profiles.

Fitting foams at the eaves



Fixings & fasteners

We recommend the use of our self-drilling TEK screws with 5/16" hexagon heads and 19mm sealing washers, for fixing your roof.

The main fixings are used to transfer all the loads acting on the cladding back to the supporting structure and to form a watertight seal. These should be long enough to get a secure fixing into your purlins. Fixings consumption should be calculated as a minimum of five per m², exact fixing requirements will change depending the roofing scenario.

We supply fixings for timber, light section and heavy section steel in varying lengths to suit your chosen profile.

Box profile sheet fixing

Trapezoidal profiled sheets should be fixed through every valley/pan (lowest point of the profile at every purlin, with extra fixing being used at the ridge and eaves profiles for added strength. When fixing through the sheet directly into a timber purlin a 32mm timber TEK screw is recommended. When fixing through the sheet directly into a steel purlin a 25mm light section TEK screw or 35mm heavy section is recommended.*

3" traditional corrugated sheet fixing

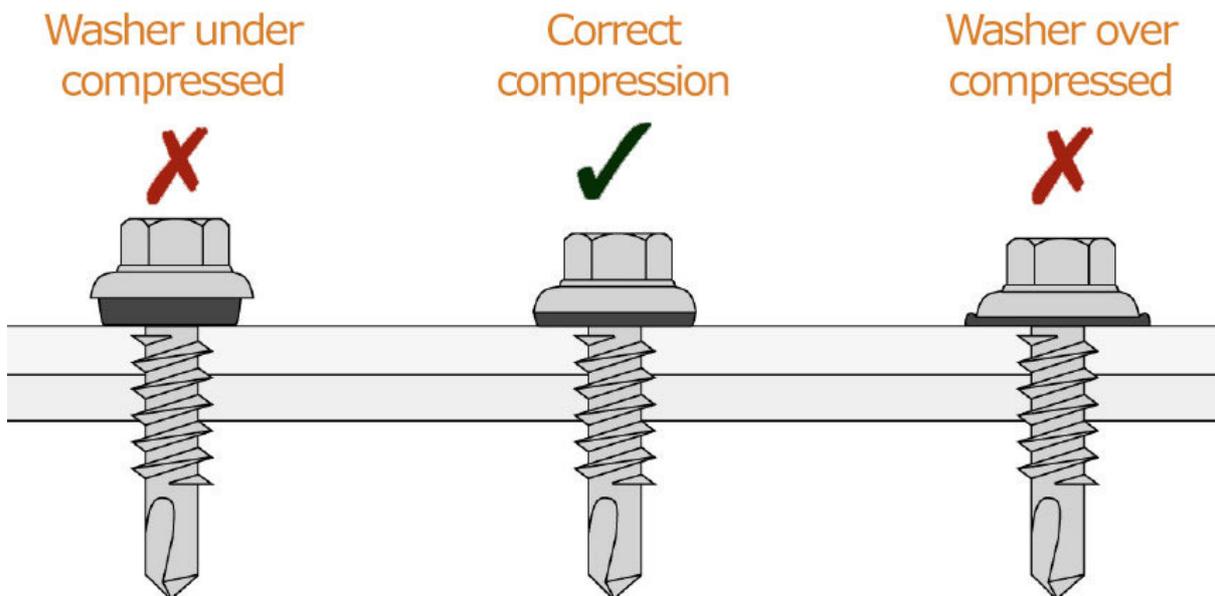
Sinusoidal profiled sheets are normally fastened using longer screws through every second or third crown (highest point of the profile) to permit free drainage when used in roofing applications. Corrugated metal profiles for walling applications may be valley fixed providing the sealing element is designed and shaped to ensure a seal against the curved valley profile. When fixing through the sheet directly into a timber purlin a 65mm timber TEK screw is recommended. When fixing through the sheet directly into a steel purlin a 50mm light section or heavy section is recommended.*

Stitch screws

Stitch screws are smaller secondary fasteners and should be used for sheet side laps and the securing of flashings and ancillary components to the sheeting. Stitch screws are used for metal on metal fastening and do not require anchoring to a purlin. We recommend that stitch screws should be run every 300mm to 600mm along any metal joints.

* When fixing through additional materials before hitting a purlin (e.g. insulation or plywood boards the screw length may need to be extended. You will need to discuss your individual requirements with our technical team prior to placing an order)

TEK screws washer compression





quick tip

Using string stretched across the purlin line will ensure your fixings will not miss the purlin.

Alternative fixing methods

Hook bolts

Used more frequently in the early years of metal profiles, are not generally recommended today for metal roof sheeting largely due to the availability of self-drillers and tappers, as well as the safety risk to operatives associated with their method of installation.

Rivets

Rivets are generally used for temporary or internal cladding and are not generally suitable for roofing.

Flashings

Flashings are manufactured from folded flat steel and are used to cover joints between sheets and also where the sheets meet a wall or gable end. All flashings are three metres (10ft) in length.

All our flashings are manufactured from heavy duty 0.7mm and come as standard with a welged safety edges, which is a folded edge that strengthens the flashing.

As well of our standard range of flashings we can also manufacture custom flashings. If custom flashings are required please [contact us](#) to discuss your requirements in more detail.

Please see below for an overview of our most popular flashings:

Ridge flashing



Ridge flashings are used on an apex roof to finish and protect the join along the ridge.

We supply ridge flashings at 3m lengths with 200mm x 200mm wings the ridge angle can be adjusted at no extra charge. We can also adjust the wing dimensions to suit your requirements.

Ridge flashings are fixed along the ridge line using stitch screws every 300mm to 600mm. The gaps under the ridge should be filled with foam fillers unless anti-condensation lined sheets are used. If multiple ridge pieces are required a minimum of 50mm overlap should be allowed for.

Bargeboard



Barge board flashings are used at the end of a run of sheets to trim and seal off the edge of a roof. Barge boards can be used at gable ends of Apex roofs to deflect wind, protecting the sheets from lifting. They can also be used as corner flashing on walls and as trim flashing for doors and windows. We supply barge board flashings with 200mm x 200mm and 200mm x 100mm legs at a 90° angle. Angles can also be adjusted at no extra charge to create a mono ridge bargeboard. (Used at the ridge end of a mono pitch roof and folded to follow the roof pitch to ensure a neat finish)

Bargeboard flashings are fixed on top of the sheets using stitch screws every 300mm to 600mm. If multiple bargeboard pieces are required a minimum of 50mm overlap should be allowed for.

Wall abutments



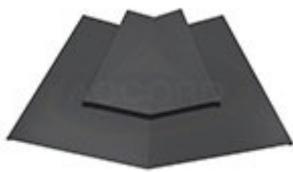
Wall abutments are similar to barge boards but are used when you need to trim and seal steel sheets that finish against a wall. The finish is on the reverse side to barge board but the dimensions and angle are the same. Wall abutments can also be used as internal corners for walls.

We supply standard abutment flashings with 200mm x 200mm legs at a 90° angle. If you need to match a roof pitch angles can be adjusted at no extra charge.

Wall abutments are fixed on top of the sheets using stitch screws and to the wall using masonry screws every 300mm to 600mm.

If multiple wall abutments are required a minimum of 50mm overlap should be allowed for.

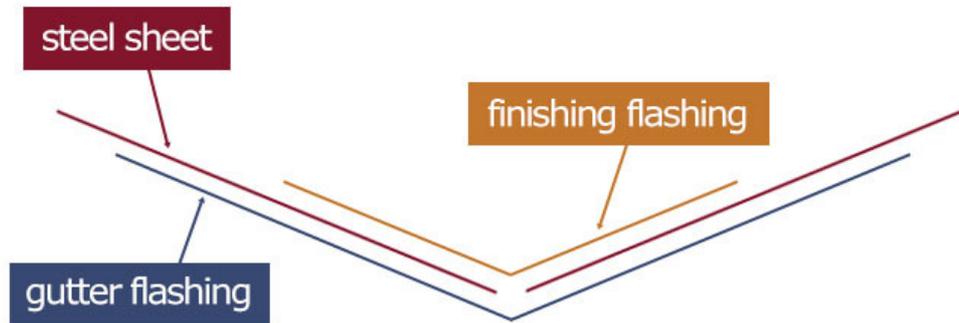
Valley flashings



Valley flashings are used where two pitched roofs meet forming a valley. We supply a two piece valley flashing solution. The larger piece sits below the sheet and acts as a gutter, allowing water to run down the valley. The smaller piece sits on top of the sheet to neatly finish the joins. Our valley flashings are folded to order to match the two adjoining pitches. You can select your internal angle to suit.

We supply valleys flashings at 3m lengths with 200mm x 200mm wings (valley gutter) and 100mm x 100mm wings (top flashing) folded to the internal angle to match your adjoining roof pitches. Our most popular internal angle is 150° but you can select any angle you require.

Valley flashing installation help



We highly recommend that you measure the valley angles prior to ordering as adjusting on site can be quite difficult.

Two piece valley flashings are fixed underneath and on top of the sheets using stitch screws every 300mm to 600mm. If multiple two piece valley flashing pieces are required a minimum of 50mm overlap should be allowed for.

Hip flashings



Hip flashings are used on hipped roofs to finish and protect the join along the hip. We supply hip flashings with 200mm x 200mm wings folded to the internal angle to match your adjoining roof pitches. Hip flashings are folded to suit your requirements.

We highly recommend that you measure the hip angles prior to ordering as adjusting on site can be quite difficult.

Hip flashings are fixed on top of the sheets using stitch screws every 300mm to 600mm. If multiple hip flashing pieces are required a minimum of 50mm overlap should be allowed for.

Eaves flashings



Eaves flashings are attached underneath the roofing sheets at the eaves (gutter) end of the run to achieve a decorative finish across the wall. The internal angle of the flashings can be adjusted to match the roof pitch.

Eaves flashings are fixed underneath the roof sheets at the gutter end using stitch screws every 300mm to 600mm. If multiple eaves flashing pieces are required a minimum of 50mm overlap should be allowed for.

Protrusions through sheets



In certain instances you may need to cut sheets to allow flue pipes or ducts to protrude through the roof. In these instances a pipe flashing will need to be fitted.

You must ensure that adequate provision is made for the drainage of all valleys (pans) and corrugations.

Pipe flashing kits are available upon request, please contact one of our sales team to discuss your requirements in more detail

Ongoing care

We highly recommend that you inspect your roof on a regular basis. Your roof should be kept free of corrosive substances and debris such as leaves to ensure longevity.

Areas that have become marked can be cleaned up using soap and water. We do not advise the use of alcohol based cleaners or abrasive cutting compounds such as T-cut especially on polyester paint sheets as they may remove the paint.

Over time it may be necessary to use touch up paint on areas that have become exposed to the elements through general wear and tear. Tins of touch up paint can be purchased at point of order if you wish to get as close a colour match as possible to your original sheets.

British Standards & Publications

This guide has been constructed using the information from the following sources:

BS 1494: Part1: 1964

Specification for fixing accessories for building purposes Fixings for sheet, roof and wall coverings

BS 3083: 1988

Specification for hot-dip zinc coated and hot-dip aluminium/zinc coated corrugated steel sheets for general purposes

BS 5268: Part2: 1991

Structural use of timber. Code of practice for permissible stress design, materials and workmanship

BS 5427: Part1: 1996

Code of practice for the use of profiled sheet for roof and wall cladding on buildings

BS 5950: Part9: 1994

Code of practice for stressed skin design

BS 6399: Part2: 1997

Code of practice for wind loads

BS 7543: 1992

Guide to durability of buildings and building elements, products and components

CP3: Chapter V: Part2: 1972

Code of basic data for the design of buildings. Wind loads

PD 6484: 1979

Commentary on corrosion at bi-metallic contacts and its alleviation

NFRC

Profiled sheet metal for roofing and cladding. A guide to good practice Third Edition 1999. Published by E N Spon on behalf of the National Federation of Roofing Contractors

HSG 33

Health and Safety in roof work. Published by the Health and Safety Executive