APPENDIX 8

STANDING SEAM SHEET ROOF SPECIFICATION

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English version

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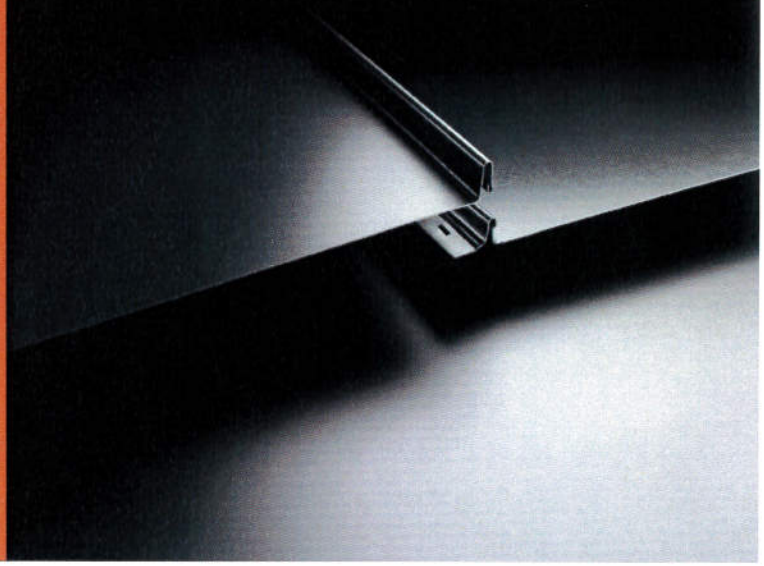
A Tata Steel Enterprise

SSR² Standing Seam Roof & Cladding Product Guide

January 2016



Contents

BUILD IT BETTER WITH CATNIC

SSR² standing seam roof and cladding is the latest innovation from Catnic.

A sustainable pre-finished steel roofing and cladding system designed for the residential and commercial market. SSR² is a fully supported standing seam system, designed, manufactured and CE Marked in accordance with BS EN 14783:2013.

SSR² is manufactured from Tata Steel's Colorcoat HPS200 Ultra® pre-finished steel, making it a cost effective alternative to traditional copper and zinc standing seam roof systems. Seven times lighter than clay or slate tile equivalents, it's easy to handle on site and quick to fix compared with traditional roofing products.

SSR² standing seam roof and wall cladding is lightweight, durable and easy to install. Available in a range of colours, the system provides an original and modern roofline for any property; for pitched roofs as low as 5°.

Our steel roofing and cladding systems are rated 'A+' within the BRE Green Guide, BBA approved and because it's Catnic you can rely on the best customer support and technical specification, to installation and beyond.

AN INTRODUCTION TO SSR²

An innovative steel system, creating imaginative finishes to a versatile range of unique projects across the UK.

Catnic SSR² has been exclusively designed to accommodate a wealth of building applications and installation requirements, from standard residential homes and executive dwellings, to social housing projects and community buildings.

Developed as an economic alternative to zinc, copper and lead, SSR² combines architectural aesthetic appeal and high performance.

Key benefits:

- Quick fit system reduces installation time on site compared with traditional roofing products
- Can be installed on a roof with a pitch as low as 5°
- Seven times lighter than traditional roof tiles
- When installed as wall cladding, can be laid vertically or horizontally
- Available with 305 mm or 514 mm cover widths
- BRE Green Guide A+ rated product and 100% recyclable at end of life
- BBA Approved Roofing & Cladding System, Certificate No: 15/5279
- Class AA (roof) and Class O (wall) Fire Performance rating
- Manufactured from Tata Steel's Colorcoat HPS200 Ultra® pre-finished steel which is certified to BES 6001 Responsible sourcing standard
- CE Marked to BS EN 14783:2013.

MATERIAL AND FINISHES

The quick fit roof and cladding system is manufactured from Colorcoat HPS200 Ultra®, which has been designed with leading architects to produce an enticing colour palette.

Made in the UK to European standards, the versatility of Catnic's latest product enables architects to design a variety of contemporary construction solutions that are lightweight and durable.

Colorcoat HPS200 Ultra® pre-finished steel by Tata Steel

Colorcoat HPS200 Ultra® pre-finished steel provides exceptional performance and corrosion resistance for building envelope applications.

It is backed up with even more extreme testing and real world global data to demonstrate the best combination of excellent colour stability, gloss retention and outstanding durability.

Whatever your type of building, from warehouses to houses, retail outlets to processing plants, Colorcoat HPS200 Ultra® demonstrates proven performance and reliability.

Product features and benefits:

- **Optimised Galvalloy® metallic coating for exceptional corrosion resistance and cut edge protection.**
- **Surpasses requirements of Ruv4 and RC5 as per EN 10169:2010 proving excellent colour and gloss retention and corrosion resistance.**
- **Scintilla® embossed as a mark of authenticity from Tata Steel.**
- **Made in the UK for a lower carbon footprint and certified to BES 6001 Responsible Sourcing standard.**
- **BBA certified for durability in excess of 40 years.**
- **Fully recyclable.**

Scintilla®

Unique to Colorcoat HPS200 Ultra® the Scintilla® emboss has been developed with a depth of only nominal 50 microns, which makes it less likely to trap dirt than deeper leathergrain embosses therefore making the pre-finished steel easier to clean whilst being more robust.

Unlike leathergrain patterns the emboss is subtle and does not detract from the overall appearance of the building, looking smooth and creating a modern building appearance from a distance. The Scintilla® emboss provides a unique guarantee of authenticity and an overall thicker protective top coat from Tata Steel.

Colour swatch samples are available on request please contact **catnic.marketing@tatasteel.com** or call

+44 (0) 2920 337919

British Board of Agrément Certificate

The long-term performance of Colorcoat HPS200 Ultra® has been recognised within BBA certificate 91/2717 as "Colorcoat HPS200 Ultra® coating and metal treatment will protect the steel substrate against corrosion for a period in excess of 40 years in normal industrial, urban, suburban and rural environments."

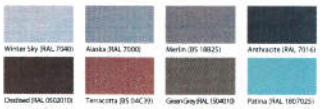
Colorcoat, Colorcoat HPS200 Ultra, Galvalloy and Scintilla are trademarks of Tata Steel UK Limited.

Colour excellence

Excellent colour and gloss retention to the highest European standards, enable your roof to retain its colour for longer, with Galvalloy® metallic coating for ultimate corrosion resistance.

Colour guide

A naturally inspired blend that is sympathetic to the urban landscape, ensuring harmonious integration with the surrounding environment. The tonal matt shades integrate seamlessly between different facades including glass, brick, wood, stone and render delivering effortless modern finishes.



RAL References

4 digit numbers are RAL Classic references. 7 digit numbers are RAL Design references. RAL reference numbers shown, represent the nearest colours and are not exact matches to Colorcoat HPS200 Ultra®.

Colour consistency

If tonal consistency is critical, all cladding for a single elevation should come from the same production batch.

Matching components

If accessories made from other materials are to be colour-matched to the roof or wall cladding, the best reference is the actual profiles or panels delivered to site, or material from the same batch.

SSR² ROOFING

For conventional structure and housing design, SSR² offers the traditional formed standing seam profile, an ideal choice for low rise and residential solutions.

Performance details

Wind loadings on a roof are dependent on:

- Building location
- Building height and number of storeys
- Roof pitch
- Topography

SSR² has been designed to withstand wind loadings across the UK as calculated in accordance with BS6339-2 and BS EN 1991-4. The table below gives guidance on the suitability and specification of SSR² roofing panels for different buildings.

Roof Pitch	No. of Storeys	Wind Speed V_s	305mm Panel Width	514mm Panel Width
5-9°	<3	<25	✓	✓
		≥25	✓	x
	4-8	<25	✓	x
		≥25	✓	x
≥10°	<3	<25	✓	✓
		≥25	✓	✓
	4-8	<25	✓	✓
		≥25	✓	x

A structural engineer should complete a wind uplift calculation for your specific location before making any final decisions.

The SSR² standing seam roof can be fixed to 18mm OSB 3, WBP and marine ply board or SIP panels with a 15 mm boards. The characteristic pull out resistance of the fasteners used to fix SSR² are shown in the table opposite.

UK Wind Chart

Fixing Type	Thickness of OSB Board (mm)	Characteristics Resistance (kN)
Z-FRP40W3	15	0.88
	18	1.10

SSR² ROOFING

Acoustic

The built up nature of SSR² standing seam roof and cladding allows greater flexibility to deliver acoustic solutions for residential and commercial buildings.

The structure of a building's walls and roof can be engineered to modify the level of sound energy according to the client's acoustic requirements. Where special considerations are essential, architects / specifiers will address the needs to control the internal acoustics or reverberation of a building with input from an acoustic engineer.

In very high winds "drumming" of the SSR² could occur. To minimise any possibility of this occurring the mid-span deflection of the sheet should be limited to 10mm. The table below shows the maximum allowable wind uplift to limit deflection to 10mm and 20mm.

Uplift wind deflection values (kN/m²)		
	10mm deflection	20mm deflection
305mm	3.49	6.98
514mm	0.73	1.46

Fire

Catnic's SSR² manufactured from Colorcoat HPS200 Ultra* can meet all the fire performance requirements for external roof coverings.

Colorcoat HPS200 Ultra* has a notional designation of AA (National Classification) and BROOF(T4). There are no restrictions in UK Building Regulations on the use of roof coverings that are designated AA, AB or AC or BROOF.

*Terms and conditions apply

European roof products that meet the requirements stipulated in Commission Decision 2000/533/EC can be considered to satisfy the requirements without the need for testing.

Impact resistance

SSR² standing seam panels used in both roof and cladding applications, will have adequate resistance against hard and soft body impact in combination with the standard wood board build up. Panels have been engineered for impact resistance in accordance with MOAT 43: UEAtc Directives for impact testing opaque vertical building components, and Part 2.2.1: Impact from large soft bodies and MOAT 43: UEAtc Directives for impact testing opaque vertical building components. Part 2.2.2: Hard body impacts.

Condensation risk

All roof systems are prone to the risk of condensation; this can arise as either interstitial condensation within the roof construction or surface condensation at areas of thermal bridges.

Simple measures can be taken to prevent condensation forming between the panels and underlying substrate, thus minimising the risk of water vapour reaching the OSB board:

- Vapour control layer in the roof construction providing an adequate seal around the ceiling to prevent moisture entering the roof construction.
- Breather membrane in the roof construction to allow the air to circulate freely
- Adequate insulation level meeting current U-values

Lightning risk

The Catnic SSR² standing seam roof is no more likely to be struck by lightning than any other roofing material; it is the building shape and position relative to other buildings that has most influence over a lightning strike. Metal roofs are generally safer than other roofs in a lightning storm.

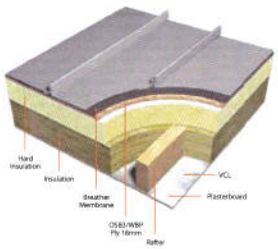
There is no specific requirement for the Catnic SSR² standing seam roof to have a lightning conductor but as with most buildings any risk of lightning striking the building should be covered during the design of the building by a suitably qualified person. The risk assessment would normally be carried out in line BS EN 62305.

SSR² ROOFING

The versatility of SSR² standing roof system allows for a variety of construction solutions.

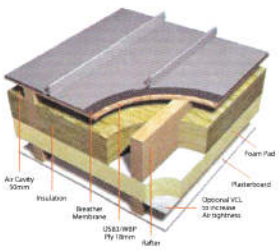
Warm roof build - up

SSR² standing seam warm roof system encompasses the essentials of modern metal roofing. The metal profile provides the traditional pitched detailing of a standard roof, whilst the inherent thermal performance is provided by standard insulation in a tightly packed formation.

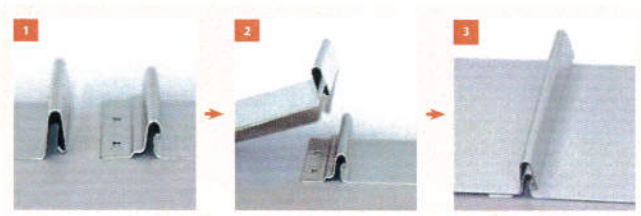


Cold roof build - up

SSR² standing seam cold roof system contains all the details of a warm roof system, but has been specifically designed for use on pitched roofs, and is suitable for use within the majority of timber framed construction. Allowing an additional 50mm air cavity and optional VCL to increase air tightness, whilst introducing a foam pad insulation instead of the hard insulation incorporated into the warm roof build-up.

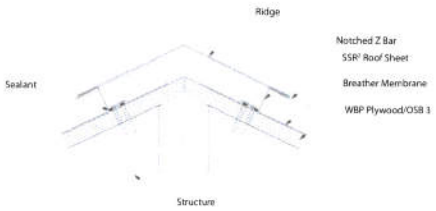


Simple locking design

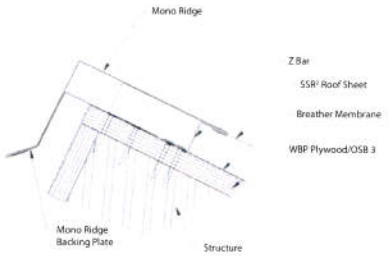


SSR² ROOFING

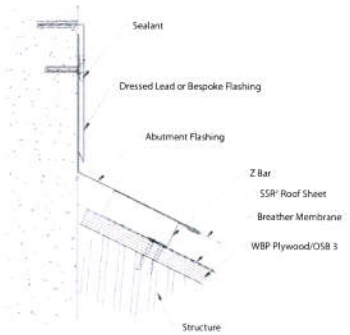
Duo Pitch Ridge



Mono Ridge

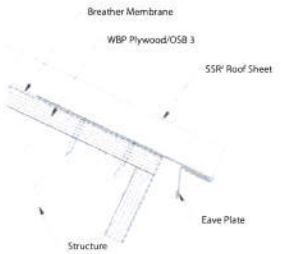


Top Abutment

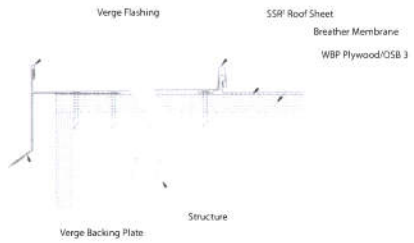


SSR² ROOFING

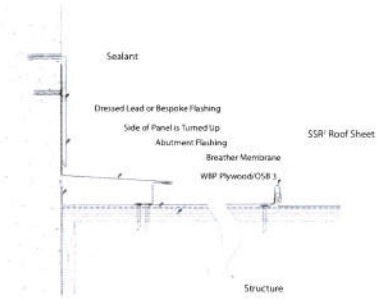
Eaves



Verge



Side Abutment



SSR² ROOFING

Installation guidance

Comprehensive installation and specification guides are available from Catnic on request. For those unfamiliar with metal roofing systems we have outlined the basic procedures and processes.

Measuring a Roof

Catnic manufactures all roof and wall components based on accurate measurements supplied by the customer. These details should be provided within the drawings produced by the roof truss or SIP panel manufacturer.

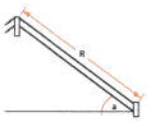
Please read this document carefully before specification and ordering

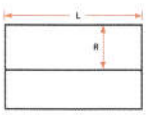
The maximum panel length produced by Catnic is 12.5m, this is due to the thermal expansion of the panel. When installing roofs over 12.5m we recommend panels are split or a change in the fall created with a mansard or two joining panels.

When estimating please remember:

For straight roofs we require the following details:

- (L) rafter length including facia board
- (R) angle of pitch
- (a) identify whether mono or duo pitch roof is required





When estimating fixings please note the 514mm wide panel will require a minimum of 6 fixings per square metre, and four fixings per linear metre along the eaves and verges. At the ridge 8 fixings per linear metre is required for duo pitched roofs and 4 fixings for mono pitched roofs. If using screws for the ridge, remember to space every 500mm, halving the number of ridge fixings.

IMPORTANT NOTICE

Whilst Catnic take care in providing information or advice on its products, we do so only on the basis of the facts that may be supplied (and without further investigation of them) and do not accept any responsibility for providing inaccurate, misleading or incomplete information or advice.

Before relying on any information or advice supplied by Catnic (whether in this communication or otherwise), the recipient should satisfy itself of the accuracy and appropriateness of that information or advice.

SSR² ROOFING

SSR² Installation

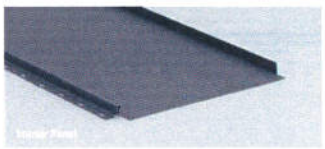
Existing Controls:

1. Cut resistant gloves to be worn when handling SSR² steel components.
2. Two man lift when lifting & positioning panels
   - Refer to risk assessment for lifting procedure.
3. Working At Height – Fall arrest mats to be positioned at perimeter of training rig.
4. PPE - As per risk assessment.
5. Work area to be segregated by temporary safety barrier / bunting.
6. Contractors to be supervised when operating nailing equipment.
7. All lifting activities to be communicated to training supervisor.
8. Only training supervisor to operate circular saw.

Operation: Installation of SSR²

Roof Panels

1. Refer to the roof drawing to ensure the roof dimensions provided correspond to, panel lengths and quantity of panels including starter and end panel widths. (When calculating the roof cover width, an additional 25mm are added for an overhang at both start & end positions) mark the panel seam positions across the width of the roof to check the cover width is correct.
2. Check the boarding surface for any protruding screws, nails or staples. If found remove before installing panels.
3. Identify the starter panel, this has an upturned flange and nailing strip. Note - Both starter and end panels will require 25mm notches cutting.



4. Lay the panel on the roof with the notched end positioned to the eave. Allow the end of the pan up to the notch to fall over the eave, using the flange mate, fold the pan down past 90 degrees so as it latches under the eaves plate. When installing in hot conditions position the panel notch slightly forward of the eave plate (Approx 3-4mm) and fit fasteners into the back third portion of the nailing slot. On very cold days position the panels so the notch is located level to the eave plate and the fasteners installed into the front third portion of the nailing slot. The installer should also ensure that the cover width is maintained.
5. Locate the starter panel so as the flange/upturn is positioned level to the outside edge of the verge backing plate.
6. Fasten the starter panel in position using the specified nails. All fasteners should be installed into the nailing strip slots at 180mm centres. Nails must be installed to allow lateral movement during expansion and contraction.
7. Once the starter panel is secured all intermediate panels can be installed. Follow steps 4 & 6. Position the folded notch to the eave plate and align the female profile over the male of the previously installed panel. Using a rubber mallet hammer the female profile onto the male.
8. Once the male and female seams have been connected the panel can be secured as per step 6. The installer should also ensure that the cover width is maintained. The panels may need stretching to ensure the cover width of 514mm or 305mm is maintained. This is achieved by pulling the pan against the clipped edge before fastening.
9. Once the panels are secured to the roof substrate, the end of the pan can be formed around the eave plate with a rubber mallet. The end of the pan can then be fully formed to the eave plate using the eaves closer.
10. Where an end panel has not ordered this easily be made on site from a standard SSR² Roof panel.
11. Before fitting the end panel, the remaining verge backing plate must be installed to compensate for any minor discrepancies in the cover width and end panel width.
12. Follow steps 2, 3, and 4 when fitting the end panel. The end panel will not require any fasteners as it is secured using the male profile of the previously installed panel and verge plate.
13. Once all roof panels have been fitted the appropriate ridge or apron detail can be fitted using the notched Z bars.

Installation training - Full training for all installers is available free of charge, and recommended for anyone using this product for the first time. Email **catnic.marketing@tatasteel.com** to register your interest today.

SSR² WALL CLADDING

For conventional structure and housing design, SSR² offers the traditional formed standing seam profile, an ideal choice for low rise and residential solutions. SSR² cladding panels can be installed vertically, horizontally or even diagonally to provide the desired appearance.

Performance details

Wind loading

SSR² has been manufactured to meet all the necessary legislative requirements, including wind loading in accordance with EN 1991-4.

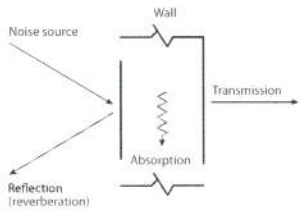
Acoustic

The main considerations when looking at acoustic performance are sound reduction and sound absorption.

Sound reduction is a measure of the reduction in sound level of noise escaping from a building or entering a building from an external noise source such as traffic etc. In traditional construction, the sound reduction is proportional to the mass but in metal cladding systems it is also improved by use of airtight skins combined with soft acoustically absorbent insulation and air spaces.

Sound absorption is the damping of echoes or reverberant sound that would normally reflect back off internal surfaces. Different internal lining will eact the sound absorption of a room.

Figure 2. Acoustic performance factors



The structure used to support the SSR² cladding can be designed specifically to provide walls with the required acoustic performance.

Fire

Approved Document B specifies the performance requirements for the external surface of walls according to building height and location. Cladding systems using Colorcoat HPS200 Ultra® achieve Class 0 under UK Building Regulations and therefore meet all the fire performance requirements for the external surfaces of walls.

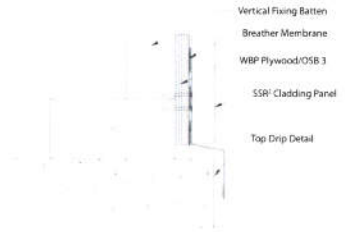
To achieve Class 0 a product must have:

- Fire propagation indicies I$_s$1.2 and I1≤6 when tested to BS 476 Part 6.
- A Class 1 for surface spread of flame when tested to BS 476 Part 7.

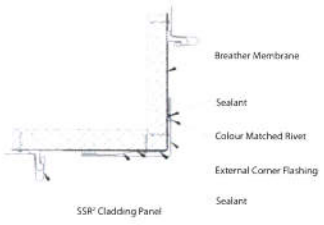
SSR² WALL CLADDING

Vertical Cladding Details

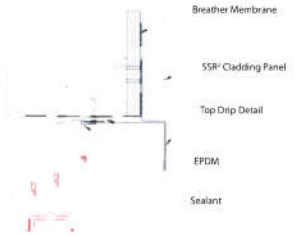
Cill Detail



External Corner



Window Head



SSR² WALL CLADDING

Vertical Cladding Details

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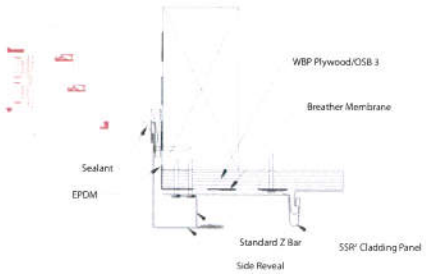

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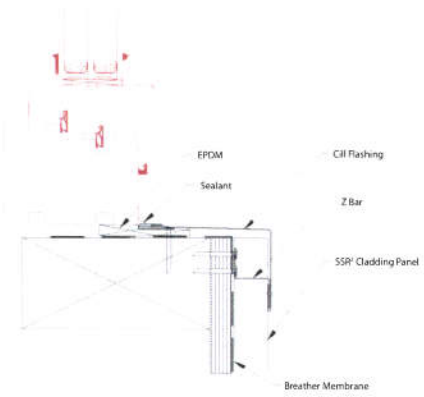

SSR² WALL CLADDING

Horizontal Cladding Details

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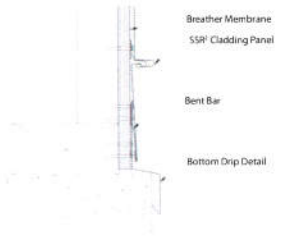
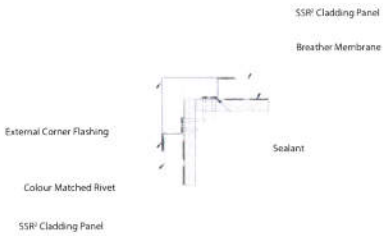


External Corner



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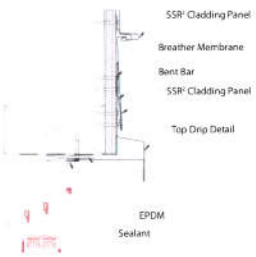
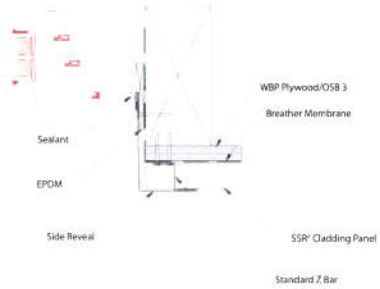


SSR² WALL CLADDING

Horizontal Cladding Details

Window Jamb



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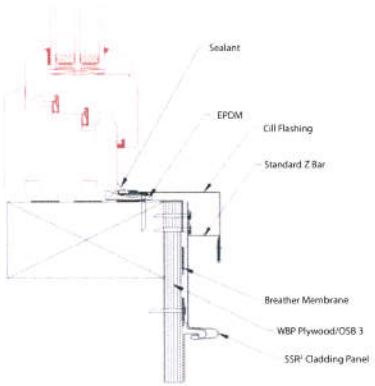


SSR² WALL CLADDING

Installation basics

Comprehensive installation and specification guides are available from Catnic on request. For those unfamiliar with SSR² systems we have outlined the basic procedures and processes.

Installation of SSR² Vertical Wall Panels

1. Refer to the wall drawing to ensure the dimensions provided correspond to, panel lengths and panel cover width including starter and end panels. Mark the panel seam positions across the width of the wall to check the cover width is correct.
2. Identify the direction of lay and check that the panel seams do not clash with any detailing around window apertures. Adjust the starter location as required.
3. Fit the Bottom drip or eave plate dependant on specification. The eave plate or drip must be secured to the 18mm board at 200mm centres.
4. Turn the starter panel face down, using the flange mate, form the end of the pan into an open welt. If the panel is to sit above a drip, form the welt closed as much as possible.
5. Position the panel against the wall with the bottom edge located approximately 10mm above the drip. If the panel is to be installed onto an eave plate, feed the leading edge of the eave plate into the open welt. Using a level check the panel is square and fit a single fastener at the top of the nailing strip.
6. All remaining fasteners must be fitted into the nailing strip at 180mm centres. All fasteners must be fit to allow lateral movement during expansion and contraction. When installing in hot conditions fit fasteners into the top third portion of the nailing slot. On very cold days the fasteners should be installed into the bottom third of the nailing slot. The installer should also ensure that the cover width is maintained.
7. Once the starter panel is secured all intermediate panels can be installed. Follow steps 4 & 6.
8. Internal & External corner angles are secured using bent bars & rivets located at 200mm centres.
9. If installing panels above a drip, align the female profile over the male with the seam level at the bottom. Using a rubber mallet hammer the female profile onto the male. (Bottom to top).
10. If installing panels onto an eave plate, feed the leading edge of the eave plate into the open welt. Using a rubber mallet, hammer the bottom 100mm of the seams together. Check the seams are aligned at the bottom, if not, use a timber lever to lift the female seam up into the correct position. Hammer the seams together. (Join seams in single direction. Bottom to Top).
11. When cutting panels to install around window apertures please refer to specific installation guidance from Catnic.

Please see Catnic for specific installation guidelines for horizontally laid SSR² Cladding panels.

SSR² ANCILLARIES

To complete the SSR² roofing and cladding system Catnic offer a range of ancillaries:

- Soffit panels
- Fascias
- Gutters
- PV fixings
- Pipe penetration details

Soffits

Secret fix soffit panels, manufactured from Colorcoat HPS200 Ultra® are available in the same range of colours as the SSR² roofing and cladding panels. They provide a simple, lightweight and durable finish to the underside of overhanging eaves, verges and mono ridges.

Fascia

Colorcoat HPS200 Ultra® Fascia sections are available in a range of sizes that can be fixed over the timber barge & fascia boards. As well as continuing the appearance of the roof over on the fascias, they also provide a very low maintenance protective finish.

Gutters

Catnic offer a standard box gutter to match the SSR² roof. This is available with a full range of ancillaries such as:

- Down pipes
- Swan necks
- Hoppers
- Stop ends
- Corners

As well as a standard box gutter Catnic can also design and manufacture bespoke gutters, typically required for valleys, parapet and hidden gutter situations. Manufactured from Colorcoat Aquatite® and supplied with all the necessary ancillaries.

Photovoltaic Fixing Brackets

With the increasing popularity of photovoltaic roof panels, Catnic can provide a simple fixing bracket that simply screws to the standing seam upstand. The allows photovoltaic panels to installed without needing to put holes through the roof, maintaining the integrity of the roof and reducing installation times.

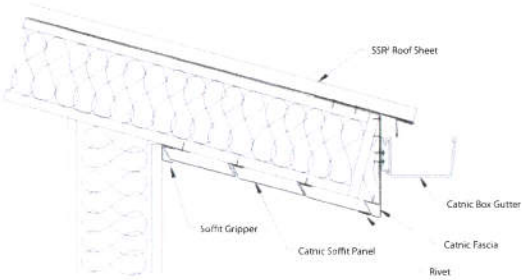
Pipe Penetration

While penetrations in a roof should be avoided where possible, they are an inevitable requirement. Catnic offer a range of standard flashing kits for square penetrations and range of flue penetration gaskets for round pipes including wood burning stove chimneys.

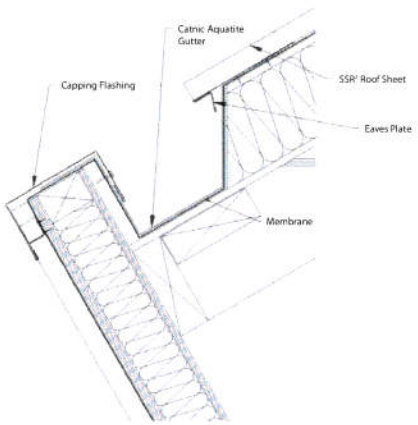
SSR² ANCILLARIES

Typical Soffit, Fascia and Gutter Details

Overhanging Eaves with Box Gutter



Internal Gutter



SAFE STORAGE AND HANDLING

All products should be used in accordance with their specific instructions to prevent failure. Please ensure all items ordered are delivered before commencing installation work.

Storage

- Store panels in close proximity to the building where they are to be installed.
- All products should be stored in a clean and dry environment on a firm even surface, clear of the ground on timber bearers spaced no more than 900mm apart.
- If indoor storage is not available cover all sheets with a waterproof covering, which should be supported on a scaffolding frame, leaving sufficient room on all sides for air to circulate.
- Incline the stacks so that any rain water that penetrates the covering will drain off.
- If stacked or bundled products do become wet, then separate and wipe dry with a clean cloth.
- Inspect the sheets at regular intervals to check for any leaks in the covering.

Handling

- Gloves should be worn to avoid injury from any sharp edges.
- When being moved by hand, the panels should be turned and carried on their edge using appropriate personal protective equipment, and where possible, the panels should be lifted manually onto the roof in single sheets.
- The product should be handled in accordance with the Manual Handling Operations Regulations 1992 (as amended version). The panels should be lifted from the stack rather than dragged across it.
- Sheets should be handled carefully to avoid any damage, and where possible only lift single sheets manually onto the roof.
- If sheets have to be hoisted into position ensure edges are protected and that pressure across the sheet does not distort it. Use only ropes and slings for hoisting, never chains.
- Do not drag material over rough surfaces or fixed sheets.
- Bulk sheets should be moved or lifted with a fork-lift truck with appropriate length forks.
- Long sheets should be moved using a lifting beam with suitable slings and spreaders.
- Remove all packaging and wrapping with care and discard safely and responsibly.
- When working on the roof, soft-soled shoes must be worn. The soles should be checked for any sharp objects that could damage the panel or cause injury.

Application

- Do not use damaged goods.
- Alignment and tolerance of the building structure should be carried out prior to installation to ensure it is within the specification given. If not the panels may not fit.
- Do not drag tools over sheets, and protect from swarf.

Cutting

- All panel and fabrication cutting must be completed away from the roof to eliminate the risk of transferring swarf onto the panel.
- All exposed edges should be deburred and protected with touch-up paint.
- For cut-outs, openings and cuts that are not straight use a Jigsaw or reciprocating saw with a fine tooth metal cutting blade.
- We recommend a circular saw producing a 'cold' cut using a fine tooth metal blade for long straight cuts.

Delivery

- The profiled panels are normally delivered to site in pre-specified lengths according to the dimensions of the roof on which they are to be installed and are palleted in packs of 6 or 4 depending on length and weight.
- Delivery is normally by lorry and unloading carried out by crane or moffet. The site must have adequate access and a suitable surface for this traffic.
- During transport, the panels must be suitably restrained to prevent abrasion and their edges and corners protected against damage.

Disposal

- When disposing of any Catnic products or packaging, due consideration must be given to the environmental impact of the method of disposal.

CATNIC SERVICE AND SCHEDULING

Catnic is committed to providing architects, designers and builders with useful information and terminology relevant to the specification of Catnic SSR² Standing Seam Roof and Cladding.

Catnic's sales and technical teams are dedicated to matching the quality of our products with the professional voice at the end of the telephone to our on-site consultation.

The Catnic service package includes:

- Experienced and dedicated team of SSR² sales representatives.
- Fully trained, professional internal customer support team for all your needs; from placing orders, to enquiring about prices or deliveries.
- Comprehensive range of back-up literature.
- On-line help via www.catnic.com.
- CAD details available on-line providing instant access to SSR² drawings.
- Technical enquiry forms to accompany your drawings ensuring necessary information is received and turned around in a timely manner.
- On-site sales and technical support when required.
- Technical hotline for all queries.
- Dedicated hauliers for all your deliveries.
- Consultation at every stage of your job.

Catnic's Technical team can provide:

- A full scheduling service to produce a full take off all over SSR² panels and ancillaries required for a project.
- Comprehensive technical back up on the use and performance of SSR².
- Project specific design advice.
- A wide range of standard details in dwg and pdf format
- Installer training courses
- Product installation guidance documents.

Contact Catnic Technical Services on 029 2033 7900

SUSTAINABILITY

SSR² standing seam roof and cladding has been developed using eco-design principles, aimed at minimising the environmental impact of the product from raw material production all the way through to re-use or recycling.

Cradle to Cradle

Catnic always ensure its products meet or exceed the performance regulations of current legislation. As part of Tata Steel Europe, we carefully measure the impact of Colorcoat HPS200 Ultra® throughout it's life from cradle to cradle.

The steel used in SSR² is 100% recyclable with zero de-gradation in the materials properties when recycled, unlike nearly all other construction materials.

All paint solvents are recycled through an incineration system to provide heat to the ovens and reduce the amount of natural gas used in the advanced curing process.

BES 6001

Certification of all our steel construction products to BES 6001 provides independent verification of our corporate responsibility, including the way we drive sustainability considerations across the supply chain to the point of raw material extraction. It delivers a method for us to benchmark and show that we are continuously improving our sustainability credentials.

We have ensured SSR² standing seam roof and cladding has been certified to BES 6001 so you can rest assured that when specifying and installing this sustainable product you will maximise the potential for obtaining credits under the Responsible Sourcing of Materials sections of BREEAM, the Code for Sustainable Homes and CEEQUAL.

Tata Steel are the first steel manufacturer to secure BES 6001 Responsible Sourcing certification, which has been secured for all Colorcoat® pre-finished steel products made in the UK.

BES 6001
Responsible Sourcing
www.greenbooklive.com

BRE Green Guide A+ rated

Manufactured from Colorcoat HPS200 Ultra® by Tata Steel our steel system is BRE Green Guide A+ rated.

Integrated technologies

Developed to assist the designer in meeting the most stringent of future legislative requirements, SSR² standing seam roof and cladding has been designed to allow simple integration of photovoltaic solar thermal and /or passive solar heat collection roof panels.

The system is also compatible with rain water harvesting systems, a design consideration inspiring a versatile range of design considerations that can help towards the delivery of the Code for Sustainable Homes Level 6 target for portable water consumption of 80l/p/d.

ENVIRONMENTAL

Through our research and development, we are continuing to deliver innovative products that provide additional environmental benefits to our customers and society as a whole.

Catnic recognise that in our day-to-day operations across the globe we impact upon the environment in a number of ways. Therefore we are committed to achieving continual improvement in our environmental performance and pollution prevention, in supporting government policy for sustainable development.

ISO 14001

Since 2010 Catnic has held the Environmental Management Standard ISO 14001 in recognition of its environmental management policy. Our product are durable, adaptable, reusable and recyclable. All manufacturing processes are careful controlled to the highest environmental standards.

Eco-design

SSR² standing seam roof and cladding has been developed using raw materials with a lower environmental impact than detailed by current legislative standards. Heavy metals and unnecessary fire retardants have been eliminated from the topcoat, and high performing alternatives to undesirable organotin stabilisers and phthalate plasticizers have been introduced.

Ozone Depletion Potential (ODP)

Catnic SSR² standing seam roof and cladding confirms to the Montreal Protocol and has zero ozone depletion potential.

Catnic has:

- Integrated environmental management into all our business activities
- Ensured compliance with all relevant local, national and international legislation and regulations
- Ensured all staff, including contractors, actively support our environmental programmes
- Communicated our environmental policy clearer to all internal and external parties, responding appropriately to requests for information

We seek to reduce our environmental impact and improve sustainability through continuous improvements in:

- Energy efficiency and water consumption
- Waste management and in particular a reduction in the amount of waste we send to landfill
- Contract management and purchasing

Our policy is renewed and reviewed annually, and forms the basis of all future environmental improvements. Copies of our latest environmental policy are available for download today at **catnic.com/downloads**

SSR² CASE STUDIES

Project: Little Owls Nursery
Location: Armendale, West Lothian – Scotland
Architect: 99 Design Architects
Built by: Balgownie Scotland Ltd
Roofing Contractor: McDonald Roofing

Overview

Originally designed with an aluminium roof, Little Owls Nursery changed specification to the more cost effective solution of Catnic's SSR² standing seam roof. Initially chosen for its aesthetic appeal and performance quality, the modern installation efficiencies afforded by SSR² soon demonstrated further savings during the installation.

"The use of any new product brings an exciting challenge, however the SSR² system has proven easy to install to our team of specialists roofers. Each section features an integrated eyelet hole fixing strip – so once all the flashings are fixed you simply slot the roofing sections into place. From McDonald Roofing's perspective it's great – the SSR² product can ensure the building is watertight and secure as quickly as possible."

Stewart McDonald, Director of McDonald Roofing

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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
15/5279
Product Sheet 1

SSR² ROOFING AND CLADDING SYSTEM

SSR² ROOF PANEL

This Agrément Certificate Product Sheet(1) relates to the SSR² Roof Panel, comprising profiled plastisol-coated Galvalloy steel panels used in conjunction with a fully supporting continuous layer of OSB3 or plywood decking for use in residential buildings as a protective/decorative cladding over cold roofs or insulated warm roofs.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Strength and stability — the product will resist the wind suction pressures normally experienced in the UK and the deflection will not be excessive under normal service conditions (see section 6).

Behaviour in relation to fire — the product will enable a roof to be unrestricted under the national Building Regulations (see section 7).

Weathertightness — the product has adequate resistance to the passage of moisture (see section 8).

Condensation risk — the risk of condensation forming under normal service conditions is negligible providing correct construction details are adopted (see section 9).

Durability — the product will have durability for a period in excess of 40 years (see section 11).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 18 December 2015

B C Chamberlain
Brian Chamberlain
Head of Technical Excellence

Claire
Claire Curtis-Thomas
Chief Executive

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, SSR² Roof Panel, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):

The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**A1**	**Loading**
Comment:		The product is acceptable, as set out in sections 6.1 to 6.5 of this Certificate.
Requirement:	**B4(1)(2)**	**External fire spread**
Comment:		The product is unrestricted and can satisfy this Requirement. See section 7 of this Certificate.
Requirement:	**C2(b)(c)**	**Resistance to moisture**
Comment:		The product will contribute to satisfying the stated requirements. See sections 8 and 9 of this Certificate.
Regulation:	**7**	**Materials and workmanship**
Comment:		The product is acceptable. See sections 11.3 and 11.4 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Durability, workmanship and fitness of materials**
Comment:		The product will contribute to a construction satisfying this Regulation. See sections 10, 11.3 and 11.4 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	1.1(a)(b)	Structure
Comment:		The product is acceptable, with reference to clause 1.1.1[1]. See sections 6.1 to 6.5 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		The product will contribute to satisfying this Standard, with reference to clause 2.8.1[1]. See section 7 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product will contribute to satisfying this Standard, with reference to clauses 3.10.1[1][2], 3.10.5[1][2] and 3.10.7[1][2]. See sections 8 and 9 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		All comments given for this product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1[1][2] and Schedule 6[1][2].

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).

The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	**23**	**Fitness of materials and workmanship**
Comment:		The product is acceptable. See sections 11.3 and 11.4 and the *Installation* part of this Certificate.
Regulation:	**28**	**Resistance to moisture and weather**
Comment:		The product will contribute to satisfying this Regulation. See sections 8 and 9 of this Certificate.
Regulation:	**30**	**Stability**
Comment:		The product is acceptable as set out in sections 6.1 to 6.5 of this Certificate.
Regulation:	**36(a)(b)**	**External fire spread**
Comment:		The product is unrestricted and will satisfy the requirements. See section 7 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, Principal Designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.4 to 3.7) of this Certificate.

Additional Information

NHBC Standards 2016

NHBC accepts the use of SSR² Roof Panel, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards* 2016, Chapter 7.2 *Pitched roofs*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product, in accordance with harmonised European Standard BS EN 14783 : 2013 for the SSR² Roof Panels (514 mm and 305 mm cover width). An asterisk (*) appearing in this Certificate indicates that data shown is given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

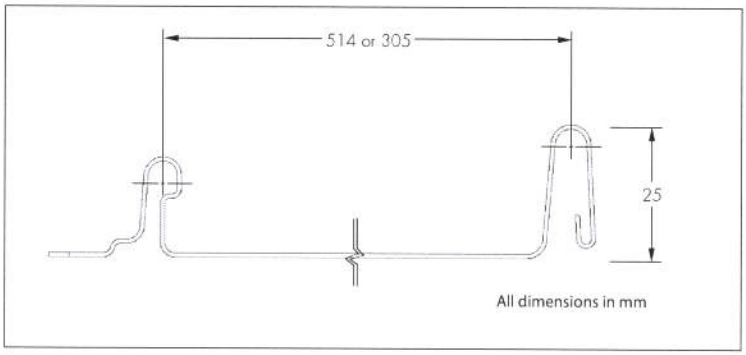
1.1 The SSR² Roof Panel comprises an outer skin profiled from 0.7 mm thick, Galvalloy treated, grade S220GD steel sheets[1] to BS EN 10346 : 2015. The sheet is treated with a 200 µm HPS 200 plastisol coating on the exposed face and a 10 µm polyester coating on the reverse face.

(1) Covered by BBA Certificate 91/2717.

1.2 The panels are available in maximum lengths of 12.5 m[2] with nominal panel widths of 514 mm and 305 mm with the profile shown in Figure 1.

(2) Lengths of sheet greater than 12.5 m are available to special order.

Figure 1 Panel profile



1.3 The panels are available in a range of standard colours (see Table 1).

Table 1 Colour range

Colour	Nearest RAL Classic card or Design card or BS Card finish
Winter Sky	RAL 7040
Alaska	RAL 7000
Merlin	BS 18B25
Anthracite	RAL 7016
Terracotta	BS 04C39
Oxidised	RAL 0502010
Patina	RAL 1807025

Note: Additional colours can be produced by the Certificate holder Repertoire colour consultancy service, but the performance of these colours is outside of the scope of the Certificate.

1.4 The SSR² Roof Panel characteristics and declared performance in accordance with BS EN 14783 : 2013 are given in Table 2.

Table 2 Panel characteristics and declared performance

Characteristic	Performance*
Yield strength ($kN \cdot mm^{-2}$)	0.7 mm sheet – 220
Tensile strength ($kN \cdot mm^{-2}$)	0.7 mm sheet – 300
Elongation (%)	0.7 mm sheet – 20
Water permeability	Impermeable
Dimensional change	$12 \times 10^{-6}\ k^{-1}$
Water vapour and air permeability	Impermeable
Release of dangerous substances	Not classified as dangerous
Durability	Coating S220+ZA255
External fire performance	B_{ROOF}(t4)

1.5 Ancillary items for use with the panels and manufactured from the same grade of steel include verge, eaves and ridge profiles.

1.6 Other specified items used with the panels include:

- breather membrane — to BS EN ISO 12572 : 2001 (resistance 0.15 $MN \cdot s \cdot g^{-1}$)
- panel fixings — 3.3 mm diameter 40 mm in length nails (eg Z FRP40W3) or wood screws for fixing panel to support decking.

1.7 Other ancillary items specified for use with the panel but outside the scope of this Certificate include:

- roof decking — a continuous layer of OSB3 or plywood, minimum 15 mm or 18 mm thick, to provide fully-supported decking under the panels
- insulation — for use in warm roof construction
- fasteners — clips, screws, nails and installation aids.

2 Manufacture

2.1 The SSR² Roof profiles are manufactured from a single coil of plastisol-coated Galvalloy steel in the production process. This is supplied and processed into slit coils and then formed into specified profiles on the roll formers.

2.2 In a coil-coating process, steel coil is degreased, chemically pre-treated and coated on the face and reverse sides and then profiled by roll-forming

2.3 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

3 Delivery and site handling

3.1 The profiled panels are normally delivered to site in pre-specified lengths according to the dimensions of the roof on which they are to be installed and are palleted in packs of six or four depending on length and weight. Delivery is normally by lorry and unloading carried out by crane or moffet. The site must have adequate access and a suitable surface for this traffic.

3.2 During transport, the panels must be suitably restrained to prevent abrasion and their edges and corners protected against damage.

3.3 The panels should be stored on a firm, dry base, on bearers with a maximum spacing of 900 mm, away from the possibility of damage, and suitably protected. They should be stored as close as possible to the building where they are to be installed.

3.4 The panels should be handled in accordance with the *Manual Handling Operations Regulations* 2004 (revised version). The panels should be lifted from the stack rather than dragged across it.

3.5 When being moved by hand, the panels should be turned and carried on their edge using appropriate personal protective equipment (PPE).

3.6 Where possible, the panels should be lifted manually onto the roof in single sheets. If a hoist is required, only suitable slings or ropes should be used, not chains. Care should be taken to avoid distortion due to bending.

3.7 When working on the roof, soft-soled shoes must be worn. The soles should be checked for any sharp objects that could damage the panel.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on SSR² Roof Panel.

Design Considerations

4 General

4.1 The SSR² Roof Panel is suitable for use on roofs with a slope between 5° and 60°, as:

- a protective/decorative covering over cold and warm roofs supported on a continuous layer of minimum 15 mm thick OSB3 or plywood decking for use in residential buildings.
- a weather proof covering to the outer skin of a structural insulated panel system (provided that they have a minimum thickness of 15 mm OSB3/plywood).

4.2 The design of the roof must include:

- a ventilated cavity system incorporating an insect guard to all ventilation openings at the eaves
- an effective vapour control roof underlay between the OSB3/plywood board and the steel sheets, to ensure that the system is protected
- a design thickness of OSB3/plywood board greater than 15 mm and reduced rafter spacing, to cope with higher wind pressure, if required.

4.3 The panels are dimensionally stable. The fixing arrangement and the recommended construction tolerances will adequately accommodate thermal movements.

4.4 It is important for designers, planners, contractors and/or installers to ensure that the installation of the product is in accordance with the Certificate holder's instructions and the information given in this Certificate.

5 Practicability of installation

The panels should only be installed by roofing contractors whose installers have been trained and approved by the Certificate holder.

6 Strength and stability

6.1 A suitably qualified and experienced individual must check the design and installation of the product fixed onto the substrate is in accordance with the relevant national Building Regulations and national Standards.

Wind loading

6.2 Design wind actions should be calculated in accordance with BS EN 1991-1-4 : 2005. Due consideration should be given to the higher-pressure coefficients applicable to edges of the roof as recommended in this Standard.

6.3 The contribution of the sheets and support decking to the stability of the substrate is assumed to be negligible. The supporting roof must be able to take full dead, imposed, wind actions and any racking loads on its own as no contribution from the sheeting may be assumed in this respect. The adequacy of the substrate is outside the scope of this Certificate and must be verified by a suitably qualified and experienced individual.

6.4 The characteristic pull-out resistance of the fixing was carried out on the 18 mm OSB3 board and was calculated from pull-out failure value (determined by tests) and is given in Table 3.

Table 3 Characteristic pull-out resistance (kN)

Fixing Type	Thickness of OSB3 board (mm)	Characteristic Resistance (kN)
Z-FRP40W3	15	0.88
Z-FRP40W3	18	1.10

6.5 The ultimate resistance/wind load resistance values have been confirmed from calculations and are given in Table 4.

Table 4 Ultimate resistance and wind load resistance values

Characteristic (units)	Panel width (mm)	
	305	514
ultimate resistance ($kN \cdot m^2$)	3.86	0.48
wind load resistance ($kN \cdot m^2$)	2.57	0.32

Note:
Allowing for a normal wind load factor of 1.5 on the ultimate resistance value, provided the designer ensures:

- fixing centres do not exceed 200 mm, and the panels will have adequate flexural resistance against all wind succession pressure likely to be experienced in the UK
- design of the panel must be such as to limit the mid-span deflections under succession pressure to L/90 or 10 mm, whichever is the lesser.

Impact loading

6.6 In low pitch roofs between 5° to 9° and in high wind areas, the recommended panel width to be used is 305 mm to prevent any possibility of water ingress through the seam due to heavy rain and ponding. The Certificate holder's guidance manual on all panel width selection is dependent on location and storey height in the UK and must be followed by the installers of the panels.

Acoustics due to high winds

6.7 In very high wind conditions drumming can occur and, to minimise this occurrence, the mid-span defection should be limited to 10 mm. The Certificate holder's guidance manual on all panel width selection dependant on location and storey height in the UK must be followed by the installers of the panels.

7 Behaviour in relation to fire

7.1 The panel has been given a notional designation of AA/B_{ROOF}(t4)* by Appendix A, Table A5 of Approved Document B to The Building Regulations 2012 (as amended) (England and Wales) and by Technical Booklet E, Table 4.6 of the Building Regulations (Northern Ireland) 2012 (as amended) and may be used as a roof covering within six metres of any boundary.

7.2 In Scotland, the panel has not been assigned a notional low vulnerability rating in the Tables to Annex 2C and is therefore restricted under Standard 2.8, clause 2.8.1.

7.3 The fire resistance of a roof construction incorporating the panels can only be determined by tests from a suitably accredited laboratory and is not covered by this Certificate.

8 Weathertightness

The panels, when incorporated into a roof system designed and installed in accordance with conventional good practice, will adequately resist the passage of moisture.

9 Condensation risk

9.1 In common with all metal roof constructions, there is a risk of condensation. This can arise either as interstitial condensation within the roof construction or surface condensation at thermal bridges.

9.2 To prevent condensation forming between the metal sheets and the substrate, measures should be taken to minimise water vapour reaching the OSB3 board by incorporating:

- a vapour control layer (VCL) in the roof construction and providing an adequate seal around the ceiling
- a breather membrane in the roof construction to allow the air to circulate freely.

10 Maintenance

10.1 Annual maintenance inspections should be carried out to ensure that all rainware is present and in good working order, and that flashings and pans are in place and secure.

10.2 Maintenance painting should be considered approximately every 30 years for inland areas and 25 years for coastal areas, or earlier if inspections show this to be necessary or if a higher aesthetic standard is required. For suitable paint systems, the advice of the Certificate holder should be sought.

10.3 In some areas (eg coastal and industrial), it may be necessary to clean the installation periodically, both to restore its appearance and to remove potentially corrosive deposits. Hosing with a neutral detergent diluted with water is an effective method.

10.4 Damaged panels should be replaced as soon as is practicable, in accordance with the Certificate holder's instructions. Special tools are available to assist in the replacement of complete panels. Access to an individual panel for the purpose of replacement will require the prior removal of all panels located on either side back to the edge of the roof.

11 Durability

11.1 The performance of the plastisol coating will depend on its environment, location and degree of exposure. The product will retain a good appearance for the time intervals given in section 10.2 of this Certificate.

11.2 The roof panel, and continuous ridge-to-eaves construction, will minimise exposure of any cut edges which may otherwise be susceptible to corrosion.

11.3 The panel is resistant to all normal atmospheric corrosive agents (including those found in coastal and industrial locations) and will withstand considerable distortion without loss of adhesion between the coating, the primer and the steel substrate.

11.4 The plastisol coating and Galvalloy on SSR² Roof Panels will protect the steel substrate against corrosion for a period in excess of 40 years in normal industrial, urban, suburban and rural environments.

11.5 After natural weathering, slight initial dulling of the surface and slight change in colour shade may occur, particularly on dark coloured materials. However, this process is not likely to be progressive.

12 Reuse and recyclability

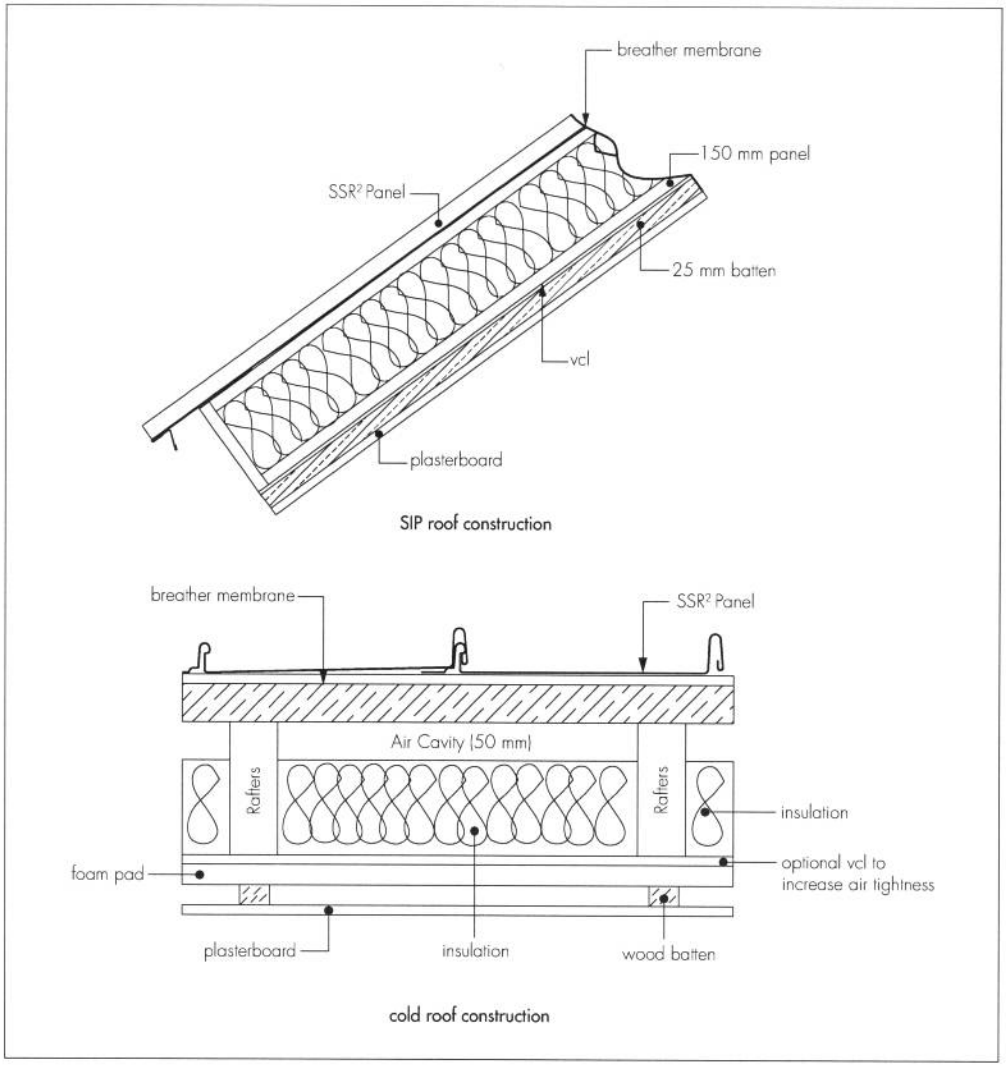
The Galvalloy steel substrate of the product can be fully recycled.

Installation

13 General

13.1 SSR² Roof Panels must be installed in accordance with the Certificate holder's recommendations, the requirements of this Certificate and specifications laid down by the consulting engineer. Typical installations are shown in Figure 2.

Figure 2 Typical installation



13.2 Installers must be trained and approved by the Certificate holder who can provide technical assistance at the design stage and at the start of the installation, and supply the necessary equipment.

14 Procedure

14.1 Roof dimensions are checked against the drawings, and for squareness. The ridge, eaves and verge dimensions are similarly checked.

14.2 The eaves, verge and ridge backing plates (monopitch) should be in place before installing the panels.

14.3 Working from the right-hand end of the roof (as viewed from ground level), the first panel is installed with the upturned rib in line with the wall edge and its nail strip on the left (see Figure 3).

14.4 The next panel is clipped onto the first and secured to the roof at the predetermined fixing centres, ensuring its rib is parallel with that of the first. Subsequent panels are similarly fitted.

14.5 To allow for thermal movement, the fixings must be of the correct size, located centrally in the nail strip holes with adequate clearance, and not bear too tightly against the plate.

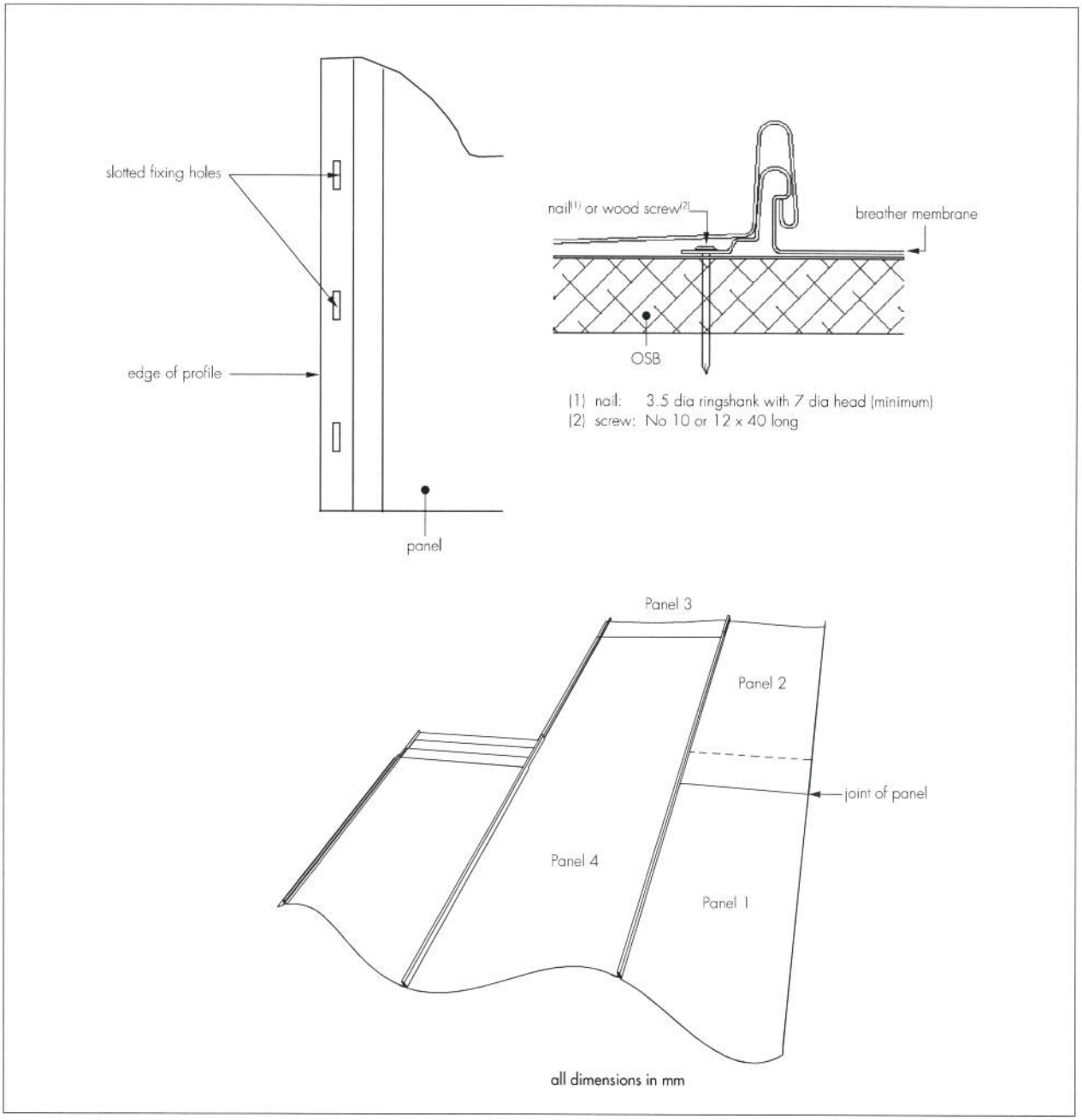
14.6 Once the penultimate panel has been installed, the left hand end panel can be fitted to suit the roof edge, and the verge detail completed.

14.7 To minimise thermal expansion in hot, sunny weather, the panels should be protected from direct sunlight until ready for use. Conversely, when installing in cold weather, the panels may be 'stretched' against the previously installed panel rib before fixing down.

14.8 When installing in hot weather, adequate clearance should be provided between the folded panel edge. This will allow for contraction due to subsequent decrease in ambient temperatures.

14.9 To ensure good weathertightness and efficient rainwater run-off, all components such as edge details and sealants must be used in accordance with the Certificate holder's specifications and instructions.

Figure 3 fixing details



Technical Investigations

15 Test

Based on test data, an assessment was made of the panel's performance in relation to:

- wind uplift
- behaviour under thermal actions
- structural ability of fixings onto OSB3 board
- impact
- reaction to fire
- rain penetration
- durability.

16 Investigations

16.1 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of materials used.

16.2 The Certificate holder's technical literature was examined for any inconsistencies and general content.

Bibliography

BS EN 1991-1-4 : 2005 *Eurocode 1 : Actions on structures — General actions — Wind actions*

BS EN 10346 : 2015 *Continuously hot-dip coated steel flat products — Technical delivery conditions*

BS EN 14783 : 2013 *Fully supported metal sheet and strip for roofing, external cladding and internal lining — Product specification and requirements*

BS EN ISO 12572 : 2001 *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties*

Conditions of Certification

17 Conditions

17.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

17.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

17.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

17.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

17.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
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- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
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- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

17.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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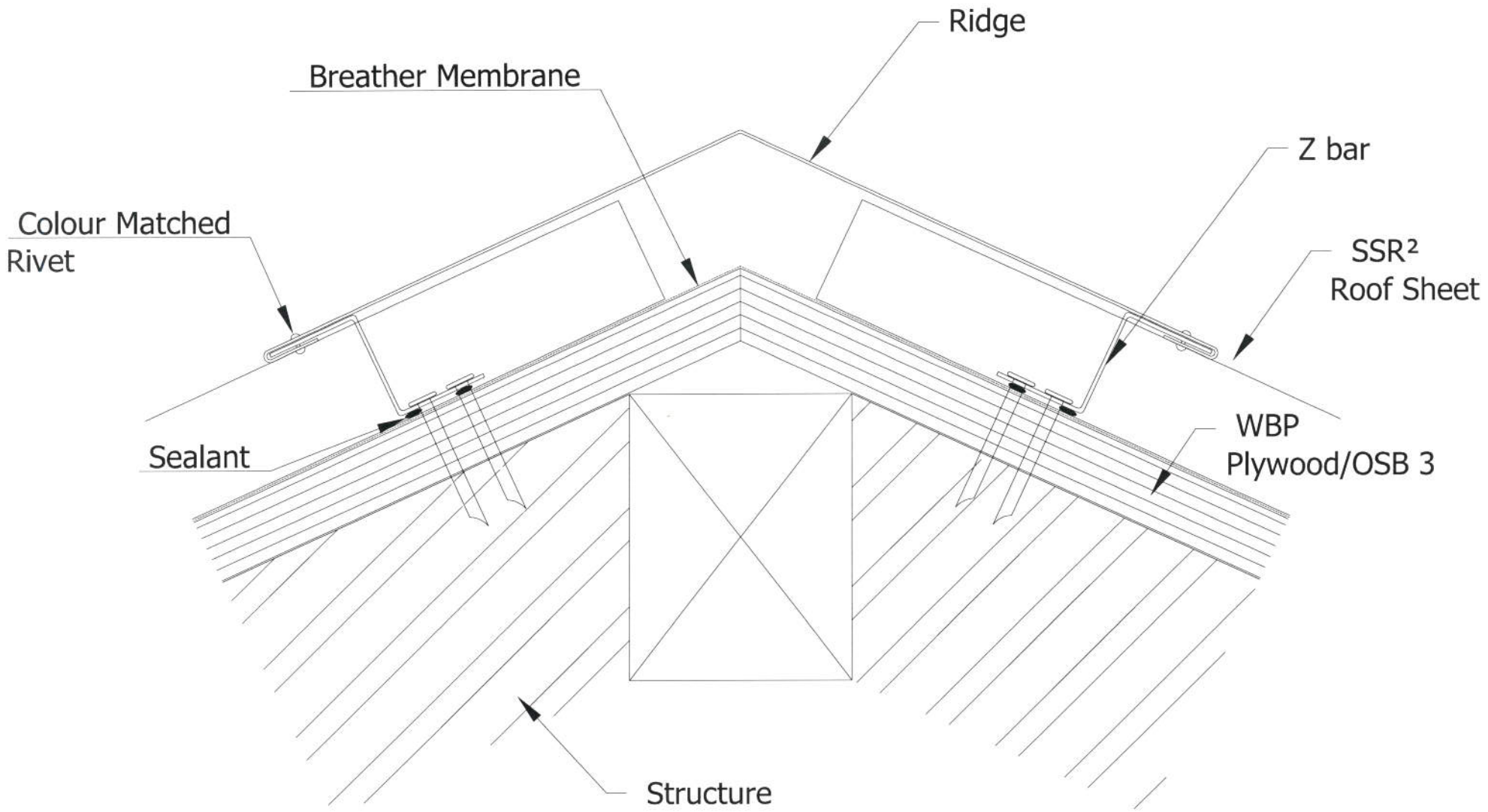

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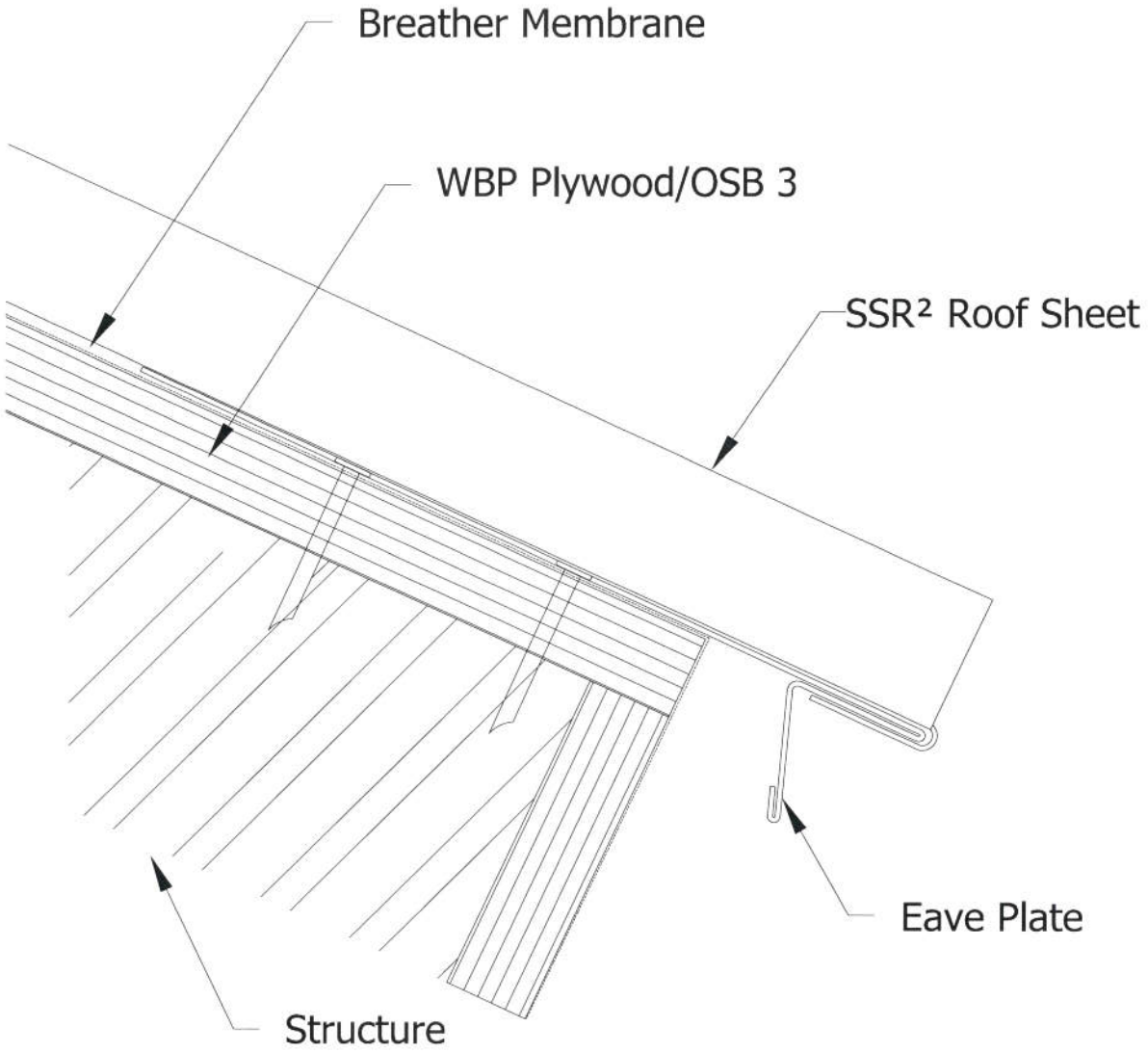

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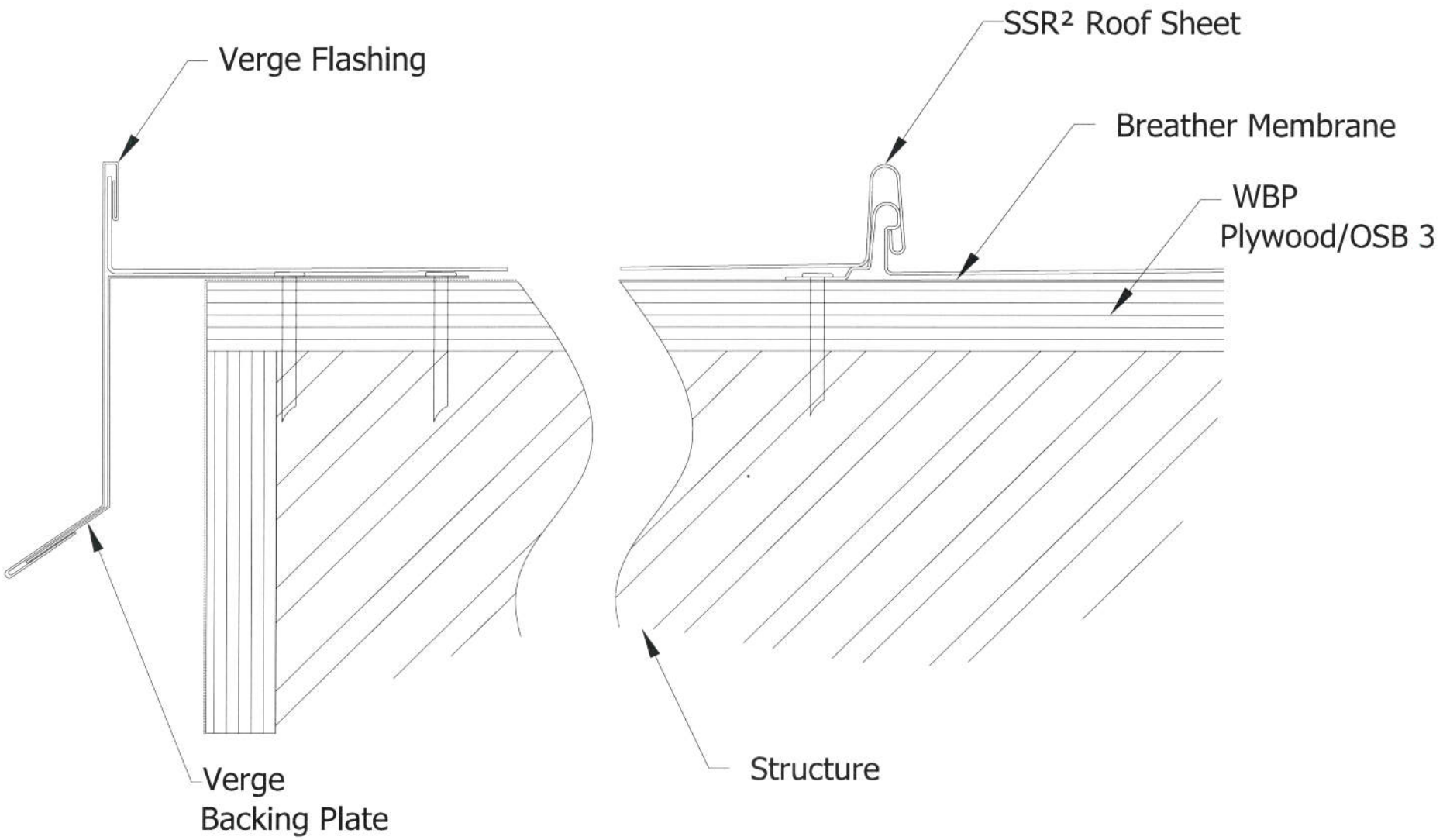

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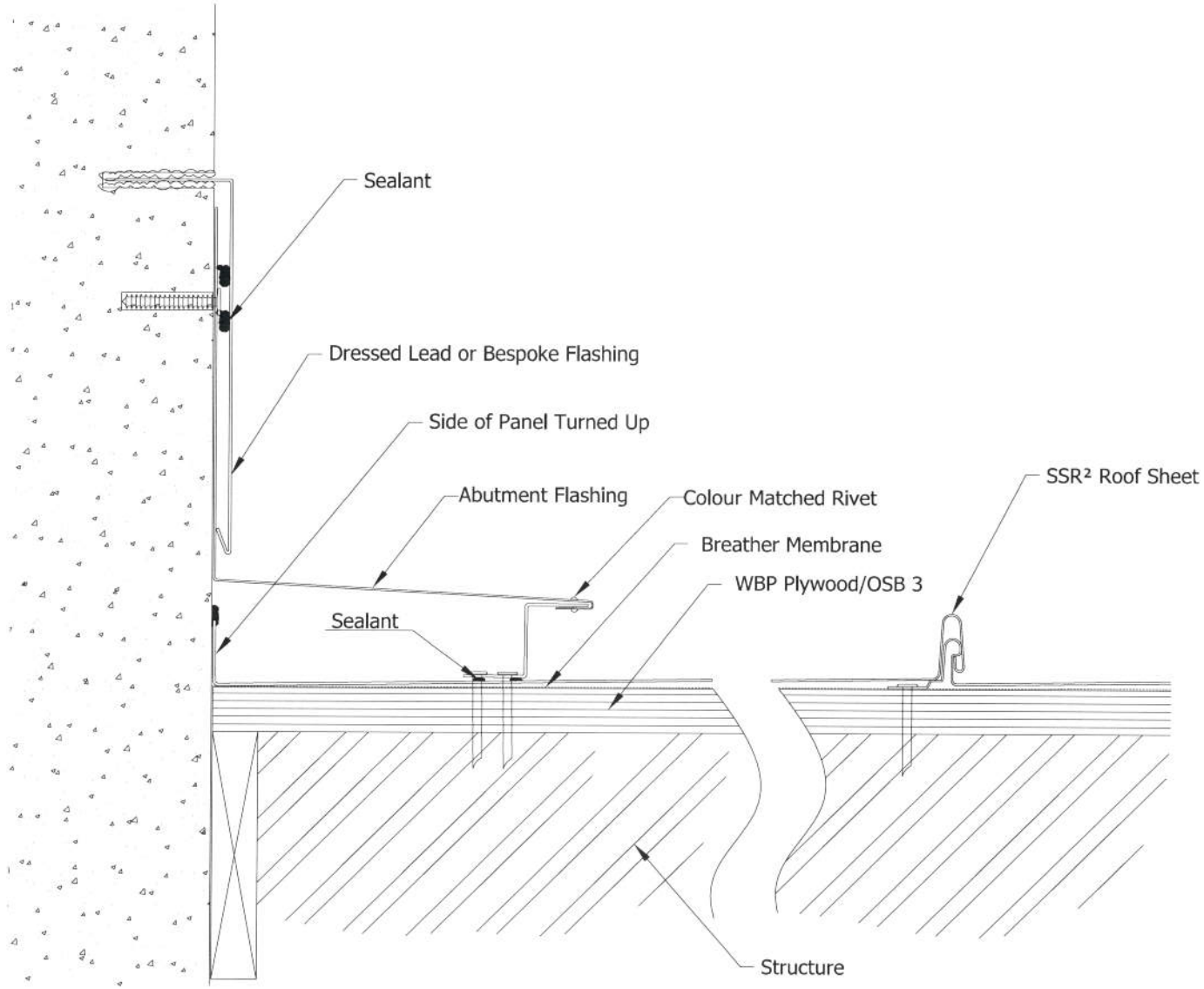

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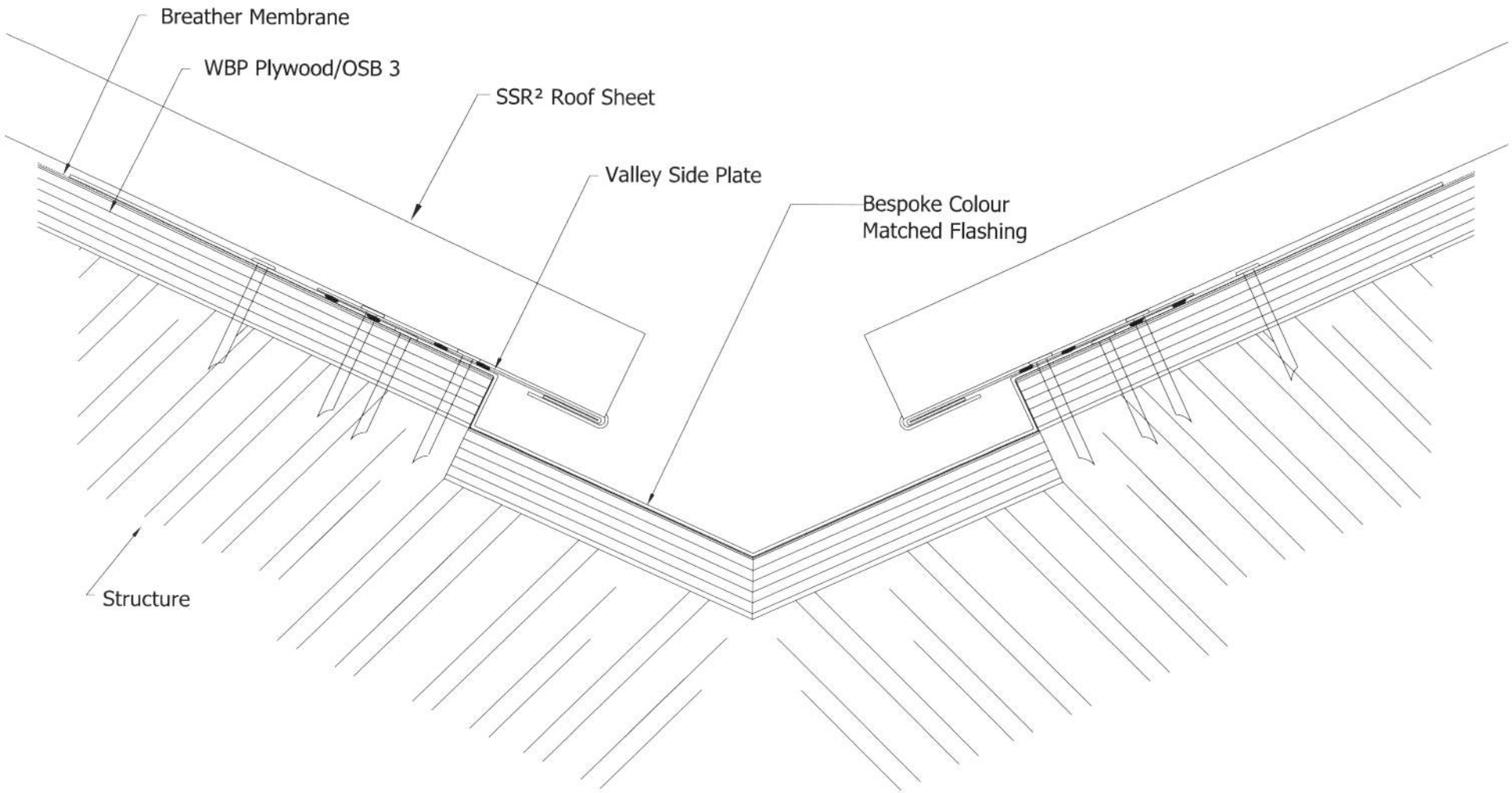

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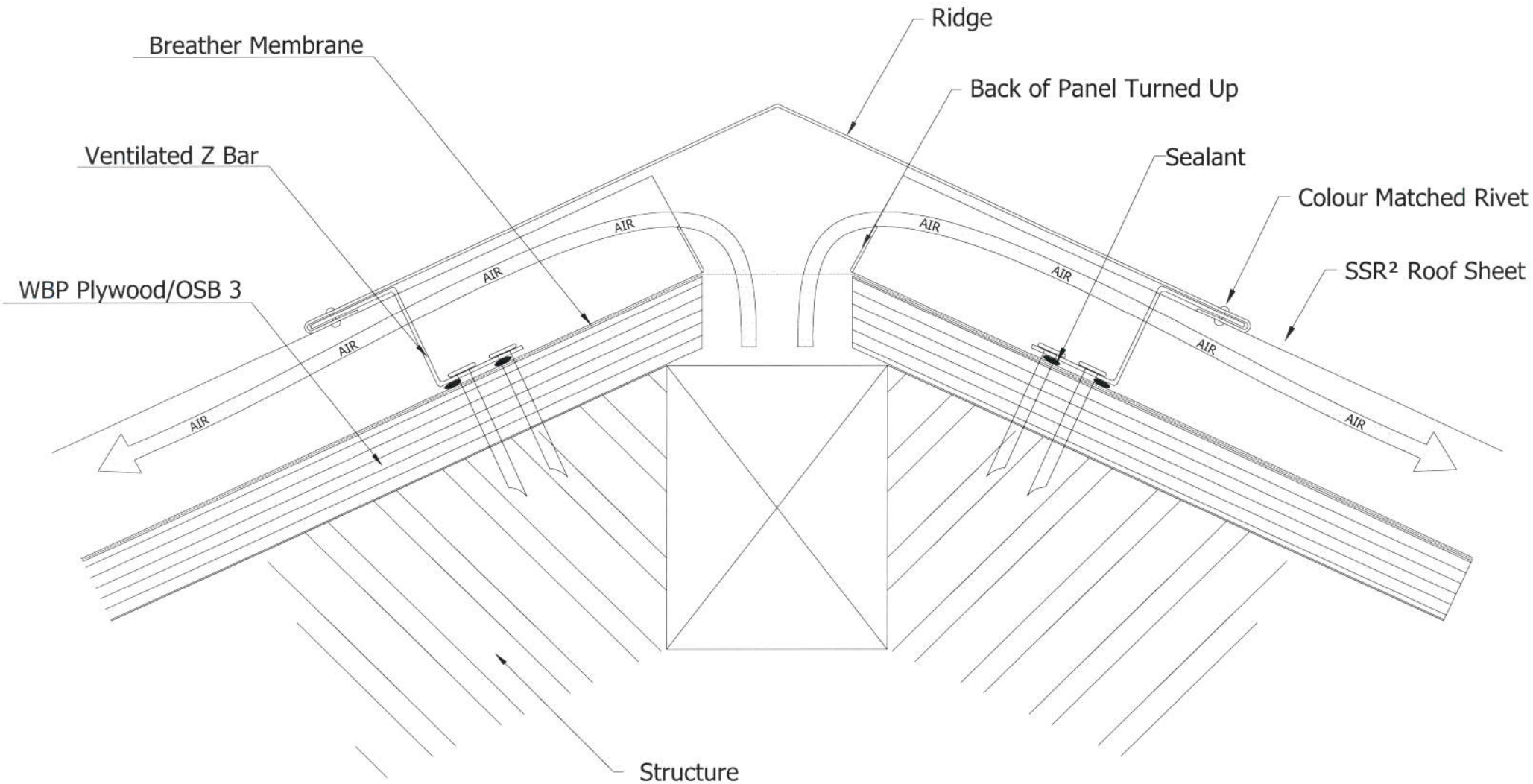

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VENTILATED DUO RIDGE

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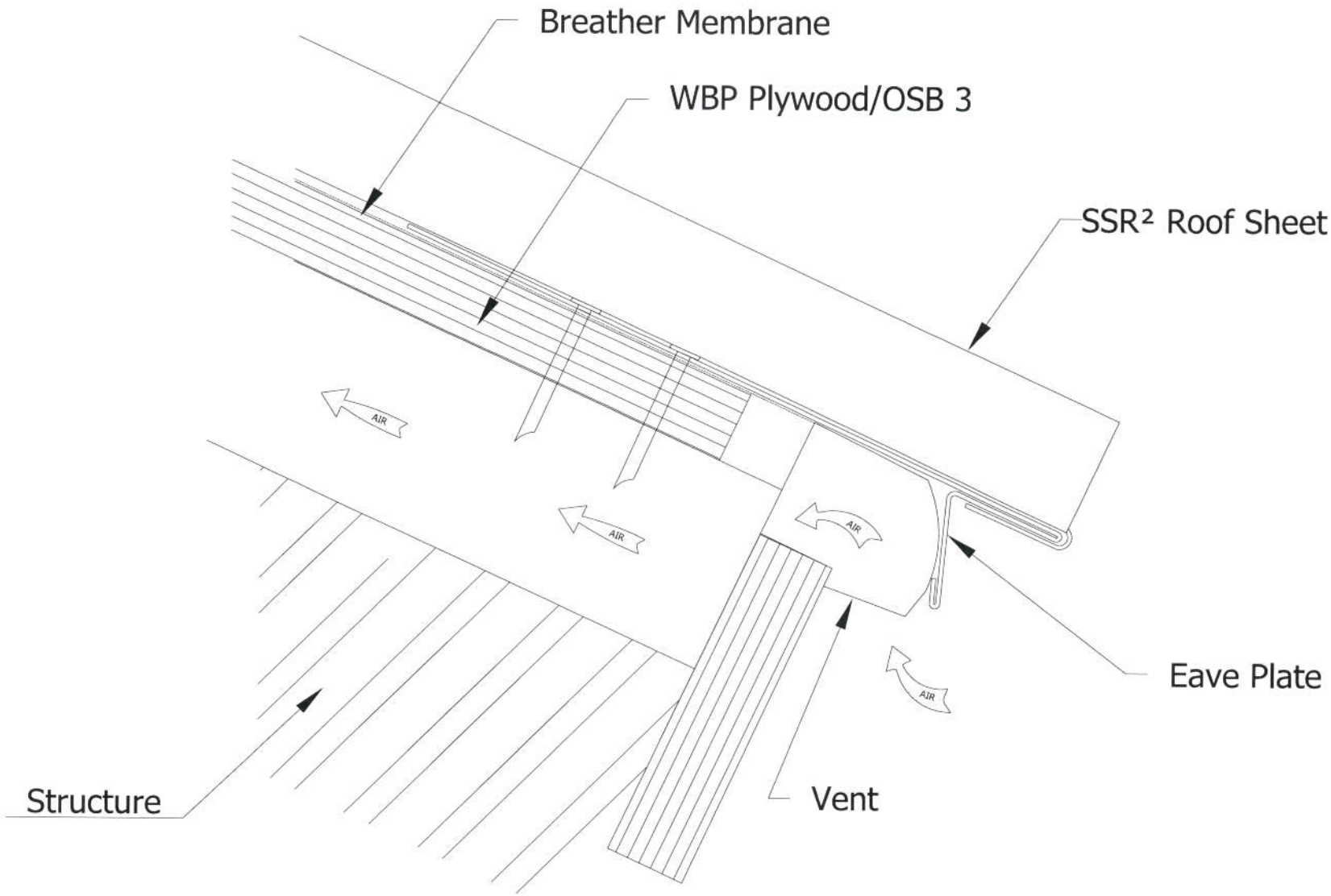

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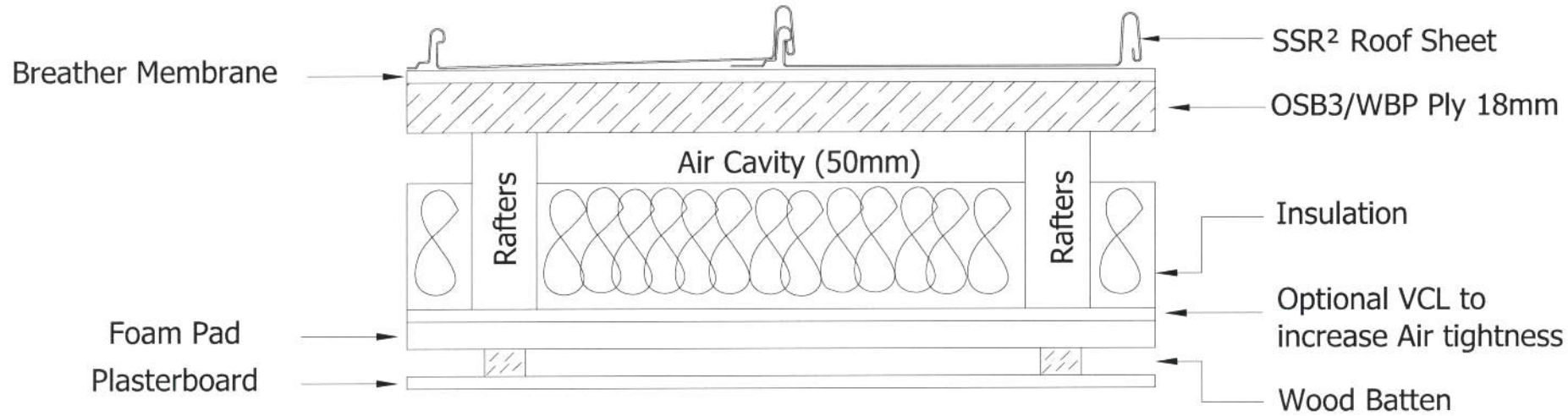

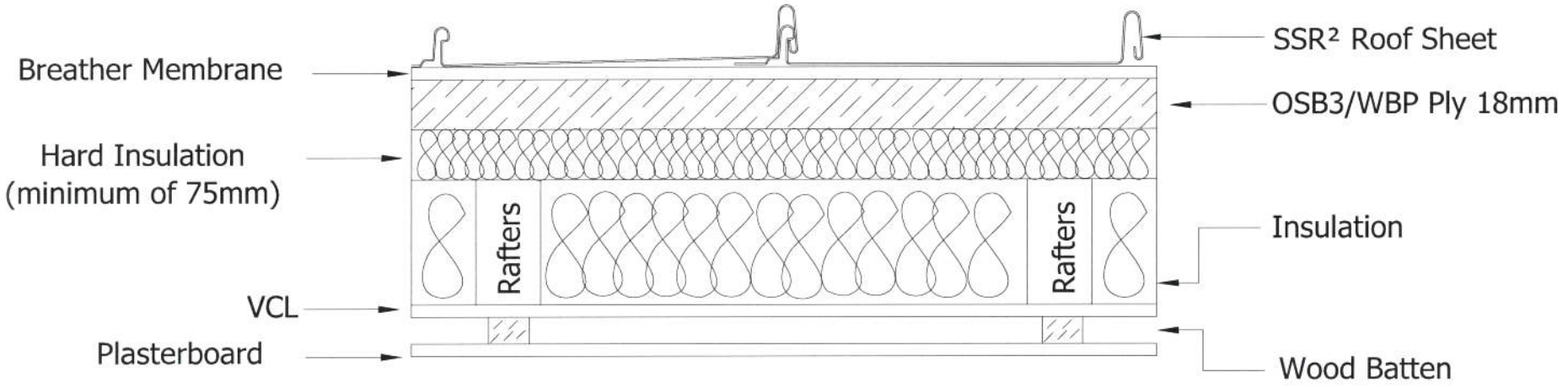

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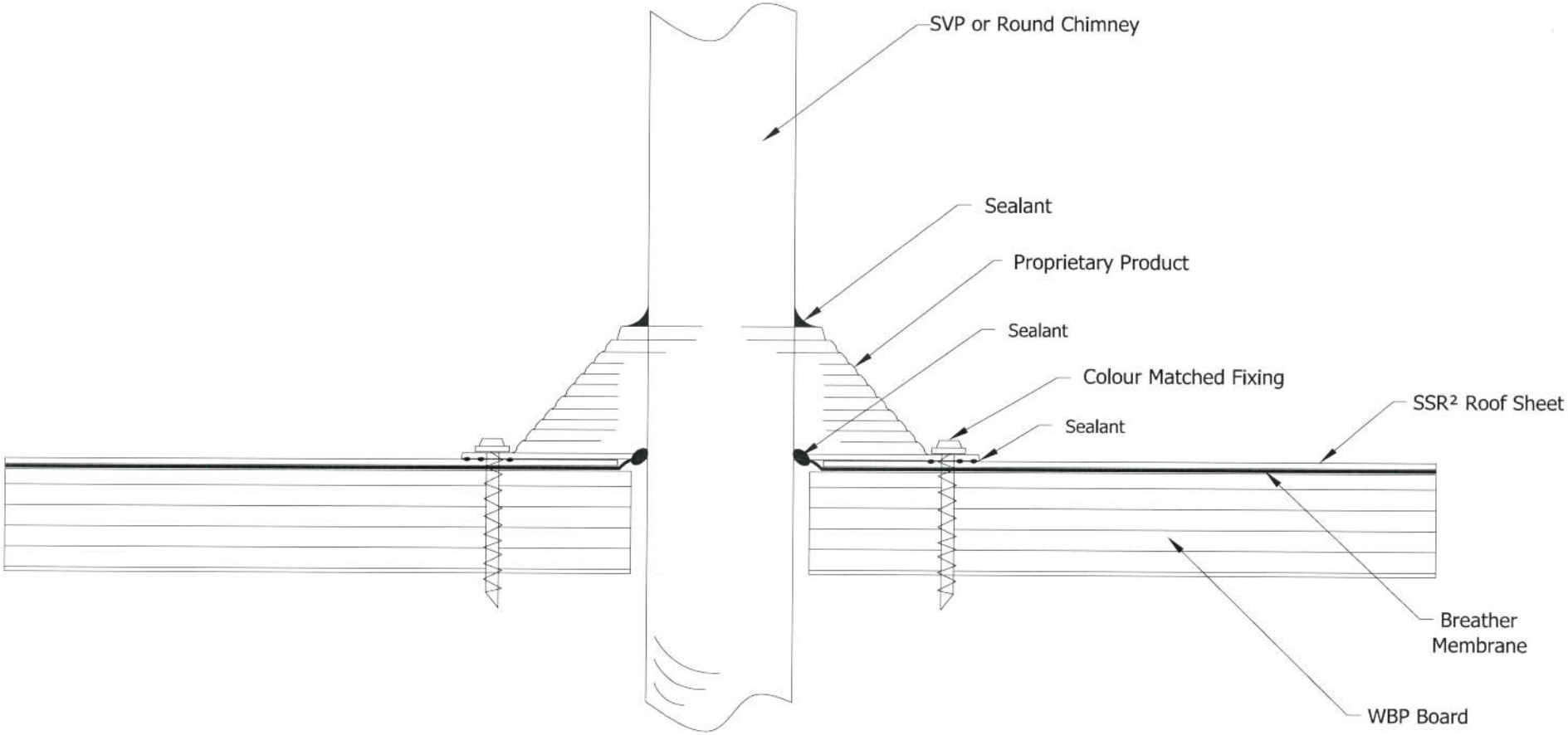

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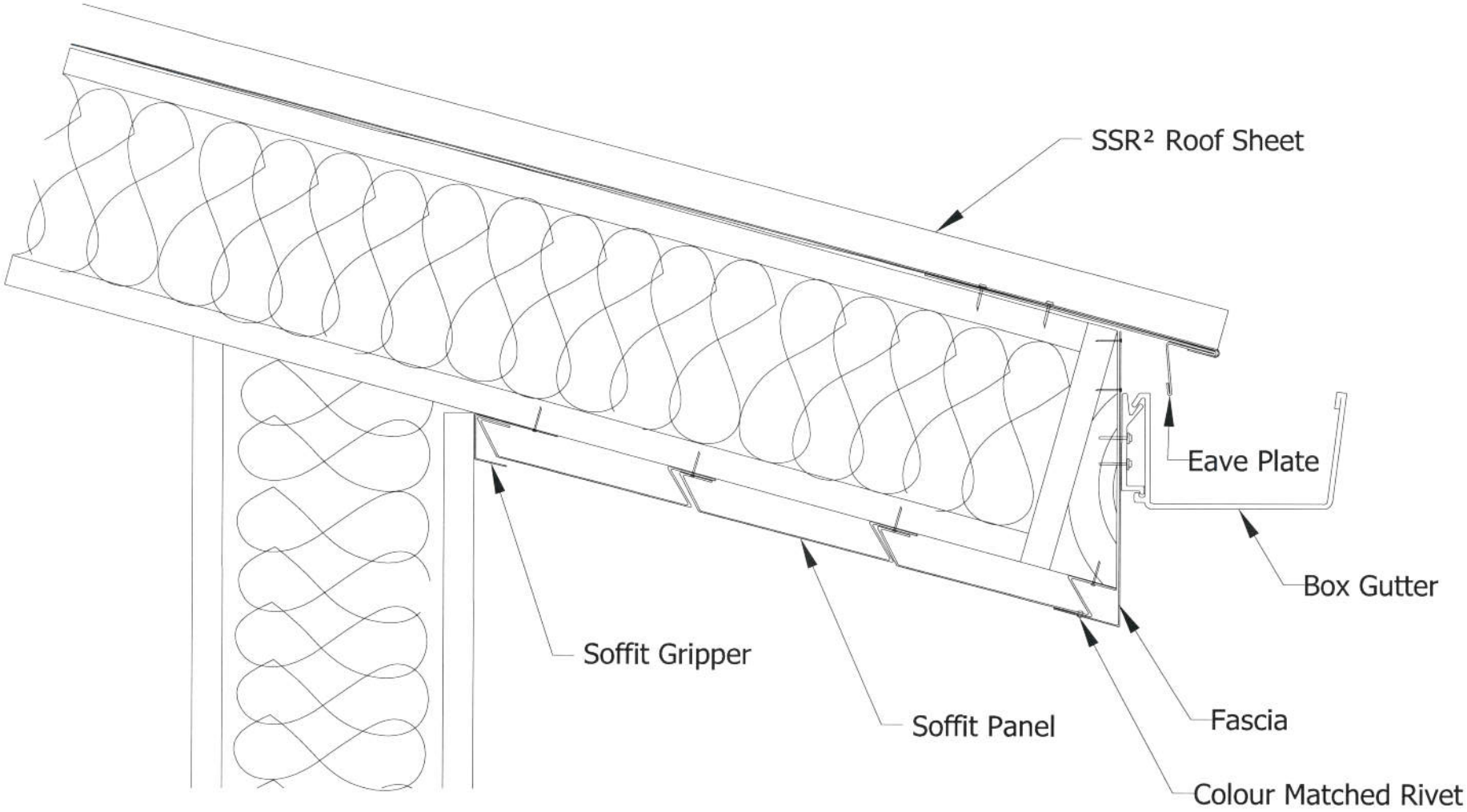

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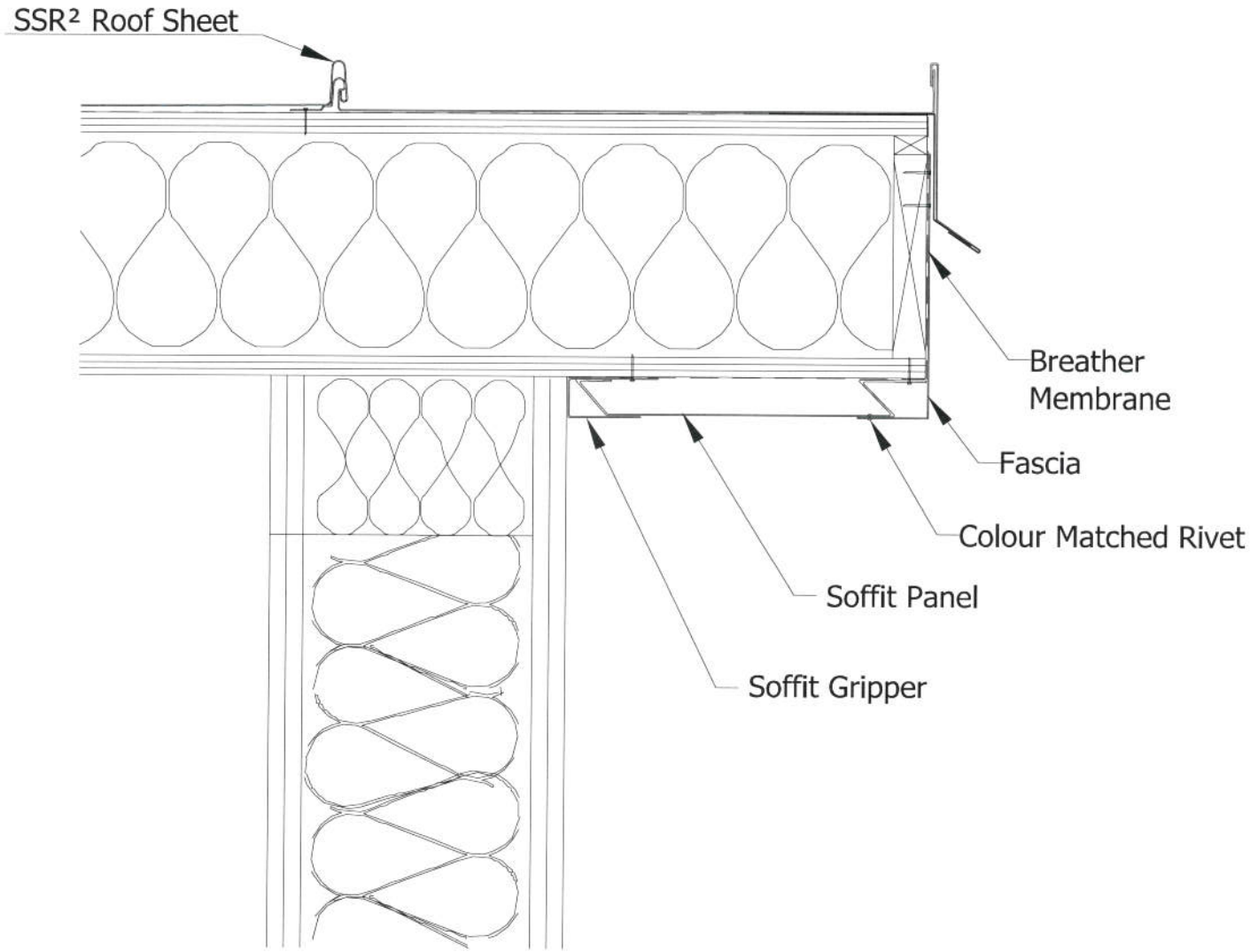

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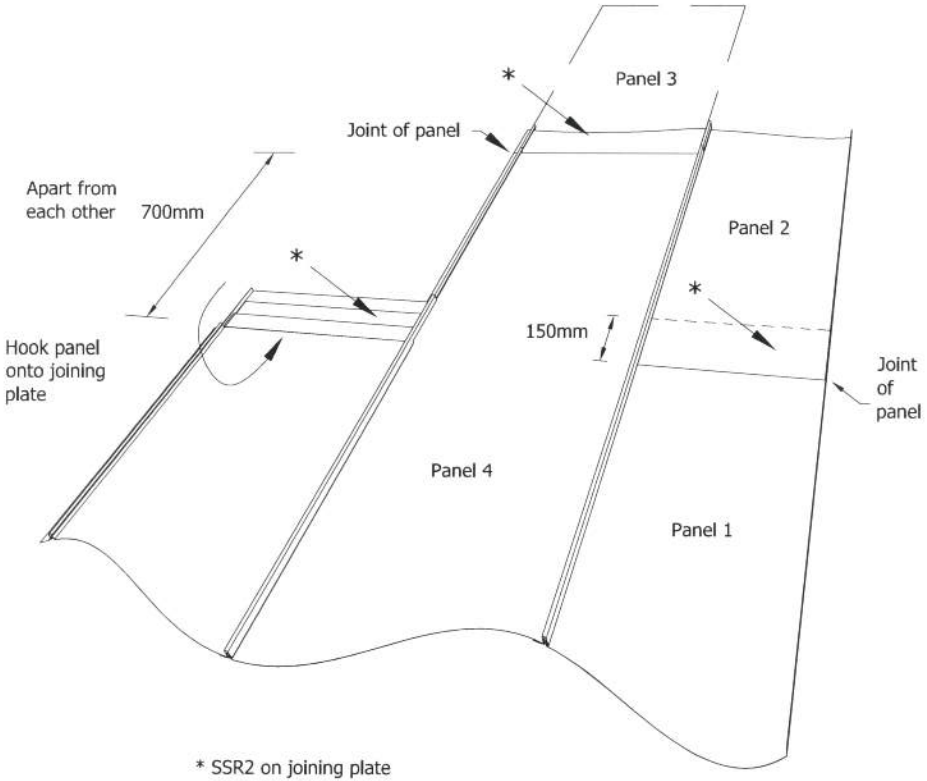

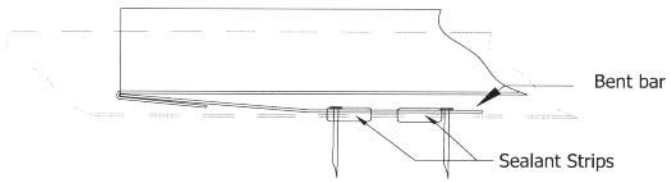

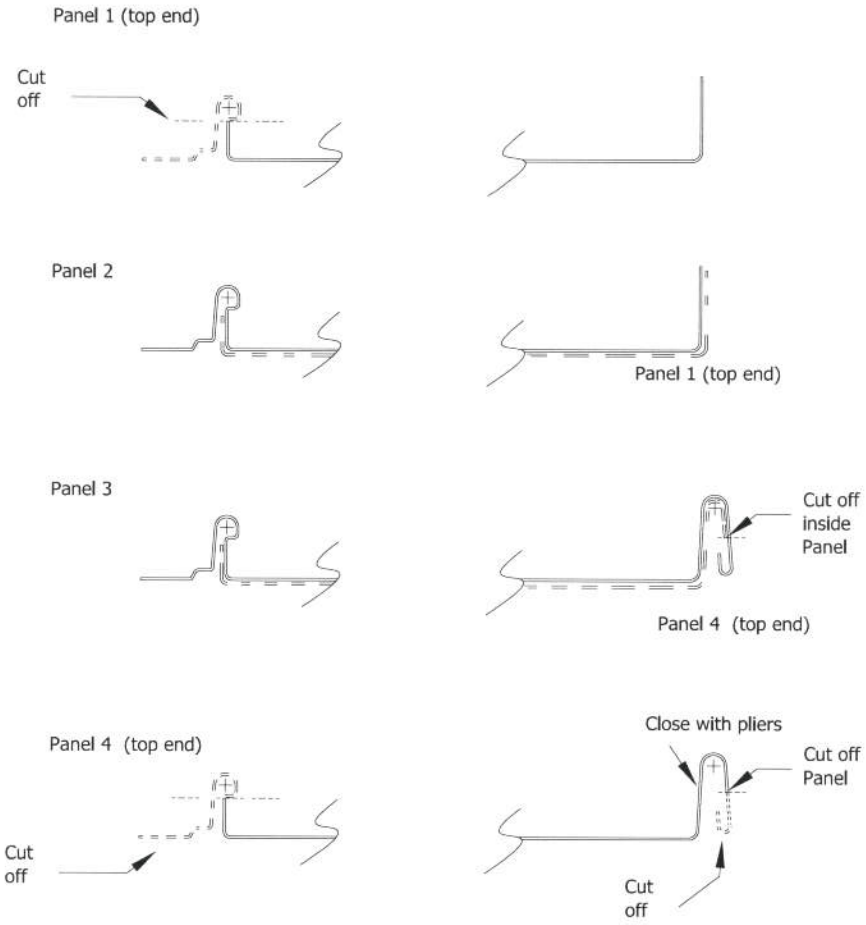

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