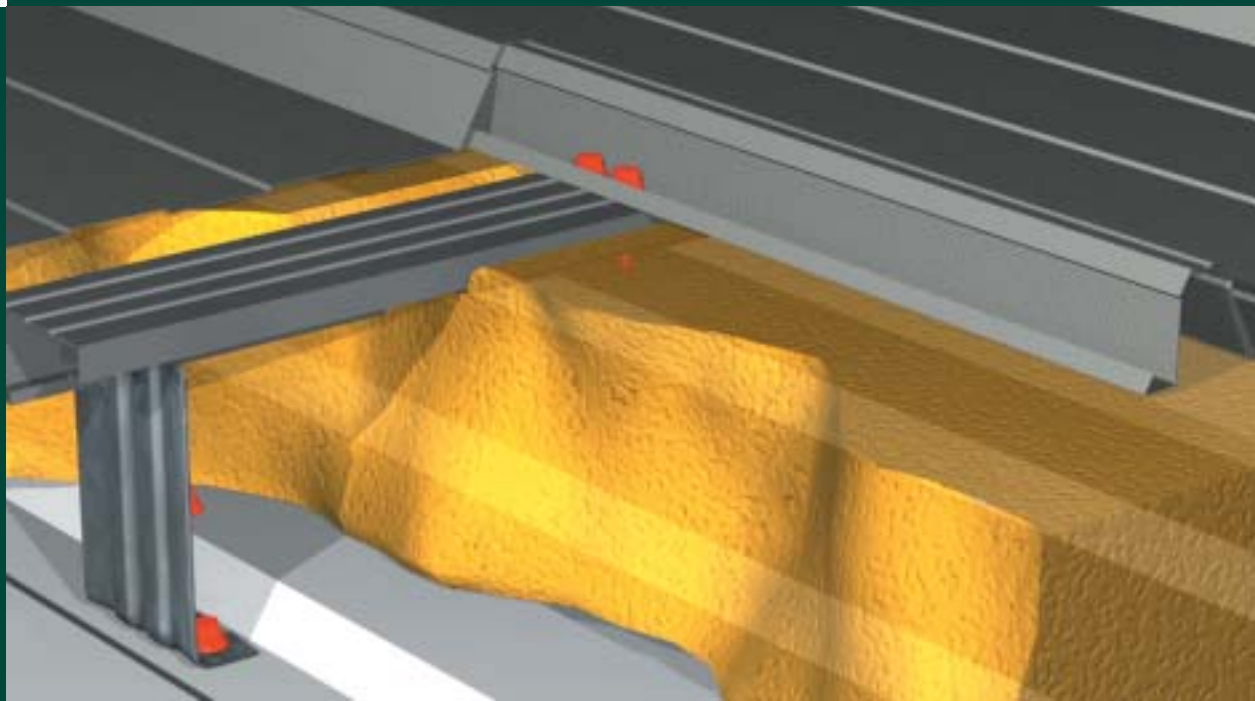
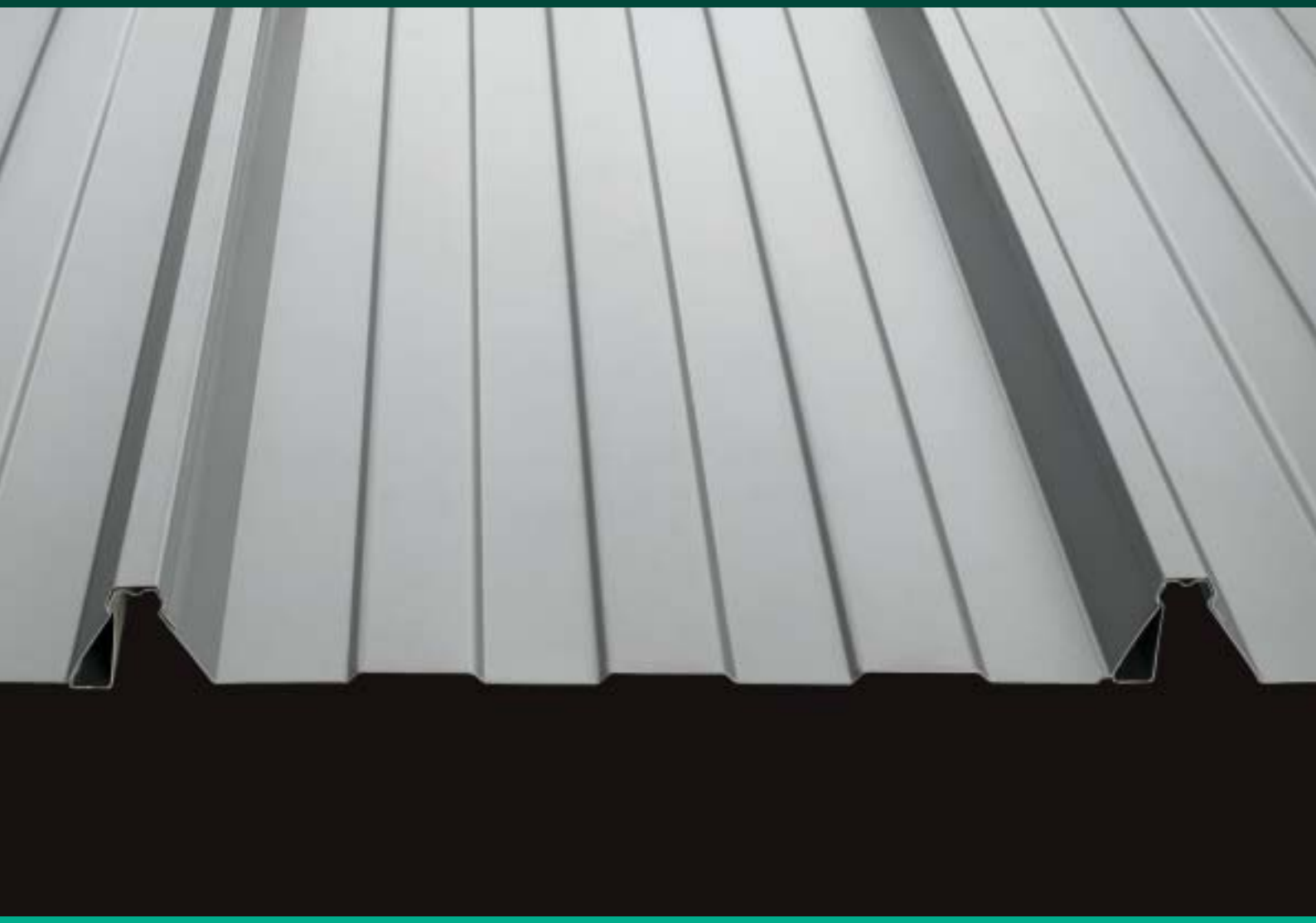
QUEDRON
ROOFING & CLADDING PRODUCTS

QUEDRON

SECRET-FIX SF500 TECHNICAL SPECIFICATIONS





QUEDRON

ROOFING & CLADDING PRODUCTS

Quedron Limited is one of the UK's foremost producers of metal cladding systems. Continuous development is specifically geared towards offering Architects and Specifiers the ultimate choice in design flexibility. The range of products available, developed over 20 years, allows multi-performance specification covering the whole building envelope in a wide range of materials.

Secret Fix SF500 is a case in point, giving the Specifier and Contractor a proven and simple system to use for low pitch roof applications, where speed of fixing and guaranteed performance are required and continuity of finish, colour and material choice are paramount.

SF500 has been specifically designed to function at design pitches down to 2.5° (minimum actual pitch 1°), with no external penetration of the sheet, no end laps and low maintenance performance.

Manufactured predominantly in Dobel XT200, the system offers many of the advantages of a true standing seam system, but is simpler to install and may be more simply integrated into projects where the material of choice is steel rather than aluminium.

CONTENTS

SYSTEM BENEFITS

- BBA certified performance
- No external fixings
- Long sheet length allowing end-lap free construction
- Sheet fixed directly to structure with no separate clips or brackets
- Drive-on-drive-off manufacture if required, reducing transport and crane costs
- Fast installation
- Short lead times
- Range of cost effective standard accessories
- Both Dobel 200XT and Corus HPS200 guarantees available
- Extensive stocks of materials
- Robust profile
- Full integration with Quedron Liner Panel and associated products
- Comprehensive range of related services

SERVICES

Quedron offers specifiers a broad spectrum of support from initial enquiry and bespoke technical consultation to project realisation.

NBS draft specifications are provided for all standard constructions and can be tailored to suit project performance requirements through consultation.

This service draws on Quedron experience and the flexibility of built-up systems, to respond to individual requirements for specific thermal, acoustic, structural and other performance considerations.

Quedron can provide specific advice to help design a wide range of features that enhance basic concepts. This allows full integration of the roof construction with flashings and bespoke fabrications as well as composite or twin-skin wall cladding.

Quedron products are supported through RIBA Information Services with full coverage in NBS Plus, On-line Services and Product Selectors. Quedron has RIBA CPD Providers Network and RIAI approval.

APPLICATIONS

SF500 has been used in educational, commercial, retail, industrial and leisure applications amongst others. The system is suitable for new build, refurbishment, over-roofing and flat to pitch conversion and can be considered as a viable alternative to sealed membrane, felt or asphalt systems.

The ability to produce the sheets on site, in single lengths and the simple 'snap fix' overlap gives SF500 its greatest advantages over other systems designed for low pitch application.

AESTHETICS

SF500 has low visual impact allowing clean, uncluttered roof lines.

Standard stock materials in 10A05 and 18B25 colours are available in both Dobel 200XT and Corus HPS200 Plastisol. Standard colour charts are available from Quedron and are included in the Roofing and Cladding Manual.

WEATHERABILITY

SF500 provides superb weathering performance through a precision engineered snap fit 55mm overlap. The underlap is designed to take a 3mm bead mastic seal, whilst the low profile pan allows excellent drainage at low pitch.

Single eaves-to-eaves or ridge-to-eaves sheet lengths with no end laps and no external fixings penetrating the sheet, along with on-site manufacture, means that sheet lengths are effectively limited only by handling requirements.

Carefully designed accessories and details ensure no compromise of performance. The structurally tested system and longevity of materials provide long-term security.

STANDARD DETAILS

Quedron provides systems which can be modelled in house on state-of-the-art 3 dimensional software to be compliant with Part L2 of the Building Regulations. This facility can be used as easily for details as it is for plane elements.

There are inevitably cases where a one-off, bespoke detail is required for a particular situation. In these circumstances, Quedron will provide relevant advice.

Standard component drawings and construction details are shown in this brochure along with a basic component list and other useful information.

Further assistance may be obtained from the Quedron Technical Department.

DURABILITY

Both the Dobel and and Corus guarantees are for the SF500 project. Full details are available in the Roofing and Cladding Manual. The majority of colours used for roof applications can achieve CD1 status under the Guarantee.

BBA Certification covering standard constructions is available on request.

Latent Defects Insurance is available for all Quedron products covering design, workmanship and materials and is the most comprehensive cover, available.

QUALITY ASSURED

Quedron interfaces with the industry in a way which has earned a reputation for service and flexibility that is second to none.

Quedron works closely with the industry to ensure that high standards are achieved and regularly contributes to industry development on issues such as amendments to the Building Regulations, fire in construction and fragility testing of steel liners and all pertinent subjects.

ON-SITE MANUFACTURE

Normal delivery by road can be achieved for sheet lengths up to 14 metres. Road haulage can be arranged for lengths up to 28 metres, however, it is usually preferable to have the sheets rollformed on site.

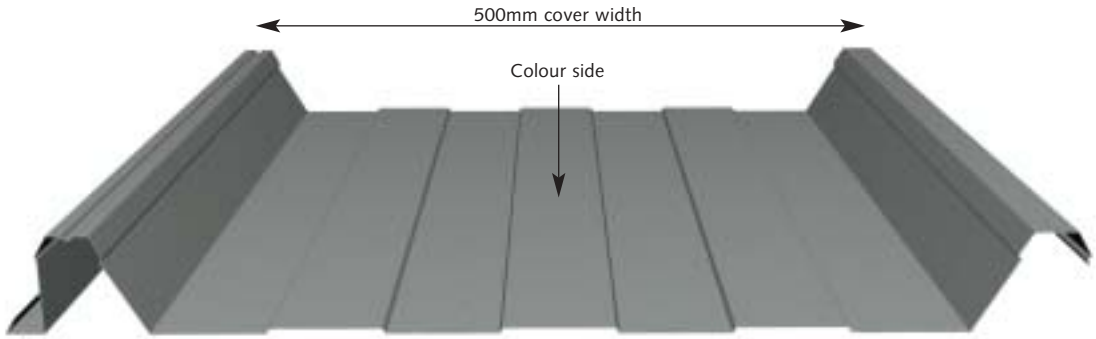
Transporting very long sheets can be a costly and time consuming business involving requests for movement documentation, police escorts etc but Quedron's mobile rollforming capability can obviate these problems.

By rollforming from a trailer which is self contained and drives on and off the site, problems such as limited access, high transport costs, extended lead time due to transport permits and potential damage during transit are removed.

Quedron will carry out pre-manufacture assessment visits to ensure that everything runs to plan and can provide method statements, lifting beam certificates and advice for each project on request.

Straight sheets can be rolled at an impressive rate of 5000 metres per day and can be lifted by crane in co-ordination with manufacturing to minimise costs.

VIEW OF SF500 PROFILE



LOAD/SPAN CONSIDERATIONS

The responsibility for defining and specifying wind loads and purlin centres lies with the structural engineer for the project. Wherever possible the loads should be determined while the adjustment of purlin centres is still possible, allowing the chosen roof profiles performance to be taken into account. BS 6399 Part 2 should be used to establish local and general wind pressures.

The new Eurocode EN 1991- 1-4: Wind Actions is currently in the process of being introduced. It is anticipated that the final results derived from this standard will be essentially the same as those reached using BS 6399. CP3 chapter 5 Part 2: 1972 and its amendments was declared obsolete in 1998 and was due for full withdrawal June 2001.

The tables below have been set out to allow the designer to look up Span against Load.

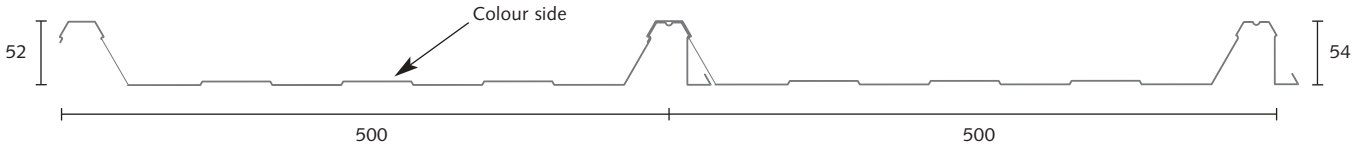
LOAD SPAN TABLE

SF500 LOAD SPANS

Loads in kn/m² double/multispan for 0.7mm thickness

Span (M)		1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
New Imposed	(Factor 1.6)	4.75	4.48	4.15	3.92	3.65	3.38	3.11	2.91	2.70	2.43	2.22
New Suction	(Factor 1.4)	4.27	4.00	3.62	3.11	2.70	2.25	2.11	1.98	1.84	1.75	1.63
New Imposed	(Factor 2.0)	3.80	3.58	3.32	3.13	2.92	2.71	2.49	2.33	2.16	1.95	1.78
New Suction	(Factor 2.0)	2.99	2.80	2.53	2.18	1.89	1.58	1.47	1.38	1.29	1.23	1.14

Note: Imposed Deflection Limit = L/250
Suction Deflection Limit = L/150
Weight per linear metre = 3.870 KGS (0.7mm)
Weight per square metre = 7.741 KGS (0.7mm)



The maximum permissible cantilever for SF500 sheet is 300mm.

CURVING

SF500 can be successfully self curved to a minimum radius of 85m.

When the sheet is curved an additional stitching screw should be used to stitch the sheet sidelaps together. This should be positioned through the crown of the upstand and as near to the sheet end as possible (ie over the gutter).

When self curved to minimum 85m radius, an additional stitcher screw should be used to secure the sheet overlap to underlap. This fixing should be fitted on the crown of every overlap over the gutter (ie: as near to the end of the sheet as practical and below the drip angle outside the insulated area).

LATERAL RESTRAINT

With reference to British Standard 5427: 1996 'Code of Practice for the use of Profiled Sheet for Roof and Wall Cladding on Buildings', Part 1 'Design'.

Quedron trapezoidal external profiles and Quedron liner profiles fixed according to the recommendations contained in the Quedron literature (other than perforated liners), will provide lateral restraint to the top flange of the purlins. Quedron liners used in conjunction with SF500 will therefore provide lateral restraint.

THERMAL EXPANSION

The rate of expansion for steel is much lower than that of aluminium and SF500 requires no special detailing as such to accommodate it.

STEELWORK

On very low pitches there may be a build up of materials at the eaves line due to the inclusion of closure flashings, gutter flanges etc which should be allowed for to maintain the fall either by adjustment of the purlin at the eaves or by reduction of spacer height etc.

Tolerances acceptable for purlin levels are as follows:

Element	Tolerances (in the level of the purlin relative to the purlins either side)
Purlin Levels	Purlin spacing above design level/180 or 10mm (choose lower of these values) Purlin spacing below design level/360 or 5mm (choose lower of these values)
Purlin Slope	+/- 1° (purlins should always be at 90° to the roof slope)

Structural movement joints present should be echoed in the sheeting.

The maximum allowable step at purlin laps or sleeved joints is +/- 10mm for double skin situations and +/- 5mm for single skin roofing.

THE ESSENTIAL PARTS OF THE BS 476 RELEVANT TO SF500 PRODUCTS ARE LISTED BELOW:

BS 476 PART 3: EXTERNAL FIRE EXPOSURE ROOF TEST

Roofs are graded according to the length of time they resist fire from the outside (e.g. fire in an adjacent building) and the distance of superficial spread of flame on the outside surface. The 'Part 3' test procedure has to be performed on a section of roof structure and it is not just a test of material. There is no reason why a properly built pitched roof constructed of organic and metallic coated steels should not achieve the top classification, AA. The Building Regulations designate profiled sheets of galvanised steel and PVC and PVF2 organic coated steels as grade AA. Other shapes and other coatings on steel are entirely within the spirit of the Regulations and may be regarded as satisfactory.

BS 476 PART 4: COMBUSTIBILITY

Either a material burns or it does not, there are no intermediate degrees. All metallic coated sheets, such as Galvatite hot-dip galvanised steel or Zalutite, are deemed 'non-combustible'. Organic coated steels such as Colorcoat have to be further assessed.

BS 476 PART 6: PROPAGATION

This is a test which assesses the rate of heat release of a material in burning, by means of a standard procedure. This measures the total heat given off by a material over a period of twenty minutes expressed as an index of performance, I, calculated from an empirical formula contained in the standard. In addition, the initial heat given off over shorter periods – expressed as the sub-indices i1, i2, and i3 – is also assessed. All coated steels have indices of performance, I, not exceeding 12 and i1 (first 3 mins) not exceeding 6, which have particular significance in relation to Building Regulation requirements.

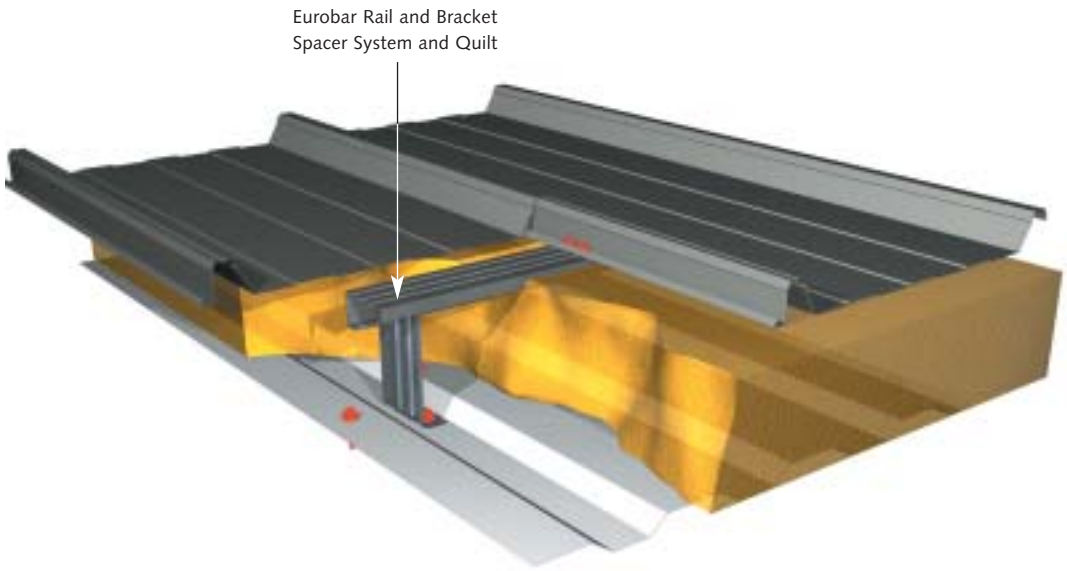
BS 476 PART 7: SURFACE SPREAD OF FLAME

This test grades materials in Classes 1 down to 4 in descending order of ranking. Test certificates are available for the Colorcoat range of products which confirm compliance with Class 1.

BS 476 PARTS 21 AND 22: FIRE RESISTANCE OF ELEMENTS OF CONSTRUCTION

These tests are designed to assess the performance of complete elements. These should remain stable, resist penetration of flame and hot gases and limit the transfer of heat from one side to the other for the fire resistance period required, usually 1/2, 1, 1 1/2 or 2 hours. Steel sheet cladding alone is given a zero rating in terms of fire resistance and would therefore be classified as an 'unprotected area' in the context of the Building Regulations. When used in conjunction with suitable insulating materials, the required degree of fire resistance can be met. It should be noted that in most buildings, a large percentage of the external wall may be designated 'unprotected areas' so that profiled steel cladding can be used without any fire resistance requirement

TYPICAL VIEW OF BUILT-UP SYSTEM



The Secret Fix sheet may be used in a number of constructions. In many cases of refurbishment the substructure is already defined and a system must be devised which best suits the particular circumstances of the existing building.

However, in a new construction there are several systems which are commonly used. The one illustrated on this page uses the Quedron liner panel on the inner skin. The built up system is an adaption of the standard system, simply replacing the normal trapezoidal sheet with the Secret Fix. Perhaps the most commonly used system for new buildings is the double skin insulated construction which comprises sealed inner liner, optional additional VOL, bar & bracket spacer, insulation and SF500 outer sheet.

Insulation thickness and composition can be varied to suit design requirements.

Quedron Liners in QLP19/1000 and QLP32/5S profiles are the most commonly used and are available in .4mm and .7mm coated steel with Bright White Liner Enamel finish. Perforated liner in .7mm can be supplied if required for acoustic projects. Information on Non Fragility of Quedron liners is available in the Liner Profiles Booklet.

Quedron should be consulted for draft NBS specifications and details which are tailored to performance requirements for insulation, vapour control, acoustics etc and can be further adapted for project specific requirements.

VAPOUR CONTROL

Following research commissioned by the MCRMA, the BRE report of Feb 2000 concluded that "metal liners provide an effective vapour control layer in twin skinned metal roof construction. So long as the cladding is installed to a reasonable standard with a well sealed liner, it is not necessary to use a separate plastic VOL or breather membrane in most applications."

With more complex build-ups in very high temperature/ humidity buildings extra precautions are still needed in both built-up and composite systems. For SF500 double skin constructions using sealed liner panels the current recommendations are as follows:

Humidity Class	Building Type	Separate VOL
1	Storage areas	
2	Offices, shops	
3	Dwellings with low occupancy	
4	Dwellings with high occupancy ie: Sports halls, kitchens, canteens, buildings heated with un-flued gas heaters etc	●
5	Special buildings ie Swimming pools, brewerys, laundrys etc	●

In class 4 or 5 buildings both methods may be used as 'belt and braces'.
The sealing of the liner when a separate VOL has been installed is optional.

BREATHER MEMBRANES

Work has been carried out by BRE East Kilbride, in collaboration with the MCRMA, to examine in detail the factors that determine the risk of condensation within twin skin metal roofs. This work has demonstrated that, if a well sealed liner is used in conjunction with vented fillers for the outer sheet, only small amounts of condensation may occur on the external sheet over the winter and there will not be sufficient accumulation to cause dripping or running. Therefore, so long as the cladding is installed with a high standard of workmanship with appropriate detailing, especially a well sealed liner, it is not necessary to install a breather membrane except in cases where there is likely to be an unusually high internal moisture load.

AIR PERMEABILITY

Correctly installed built-up systems, incorporating sealed profiled metal liners, to form an effective vapour control layer in twin skinned metal roof constructions, can be expected to achieve an air permeability of 5m3/hr/m3 (at 50 Pascals).

Project specific advice should be sought from the supplier where separate VCL's are required or if there is any doubt as to requirements.

INSULATION

There are several materials available, the most commonly used being mineral fibre and glass wool quilts. The key factors to look out for in the insulation are:

Lambda 90/90 thermal conductivity – ensures that the thermal conductivity complies with CE regulations, non-combustibility, water repellent/non-hygroscopic, chemically inert, rot proof, ease of handling, recyclability, CFC and HCFC free.

UNLOADING AND HANDLING

SF500 sheets are typically of considerable length and therefore careful arrangements must be made to avoid damage whilst handling. Sheets up to 8m long may be unloaded with forklifts taking care not to damage the pan of the sheet. It is preferable to use a lifting beam attachment with slings if unloading with a forklift where sheets are over 8m long.

SITE STORAGE

Where sheets are to be stored on the ground they should be be on a dry, firm base, sloped to allow drainage and should be protected from accidental damage and theft.

LIFTING

The structures load bearing capacity should be considered where packs and sheets are laid on the roof and they must be restrained from sliding down the slope or being moved by wind forces.

The sheet underlap should be oriented towards the direction of lay ready to set out.

A Spreader Beam to assist unloading will be required with all SF500 orders where sheet lengths are in excess of 8m unless we are notified otherwise. Spreader beams are available for sheets up to 68m long.

SF500 sheets up to 8 metres can usually be successfully loaded to the roof without a lifting beam. However, longer sheets must be lifted with a beam and the correct slings.

Sheets over 68m are normally rolled directly from the rollformer up a ramp to the roof (as illustrated on page 28). A telescopic ramp can be hired from Quedron.

SF500 packs of sheets will be packed in bundles of 18 - 20 sheets, however each pack will weigh no more than one tonne in total for shipping by road.

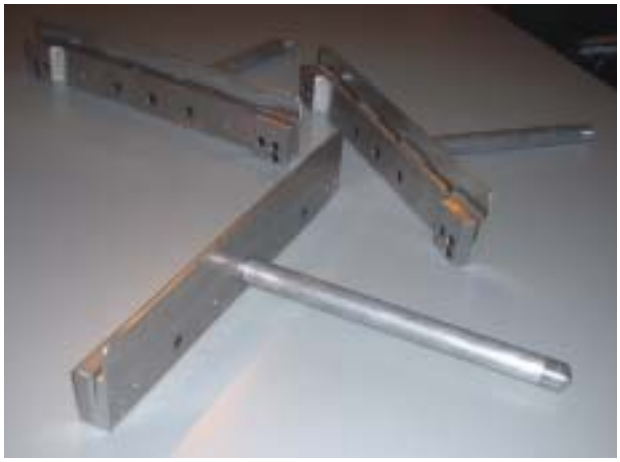
Packs can be produced on-site to 2.5 tonnes when utilising the Elite Spreader Beam.

Proof Load Test up to 5 tonnes using the 52.5m Spreader Bream.

USE OF TOOLS

To ensure that the product is fixed correctly the following tools must be used with every installation of SF500.

It is essential that they are used, and used in the correct manner.



TURN-UP/DOWN-TOOL

Carefully designed to turn up the pan of the profile at the ridge/hip detail.

To turn down the pan of the profile at the eaves detail.

The tool is handed and it must be used the right way around.

PROFILE TEMPLATE

Made of nylon the template is positioned adjacent to the fixing point whilst the sheet is being fixed and ensures that no spread of cover width can occur.

Turndown must be a minimum of 10°.

STANDARD COMPONENTS

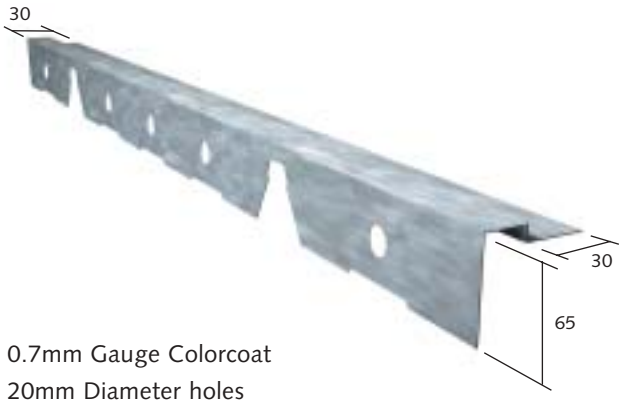
The SF500 system has been designed to incorporate Standard Accessory components which should be used to ensure the integrity of the system.

Component name	Unit Length
*Ridge Support Section	2.020m
*Hip Support Section Blank	3.658m
Verge Section	3.658m
3mm dia Mastic Bead	12m roll
2mm x 19mm Mastic strip	22.5m roll
Ridge Filler	500mm
Eave Filler	500mm
*Raked Hip Ridge Filler	Dependent on roof pitch and hip plan angle
*Raked Eaves Filler	Dependent on roof pitch and hip plan angle

*Requirements for these items should be notified as early as possible to establish availability and lead time. Ridge Support Sections and Hip Support Section Blanks to be notched out on site are held in stock in 10A05 Goosewing Grey HPS200 but other colours availability is subject to stock and lead time. Hip Support sections precut to suit pitch and angle are available but subject to lead time and stock.

Fixing details are given on the following page.

RIDGE SUPPORT SECTION



0.7mm Gauge Colorcoat
20mm Diameter holes
Available in 2.020m length
Effective cover width 2.00m

RIDGE FILLER

Available in 500mm length

The ridge filler should be clipped into the ridge support section prior to fixing.

Fixed at every crest with two secondary fixings. The 2mm x 19mm mastic sealant is fixed to the top face of the section to seal the joint between the ridge support section and the ridge flashing. The ridge flashing is fixed to the ridge support at 500mm centres between the crests of the profile. The end detail allows the overlap over the adjacent section.

We recommend that these are fixed as the roof sheets are laid, not left until later.

FIXINGS

The fixings listed are suitable for use with the system. All those listed are carbon steel. Stainless steel fixings are also available if required.

Primary fixings are listed in Red

Secondary fixings are listed in Blue

Details of fixing locations are given below the table.

PRIMARY FIX

Fixes the underlap of the profile to the main purlin/spacer. Also fixes the bottom flange of the verge section and the Spacer brackets to the purlin in the same manner. Illustrated on the following pages.

SECONDARY FIX

Application and frequency as follows:

A Verge detail to sheet. Through the flange of the verge section, through the mastic sealant into the crest of the profile, as shown in the illustrations on the following pages.

B Ridge/Hip Support Section to sheet. Through the flange of the profile to the crest of the sheet, as shown in the illustrations on the following pages.

C Flashings to Verge Section through the 2mm x 19mm mastic on the upper flange of the Verge.

D Flashings to Ridge/Hip Support Section positioned between the sheet profile crests.

E Drip Angle to sheet pan. Preferably prior to turning the sheet down. One number in the sheet pan either side of each side lap detail.

It is the responsibility of the building designer to ensure the correct specification of all fixings. Specific advice regarding the application of fixings can be sought from Quedron or fixing suppliers.

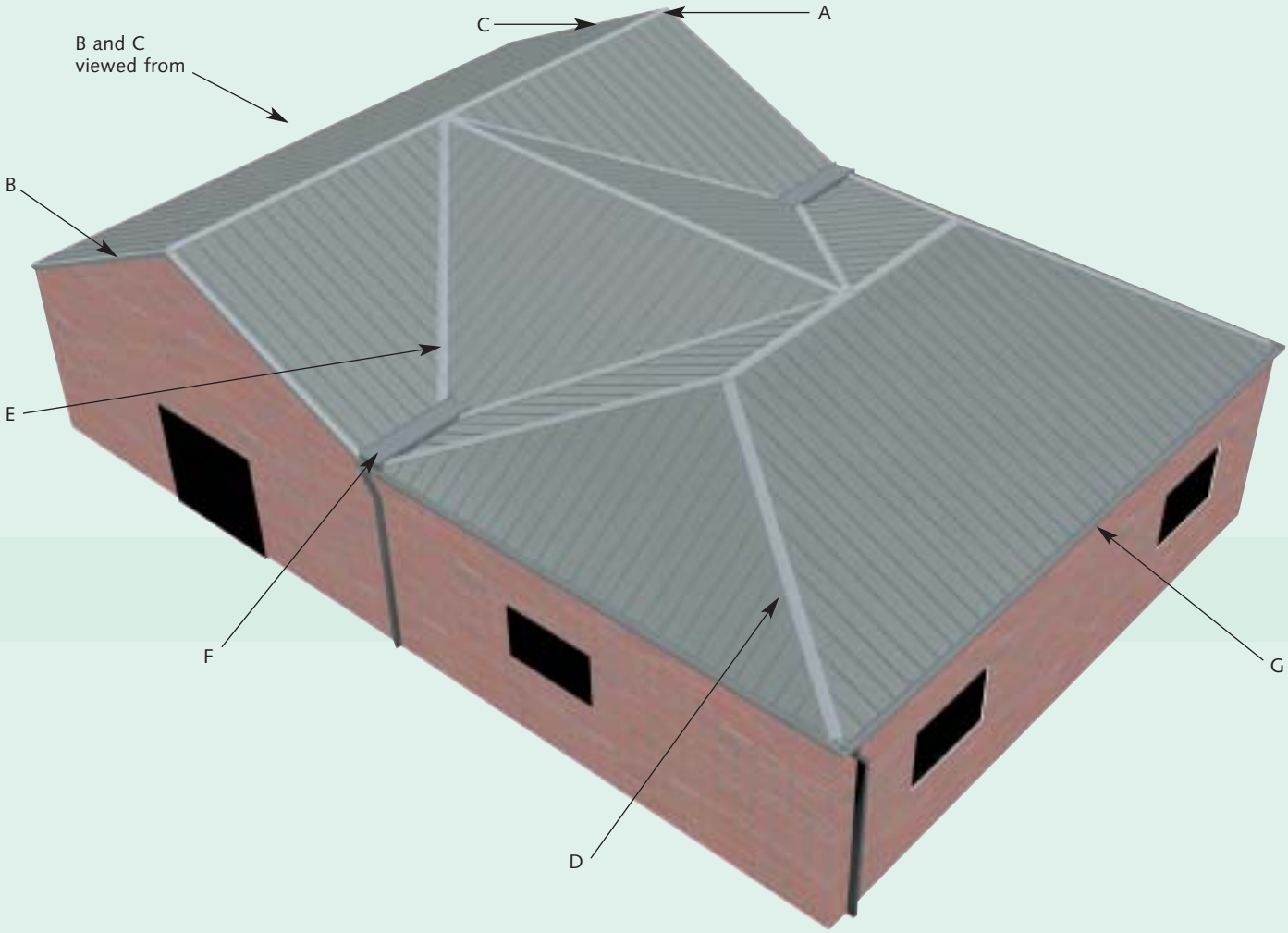
Application	SFS Reference	Frequency
Sheet to Spacer (+ secure bottom of verge)	*SD3-5,5x25 Non-washered	2 fixings at each spacer
Spacer to purlin fixings	*SD3-5.5x25	2 fixings per bracket
Verge Section to sheet crown	*SL2-T- A14-4.8x20	At 450mm centres
Ridge/Hip Support to sheet	*SL2-T- A14-4.8x20	2 fixings at each sheet crest
Drip angle to sheet (Anchor fixing)	*6604/6/3W	2 per sheet
Flashing to Ridge Support	*SL2-T- A14-4.8x20	At 500mm centres
Flashing to Verge Section	*SL2-T- A14-4.8x20	At 600mm centres
Flashing to Hip Support	*SL2-T- A14-4.8x20	1 at the centre of each sheet profile (varies dependent on hip)
Single Skin Application		
Sheet to Cold rolled purlin	*SD3-5,5x25	2 fixings at each purlin
Sheet to Hot rolled purlin	SD14-5.5x32	2 fixings at each purlin

SETTING OUT

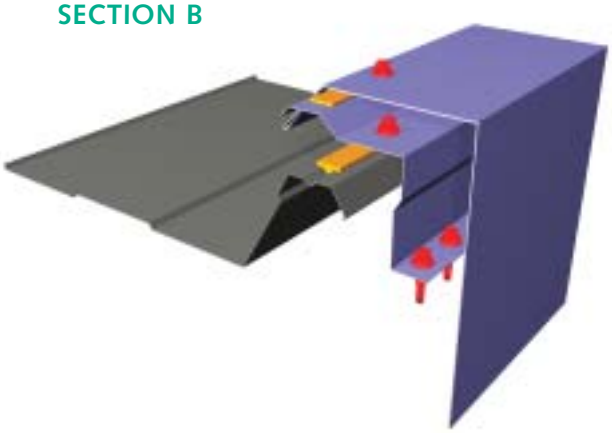
This operation provides a good opportunity to check steelwork for tolerances and to ensure that the design roof pitch has been achieved, particularly at the ridge and eaves. To ensure that the system is set out correctly the fixing template **must** be employed and used correctly.

The SF500 sheets install to a nominal cover width of 500mm. Care should be taken when setting out to avoid variation between SF500 and liner panel cover width particularly where rooflights are to be incorporated.

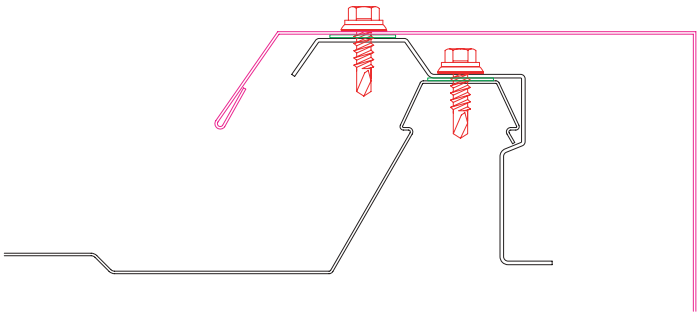
TYPICAL SF500 ROOF



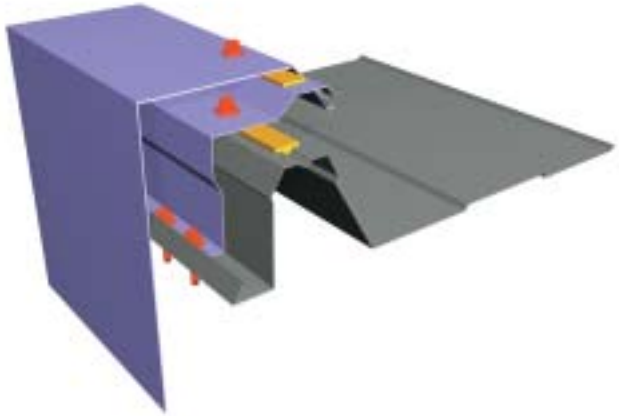
VIEW OF VERGE SECTION B



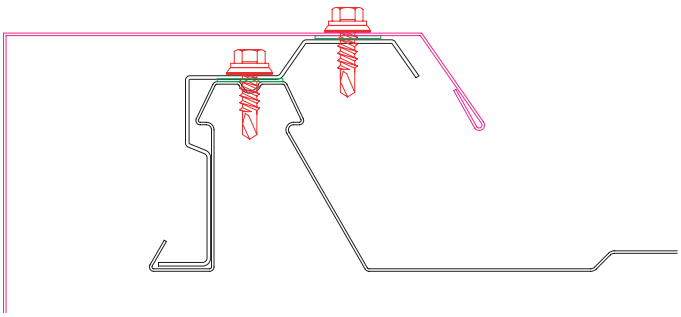
SECTION OF VERGE B



VIEW OF VERGE SECTION C



SECTION OF VERGE C



VERGE SECTION

The section shown as 'Verge Section B' is in fact the starter sheet when sheeting the roof from right to left. The verge section is the first item fixed to the purlins. Since all subsequently laid panels are laid parallel to this verge section it is imperative that it is laid correctly and at right angles to the purlin. The distance from the edge of the roof should also be calculated with care as this will predetermine the position of the last sheet relative to the other end of the roof. It will obviously be ideal if the size of the barge board flashings were the same at each side of the roof and this can only be achieved by careful setting out in the initial stages.

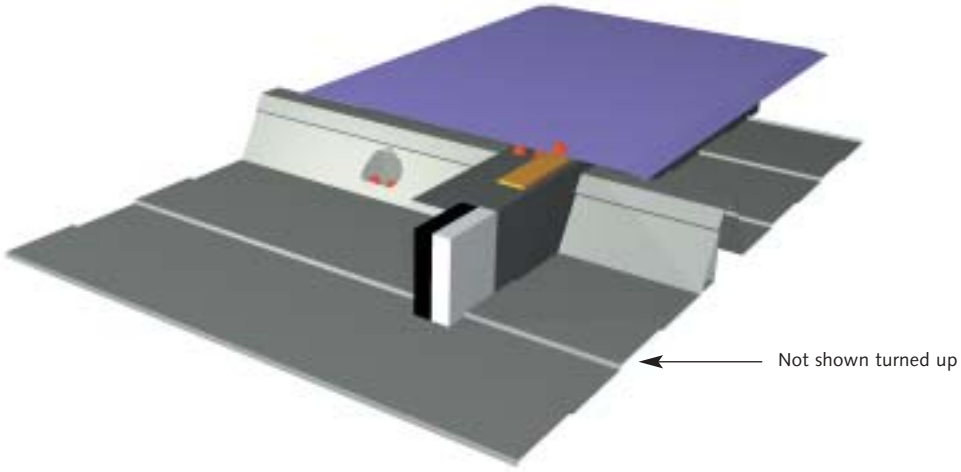
The procedure for fixing is as follows. The first sheet has a strip of mastic laid on the crest as shown and then is placed into the verge section. The location of which is best illustrated in the section drawing.

A fixing is then placed through the verge section and sealant into the crest of the profile. These are fixed at 450mm centres. The Fixing Template is used to secure the sheet while the two Primary fixings are fixed in to the underlap at each purlin. A bead of 3mm matic is laid into the sheet underlap in the grove provided and the next sheet overlap is snapped over to continue fixing.

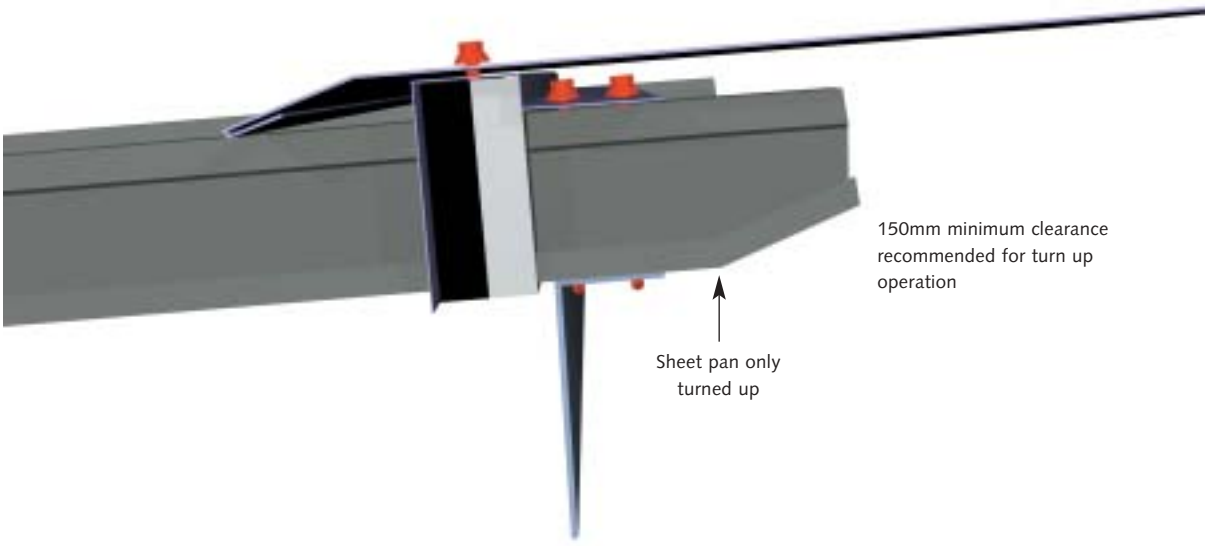
The bargeboard flashing is then fixed as illustrated, again using a strip of mastic sealant.

The procedure for fixing the left hand verge detail is very similar. It is, of course, the same verge section reversed. The last sheet is, in this case, already laid, but not fixed. The bottom flange of the verge section fits inside the underlap of the profiled sheet. The mastic and fixing requirements are as above, or the bead mastic can be used.

VIEW OF RIDGE DETAIL A



SECTION OF RIDGE DETAIL A



RIDGE DETAIL

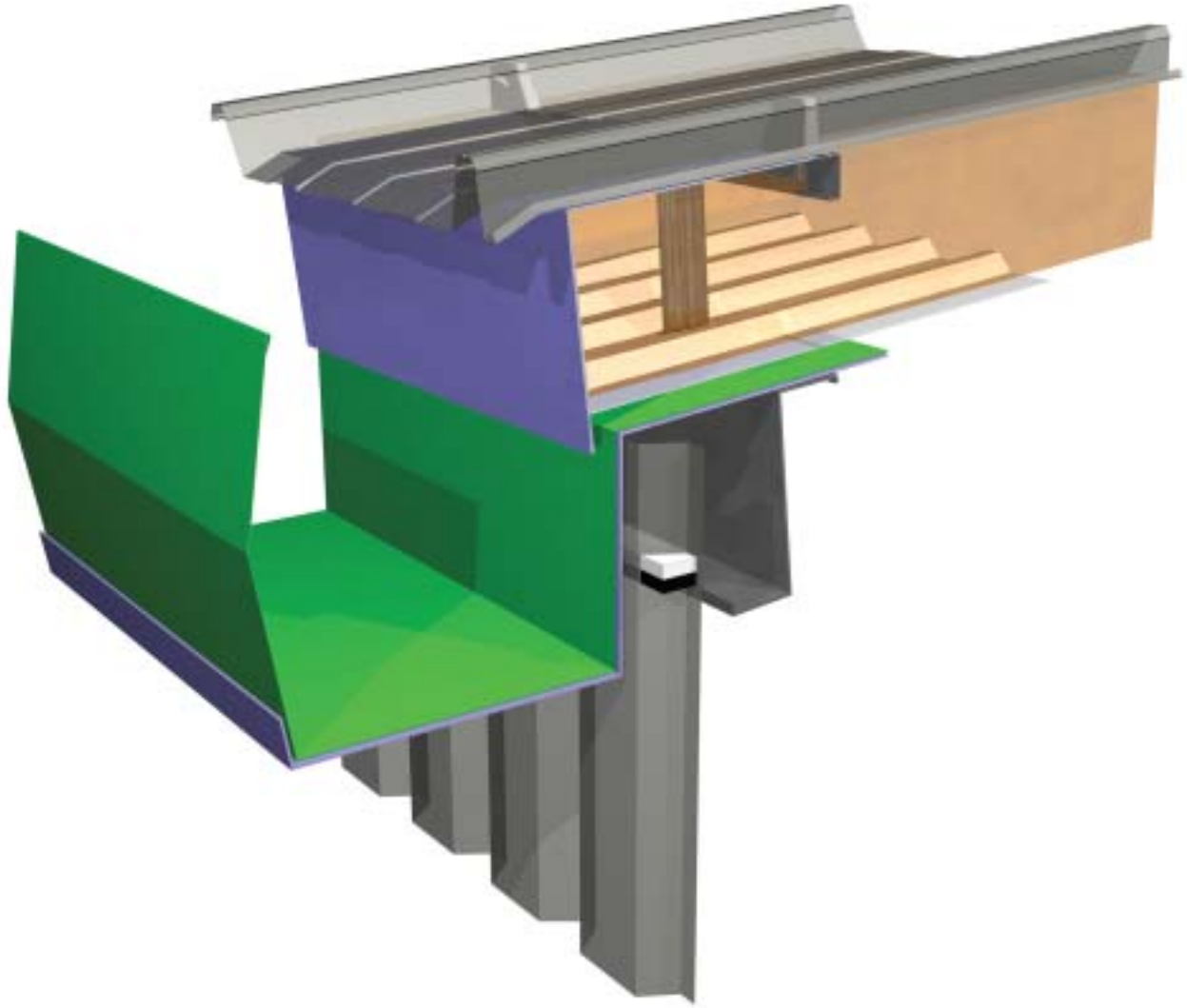
The ridge support detail, together with its filler, is designed to be fitted at 90° to the length of the sheet in a convenient position close to the apex. The filler clips into the ridge support and they are fixed to the crest of the profile in the manner shown in the illustration. It is important to exercise great care when installing the mastic to ensure a continuous bead in the position shown.

The illustration also reveals the pan of the profile turned up at the very top of the sheet. Thus, a secondary barrier is created. All sheets have the pan turned up in the same manner under the ridge flashing. A tool is available from Quedron to facilitate the up turn.

The normal ridge flashing may then be fitted and fixed to the top flange of the ridge support detail, as illustrated. Care must be taken not to penetrate the crest of the profile when fixing the ridge to the ridge support.

The ridge support detail must be fixed in conjunction with the profile as any spread or shrinkage of the sheet will then be immediately evident and corrective action should be taken.

VIEW OF EAVES GUTTER G

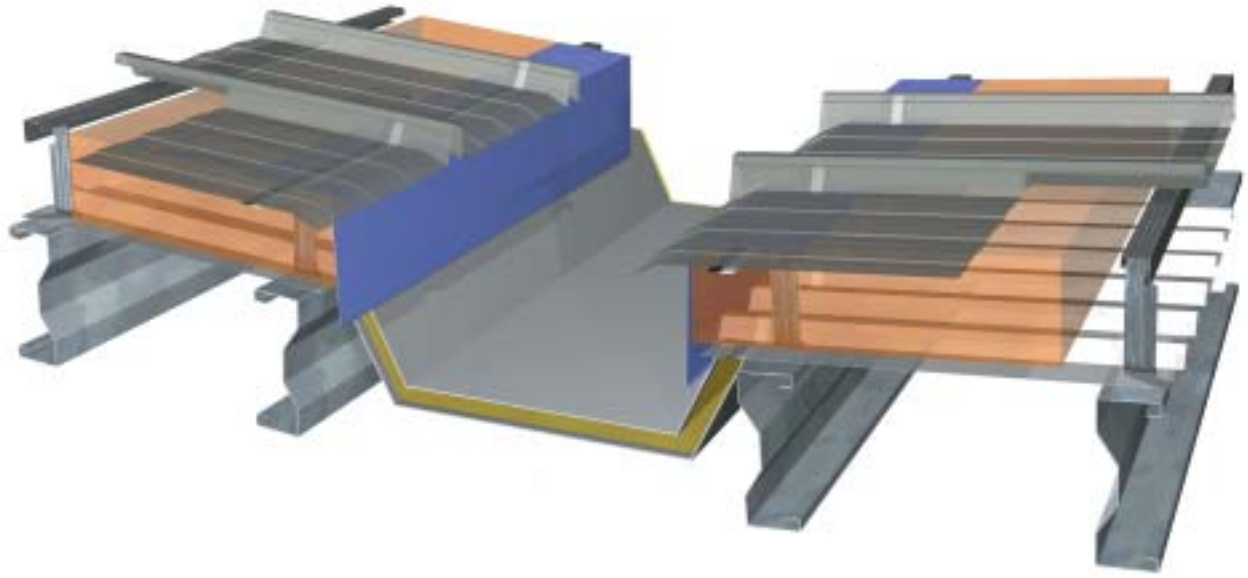


EAVES

The eaves detail incorporates a filler which is usually positioned above the drip angle. The eaves flashing shown here is used in conjunction with a built up system using Quedron liner panel. The detail shown is fairly typical but there are many variations on the same theme.

The last 25mm of the trough is turned down using the tool provided, which stiffens the profile in the critical area and reduces the incidence where water is held on the reverse of the sheet. Anchor fixings together with their flashing, in addition to securing the end of the sheet, also provide an opportunity to place the small flute filler securely.

VIEW OF VALLEY GUTTER F



The Valley Gutter detail, as illustrated, includes the use of the Quedron liner panel although the principals of the construction could be amended to exclude it if required.

Individual circumstances will predetermine which details are applicable, but the arrangement illustrated includes the basis of the construction.

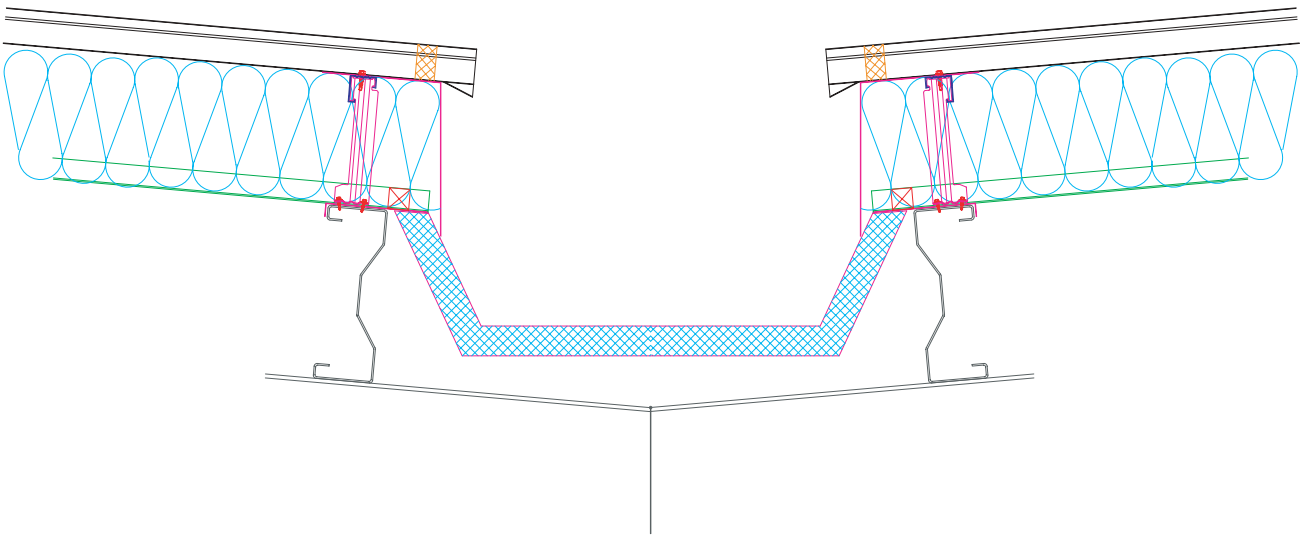
The small flute filler will be fixed in the position above the last spacer or the drip angle where the anchor fixings are located.

Allowance should be made to turn down the trough of the profile and incorporate the flashing to which the anchor fixings are attached.

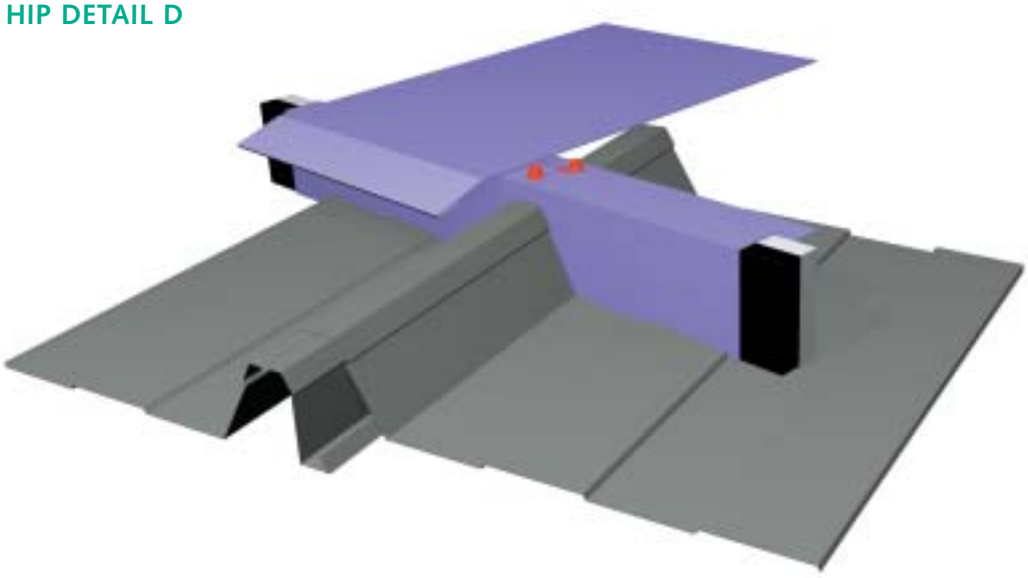
The location of the anchor fixings allows the opportunity to place the small flute filler nearer the end of the sheets, if required. An alternative flashing detail is shown here to that shown on the Eaves gutter. In all cases the anchor fixing must be applied.

Fixing the drip angle prior to turning the sheet pan down is recommended. Care must be taken not to tear the sheet.

SECTION OF VALLEY GUTTER F



VIEW OF HIP DETAIL D



SECTION OF HIP DETAIL D

HIP DETAIL

The hip is perhaps the most difficult section to detail for the secret fix systems. They usually involve very costly sections which add significantly to the overall budget. Quedron's system is straightforward and cost effective. Essentially a modification of the ridge support detail, the pitch of the notches and their shape vary with the pitch of the roof and the angle of the hip.

A 'blank' is supplied which is notched out by the contractor on site to fit the profile.

The procedure for fixing is identical to that of the ridge support.

The pan of the profile is turned up by the Sheeting Contractor on-site.

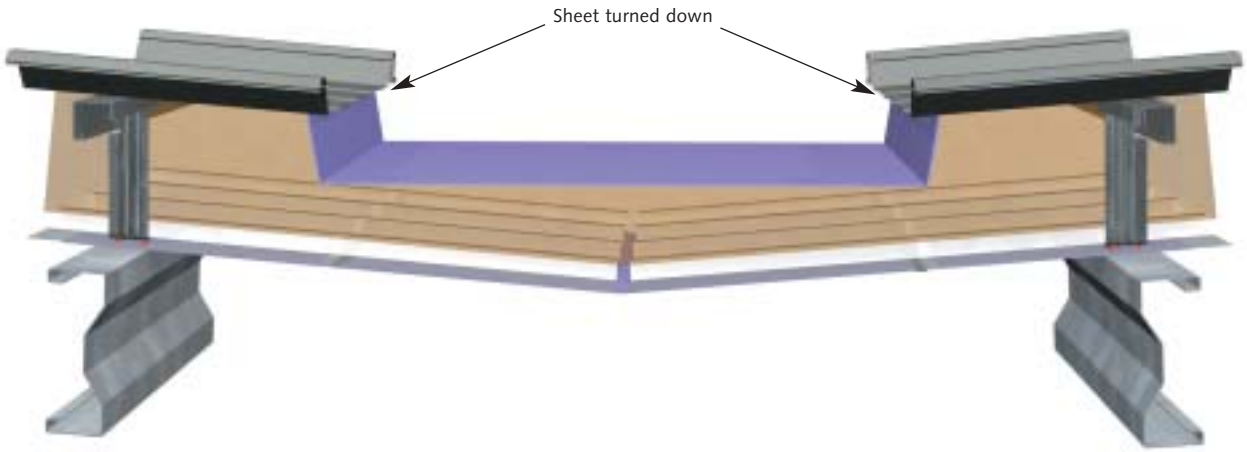
VIEW OF HIP GUTTER E

SECTION OF HIP GUTTER

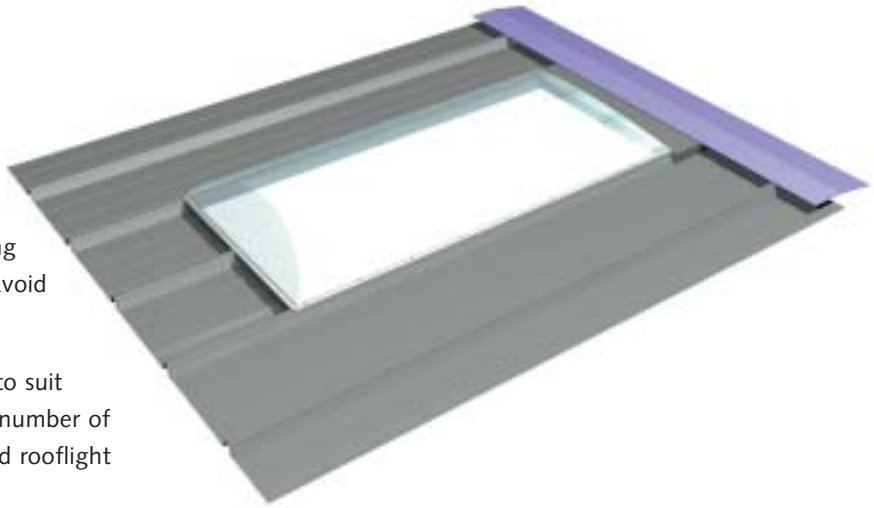
Rake cutting of the sheet must be carried out with the utmost care since the profile is difficult to cut neatly. The angle of the hip will determine the distance between the main profiles and this could increase the effective pitch of the profile considerably.

The support/drip flashings can be manufactured in plain galvanised steel up to 1.6mm thick to give the support necessary.

SECTION OF HIP GUTTER E



ROOFLIGHTS



A common form of roof penetration requiring careful attention is the rooflight. Attention should be paid to cover widths during installation of both liners and SF500 sheet to avoid misalignment in rooflight details.

There are a wide range of rooflights available to suit SF500 in both GRP and Polycarbonate from a number of manufacturers. There are two types of standard rooflight available for SF500,barrel vault and in-plane throughfixed.

A. ROOFLIGHTS WITH NO PRIMARY FIXINGS

Where the use of primary fixings penetrating the outer skin is prohibited the Barrel Vault rooflight is the only satisfactory answer. One such system is illustrated below. The extra cost of such an item is compensated by the units integrity. The item illustrated is manufactured in sections to fit any size of roof opening. They must start at or very near to the ridge but can be terminated whenever required down slope. The system drawing illustrates one particular type.

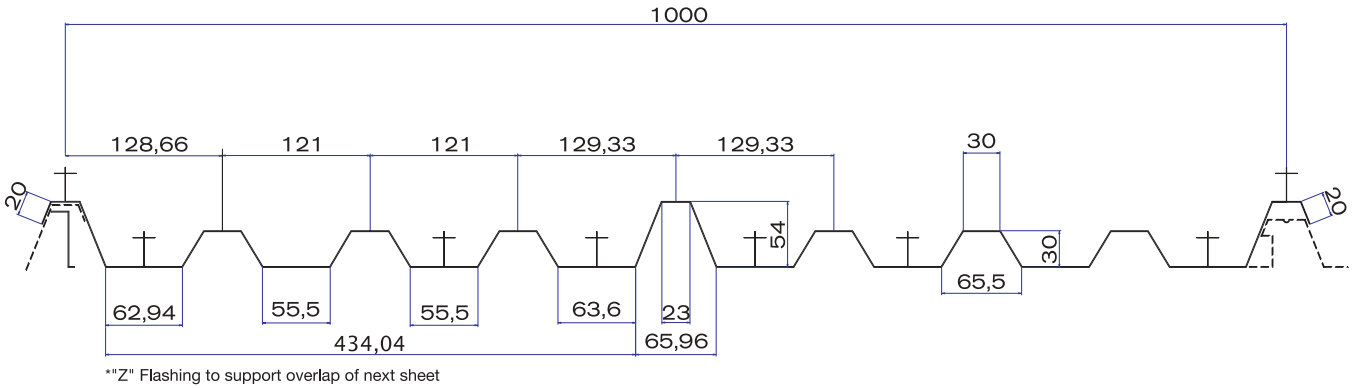
B. ROOFLIGHTS WITH VISIBLE FIXINGS

There is only one type of rooflight which can be incorporated into the SF500 system if primary fixings penetrating the weather sheet are acceptable.

1000mm COVER WIDTH

The sheet is suitable if a site assembled light is required. The liner translucent is fixed by the normal method. The outer sheet is a trapezoidal shape with two side overlaps. Again primary fixings penetrate the sheet (as illustrated) at every purlin. End laps are possible but not recommended below 5°. The appropriate washers must be used with the primary fixings. The sheet must run from ridge to eave.

A secondary translucent may be required to form a 'triple skin' system for compliance with the building regulations.



*"Z" Flashing to support overlap of next sheet

ROOF ACCESS

SF500 is designed as a low maintenance system and generally the sheets can be walked upon without imposing damage. However, care should be taken on precoated material not to damage the coating.

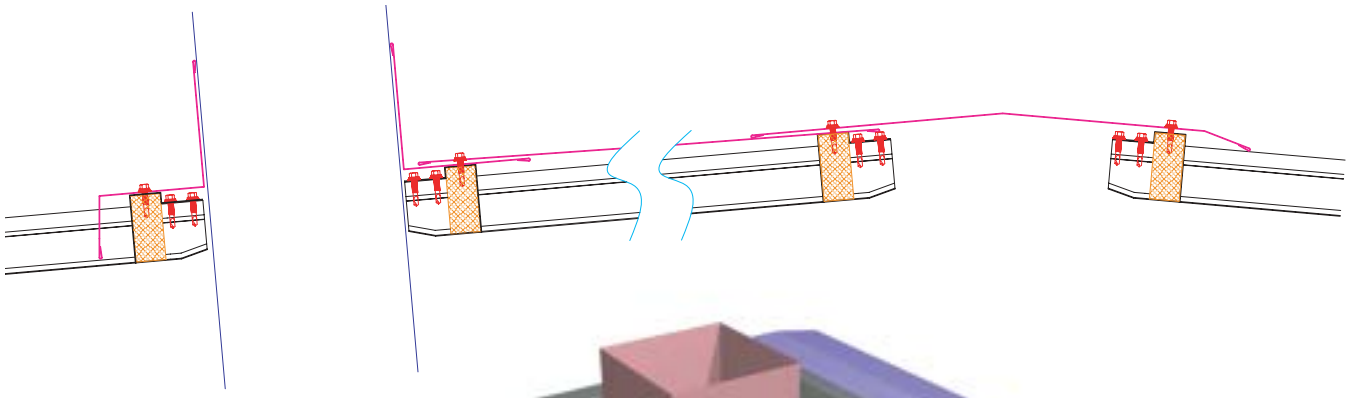
FALL ARREST SYSTEMS

Design Considerations – General. Take the following into consideration when choosing, designing and specifying a Fall Arrest/Restraint system for SF500:

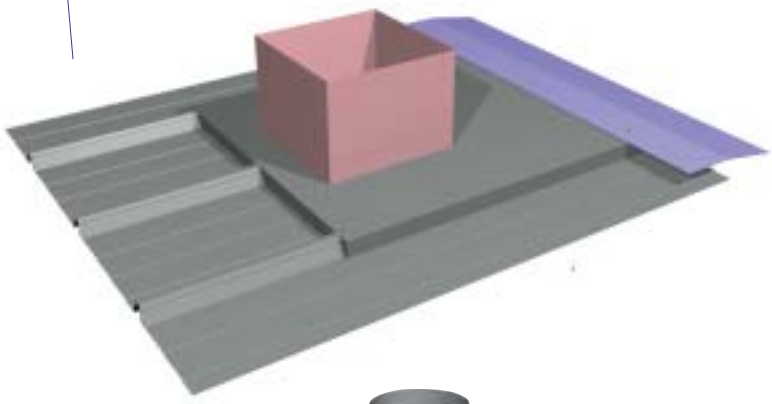
- The use of non-penetrative systems is recommended
- Identify the areas of the roof which require access for cleaning, maintenance or inspection
- Give consideration to safe access points and ground clearance, whilst keeping the system more than 2 metres from the nearest hazard where possible
- Review anticipated or actual work patterns to determine the number of workers required to use the system simultaneously.

ROOF PENETRATIONS

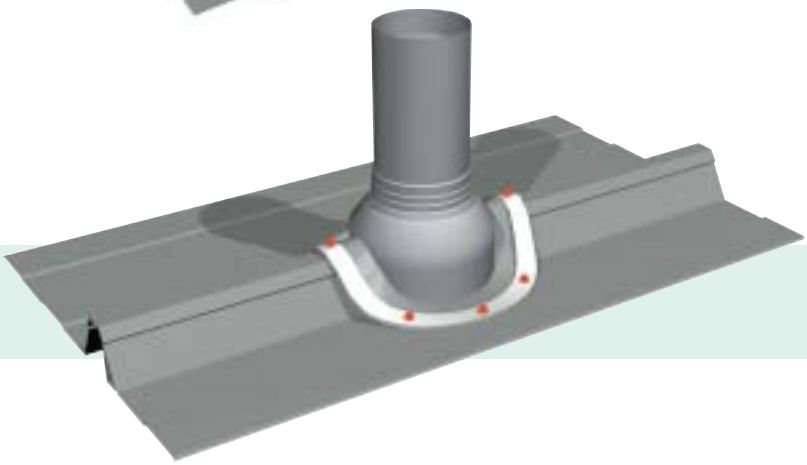
SECTION THROUGH LARGE ROOF PENETRATION



GENERAL VIEW OF LARGE ROOF PENETRATION



GENERAL VIEW OF SMALL ROOF PENETRATION



OTHER PENETRATIONS

There are an infinite number of reasons for roof penetrations, but where possible, on a Secret Fix roof of low (below 5°) pitch, they should be avoided. Inevitably it will be necessary to accommodate such details and, with care, satisfactory solutions can be achieved.

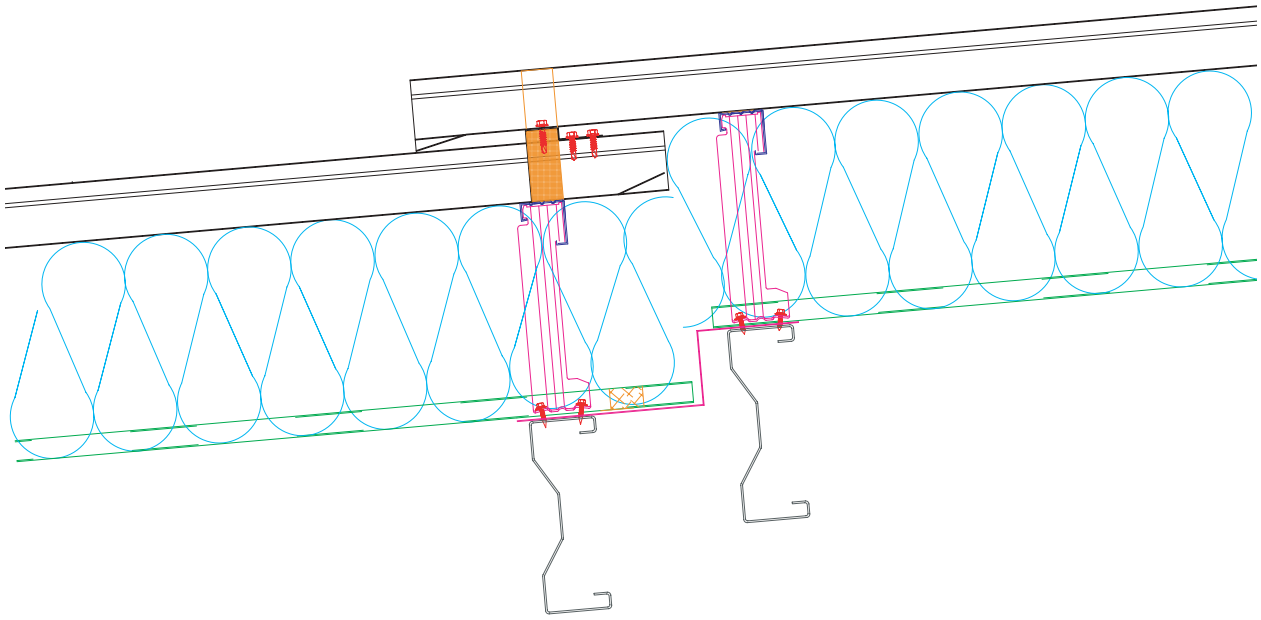
Two examples of the type of penetrations which are most common are illustrated. The detail of the flashing must be such that the troughs should not be blocked.

If the penetration is of a diameter and position that a trough would be completely filled then this must be detailed back to the ridge capping, as illustrated.

Where large penetrations are necessary it is possible to use ridge support sections to support the flat areas of flashing.

Note: As with any large penetration, structural trimmers may be required to support the built-up system.

ROOF STEP



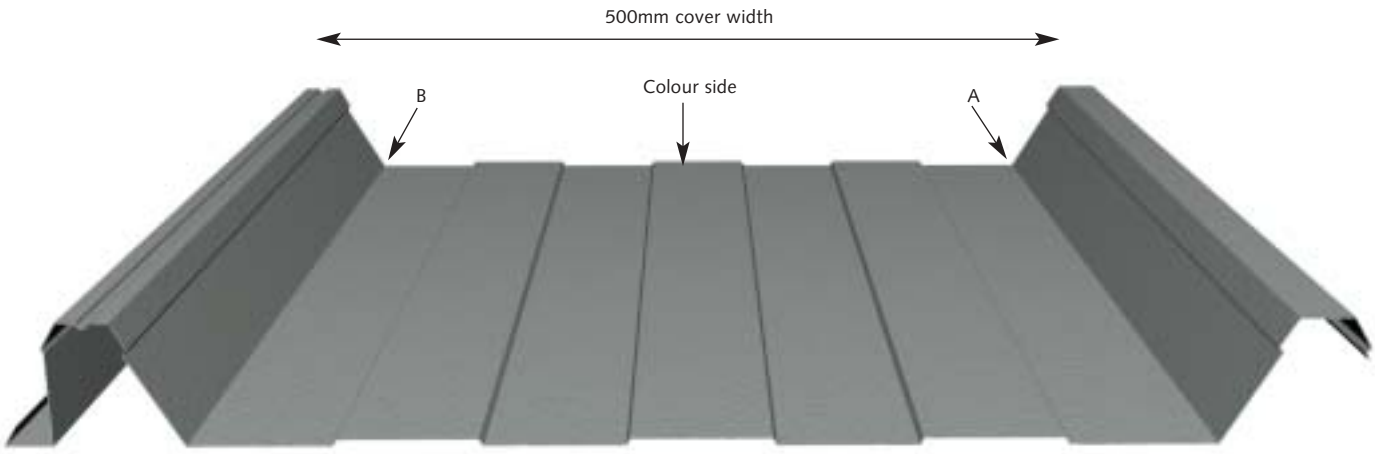
It is the very nature of the Secret Fix system that makes the successful achievement of an end lap virtually impossible. It is in certain circumstances however, sometimes impossible to fix one sheet from ridge to eave.

One can think of examples such as excessive roof slopes or problems with access which demonstrate this point.

A step detail has been designed which allows the specifier the advantage of using the Secret Fix system where previously the length of sheet required would have been prohibitive.

Using standard components the detail illustrated reveals a strong, easily fixed effective step. Should you require any advice on incorporating this feature, please contact the sales office.

REPLACING DAMAGED SHEET



Traditionally a problem with Secret Fix systems is the replacement of a damaged sheet, particularly if it is in the middle of a long run of sheets. This problem was addressed at the design stage of SF500 and as a result, replacement is straightforward and relatively painless.

The most important factor in replacement is ensuring that the adjoining sheets are not damaged in the process, necessitating another replacement. There are several methods but the one that Quedron recommends is as follows:

Cut along the whole length of the damaged sheet approximately in the positions shown in the below diagram as 'A' and 'B'. Once completed, carefully remove the pan of the profile with particular regard to the sharp cut edges.

Gripping the remainder of the sheet at 'A' it will be straightforward to 'unclip' the overlapping edge.

With great care to avoid damage to the adjoining sheet's overlap, gently prise away the remaining section left by the cut at 'B'. This will then allow access to the primary fixings in the underlap. The old underlap section can then be removed.

During replacement it is important to ensure that all the old mastic is removed and a new bead laid. Laying of the new sheet will be then straightforward.

ON-SITE PRODUCTION

All Quedron site produces SF500 Secret Fix projects have pre-production site visit to discuss Quedrons' and the Contractors requirements and responsibilities on site.

A Site Specific Method Statement will be provided for The Roofing Contractor and Main Contractor.

COIL DELIVERY

A dedicated delivery of coils will be sent to site on projects larger than 500m^2. The Contractor must supply a counterbalance or telescopic truck to unload the coil into a prepared safe area on arrival to site. Coils weigh a maximum of 2.5 tonnes.

MOBILE ROLLFORMING TRAILER

TRAILER DETAILS:

Length:	15.30 metres
Height:	4.04 metres
Width:	2.60 metres
Weight:	33 tonnes (approx)

PRODUCING SHEET LENGTHS UP TO 68 METRES

MANPOWER

Quedron will supply manpower to produce sheets lengths up to 18 metres without labour assistance from the Contractor.

For sheet lengths over 18 metres up to 30 metres 3 labourers are required to assist the rollforming team. For lengths over 30 metres please consult the Quedron Sales Office.

WORK PROCEDURE

The rollformer will arrive on site and set up in the required location as determined in the pre-production site visit for rollforming sheets.

The rollforming team after attending any required Site Induction will then produce the sheets and pack at ground level onto polystyrene bearers and then secure the sheets for ready for lifting with a nylon banding system.

All cut lengths are required 10 working days before site commencement.

The process can then be completed at different locations around sites (where required) to keep crane size requirements down – and in-turn cranage costs.

USING THE RAMP

MANPOWER

Quedron will supply manpower to produce sheets to the ramp and up to the roof height. The roof area is the responsibility of the Contractor. The roof area must be prepared before production commences.

Careful planning will ensure trouble free site operation.

NB. All loading of the roof area will be the Contractors responsibility.

WORK PROCEDURE

The rollformer will arrive on site and set up in the required location ready for ramp set-up. Before the ramp is erected it is possible to relocate it into position using lifting slings along with a Telescopic Fork Truck.
The ramp is then erected using the on board motorised controls. Assistance may be required.

For further details please contact the On-site Production Department at Quedron.

THE MOBILE RAMP

The Mobile telescopic ramp enables Quedron to produce sheets in excess of lifting restrictions with ease to the roof. SF500 sheets have been produced in single lengths up to 87 metres long.

QUEDRON

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