ASHZIP™

installation guide

flexible standing seam roofing systems

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ASH•LACY

Contents

The Ashzip System

Overview

This fixing manual is intended to provide an overview of the procedures pertaining to the installation of the Ash & Lacy Building Systems – Ashzip product. Sheets must be fixed in accordance with this manual, relevant building regulations and project specifications & drawings.

The information contained in this manual is intended as guide for fixing sheets in standard applications. However, it should be noted that this does not take away any responsibility from the fixing contractor and its site operatives. Care and attention should be paid to local ground terrain, location and wind loadings.

The fixing contractor is expected to produce and detail all aspects of the application and provide dimensioned working drawings with material specifications clearly shown. This fixing manual is intended for guidance purposes, with the roofing contractor being the 'expert' on detailing and installation of metal clad roofs.

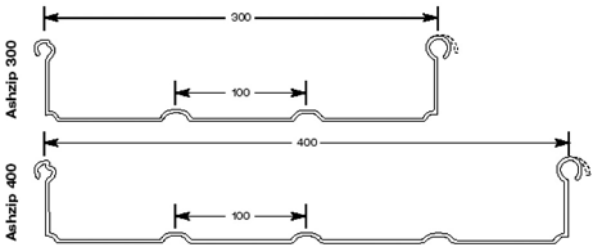
Ash & Lacy are a manufacture only company and as such the roofing contractor is responsible to ensure the adequacy, quality and securing of the installation against weather conditions. The roofing contractor is to provide adequate supervision of all of its site labour.

Specific advice can be sought from our technical department regarding warrantees. CAD details and full technical design guidance also being available.

The Ashzip System

Ashzip is a standing seam roofing system, which is designed for use on roof pitches down to 1.5 degrees. The sheets are fixed onto halter clips and then locked into position using a zipping machine. The following sheet then hides the seam overlapping the clip. Fasteners are positioned below the roof covering at the base of the halter and are therefore concealed from view.

The Ashzip profile is available in cover widths of 300 and 400mm and can be produced in a tapered format to create a radial roof on plan.



Movement of the top sheet due to thermal expansion is catered for by a sliding action over the head of the halter. Any joints or apertures in the roof should therefore be designed to ensure that the movement of the sheets is not impaired in any way.

This guide relates to standard materials such as aluminium and steel. Contact Ash & Lacy for information related to non standard above steel support constructions or for non standard metals such as zinc and copper.

For further information on thermal expansion, please contact our Technical Department.

On site practices

Sheet lengths & Site Rolling

Ashzip can be produced in a factory environment or on-site depending on specific requirements, site layout and storage facilities.

Please refer to the site rolling method statement for site requirements and parameters.

If there is a requirement to produce sheets on site using the mobile roll former cabin suspended from a crane, it is the responsibility of the contractor to ensure that the carrying capacity of the crane is sufficient. This can be done by a visit to site from a reputable cranage contractor.

Please note Ash & Lacy Building Systems do not provide handling labour for site rolled products, as this is the contractors' responsibility the amount of site hands required is detailed in the site rolling method.

Off-loading on Site

When sheets are delivered to site a suitable offloading area must be made available. This not only applies to the delivery of sheets but to all other components that may be delivered separately. Access to site must also be checked and confirmed by the roofing contractor as Ashzip can be delivered in high loads due to its low weight. Ash & Lacy will not accept liability for delays caused by poor site access.

It is the responsibility of the contractor to ensure that a suitable means of off-loading sheets is made available. Prior arrangements should be made with regard to manpower, cranes, spreader beams and slings. It is the responsibility of the contractor to offload sheets. Any special packaging requirements should be put in writing at the ordering stage so that we can advise any additional charges that may be incurred.

The roofing contractor should ensure that where lifting beams are required, current up to date certification is available from the lifting beam supplier.

The maximum over hang for the lifting beam relative to the sheet packs is 4m.

When sheets are produced on site attention should be paid to the direction in which the Ashzip sheets are roll formed. The direction of lay that the sheets come out of the machine is set.

Pre-Curved Ashzip Sheets

Additional care should be taken when handling curved sheets and placing them into position on the roof. Extra slings will be required to prevent deformation of the sheets as they are lifted into position. If the radius of the curve is tight sheets should be lifted individually or in smaller bundles of 4 or 5. In most cases curved sheets will be sent to site in smaller packs.

Checking Materials Upon Receipt

Wherever possible sheets should be checked for any discrepancies upon delivery and all packaging labels checked against the delivery note. As it is not always possible to check dimensions straight away, **any dimensional errors must be reported ASAP (Refer to A & L standard terms and conditions)**

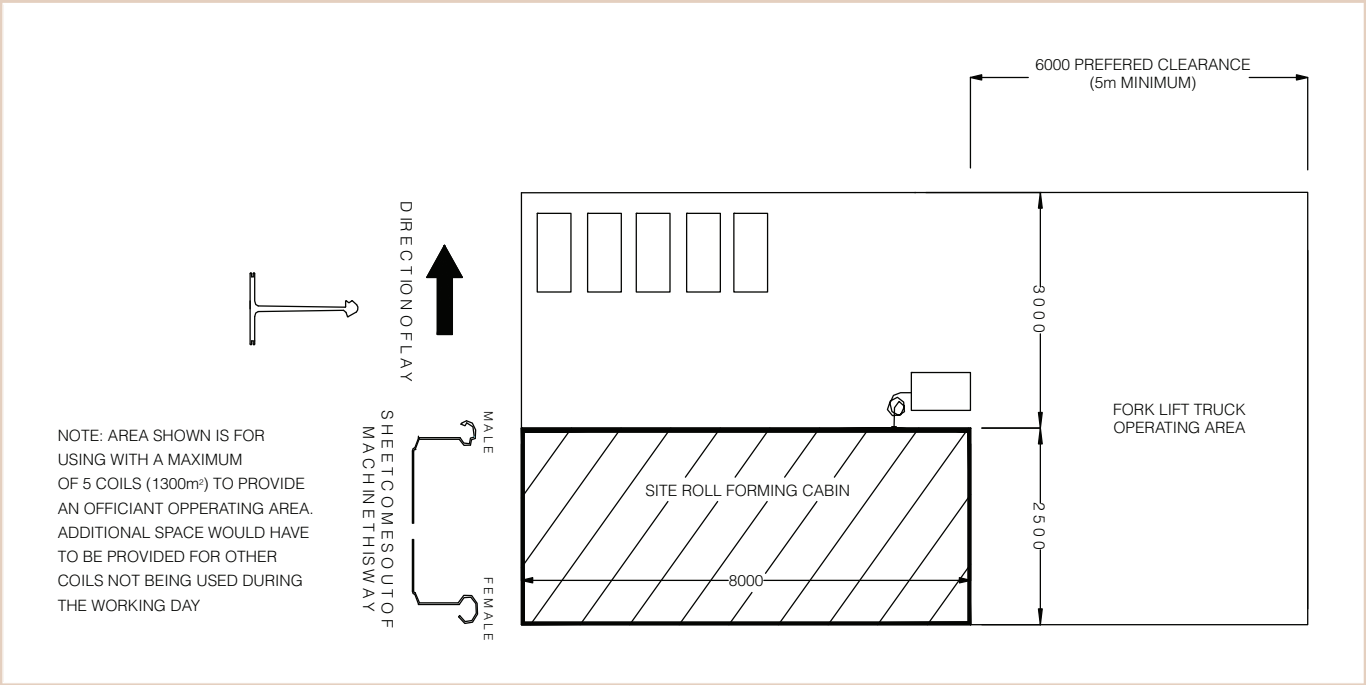
Storage On Site

Wherever possible sheets should be stored undercover. This can help to prevent a build up of dirt and condensation, which can lead to unsightly staining. Sheets should also be stored on a slight angle on timber bearers to allow for drainage and the circulation of air.

Whenever sheets are stored on the roof structure itself, the contractor must ensure that the load carrying capacity of the structure is sufficient as packs can weigh up to 2 tonnes. Always take care when opening packs that have been stored on a roof as there is a possibility of the sheets sliding.

Wherever possible do not store packs of sheets for long periods of time as this can lead to condensation build up inside the packaging, which in turn can lead to staining.

Note: Sheets with acoustic membranes should not be stored with the membrane face to face. The should be installed upon receipt on site.

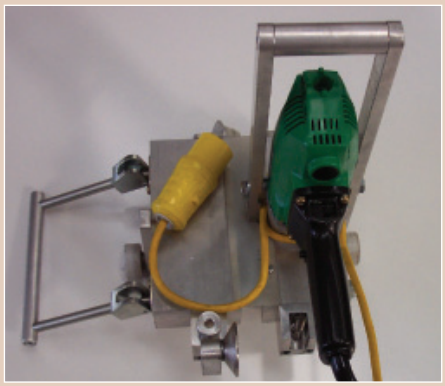


Installation tools

Before commencing any work, the contractor must check that all tools and machinery required for fixing the Ashzip standing seam roofing system are on site and in working order.

Installation tools

1. Zipping machine
2. Hand seamer
3. Ridge turn up tool
4. Eaves turndown tool
5. Right hand hip turn up tool
6. Left hand hip turn up tool
7. Halter Set out template



Zipping Machine

Hand crimping tool

Ridge turn up tool

Eaves turn down tool

Extruded halter and Ashgrid spacer

Components & installing with Ashgrid spacer system build up

1. Extruded Halters

The Halter is the component, which the Ashzip top sheet connects to. The notched side of the halter **always** faces the direction lay. In the illustration shown the direction of lay on the roof would be left to right. If Halters are fixed with the notched side of the halter facing the wrong way the sheets will not zip-up properly and the seams will run out of line. The Ashzip will not be secured properly against wind uplift if the clips are not fixed correctly.

Extruded Halters are available in two standard heights 85mm and 120mm. Further limited stock sizes are available in the following depths 71mm (requires special fixings) 95mm 150mm and 205mm

2. Ashgrid spacer support

AG40 Bar

Ashgrid AG40 is the standard support bar that is used with the Ashgrid system. Manufactured from 1.25mm thick high yield galvanised steel and supplied in lengths of 1m, 2m & 3m incorporating spigot ends for easy on-site connection.

Fixing Brackets

Brackets are supplied in various heights to suit the depth of construction depending upon the required thermal performance. Brackets are manufactured from 1.6mm thick galvanized steel to BS EN 10142 and are supplied with a thermal break pad below.

For fixing brackets into thin gauge steel use Ashfix BMLS25 fixings. To ensure maximum sheet to bar fastener performance use Ashfix BMLS25 with G16 washers for walls, G19 washers for roofs and G29 washers for rooflights.

Fixing Method

1. Offer the bracket to the bar at an angle from the non-spigot end.
2. Slide brackets along the bar to the desired fixing positions.
3. Snap each bracket upright to lock into position at 90° to the bar. (Brackets may be repositioned by pushing the bracket back to an angle and sliding along the bar as in step 1). Install two inclined fasteners ensuring the bracket does not twist in the bar.
4. Making certain there is a bracket within 100mm of a spigot end, install other brackets to match the liner module up 1m centres maximum. (Bracket centers may need to be reduced in areas of high wind suction or heavy snow loading).
5. Engage the open end of the bar onto the spigot and push firmly for continuity and easy alignment

Anti Sway Brackets

Roof cladding is at its greatest risk during the installation stage when it is not restrained and fixed to the supporting structure and is subjected to loading from access traffic, temporary loading and heavy sheet packs. This combined with drag forces from high winds could compound the problem further. With this in mind Ashgrid anti-sway brackets should be incorporated at loading-out positions. Loading out of materials should take place over the main rafters after consultation by the roofing contractor with the main contractor and project engineer.

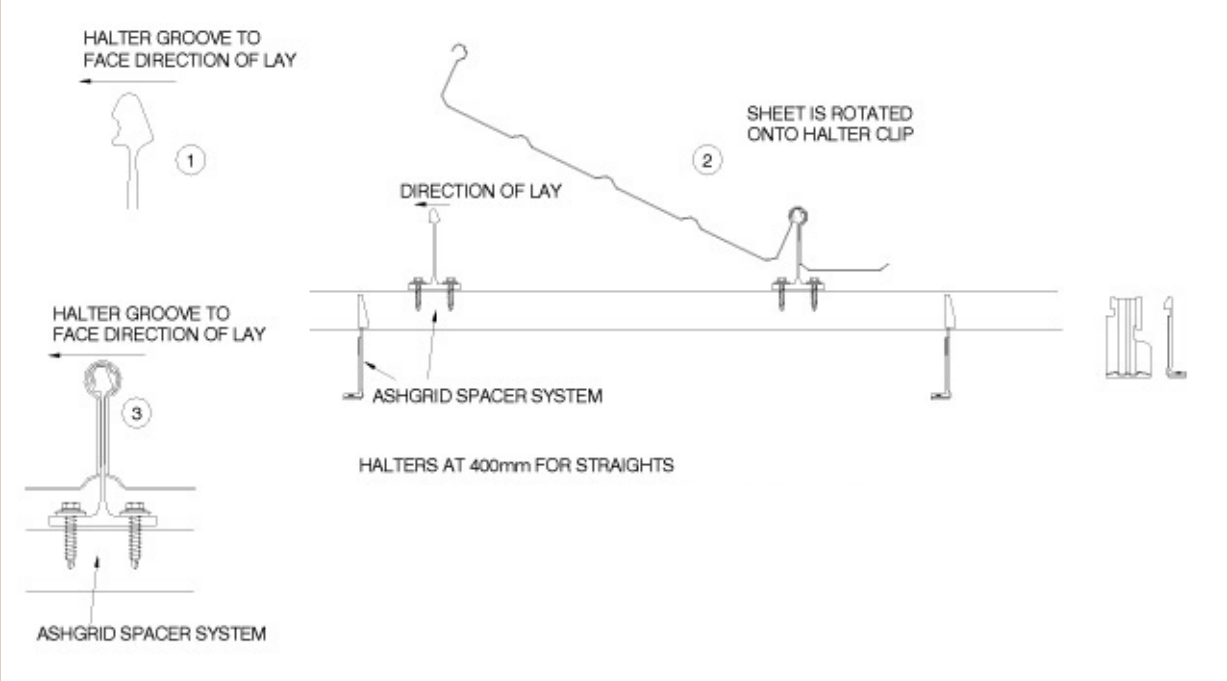
General setting out of halter clips

Halter clips are usually set out on a modular basis and fixed through pre-drilled holes in the base of the clip. Also refer to following pages for the full height halter fixing arrangement.

Attention should be paid to manufacturers fixing recommendations regarding widths of drilled hole diameters and torques. Setting out templates are required for setting the halter clips. There are two types of template, one for each type of halter clip.

Halters are generally set out at 400mm centres for straight and curved roofs.

For roofs where a combination of spacers is required, do not use both types of template for setting out as manufacturing tolerances will cause creepage between clip types.



Direction of Lay

Sheets are laid in one direction from one side of the roof to the other with the halter clip positioned facing the direction of lay to allow the crooked seam of the Ashzip to snap over the halter head. If the halter is pointing in the wrong direction the sheets will not zip-up correctly and ripples in the seams will appear.

Three step sequence

Above is a three step sequence sketch.

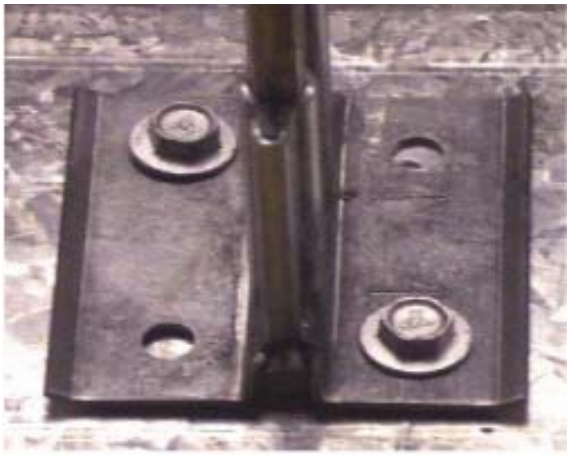
Full height halter spacer system

Ash & Lacy also offer the flexibility of a single height halter option. Developed exclusively for use with the Ashzip standing seam roofing system. The use of this thermally efficient halter bracket is designed to offer an easy to install solution where low U-values are required. The halter bracket is manufactured in heights of 245mm, 295mm and 345mm to offer U-values of 0.25, 0.20 and 0.16 W/m2K respectively. This method of construction significantly reduces installation time as a single component is fixed straight through to the purlin when used in conjunction with a standard liner profile.

Please note that this spacer system should not be used with tapered roof arrangements due to setting out.

Fixing arrangements

There are two fixing arrangements for the halter clip. The 245 halter requires 2no fixings, FIXED DIAGONALLY as shown below.



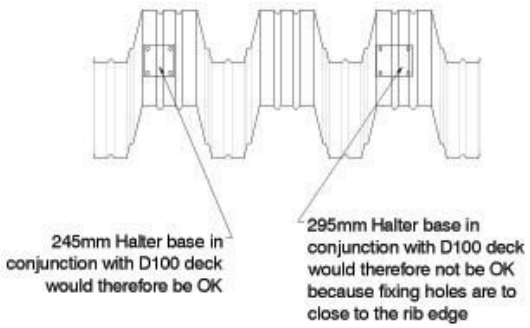
The 295 and 345 halters require 4no fixings.

The bearing surface must be at least the width of the halter base. The 245mm halter has a 60x60mm base, and the 295 & 345 halters have a base of 60mm wide by 75mm long.

When fixing to a structural decking profile the full height halter clip can be connected to the deck by means of a top hat section. The top hat can be either continuous or it can be cut and fixed in short lengths in a diagonal pattern as shown.

The image right shows halters fixed directly to the deck. This installation method can only be adopted when the deck is 1.2mm thick or more sure to fixing pull out values into this gauge materials.

When fixing directly to a decking profile care should be taken to avoid the stiffening ribs of the deck. This should be done prior to material order. See diagram:



Full height halter spacer system

Setting out of halters

Both halter spacer systems should be ordered with the relevant setting out template. The setting out of the full height halter is shown below.

Using the template

1st two halters

The leading edge of the roof should be fixed without using the setting out template, instead use a straight edge such as an ashgrid bar, a zed flashing or string line to ensure that all of the leading edge halters are in line up the slope.

Following halters

Place the halter into the required position and lock into place by slotting the setting out template over the over the previous halter and the one that is about to be fixed.

Using one hand place pressure on the centre of the setting out template and with the other fix through the outside edge of the halter.

Remove the setting out template now that one side of the halter is fixed and fix through the other side as required.

Complete this operation for the following halters until complete.

We do not recommend installing the whole roof with halters prior to commencing sheet installation.

Halters should be layed several banks at a time so that any discrepancies or installation errors can be made as work proceeds.

Operatives should ensure they are using the template over the base of the halter and not the head.

Purlin Marking out

Because the liner profile can be used as a setting out guide for the full height halters, the accuracy of the liner installation is more critical. Therefore during installation of the liner the purlins should be marked at 1m centres relative to the last liner rib to ensure cover width is maintained and sheet creepage does not occur.

Combinations of spacers

In some instances it may be a requirement to use and Ashgrid spacer and small halter at the eaves to support the back leg of the gutter, whilst the rest of the roof is specified with full height halters. In such instances the small halter at the eaves should not be set above the Ashgrid using a template. The small halter should be aligned using a straight edge or string from the first two full height halters up slope.

Verge components

Method

The verge clip component is used to secure the leading edge seam of the roof. It is fixed onto the side of the Halter and over the top of the verge channel. It is not fixed through the verge channel. This is to allow any thermal movement to be accommodated by the sliding action of the seam. Expansion must be unimpeded by the verge detail and unwanted fixed points must be avoided.

The verge tolerance clip is riveted through the vertical leg to the verge channel. The tolerance clip then provides a flat surface for fixing the verge flashing to. When fixing, care must be taken to avoid fixing into the side wall of the Ashzip seam, which would give an unwanted fixed point.

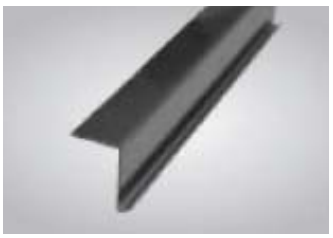
The verge channel is used to retain the leading edge seam. There is no through fixing between this component and the Ashzip seam - it is simply placed over the first seam.

NB. The first seam must be zipped up before the verge channel is placed into position

The verge detail with Full height halter clips also incorporates a verge tie between the first two halters along the verge and verge abutments. Refer to Ash & Lacy's standard details.

Verge clip

Verge channel



Verge tolerance clip

Verge tie

Verge to verge fixing sequence

Note: Do not set out the halters for all of the roof at once. Set out in banks of 6 or 7 halters, this allows any mis-alignment of halter to be corrected as work proceeds

Tolerances detailed in this section are set to allow free movement and expansion over the halter clip. Ashzip halter clips must be set out to the tolerances shown below. If the halter clips are set out of plane or alignment they will prevent the sheets from zipping up and from naturally expanding, causing unwanted fixed points.

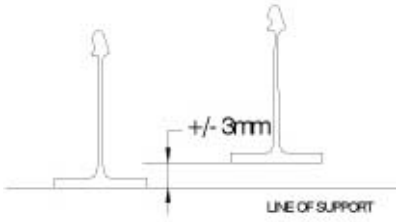
1. Firstly set out the halter clips starting at the datum point required. This is normally shown by the fixing contractor on the verge detail drawing and is a position from the gable portal or framework. The set out of halter clips must be accurate to prevent the seam rippling and running out of line up the slope. On shallow pitched roofs care should be taken regarding the thickness of build up of components at the eaves. Ponding can occur where the components are built-up and force the sheet above its natural plane.

Halter Alignment

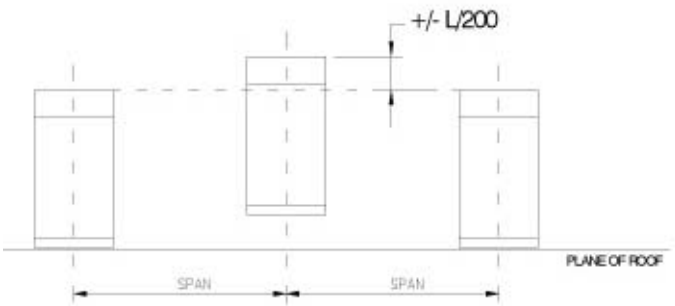
Halters must be set out perpendicular to the roof line

Note: Mis-alignment of halters along the roof slope can cause fixed points which may lead to or exaggerate dishing of sheets

Halter clips must be set out with a variation of no more than +/- 3mm from clip to clip



Variations in halter clip alignment is limited to +/- L/200



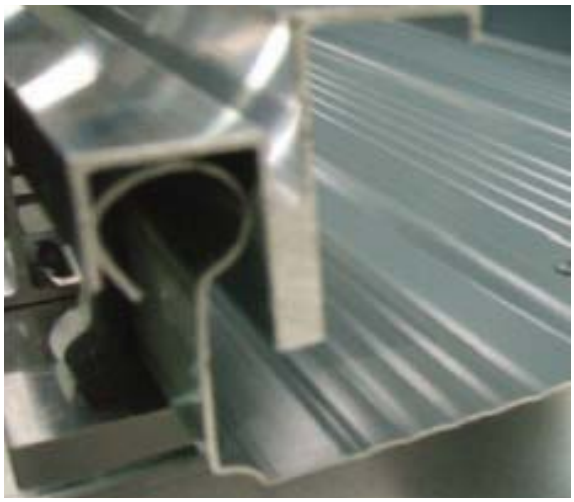
2. Next lay the first sheet over the halter clips and snap the crooked seam into position. Then close the head of the large seam with the zipping machine. **When zipping, the end of each seam must be started with the hand-crimping tool (see image to the right).**

3. This allows the zipping machine to clamp into position at the bottom of the slope.
4. Secure the sheet by placing the verge channel over the wide seam and then fix the verge clip to the side of the halter clip. The verge channel is riveted to the top of the seams at 800mm centres (approx) care should be taken to ensure that rivets do fall within 50mm of the halter location. This will ensure expansion and contraction can occur. Verge clips should be positioned at every halter clip position along the gable (The verge clip must be used to secure the first sheet against wind uplift and should be used to temporarily secure the last sheet at the end of a days work). The verge tolerance clip is riveted through the verge channel to provide a bearing point to the verge fabrication.
5. Fixed points can now be created using rivets, bolts or tech screws. The type of fixing to be used depends on the load created at the fixed point.
6. Please contact our Technical Department for further information and assistance regarding fixed points.

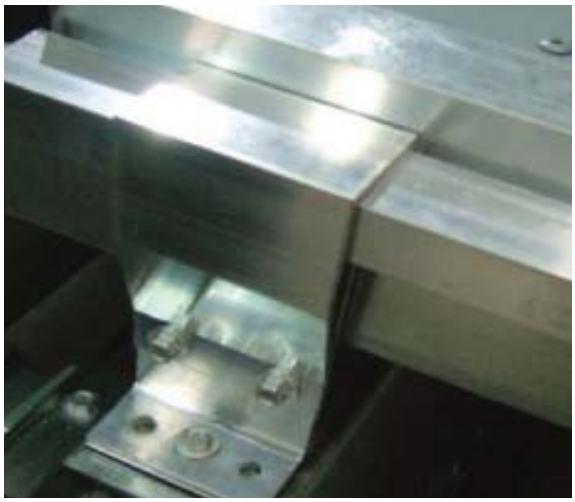
Alternate verge extrusion detail

Ash & Lacy's continuous approach to system betterment and development has lead them to introduce an alternative verge component to that of the industry standard. The one piece verge extrusion illuminates the need for the verge channel and verge tolerance clip. This combined component provides a quicker installation and much stronger retaining edge to that available by other system manufacturers.

The verge clip has been modified to contain a hook over element that fits into the combined extrusion slot.



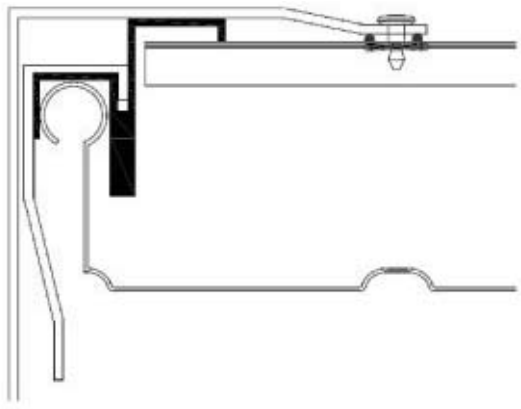
The verge clip simply then fixed to the halter as normal (85mm halter verge clip fixed downwards in to support).



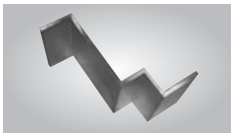
Ridge interface

The ridge retainer, components and flashing tuck under the verge extrusion to form a neat detail without the need for an expensive interface flashing.

The verge flashing is then returned and sealed on the ridge and the two are riveted together.

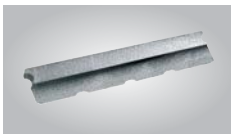


System components



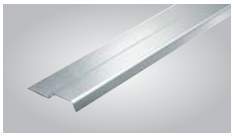
Single Skin Verge Clip

In constructions where an 85mm Ashzip Halter is to be used (generally single skin applications), a special 85mm verge clip must be used. Instead of fixing to the side of the Ashzip halter bracket the verge clip is fixed to the supporting structure. (All other standard components remain the same).



Ridge Shroud

The ridge shroud is used to cover the filler block. It provides an aluminium finish and prevents pests attacking the filler block. It is held in place by the ridge retainer. This component can be produced in various colours to match the roof sheet when required.

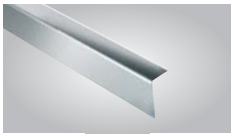


Ridge Retainer

The ridge retainer is used to hold the ridge closure flashing/shroud in place. It is fixed at every seam position along the roof.

Ridge Filler

The ridge filler is located inside the ridge closure. It is not sealed to the Ashzip and forms a rain barrier in conjunction with the end of the Ashzip sheet being turned up. The ridge should be fully supported below the filler and shroud to prevent dishing of the Ashzip sheet caused by sheet turn up and foot traffic.



Drip Angle

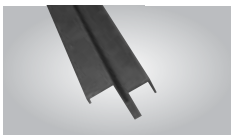
The drip angle is riveted to the end of the Ashzip sheets behind the turn down on the sheet. Use two number type 3W rivets per sheet cover width. Leave enough gap behind the drip to allow for movement caused by expansion and contraction.

Eaves Filler

The drip eaves filler is positioned above the drip angle to prevent rain water blowing inside the standing seam.

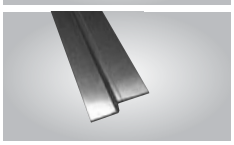
Liner Filler

The liner filler is used to close off the cavity above supports at perimeters. It can be used to assist with the perimeter airseal if detailed and sealed correctly.



Verge Extrusion

This component can be used to replace the traditional two piece verge arrangement for speedier installation. Refer to technical dept for details.

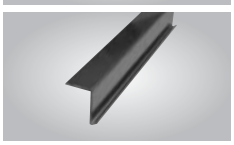


Ridge Support Zed

This component is used to support the ridge flashing. Fixed to every seam.

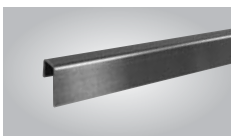
Verge Hook Over Clip

This component is the equivalent to the standard verge clip for use with the combined verge extrusion.



Verge Tolerance Clip

This is used to provide a fixing surface to for the verge fabrication. Is hooks under the long leg of the verge channel. It can be riveted to the channel for ease of installation but the rivet must not penetrate the Ashzip sheet.



Verge Channel

This component fits over the start and end seam of the roof to retain the leading edge. The overlapping seam on the leading edge must be zipped up prior to this component being installed.

Standard Verge Clip

Fixed to the side of the halter clip and used to retain the verge channel. There are no fixings through the verge channel to enable thermal movement to freely occur.

Zipping the sheets

It is essential to ensure that the zipping machine is in good condition and full working order for the Ashzip sheets to be zipped up properly. Also note that the sheets must be zipped up twice. This increases the tension and spring of the sheet, which reduces the risk of oil canning due to foot traffic or naturally curving sheet on site.

a. Check that the correct rollers are installed in the machine (see note g) and that they are clean and free from loose debris and indentations. Different rolls are required in the zipping machine for steel and aluminium Ashzip

b. Check that the tie bars are lubricated and can easily be moved into position

c. Check guide rollers, locking handle and cams for signs of excessive wear

d. Check for signs of damage to cable and discontinue use if damage has occurred

e. When zipping the first seam the zipping machine should be guided up the slope of the roof to prevent it tilting over and damaging the seams or falling over the verge edge. After this the zipper can be guided with minimum effort.

f. The sheets must be zipped up as laying proceeds. **Do not lay several sheets and then zip up.** This is for obvious health and safety reasons and load bearing capacity of the system.

g. Use the correct rollers for the correct material. Stainless steel rollers for stucco embossed aluminium and nylon rollers for coated steel and coated aluminium.

h. Sheets should be zipped up twice.

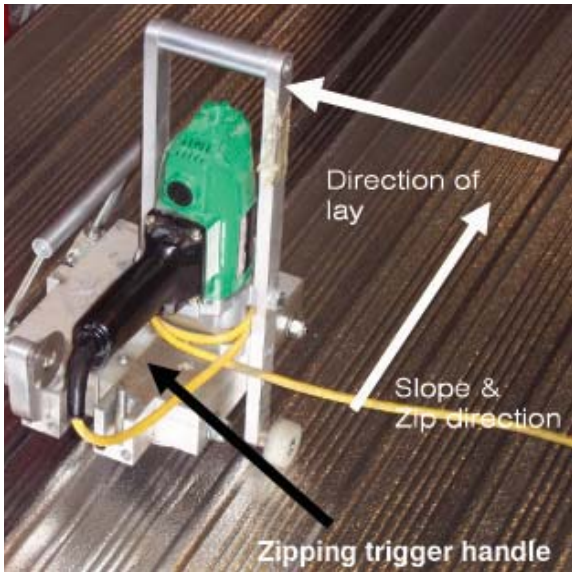
i. The sheets must be zipped in a specific direction on the slope. They must be zipped with the machine trigger handle positioned opposite to the direction of lay. This is indicated on page opposite.

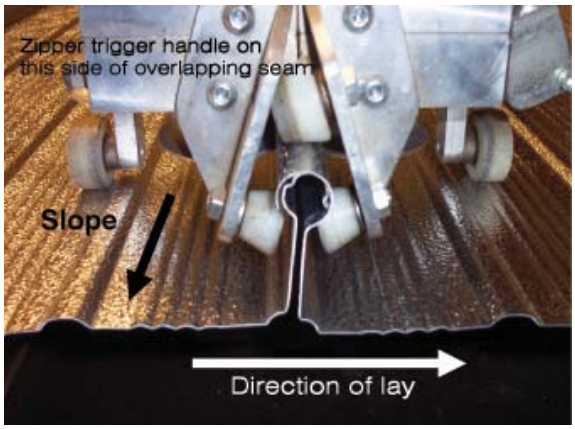
j. An operative should walk in front of the zipper ensuring that seams are correctly connected to the halter and that the overlapping seams are pushed over the underlap without springing back.

k. For painted materials the seam must be wiped down with a soft cloth prior to zipping. The procedure for this is to fully wipe the seam from eaves to ridge as the seam is being clipped to the halter prior to the use of the hand crimper. Once the hand crimper is used the seam should be wiped again where the hand crimper has been used prior to using the zipper. Any small amounts of debris can become embedded in the rollers and cause scratches. Please note that requests for new sets of rolls due to not following this procedure are chargeable.

l. When positioning the zipping machine ensure that rolls do not catch on the front of the seam. This will lead to scratches through indentations and scuffs on the rolls. Any such scuff or indentations must be sanded down immediately prior to zipping with a fine sand paper.

m. Please note that the installing operatives must ensure that the spacer system is correctly perpendicular to the line of the standing seam prior to commencement of installation.





Vertical Ashzip zipping note.

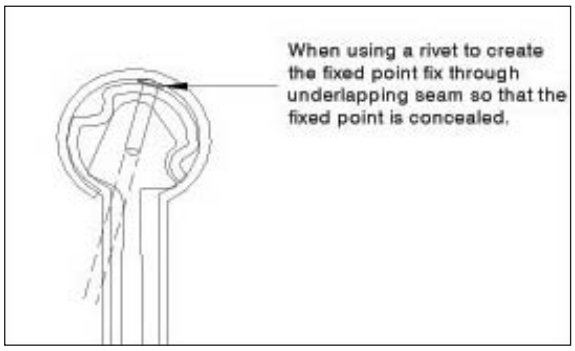
For vertical installations of Ashzip, the zipper must be fully supported when zipping up or down, this is to prevent the zipper running at a dissimilar speed to the motor driving the rolls. If the machine is used in automatic mode, the rolls and the motor will turn at a greater speed than the zipper can lift itself due to gravity, this in turn, will lead to excessive birds mouthing.

Therefore the zipping machine should not be used in automatic mode.

Thermal expansion

Thermal expansion is catered for in the Ashzip standing seam roofing system by a sliding mechanism over the head of the halter. Because there are no through-fixings other than at the ridge or highpoint of the roof, the sheets can freely expand and contract as the temperature increases or decreases.

As the expansion is catered for by a fixed point at the ridge or high point of the roof sheet, the expansion is forced towards the eaves. Allowance should be made between the eaves drip angle and the vertical plane (usually a gutter) to accommodate the possible increase and decrease of sheet length caused by expansion. Having the fixed point at the ridge means that any fixings required can in most cases be concealed behind the ridge flashing and shroud and filler.



Fixed points can be catered for in several ways. The method selected is determined by the load acting at the fixed points

Ridge interface

The force acting at the fixed point will be determined by several factors including pitch, sheet length and location

Types of fixed point

Rivet (for sheets upto 8m long)

If the force acting at the fixed point does not exceed 0.5kN 1no. aluminium blind rivet is sufficient. Two no. rivets can be used per Halter to increase the values up to 0.8kN per Halter. The rivet is normally located through the under lapping seam so that it can be concealed from view by the larger overlapping seam. This type of fixed point is normally only suitable for short sheets. Refer to technical with project specific information

Procedure

Drill a hole through the sheet into the halter clip head to take a blind rivet 11-12mm long. This method is applicable on roof sheet lengths upto 8m

Fixed point for sheets up to 12m

For sheets upto 12m the fixed point can be created by 2no stainless steel tech screws (1no from either side of the sheet upstand) through the sheet upstand and into the halter clip. The fixing should be as low down on the upstand as possible to prevent damage to the zipping machine as it rolls the seam.

Sheets greater than 12m

For sheets greater than 12m we recommend a stainless steel & washered nut & bolt.

Sheets to 14m M8 nut & bolt

Sheets to 16m M10 nut & bolt

Sheets to 18m M12 nut & bolt

or sheets of greater length please refer to Ash & Lacy technical department with project specific information.

Ridge detail

Wherever there is a junction in the roof, an effective interlocking overlap joint should be created by turning the various metal components up or down using a simple tool provided with the system. This has the benefits of being easy to perform, sealant free and easily checked for correct installation.

Sheet turn up

At ridges and hips, the pan of the profile should be turned up (30° to 45°) to form a physical barrier to prevent water from running back over the sheet ends. The roofing contractor should detail the ridge such that there is a reasonable distance between the turn up of the sheet to the centre line of the filler. This should be approximately 200mm. This is to ensure that if any minor dishing occurs to the underside of the filler, that water cannot blow over the end of the sheet.

The end of the sheet should be turned up in-situ on the roof. This means that the roofing contractor must ensure that there is adequate gap between sheet ends or mono abutments to get the turn up tool into place. Particular attention should be paid to the location of the last purlin. It needs to be far enough down slope to allow a turn up and gap to fit the turn up tool into.

The ridge filler and shrould should be positioned in place before the sheet end is turned up.

Supporting the ridge

To prevent dishing under the filler block, whether it be caused by foot traffic or the turning up of the sheet. Ash & Lacy's standard detail is for a fully supported ridge. This will be either by rigid insulation or a support zed off an Ashgrid bar. A full cavity depth zed should not be used as this will promote cold bridging and condensation forming in the void. The preferred method is to use a non combustible rigid insulation to for the full depth of the cavity as the support zed method can lead to a crease line being visible. This detail should only be used where high levels of aesthetics are not a requirement.

Gaps under filler block

A small gap under the filler is acceptable upto 3mm provided there is sufficient distance to the end of the sheet turn up (200mm). Gaps larger than this are not acceptable and must be closed off.

If the ridge is fully supported gaps should not occur under the ridge components.

Note: Refer to the detail on previous pages regarding the ridge/verge interface detail when using the new verge extrusion

RIDGE SUPPORT OPTIONS

U/Values	
Values based on Mineral wool or Glass fibre with a 0.040 Lambda Value	
Halter Depth (mm)	U/Value (W/m2K)
245	0.25
295	0.20
345	0.16

Fixing Spec - BMLS25S16 to light gauge

2no Fixings for 245mm halter fixed diagonally

4no Fixings for 295 & 345mm halter

To be read in accordance with Ashzip™ NBS H31 specification

ASH&LACY

Ashzip™

NOTES:

1. For static fixed points, do not use rivets drilled into the head of the halter.

2. Option A for supporting ridge can cause a crease line if operatives frequently walk in this area.

3. For static fixed points the screw should be as low in the upstand as possible to ensure zipper rolls do not hit the fixings when zipping up

4. Ridge flashing as per architects specification for closely visible areas do not use 0.9mm stucco aluminium

5. Detail shown is based on standard construction above purlins

6. All perimeters & penetrations to be fully airsealed in accordance with the project specification

7. 32/1000/200 liner profile. 0.7mm steel fixed in accordance with drawing FIX 01

8. The end of the Ashzip at the ridge should be 200mm from the filler and shroud.

9. Use a separation tape where there are dissimilar materials

10. Halter depths & U values stated based on 0.040✓ insulation

11. Refer to Architects full NBS Spec for VCL requirements

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DRAWING STATUS -

Uncontrolled Document

DRAWN BY	SCALE	DATE
SD	NTS	25/08/09
TITLE: RIDGE SUPPORT OPTIONS	DRAWING NO: FH RIDGE 01	

Eaves detail

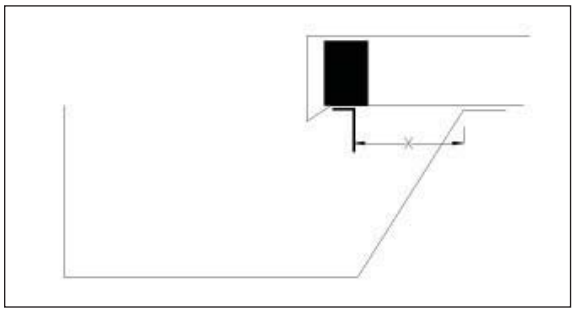
Any water that falls onto the roof should discharge into the gutter and be prevented from blowing back through the seams or under the sheets. The seams are closed at the eaves by profiled filler blocks, which are positioned directly over the drip angle, or usable flat surface, which in turn is riveted to the trough of the Ashzip sheet. Two rivets per sheet should be used.

Do not position the filler block above the back leg of a gutter, this will work loose as the Ashzip expands and contracts.

The eaves of the sheets are also turned down into the gutter by approximately 20° by using the special turn down tool. This prevents any water from running back on the underside of the sheet

There needs to be a suitable gap left between the back end of the drip angle and any gutter or flashing. This is to enable thermal expansion and contraction to occur. Typically this should be 1mm for every 1m of sheet and then add 5mm. For a 20m sheet length dim x would be 25mm. This is shown in image middle right as a basic sketch.

The drip angle is riveted with 2no type 3W rivets per sheet width for 300 and 400 Ashzip profile sheets. The rivets are placed in alternate troughs along the pan of the sheet as shown in image bottom right.



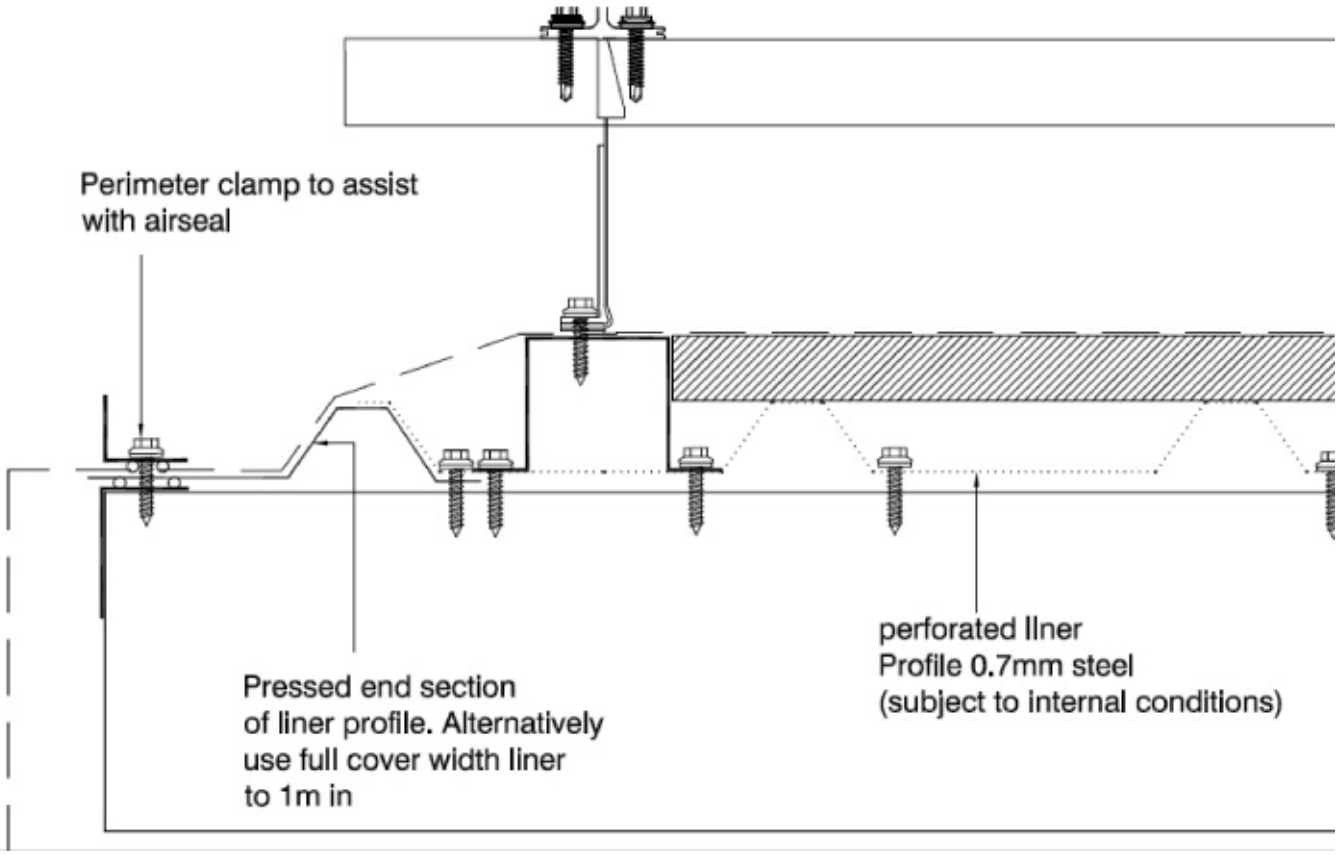
Perimeter seals

The roof should be adequately sealed and terminated to assist with air sealing the building. The roofing contractor should ensure the interface is detailed such that the roof provides a pressure barrier and takes into account any requirement to interface with the vertical.

The roof should not be detailed in such a way that the VCL finishes without providing a termination of airflow from inside the building to the insulation cavity or from outside to inside.

A range of standard details are available which incorporate perimeter clamps to ensure that the VCL is terminated correctly. This detail can also be adopted for roofs with perforated liners.

For perforated liner projects the edge of the perforated liner should be stopped short of the perimeter support and either a small section of liner used or a pressed flashing to match the profile



In Plane Roof light installation

In Plane Roof lights are connected to the Ashzip sheets via an Omega section extrusion which is zipped over the roof light and Ashzip lap.

Set Out of Halters

Normally the In Plane Roof lights are 800mm module and are used in conjunction with a 1m wide 32/1000 roof light liner.

The set out should be from the centre of the liner outwards so that the rooflight module is centred over the liner to ensure the maximum daylight entry.

In plane roof lights should not be layed in banks for safety and fragility reasons unless otherwise agreed with the roof light manufacturer.

Self Curving of Rooflights

Zip up in plane roof lights will not self flex to the same radii as the Ashzip. Please consult with the rooflight manufacturer specified on the project for criteria, as this can vary between manufacturers.

GRP Welding

We recommend GRP welding in conjunction with the standard down slope lap detail for pitches of less than 6°.

Installing contractors must ensure with the GRP welding company that a full and complete bond is achieved. This detail falls under the contractors liability in conjunction with the GRP welder and is not covered by Ash & Lacy warranty.

Please note that we **do not** recommend GRP welding for penetrations and other openings.

Down slope end lap detail

Ash & Lacy only recommend that in plane roof lights are installed from the ridge downwards due to weathering of the sheet, as the Ashzip cannot lap over the roof light.

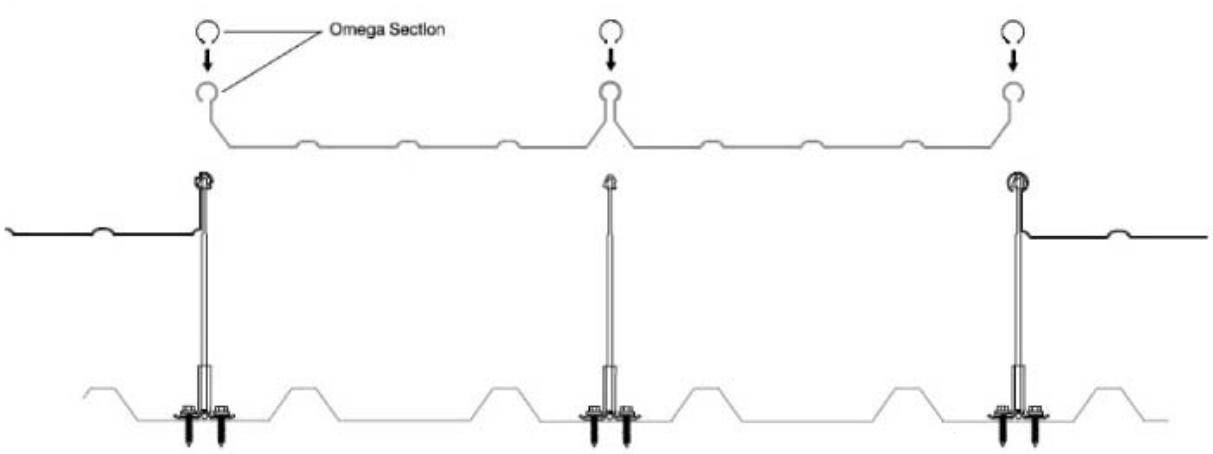
The workmanship and detailing on the downslope detail is critical from a weathering point of view and from a warranty point of view.

The detail must be fully supported with rigid insulation direct to the underside of the Ashzip and a support zed off an Ashgrid spacer. This is the recommended detail even when the roof includes a full height halter for the rest of the construction.

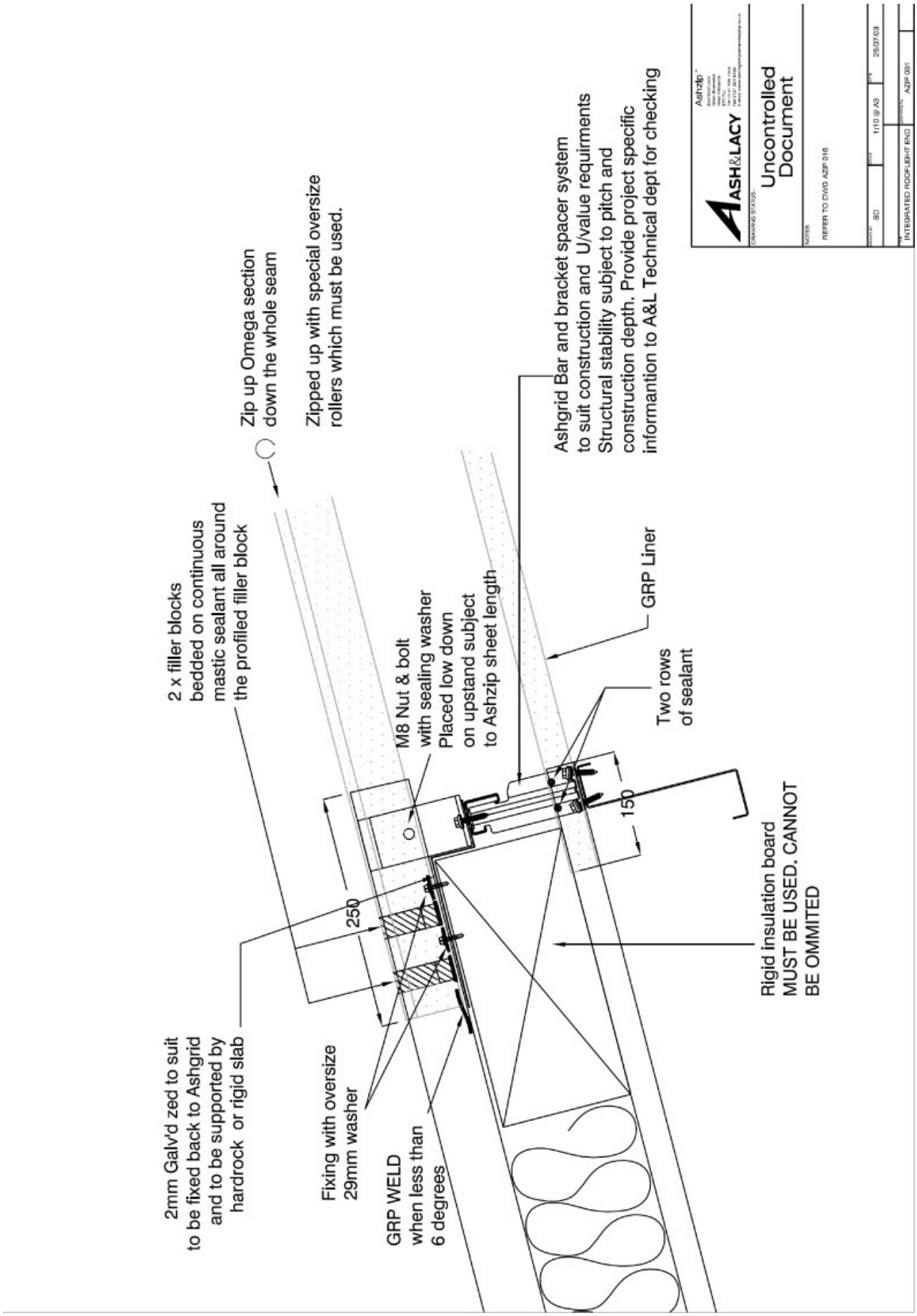
The roofing contractor must also liase with the rooflight supplier to ensure that the installation complies with their warranty requirements and installation guidelines.

Air Sealing

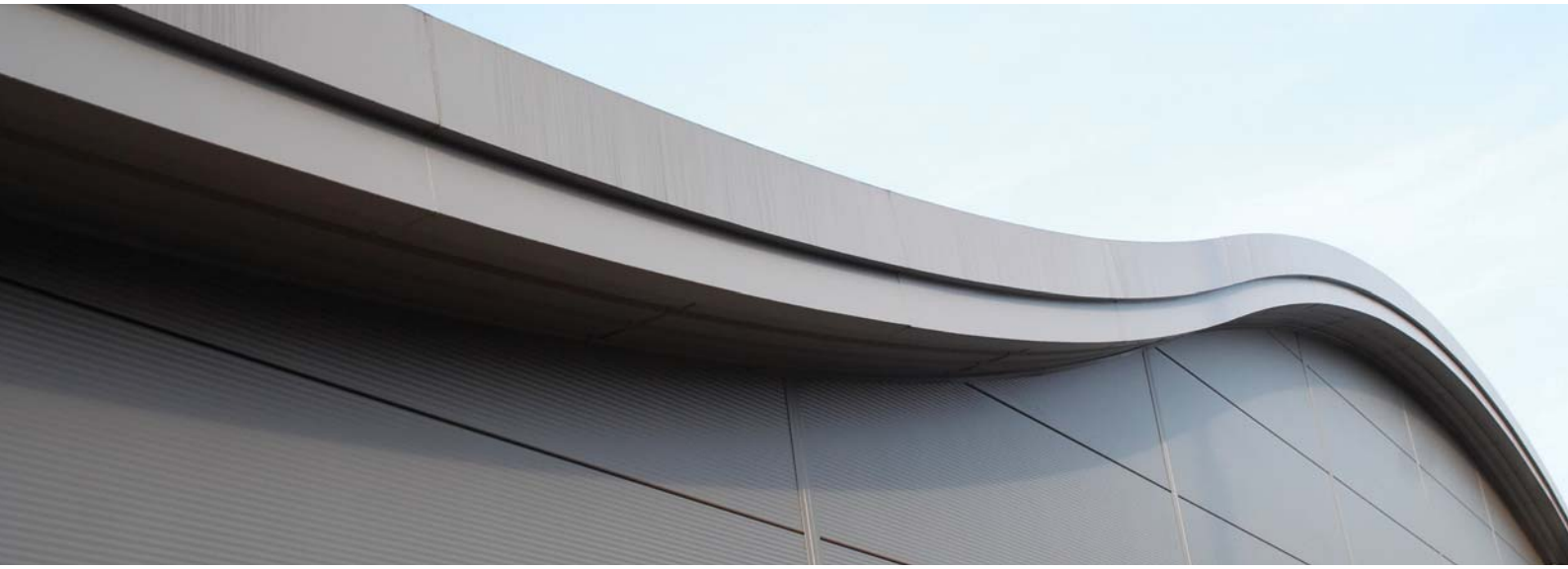
The side and end lap on the GRP liner should be sealed to provide a vapour seal.



In Plane Roof light installation



Curved sheets set out



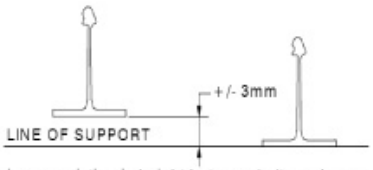
Curved Sheets

It is not possible to rotate pre-curved sheets into position as indicated on the previous 3-step detail. Pre-curved sheets should be moved into position and lowered down between the halters vertically and snapped into position. When sheets are positioned onto the halters on a curved application they should be worked from eaves to eaves across the roof, or from the effective ridge outwards. **Under no circumstances should the roof be fixed from both eaves up to the effective ridge.**

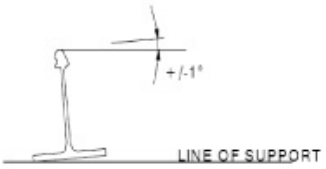
Set out of the Ashzip sheets does not require an increase in tolerances and distance between clips. This remains at 400mm. This is for both Pre-curved and site sprung curves. When sheets are positioned onto the halters they should be worked from eaves to eaves or from the effective ridge outwards as mentioned above. Setting out templates are sent to site upon request and should be used for setting out purposes. We strongly advise the use of this tool.

On curved roofs we recommend that purlin centres be kept to a maximum of 1500mm centres. This assists with the flexing of the sheets over the curve.

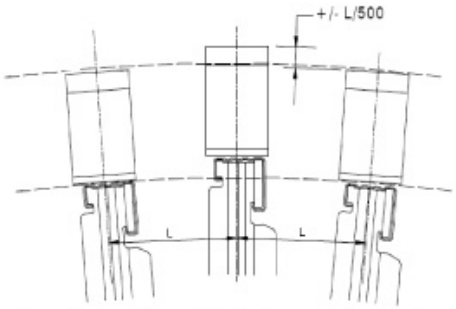
The halter tolerances on the setting out of a curved roof are shown adjacent.



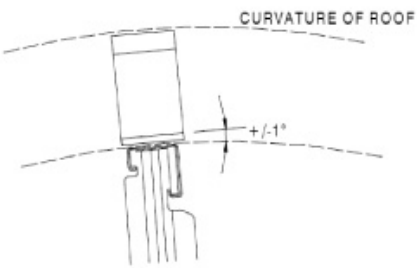
The maximum variation in height between halters along a run is 3mm



The maximum variation in flatness of a halter is +/-1°

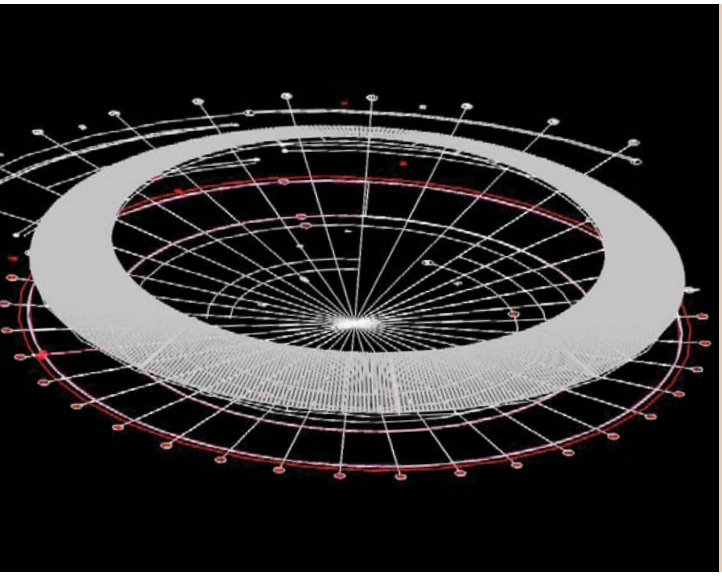


The maximum variation in height between halters over 3 purlins is +/- L500



Ashgrid & Halters must be alingned to curvature of the roof

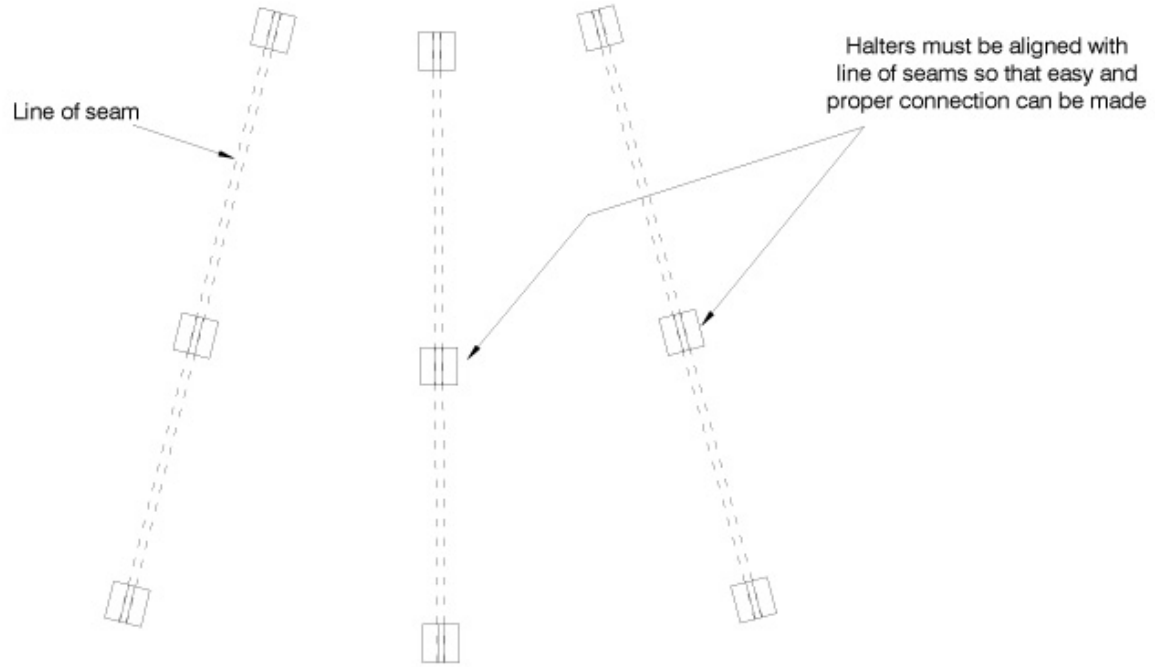
Tapered sheets

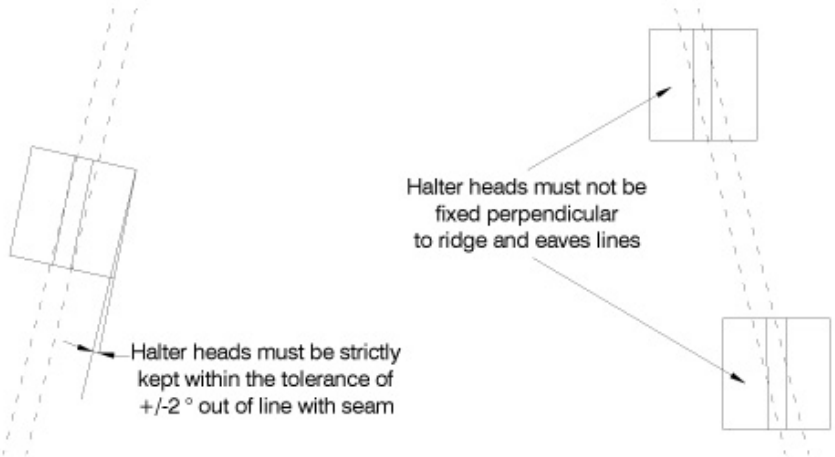


Setting out of Halters on tapers

When laying tapered sheets it is important that the halter heads are kept in line with the seam of the sheet. This is so that easy connection can be made between the halter and the sheet.

If halters are set outside the set tolerances site operatives will find it difficult to fit the sheet. The profile of the halter may be visible through the side wall of the sheet if the halters are set outside the tolerances stated. Setting out is indicated below.

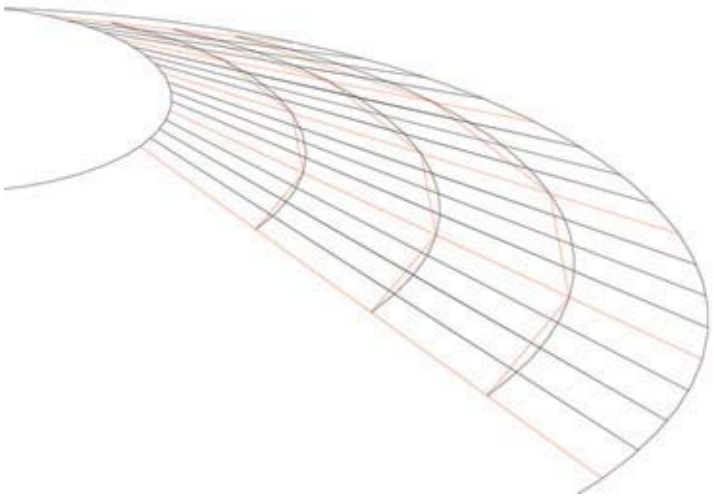




Tapered sheets

Tapered Ashzip – Supports

Tapered Ashzip sheets will not always form a perfect curve around the roof i.e. a conical formation between rafters. To achieve this, supports must be used that are curved on plan and section i.e CHS'. If straight purlins are used a facetted effect will be produced at the hip rafter locations.



When narrow end falls below 250mm

The Ashzip can be tapered down to 250mm. This is the point where the main ribs overlap. Sheets can be manufactured from standard coil which will allow up to 400mm at the wide end, or special coil can be used for wider sheets.

Where the sheet width exceeds 400mm consideration should be given by the roofing contractor to purlin support centres, to ensure that the number of halters per m2 can cope with wind uplift. The sheets should also be fully supported with rigid insulation in such cases until the coverwidth reduces to 400mm

Please provide Ash & Lacy technical dept with project specific information so that we can check wind loads on the project.

Split sheets

Note: If the plan radius of the building does not suit the minimum and maximum sheet sizes there are two options:-

1. Special width sheets can be produced subject to production checks and structural connection details
2. Sheets can be fitted in a layered format where the minimum and maximum can be incorporated. In such cases the seams will be split and welded and will not necessarily line up.

Tapered sheets

Calculating the size of Ashzip tapered sheets

Calculating the size of Ashzip tapered sheets is relatively simple. For example a fully circular building with an external diameter of 10m and an internal diameter of 3m (fig1) (a donut shaped building). We can start with either the external or the internal taper size, but one will govern the other. For this example we will look at the 10m diameter first. This will give an external circumference of 31415mm.

Firstly we take 31415/500 = 62.83 so we will say 63no sheets. (This is based on 500mm wide sheets at wide end).

Then we take 31415/63 = 499mm taper at the widest end.

This will now determine the taper that fits on the small or internal part of the roof which was the 3m diameter. The 3m diameter will give a circumference of 18849mm.

18849/63 = 299mm at the narrow end of the taper. 299mm therefore falls within production capacity.

It is important to calculate the width of both ends of the sheets because once the wide end has been calculated the narrow end may be to small for us to manufacture.

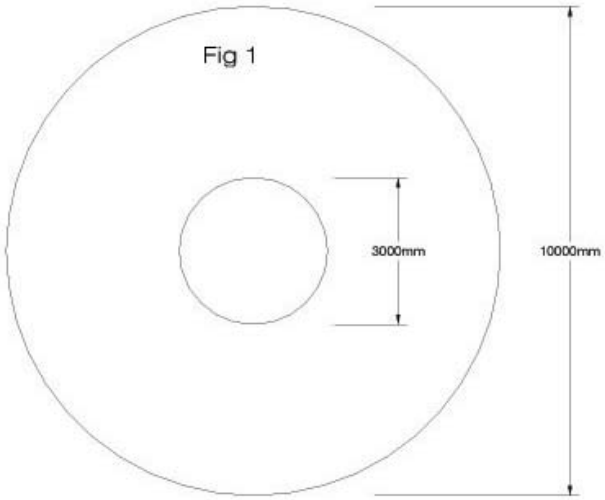
For example if the smaller diameter was 2m (fig2) and therefore the length of sheet was longer it would be the narrow end that determined the width of sheets.

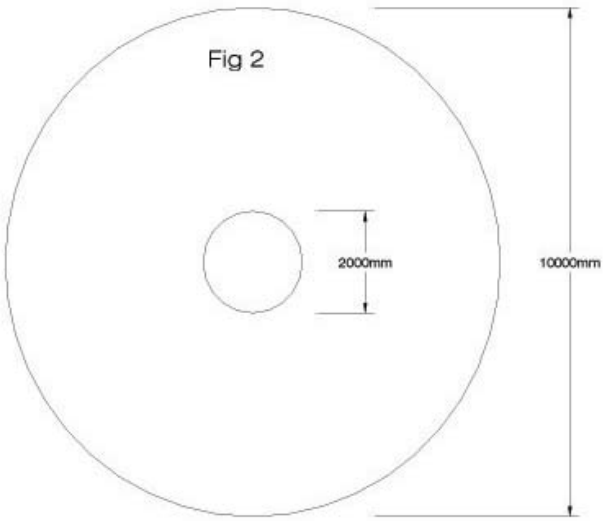
A 2m diameter would give a circumference of 12566mm. If we took the original wide end of 63 sheets at 499 this would give:-

12566/63 = 199mm - Less than the ideal minimum of 250mm.

So in this case would have to take 12566/250 = 50.26 so we say 51no sheets with 250mm at the narrow end. This then governs the wide end.

31415/51 = 615mm - this exceeds the maximum safe cover of 600mm and therefore would have to split part way up the roof to suit so that either the wide end cover is reduced or the narrow end increased. In such cases the seams may not be aligned at every location.





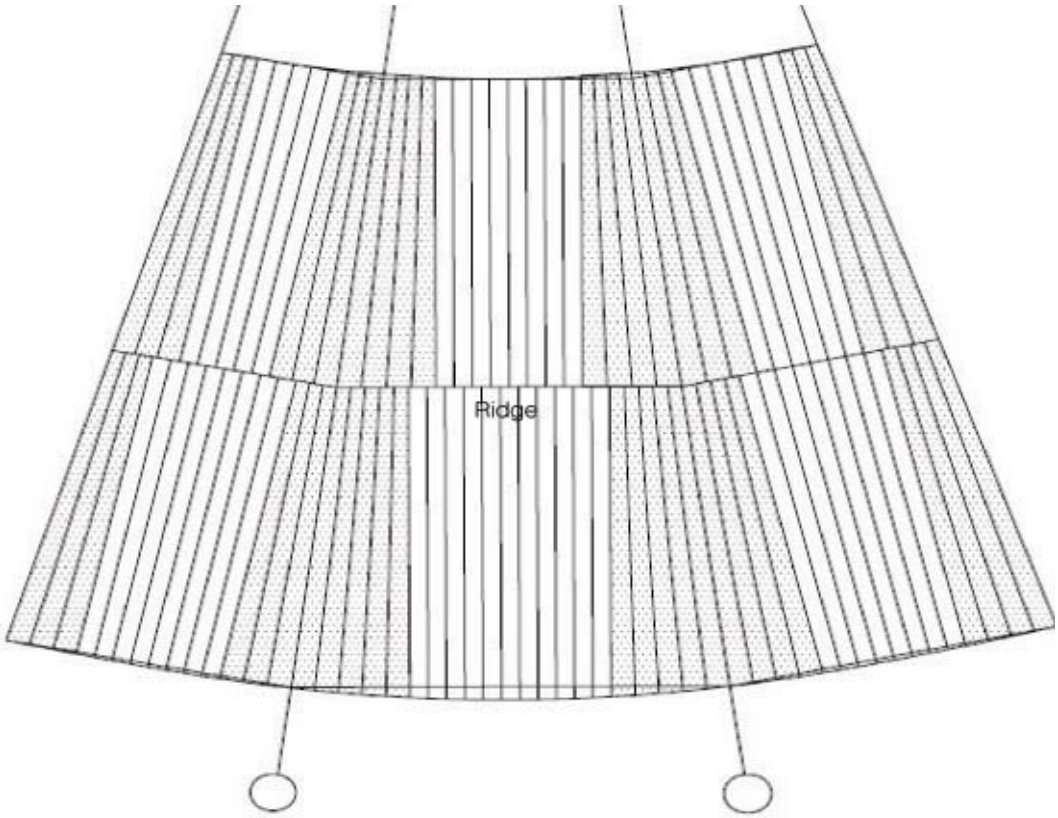
Combination of straight and tapers

Tapers used on straight purlins

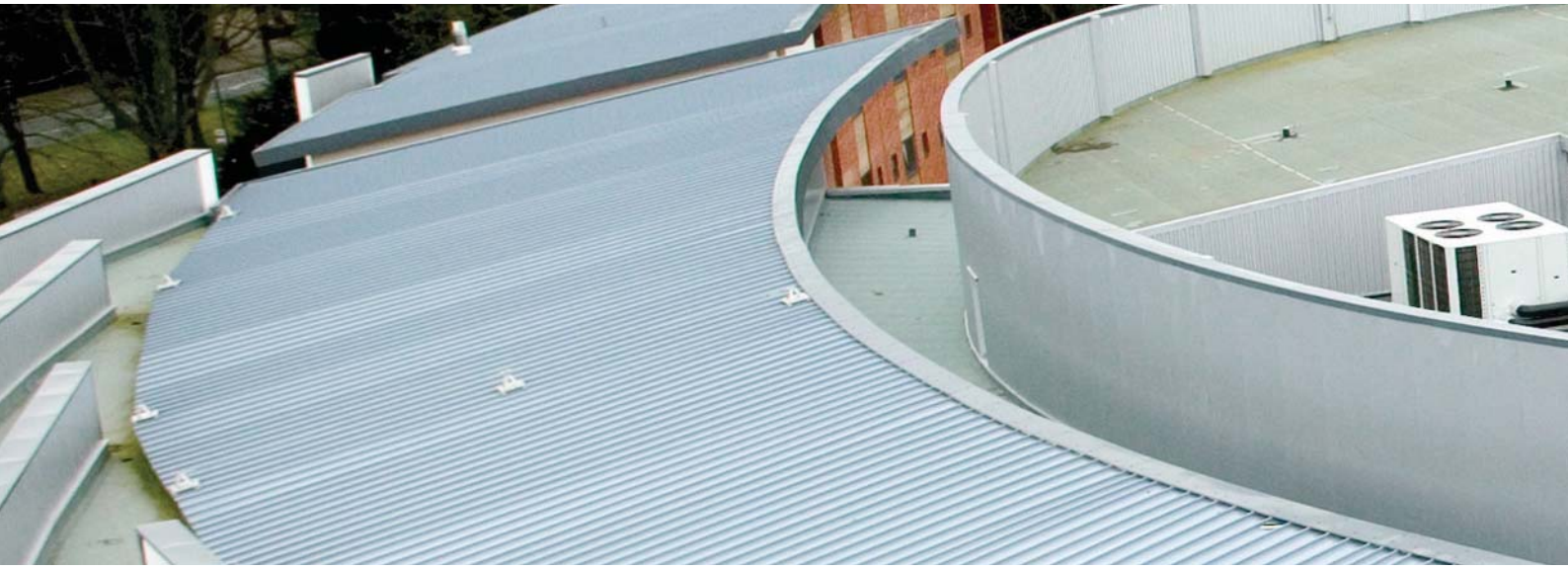
When straight purlins are used the roof will create a facetted effect at the hip locations. On such buildings the appearance of a curve can be achieved by using a combination of straight and tapered Ashzip sheets. This lends itself to buildings that have relatively shallow radii on plan (see example below). To achieve a curved effect and move away from a more facetted effect, the rafter locations have to be close together and the roof pitch low.

On this particular layout there are non-symmetrical bays. The straight Ashzip sheets are laid out from the approximate centre of each bay perpendicular to the main eaves and ridge beams.

The areas left at the ends of the bays a taken up with the tapered Ashzip sheets and are worked out on the basis of minimum and maximum sheet size parameters as given in the full tapered section. If one falls below the minimum or is larger than the maximum, then the straight Ashzip sheets will have to be adjusted to suit or replaced by more tapered Ashzip sheets. This will depend on the angles of the structure below. The tighter the angles the more the facetted effect will appear.



Liner fix specification



Fixings

The Ash Liner 32/1000 0.7mm steel walkable liner profile should be fixed in every trough at sheet ends and every other trough at intermediate supports with BMLS25S16 fixings.

The side lap should be stitched at 450mm centres with ST22 stitcher fixings. This fixing arrangement must be used for the 0.7mm steel liner to be considered as a walkable working platform.

Where perforated sheets are used, spreader board should be used during installation of the Ashzip system.

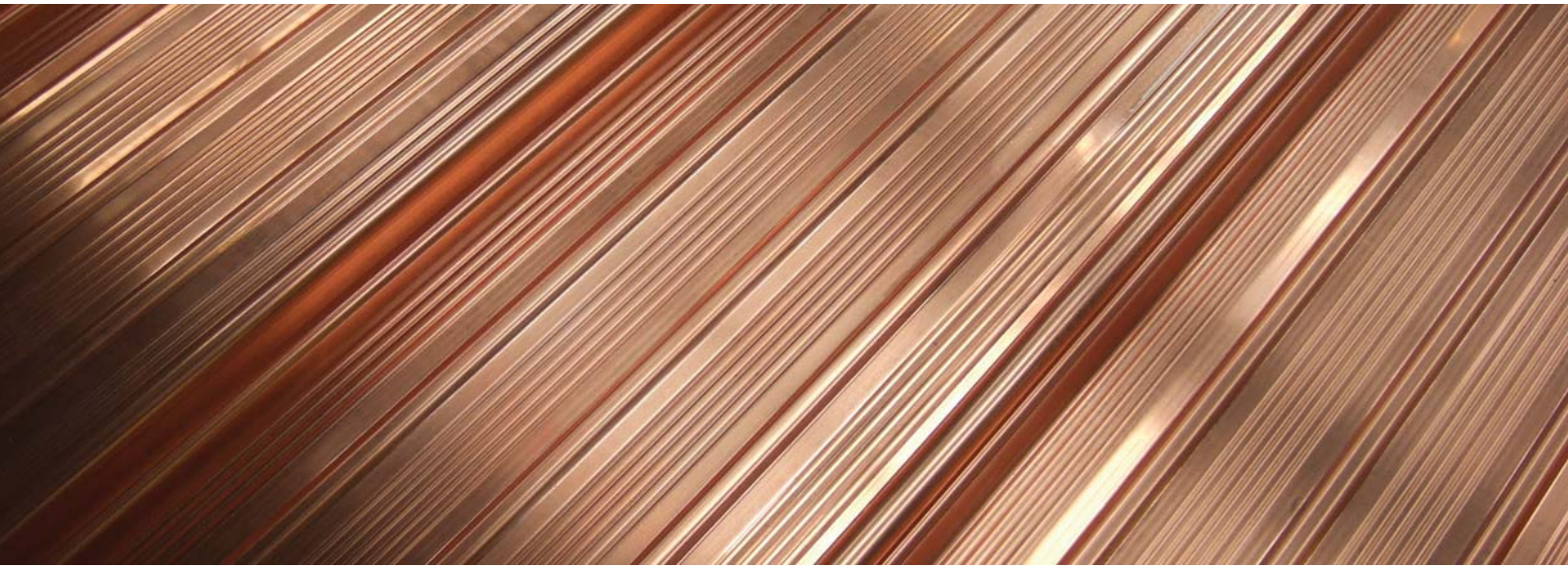
Sealant

The side laps can be sealed with a 50x1 polyband tape and the end laps should be sealed with two rows of 6x5 butyl sealants, one either side of the fixing line.

This method of sealant can be adopted instead of a VCL provided that the project specification allows so. This method of sealing the liner is suitable for low humidity, non perforated, applications. The roofing contractor must ensure that means for sealing the perimeter of the roof is provided for when sealing the liner in this way.

The roofing contractor must ensure continuity of seals throughout the roof, including around all penetrations. Refer to Ash & Lacy's standard details.

Miscellaneous



Electrolytic reaction

In some cases there may points of contact between dissimilar materials. Such as galvanised steel and aluminium, in such locations a barrier tape must be used to prevent electrolytic reaction.

Oil Canning & ridge filler gaps

Dishing of sheets 'oil canning' can occur for several reasons such as foot traffic or incorrect installation of halters. For shallow self curved sheets an amount of dishing can be expected.

In such cases Ash & Lacy my visit site to asses the situation. This will be based on the structural performance and whether a warranty will be offered. Since Aesthetics are subjective any visit is not to provide the go ahead to install the rest of the roof, this must be obtained from the main contractor.

At the ridge location or any area where high levels of foot traffic are expected we recommend the use of rigid non combustible insulation below the closure and filler block to prevent dishing of the sheets.

Gaps of more than a few millimetres below the ridge filler are not acceptable and a warranty will not be offered where this occurs.

Lead Flashings

Lead and such material should not be used in conjunction with aluminium roofs. This will lead to corrosion caused by particulates in rain water run off and invalidate warranties and cause to unsightly staining.

Concrete, mortar & Render Spillages

Any secondary trades that require access via the Ashzip roof to carry out any form of works that include concrete, mortar or render will require that the roof is fully protected. Any spillage that comes into contact with the sheet must be cleaned immediately. If sheets are stucco embossed this must be immediately cleaned away using a high pressure washer to clear all spillage off embossments.

Non Standard material finishes

Please refer to Ash & Lacy technical for Zinc and Copper Ashzip support details as the system will need to be fully supported in such applications

Local and abnormal weather conditions

The roof is not secure against wind uplift until the verge, ridge and eaves are fully encapsulated by the relevant components and fabrications. During installation the roofing contractor should take adequate precautions to secure the edges of the roof against abnormal wind load conditions.

The roofing contractor should also ensure that perimeter wind loading are catered for under normal conditions. Clip centres and supports may need to be reduced to cater for local perimeter loading zones. This information should be obtained from the project engineer and checked against Ashzip and Ashgrid span tables.

Load Bearing capacity & foot traffic

The Ashzip can take low amounts of foot traffic provided that it is walked on correctly. Operatives should walk across the roof on the seams and up & down slope by keeping their feet next to the upstands. For pitches of greater than 10° walkways and spreader boards should be used.

Scratches

Scratches can occur to coated sheets during installation either by foot traffic or the zipper machine. Even with brand new rolls on the zipper, scratching can occur through friction of the rollers on the seams. If the roof is not visible from close quarters scratches should not be an issue as warranties would be provided as normal.

Site Production of Ashzip

Refer to Ash & Lacy Site rolling method statement.

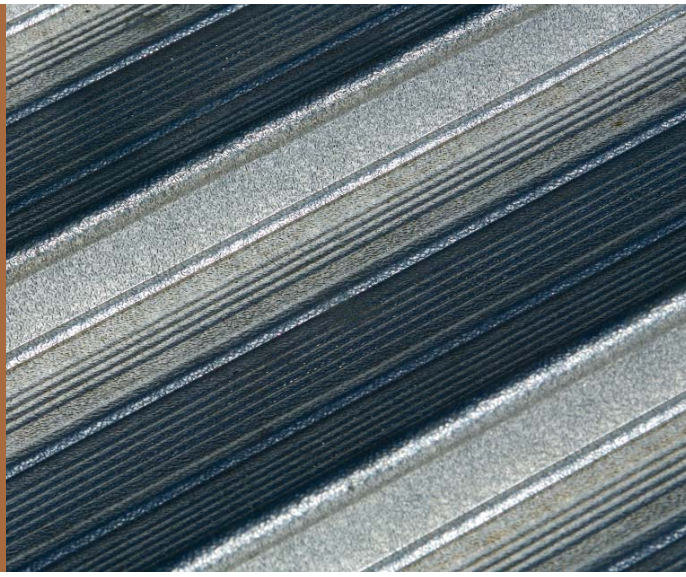
Miscellaneous

Technical department

Ash & Lacy's technical department is here to help, if you are unsure of any aspect of the installation contact our technical department prior to attempting such a detail either on paper or on site.

This includes any details or items which are not covered in this installation guide.

0121 525 1444



Dishing of sheets during installation

Dishing of sheets can be caused for several reasons, mostly due to foot traffic, incorrect detailing where rigid insulation is required, or it can occur during self flexing of Ashzip sheets. Where dishing occurs during self flexing, the severity will depend upon radius, accuracy of the supporting structure and accuracy of halter clip set out.

Reference is made to dishing or 'oil canning' in the design guide. However any visits made to site by Ash & Lacy to view such issues are made on the basis of whether the Ashzip performance warranty is effected. It does not relate to an aesthetic opinion, nor does it constitute a go ahead to continue installation of the system. This should be obtained from the main contractor.

Ashzip Flatpan Sheets

Ashzip sheets produced without the main stiffening ribs, will exhibit signs of undulation in the flat of the sheet. This will be the case as the sheets are produced without the inherent strength within standard roll formed Ashzip being removed. The amount of undulation will vary from coil to coil, as manufacturing stresses are released in the roll-forming process.

Sheets should not be walked on without protection. If access is necessary, then walking boards or Youngman spreaders should be used .

Ordering of Ashzip sheets

It is the responsibility of the installing contractor to clearly state on their order, any special requirements regarding Ashzip. This may include removal of microribs between main stiffening ribs, or the removal of all stiffening ribs to create a flat pan sheet. This is not done automatically.

Standard coil widths are not suitable for flat pan sheet, so this needs to be advised at the time of placing the order, as special width coil will be required.

Support to vertical Ashzip

When Ashzip is used in vertical applications the specifier may require support to be provided by means of a rigid insulation to assist with reducing the risk of damage to low level sheets.

In such application rigid insulation should be nothched around the base of the halter to prevent the sheet being pushed out of plane by the rigid insulation.

GRP Welding

Note: With the exception of in plane roof light end laps We do not recommend the use of GRP welds to roof penetrations or upstands. These must joined by aluminium welding.

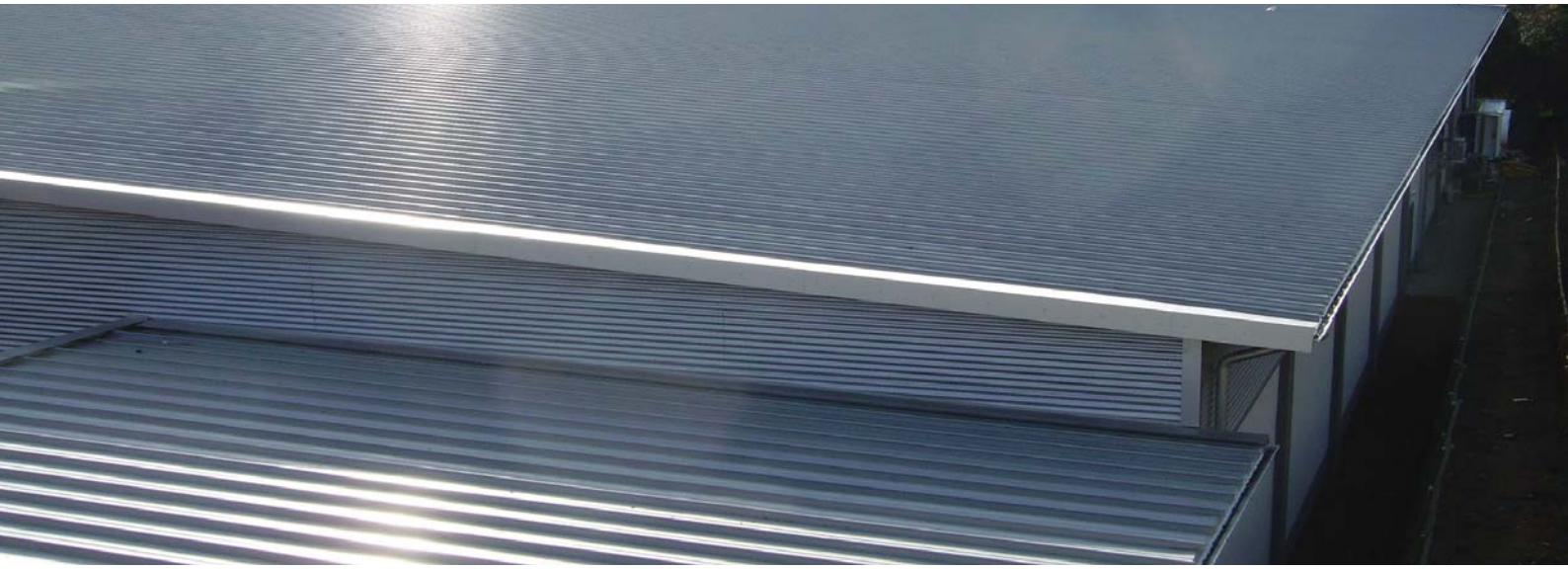
Aluminium welding

For all construction details where welding is required to provide a weather tight detail, the designer and installing contractor must ensure that adequate allowance is made to cater for expansion and contraction of the aluminium. For roof penetrations this can be catered for between the internal and external collars/soakers. The rate of expansion must be considered at 1mm per metre for plain and light colour painted aluminium. The rate of expansion to be considered for dark painted aluminium is 1.5mm per meter. Both of these figures are subject to the local climactic conditions and may vary depending upon expected temperature range.

For roofs with cranked sheets, a standard detail is available from our technical department. When this detail is used combined with long runs of sheets, suitable movement joints must be included parallel to the seams. The centres of these must be advised by the welding contractor appointed to undertake such works.

Please refer to Ash & Lacy's Technical Department for further information.

Unzipping Ashzip sheets



Ashzip sheets can be unzipped utilising the normal zipping machine, with a simple modification that can be carried out on site.

The operatives undertaking this element of work must be careful to ensure that the sheet is not damaged during the unzipping process. Any damage to the sheet could affect it achieving a weathertight joint, when re-zipped. Adequate protection should also be provided to the adjacent sheets, which are likely to be subjected to foot traffic whilst the required sheet is being unzipped. We strongly recommend the use of spreader boards in the immediate area .

There is an 'unzipping wheel' on the back end of the zipping machine which is to be used to undertake the operation. Simply unscrew the stopper at the back end of the machine and lift the unzipping wheel. Place on the opposite spindle facing down, and replace the stopper.

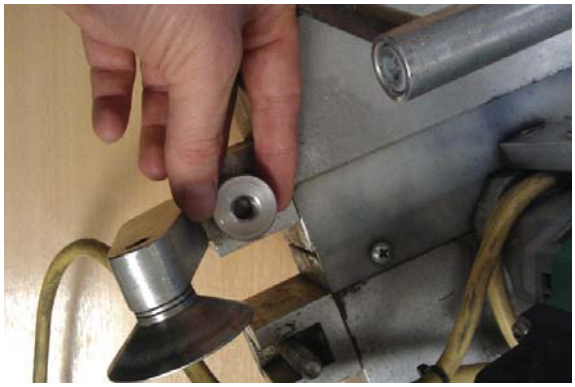
Note - the unzipping wheel will determine which end of the sheet the operative needs to unzip from, due to the direction of lay. This may require the ridge flashing and supports to be removed local to the sheets to enable unzipping to take place.

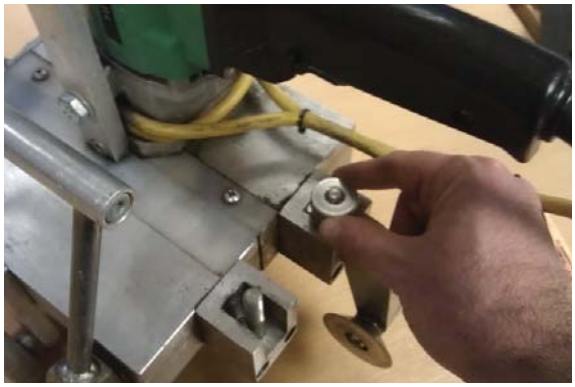
The start of the seam must be opened manually to allow the unzipping wheel to fit under. The zipping machine is then operated as normal.

Notes

- *The unzipping mechanism is intended for unzipping a small number of sheets which need maintenance, lifting or replacing in a localised area. Unzipping and re-use of large quantities of Ashzip sheets is not recommended and should be carefully considered as the aesthetic value of the roof and decorative coating will be significantly impaired. Consideration to replacement of sheets should be given. Operatives should ensure correct installation procedures are followed from the outset rather than relying on rectification works afterwards.*

  Ash & Lacy accept no liability for the appearance of the Ashzip sheets after they have been unzipped and re-used.





Fabrications and Flashings

Fasteners and Accessories

Over-Roof Conversion Systems

Rainscreen Cladding Systems

Standing Seam Roofing Systems

Spacer Support Systems

West Bromwich. Bromford Lane, West Bromwich, West Midlands B70 7JJ
Tel: 0121 525 1444 Fax: 0121 525 3444

also at: London. Gateway 3, Davis Road, Off Cox Lane, Chessington, Surrey KT9 1TD
Tel: 020 8391 9700 Fax: 020 8391 9701

Glasgow Unit 4b, Albion Trading Est, South Street, Whiteinch, Glasgow G14 0SY
Tel: 0141 950 6040 Fax: 0141 950 6080

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