# EasySeam® Roof System Technical Guide

Vertix Systems. Engineered for life

# Contents

# 1. Introduction to Vertix® Systems

Based in Monmouth, South Wales, Vertix® Systems manufactures a range of metal standing seam systems for roof and wall applications. Vertix EasySeam® Roof and Wall Cladding Systems come with quality, durability and sustainability built in and are backed up with expert technical support and quick and responsive customer service.

Vertix EasySeam®Roof and Wall solutions are the ideal choice for new and refurbishment projects and are suited to a wide range of building applications which include residential, commercial, education, healthcare and leisure.

## Why choose Vertix Systems?

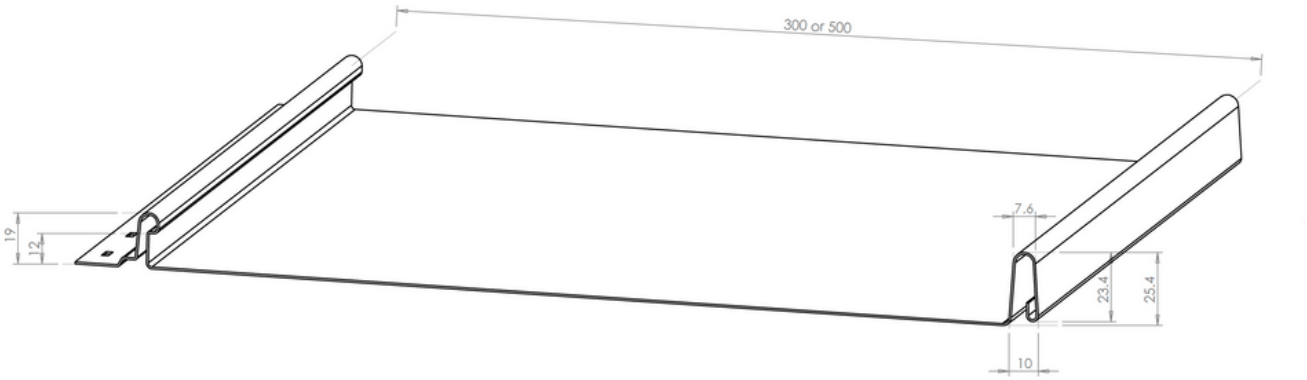
- Vertix® Systems combines metal roof and wall cladding solutions capable of delivering quality, durability and sustainability, with expert technical guidance and customer support to ensure the very best solution for your building project.
- Professional technical expertise that includes onsite technical and installation support.
- Short lead times supported by a quick and responsive service
- Flexible delivery options and logistics offering to suit customer requirements
- Robust packaging, providing product protection onsite
- Choice of material supplier and colours
- Wide range of standing seam profiles and widths, delivering improved aesthetics to the finished product
- Full system of parts available for roof and wall cladding, including soffits, facias, gutters and downpipes.
- Complimentary Bill of Materials (BOM)
- Sustainable design and UK manufacture for a lower carbon footprint
- Bespoke roof and wall cladding systems which are manufactured to BS EN 14783:201
- Part of the Resource group of businesses serving the construction sector.

## EasySeam® profiles

Vertix® Systems manufacture 4 different EasySeam® profiles, each with a 25mm high seam.

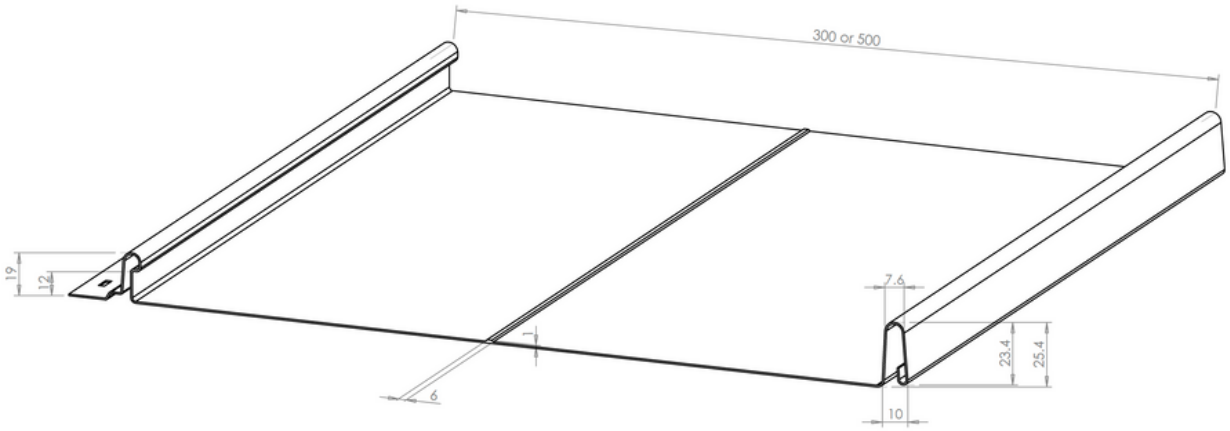
EasySeam® Flat Profile

Available in 2 widths 500mm and 300mm. Narrower width uses 50% more fixings and is particularly suited to exposed areas and to help minimise drumming.



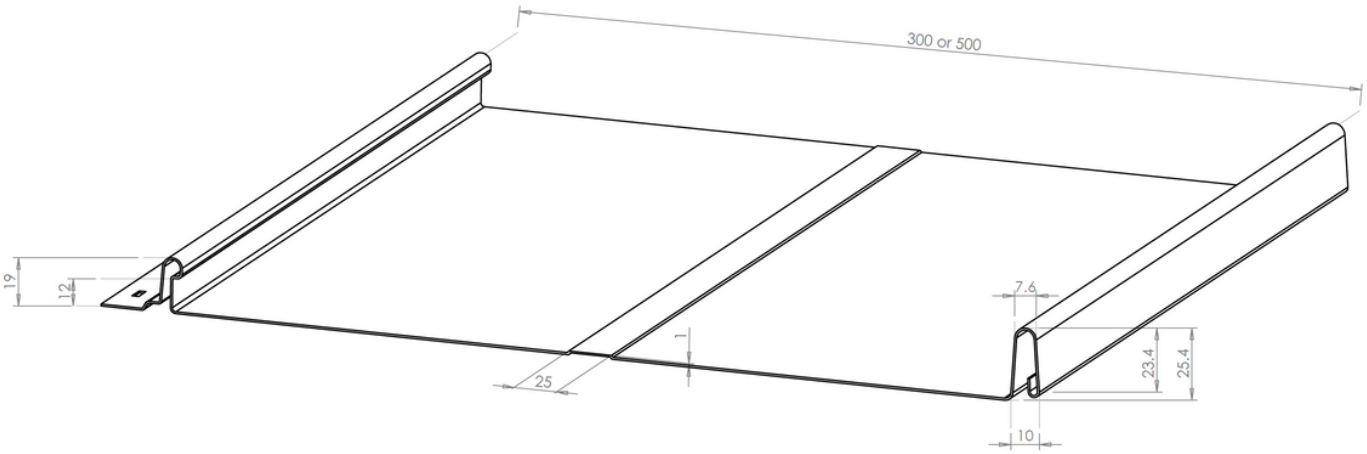

EasySeam® Single Pencil Profile

Available in 500mm width profile with a central 2mm upstand.



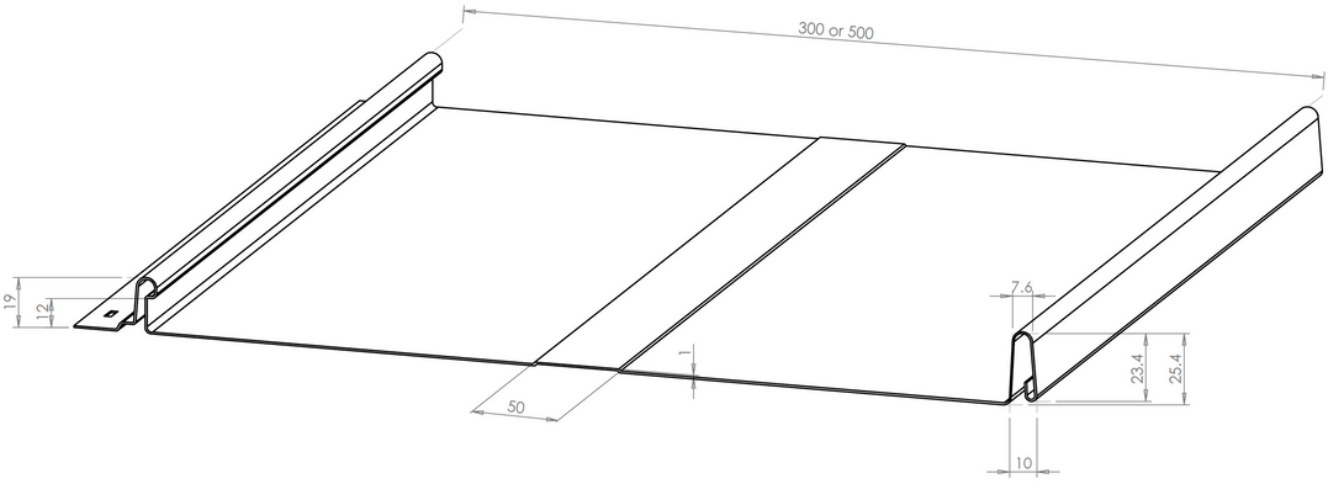
EasySeam® Narrow Rib Profile

Available in 500mm width profile with a 25mm central rib.




EasySeam® Wide Rib Profile

Available in 500mm width profile with a 50mm central rib which is particularly suited to more exposed areas and to help minimise drumming.



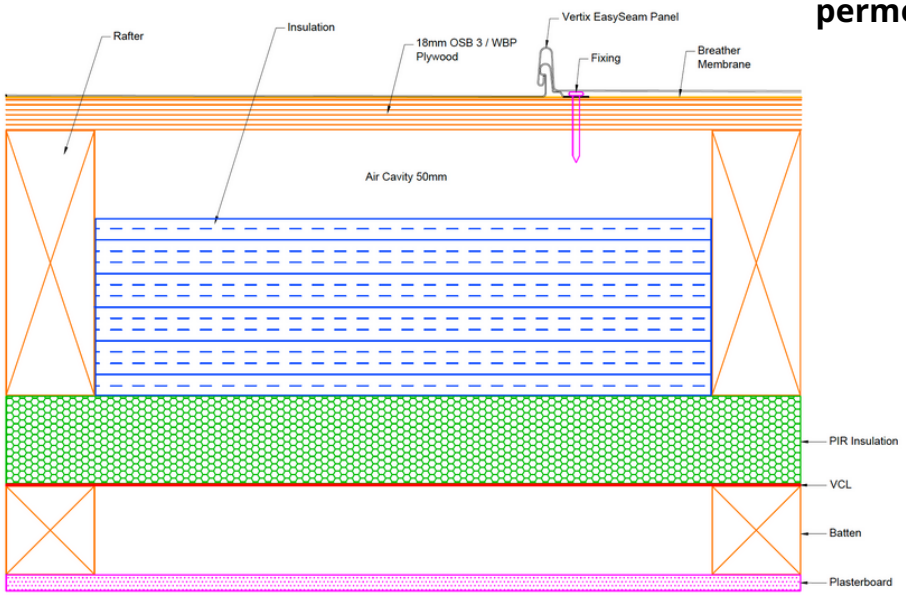
# 2. Compliance with CE Mark EN14783

Vertix EasySeam® Roof System is a fully supported standing seam, meaning it does not span between purlins. EN 14783 is the CE mark for this type of roof system, which needs to sit on top of a hard surface. Vertix EasySeam® Roof System uses an 18mm Oriented Strand Board (OSB) 3, which is load-bearing and suitable for use in humid conditions.

In non-combustible applications, the OSB3 wood board would be replaced by a non-combustible galvanised steel deck. From August 2025, all construction products will need to have the UKCA mark, which replaces the current CE marking.

Cladding products that are structural and span between purlins have to comply with EN14782, with a maximum product deflection of L/90. This means if the cladding product spans 1 metre, it can only deflect 11mm. EN14782 does not apply to Vertix EasySeam™ Roof System.

**Figure 2.1 Cold roof build up using EasySeam™ Roof System**




The CE mark assesses six areas of the roof system; dimensional accuracy, factory quality inspection, thermal expansion, fire testing, weather tightness, vapour and air permeability.

- **Dimensional accuracy** of the roof system is based on the nominal gauge of the material.
- **Quality inspection** is demonstrated by the Factory Production Control (FPC) procedures within Vertix® Systems. KIWA the third part accreditation provider, uses this inspection regime as part of their assessment of the Vertix EasySeam® Roof System.
- **Thermal expansion** of the material must be considered as part of the roof design work. Thermal expansion is covered in Section 4 of the Vertix® Systems Technical Guide.
- **Fire testing** of the Vertix EasySeam® Roof System is covered in Section 5 of the Vertix® Systems Technical Guide.
- A visual inspection is required to show **weather tightness, vapour and air permeability.**

# 3. Wind load and nail pull-out

All roofs in the UK may at some point in time be hit with a 100 miles per hour wind. In the Outer Hebrides this can be as often as every night in winter periods and in other parts of the UK such as London, it can be as infrequent as once every 30 years. As the wind blows it does not hit every roof, instead funnelling through buildings in built up areas, increasing both the wind pressure and speed as it travels. Buildings that are vulnerable due to their location, could result in their roof being blown off or experience structural damage.

Vertix EasySeam® Roof System has a fixing specification which, if used together with Vertix® Systems tested and certified fixings, should ensure the roof does remains intact in normal weather conditions during its service life. For exposed conditions, Vertix EasySeam® Roof System is available in a narrower (300mm width) profile which increases the fixings by 50%.

The thickness of the board supporting the Vertix EasySeam® Roof System can impact nail pull-out. Most vulnerable is a SIP panel used with a 500mm wide Vertix EasySeam® Roof System profile. This combination should not be used in high up exposed locations and in buildings above 3 storeys in Wind Zones 4 and 5. Careful consideration should also be given when using this combination in Wind Zone 3. Please refer to the Wind Zone Map.

Pitched roofs should have dead and imposed loads calculated in line with the requirements of BS EBN1991-1-1, BS EN1991-1-3 and BS EN1991-1-4. The thickness of the supporting board, as well as the rafter depths and spacing is the responsibility of the project's Structural Engineer or that of the roof truss manufacturer.

Vertix Easy Seam® Roof System fixed to an 18mm Oriented Strand Board (OSB) 3 has a significantly better pull-out strength when compared with an 11mm Oriented Strand Board OSB 3 SIP panel. Narrowing the width of the Vertix EasySeam® Roof System profile to 300mm increases the allowable wind uplift by 50%.

**Fig 3.1 Table showing Fixing pull-outs for 18mm Oriented Strand Board (OSB) 3**

**Pullout calculation 993840-SC2**

| Board Type | Pull Out Test Result KN | Fixing Distance mm | Width of Profile mm | Ultimate Uplift KN/m2 | Safety Factor | Allowable Uplift KN/m2 |
|---|---|---|---|---|---|---|
| 18mm OSB3 | 0.6713 | 180 | 500 | 7.5 | 3 | 2.49 |
| 11mm OSB3 on SIP panel* | 0.38566 | 180 | 500 | 4.3 | 3 | 1.43 |
| 18mm OSB3 | 0.6713 | 180 | 300 | 12.4 | 3 | 4.14 |
| 11mm OSB3 on SIP panel* | 0.38566 | 180 | 300 | 7.1 | 3 | 2.38 |

* SBS SIP panel was tested

**Fig 3.2 Table showing Fixing pull-outs for 18mm Oriented Strand Board (OSB) 3**

**Pullout calculation Z-FRP40W3**

| Board Type | Pull Out Test Result KN | Fixing Distance mm | Width of Profile mm | Ultimate Uplift KN/m2 | Safety Factor | Allowable Uplift KN/m2 |
|---|---|---|---|---|---|---|
| 18mm OSB3 | 0.856 | 180 | 500 | 9.5 | 3 | 3.17 |
| 11mm OSB3 on SIP panel* | 0.613 | 180 | 500 | 6.8 | 3 | 2.27 |
| 18mm OSB3 | 0.856 | 180 | 300 | 15.9 | 3 | 5.28 |
| 11mm OSB3 on SIP panel* | 0.6 | 180 | 300 | 11.1 | 3 | 3.70 |

* SBS SIP panel was tested

Figure 3.2 Wind Zone map for United Kingdom


Vertix EasySeam® Roof System has a fixing specification which, if used together with Vertix® Systems tested and certified fixings, should ensure the roof remains intact in normal weather patterns during its service life.

Drumming can occur with this type of roof. This is where the wind spins over the roof and creates different down and up forces, resulting in drumming. This is more common on 5-15 degree roofs and the higher the wind and the longer the roof, the more pronounced the effect can be. Vertix EasySeam® Flat Profile in 300mm width or Vertix EasySeam® Wide Rib Profile which has a 50mm central stiffening rib, can help to minimise this.

Wind Zones 4 and 5. Either Vertix EasySeam® Flat Profile in 300mm width or Vertix EasySeam® Wide Rib Panel which has a 50mm central stiffening rib should be specified.

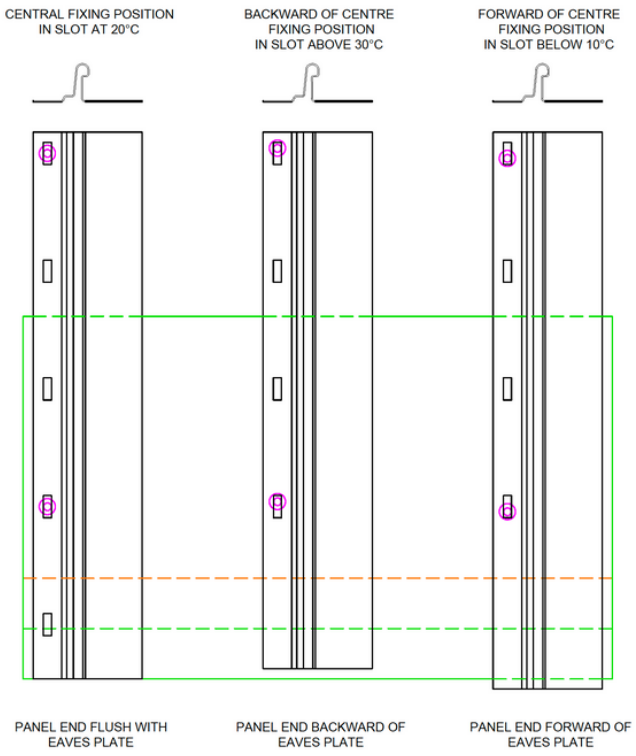
Wind Zone 3. The location of the project, thickness of the supporting board and height of the building all need to be carefully considered when choosing the width of profile.

Wind Zones 1 and 2 are generally in areas that are not exposed to the high winds on a regular basis but additional care needs to taken for high up and exposed coastal locations. High winds are predicted to be infrequent.

# 4. Thermal Expansion

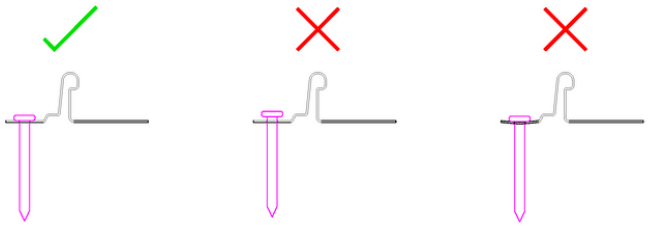
All metal standing seam roofs will expand and contract because of the material they are made from. The thermal coefficient of steel means it has one of the lowest expansions. Vertix EasySeam® Roof System has a 10mm slot on the profile on the nail strip side to accommodate thermal expansion. If the external air temperature is 20 degrees centigrade when the roof is fitted, the fixing should be positioned in the centre of the slot. If the air temperature is above 30 degrees centigrade or the profile has been left out for any length of time in hot sun, the profile will contract more and the fixing needs to be back of centre. If the temperature is below 10 degrees centigrade the fixing will need to be front of centre.

**Figure 4.1 Temperature dependant fixing positions**



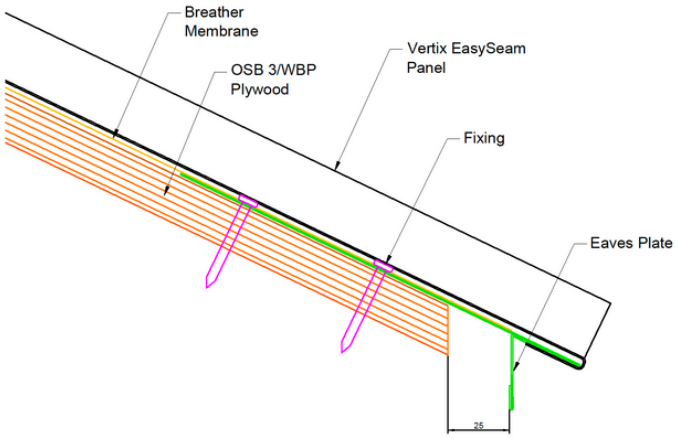

The nail should be positioned so that it touches the nail strip but is not protruding to the extent that it dings the panel or is so tight that it prevents the panel from expanding.

**Figure 4.2 Nail height positions**



At the top of the panel a fixed point needs to be created and the profile is then allowed to expand downwards over the eaves plate. The profile is formed around the eaves plate without a fixing.

**Figure 4.3 Eaves detail**



Steel will expand in the easiest direction and this can be outwards rather than lengthways. This can produce an effect called pillowing or cushioning.

This is a natural effect which can be reduced by using Vertix EasySeam® Narrow Rib profile or Vertix EasySeam ® Wide Rib profile which both have an additional rib in the centre of them. The cushioning effect can also be present if the support material is not flat or moves during the drying out phase, once the covering has been added to the building.

**Table 4.1 of Expansion rates of steel profile using the coefficient of expansion for steel in EN14783**

| | Temperature Degrees Centigrade | | | | | |
|---|---|---|---|---|---|---|
| **Length of profile (mm)** | **0** | **10** | **20** | **30** | **40** | **50** |
| 1000 | 999.8 | 999.9 | 1000.0 | 1000.1 | 1000.2 | 1000.4 |
| 2000 | 1999.5 | 1999.8 | 2000.0 | 2000.2 | 2000.5 | 2000.7 |
| 3000 | 2999.3 | 2999.6 | 3000.0 | 3000.4 | 3000.7 | 3001.1 |
| 4000 | 3999.0 | 3999.5 | 4000.0 | 4000.5 | 4001.0 | 4001.4 |
| 5000 | 4998.8 | 4999.4 | 5000.0 | 5000.6 | 5001.2 | 5001.8 |
| 6000 | 5998.6 | 5999.3 | 6000.0 | 6000.7 | 6001.4 | 6002.2 |
| 7000 | 6998.3 | 6999.2 | 7000.0 | 7000.8 | 7001.7 | 7002.5 |
| 8000 | 7998.1 | 7999.0 | 8000.0 | 8001.0 | 8001.9 | 8002.9 |
| 9000 | 8997.8 | 8998.9 | 9000.0 | 9001.1 | 9002.2 | 9003.2 |
| 10000 | 9997.6 | 9998.8 | 10000.0 | 10001.2 | 10002.4 | 10003.6 |
| 11000 | 10997.4 | 10998.7 | 11000.0 | 11001.3 | 11002.6 | 11004.0 |
| 12000 | 11997.1 | 11998.6 | 12000.0 | 12001.4 | 12002.9 | 12004.3 |

# 5. Fire Performance

## 5.1 The Euroclass system

The Euroclass system was introduced to harmonise standards across the European Union. It categorises products into one of seven reaction to fire classes ranging from A1 (non-combustible) down to F (the worst performing class in terms of combustibility), using a defined test or combination of tests. It also provides an additional classification (typically associated with reaction to fire classes D – B) for smoke production. This ranges from s1 - little or no smoke to s3 - substantial smoke and flaming droplets / particles from d0 - none to d2 – quite significantly.

During its development, the European Commission's Fire Regulators Group wanted the Euroclass system to directly address the hazards in an actual fire scenario- a fire in a room. To do this, they used a room corner test (ISO 9705-1: 2016 - Room corner test for wall and ceiling lining products) as the reference point. Crucially, this test method was specifically designed to measure the burning behaviour of an internal wall.

## 5.2 Wall Cladding

If the Vertix EasySeam® profile is mounted on an Oriented Strand Board (OSB) 3 or a Water Boiled Plywood Board (WPB) with a breather membrane, then it will achieve a Class C in the European Fire test ISO 9705-1:2016.

This is suitable use for some low-rise buildings (less than 11 metres high in England) and furtherthan 1 metre from the boundary. This would not meet the new specification for schools which requires a Class A2 fire performance rating. The building designer will need to understand the fire requirements demanded by both Building Regulations and the client. Vertix® Systems can then advise on the specification of the build-up and the selection of the pre-finished steel used to achieve the required fire performance.

Buildings within 1 metre of the boundary are required to meet a Class B fire performance rating for the wall cladding. Buildings greater than 11 metres in height and being used for residential, hospital, care home and student accommodation applications, require a minimum of Class A2 fire performance rating.

To achieve a Class A1 fire performance rating, either Tata Steel's Colorcoat Prisma® or SSAB GreenCoat® Pural BT pre-finished steel, supported with a galvanised steel deck, would provide the best solution for wall cladding on multi-use building of any height close to the boundary. This would meet the current Fire Regulations Part B section B4, taking the linear approach.

Scotland, Wales and Northern Ireland have their own Building Regulations, however the use of the A1 material and build-ups should be considered. Please contact Vertix® Systems to discuss fire performance requirements for these nations.

## 5.3 Roof Systems Broof t4 Fire Test BSEN 13501-5

BS EN 13501-5 classification refers to four separate roof testing methods (DD CEN/TS 1187:2012) that measure the fire performance of roofs.

- Test 1 with burning brands.
- Test 2 with burning brands and wind.
- Test 3 with burning brands, wind and supplementary radiant heat.
- Test 4 evaluates the performance of a roof under the conditions of thermal attack with burning brands, wind and radiant heat. The test gauges external fire spread and penetration by fire. One specimen is examined in the preliminary test. Three other specimens are assessed in the penetration test, with at least one specimen containing samples of the joint details in each layer of the roof system.

The suffix (t4) indicates that Test 4 is to be used, with BROOF(t4) indicating the highest performance and FROOF(t4) the lowest.
Based on Test 4, the following classification system is arrived at for roofs and roof coverings exposed to external fire:

BROOF(t4)

- No penetration of roof system within 60 minutes
- In preliminary test, after withdrawal of the test flame, specimens burn for less than 5 minutes
- In preliminary test, flame spread less than 0.38 m across region of burning.

Vertix EasySeam® Roof System has been tested by the Building Research Establishment (BRE) to the Broof t4 using 18mm Oriented Strand Board (OSB) 3 and a breather membrane. It has completed tests for 0-10 degree and 10-45 degree roof pitches. This means the Vertix EasySeam® Roof System can be used within 6 metres of the property boundary for any roof pitch.

## 5.4 Fire performance of pre-finished steels

The test results for the pre-finished steels have been supplied by the steel manufacturer and are reproduced without any further investigation by Vertix® Systems.

### Colorcoat HPS200 Ultra® by Tata Steel

Performance of roof coverings

Colorcoat HPS200 Ultra® when used as a roof covering, can be classed as BROOF(t1), BROOF(t2), and BROOF(t3) without further testing, in accordance with Commission Decision 2005/403/EC for all gauges ≥ 0.4mm and for all colours in the product range for single sided and 200/100 micron double sided product. It has been tested to EN 1187 test method 4 and can be classified according to EN 13501-5 as BROOF(t4) for all gauges ≥ 0.4mm and for all colours in the product range for all single and double sided products.

Reaction to fire performance

Colorcoat HPS200 Ultra® has been tested to EN 13823 and EN 11925-2 and can be classified in accordance with EN 13501-1 as C-s2, d0. This classification is valid for all gauges ≥ 0.46mm and for all colours for single sided product. For double sided products please contact Tata Steel.

### Colorcoat Prisma® by Tata Steel

Performance of roof coverings

Colorcoat Prisma® including Colorcoat Prisma® Element colours are deemed to satisfy, without the need for further testing, the requirements for external fire performance of roof covering products in accordance with Commission Decision 2000/553/EC. This is valid for all gauges >0.4mm and for all colours in the product range for single and double sided products.

Reaction to fire performance

Colorcoat Prisma ® including Colorcoat Prisma® Element colours have been tested to EN 13823 and EN ISO 1716 and can be classified in accordance with EN 13501-1 as A1. This classification is valid for all gauges >0.4mm for all colours in the product range for single sided product.

### SSAB GreenCoat® Pural BT

GreenCoat® Pural BT is fire-rated (EN 13501-1) with A1 s1 d0.

# 6. Build-up U value / Condensation

The launch of the new British Standard BS 5250 Management and Moisture in Buildings in July 2021 recognises that there are several causes of moisture in buildings and the new regulations are intended to address these issues.

Condensation can be caused by a number of different factors:-

- Water incorporated during the construction process, including precipitation (water released from clouds in the form of rain, freezing rain, sleet, snow, or hail.)
- Precipitation after construction, leaking cladding roof and wall.
- Water vapour arising from the occupants and their activities (cooking and Showering)
- Temporary condensation occurring when cold weather conditions are followed by warm humid weather.
- Rising Damp

Precipitation after construction is covered in Section 12 Detailing.

## 6.1 Water incorporated during construction process (including precipitation)

It is good practice to cover the building as quickly as possible to prevent rain from drenching it once the slab and walls have been laid. It is always surprising that some building sites visited are bone dry and others are completely saturated.

Where the building site is saturated there is often a thick layer of condensation on the roof and windows which is not drying out and first fix is progressing. It is important to make a building water tight as quickly as possible. This means that as soon as the walls have been built, the roof trusses should be installed, followed by boarding and a high performing breather membrane with a good water resistance. This is called the W1 test and the column of water needs to achieve a 2 metre pass result and air permeability of less than 0.2 MN-s/g. Battened down this will mean the building is 90% water tight and will start to dry out.

## 6.2 Water vapour arising from occupants and their activities

Historically Building Regulations encouraged a fabric first approach, whereby the more insulation the lower the U value and therefore the better. The revised BS5250 standard considers all types of water ingress.

Vertix® Systems team has worked in the roofing market since 2008 and has experience of 0.1 U-value buildings. The main issue once the U-value goes below 0.15 is to prevent the humid conditions causing condensation. To achieve this, three principles need to be adhered to:-

- Elimination of any cold bridges
- Preventing hot moist air from meeting cold outside air
- Ventilating the roof build and mechanical ventilation heat recovery for the home.

Elimination of any cold bridges

Generally, insulating between the rafters or solely in the frame is not enough to achieve the U values required or to eliminate cold bridges. The building needs to be wrapped with insulation external to the frame or on the inside to eliminate any cold bridges. For a roof build-up it is important if insulating on top of the frame, that the insulation is thick enough to prevent a dew point on the inside of the insulation. To achieve this 100mm thick of PIR type insulation or 200mm thick of hardrock insulation is required. If a lower thickness insulation is used it can lead to condensation on the inside of the top layer of insulation. This is called interstitial condensation and can cause the timber structure it sits on to rot.

Preventing hot moist air from meeting cold outside air

With the thick insulation build-up required to achieve a low U-value, the moisture cannot get out of the build-up and just relying on ventilation does not allow for the interstitial condensation to escape. Vapour resistance is measured in MN-s/g.

- Aluminium foil achieves a test result of 1000 MN-s/g.
- 1000 gauge Polyethylene (0.25mm) gives a result of 500 MN-s/g.
- Plasterboard gives a result of 60 MN-s/g.

Many contractors rely on foil backed plasterboard to achieve a vapour control layer, however this tends to get penetrated with down lighters or sockets. Best practice is to create a service void and line this with a Polyethylene or specialist vapour control membrane to prevent water penetration into the build-up.

Ventilating the roof build and mechanical ventilation heat recovery for the home.

Ventilation of the roof void is a good way to ensure any condensation trapped in the upper layer of the insulation escapes. Whilst facades and roofs with insulation between and below the rafters will always require ventilation, it is good practice to ventilate all roof build-ups. Section 13 includes detailing for ventilation options.

Mechanical ventilation heat recovery systems are specialist units and are important for ventilating well sealed, low U-value homes. They extract warm, moist air from bathrooms, kitchen and utility rooms and pass this through a heat exchanger. This brings in fresh air in and transfers the heat outside. The fresh air which is often filtered, is pushed into the bedrooms and living rooms. Numerous manufacturers offer mechanical ventilation heat recovery systems.

# 7. Guttering and down pipes

BS EN12056-3:2000 is the British Standard for calculating the sizing of guttering and downpipes, based on average rain fall for a location. There are four types of guttering used in buildings:

- External gutter
- Hidden Gutter
- Internal gutter
- Valley gutter

## 7.1 External Gutter

This is a gutter that will cope with most rainfall, however in extreme sudden deluges they can overflow as the safety factor in the calculation is low.

Figure 7.1 External gutter detail

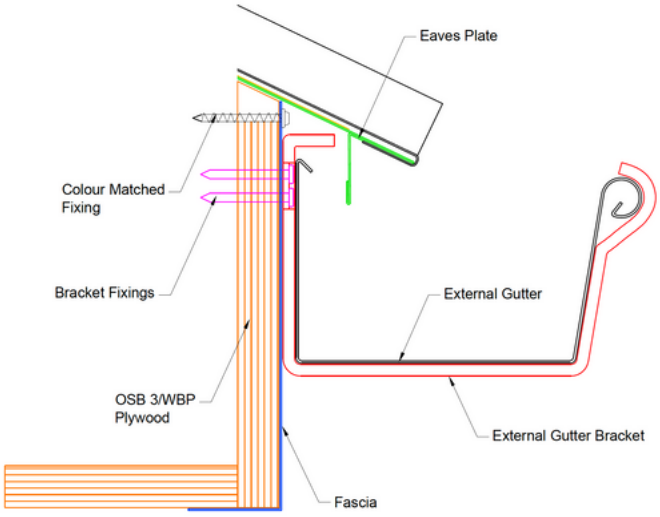
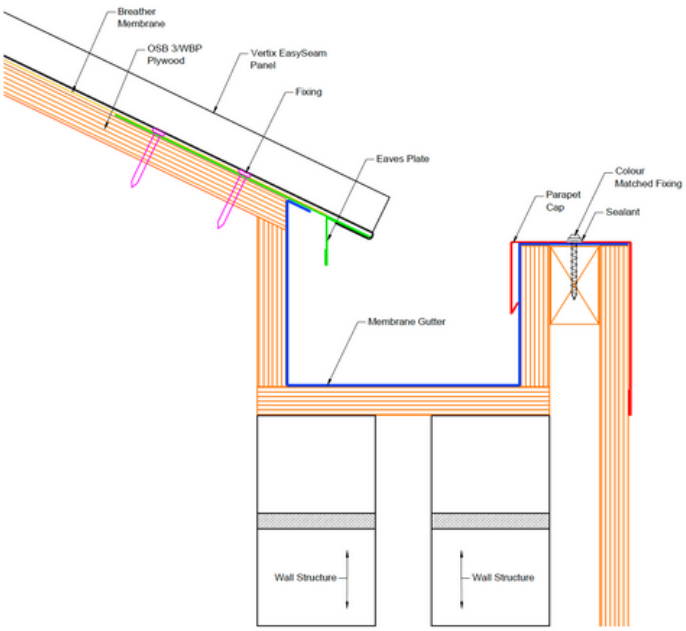



Figure 7.2 Hidden gutter detail




## 7.2 Hidden Gutter

This is a gutter that is at the end of a roof, generally outside of the building wall plate and over the soffit. These are popular with architects looking for a clean aesthetic look to the building. They have a higher safety margin and if the outlet gets blocked, the water can come through the soffit. They should cope with most rainfall deluges but a further design solution can be to make the front of the gutter 5mm lower than the back of the gutter. This way if the gutter does not cope with the rainfall or the outlet is blocked, then the water will flow outside of the building.

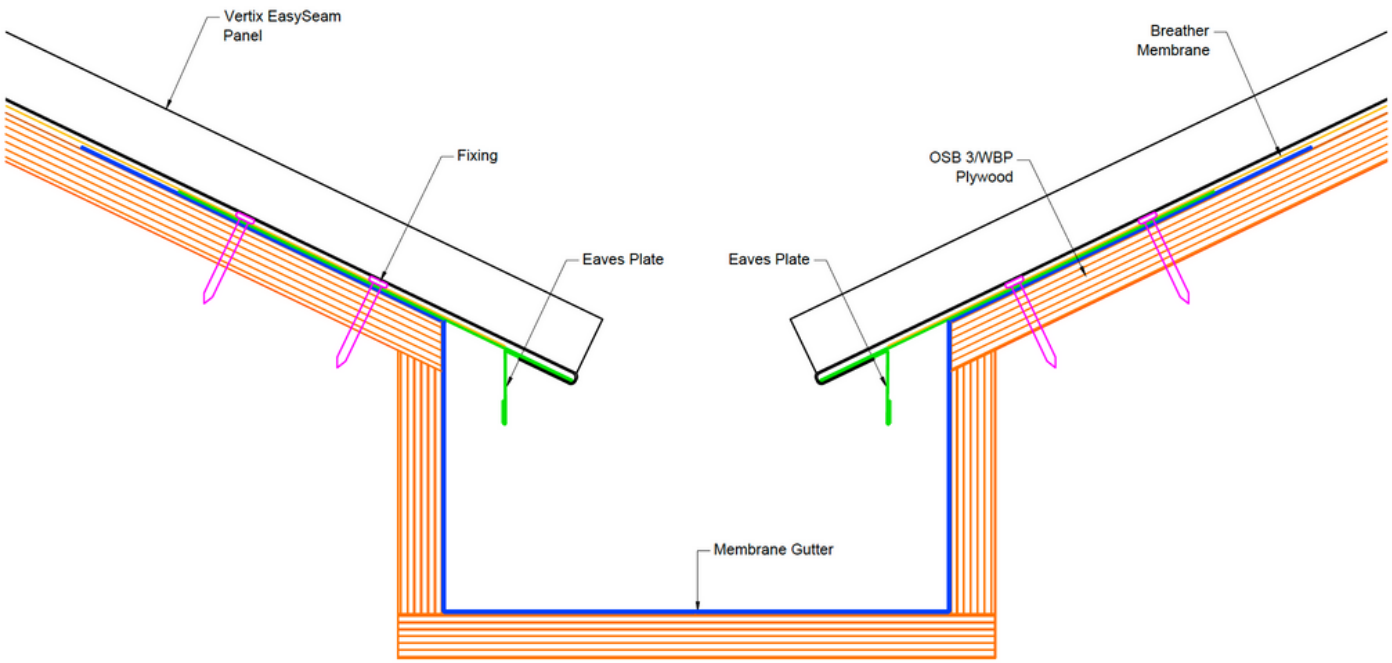
## 7.3 Internal Gutter

This is within the wall plate of the building. If it overflows this could lead to water entering the building These gutters have the highest safety factor and are designed to cope with all rainfalls. With the increased uncertainty around weather patterns, the design of these gutters is key and having the ends of the gutter lower than 150mm is important. This way, if the gutter blocks, then the water will run over the end of the gutter. Gutter designer often include a small pipe to overflow if the outlet is blocked. As the overflow pipe is not used regularly, without adequate maintenance there is a danger of it becoming blocked.

When this happens and when the outlet is also blocked, rainwater can flow into the building, flooding it. This type of gutter requires a maintenance schedule to ensure the outlet and overflow pipe remain unblocked.

The depth of the internal gutter needs to be a minimum of 150mm to cope with snow loading. To achieve this, if there is not enough space downwards in the structure because of an obstruction such as a beam, the sides of the gutter will need to extend up the roof slope.

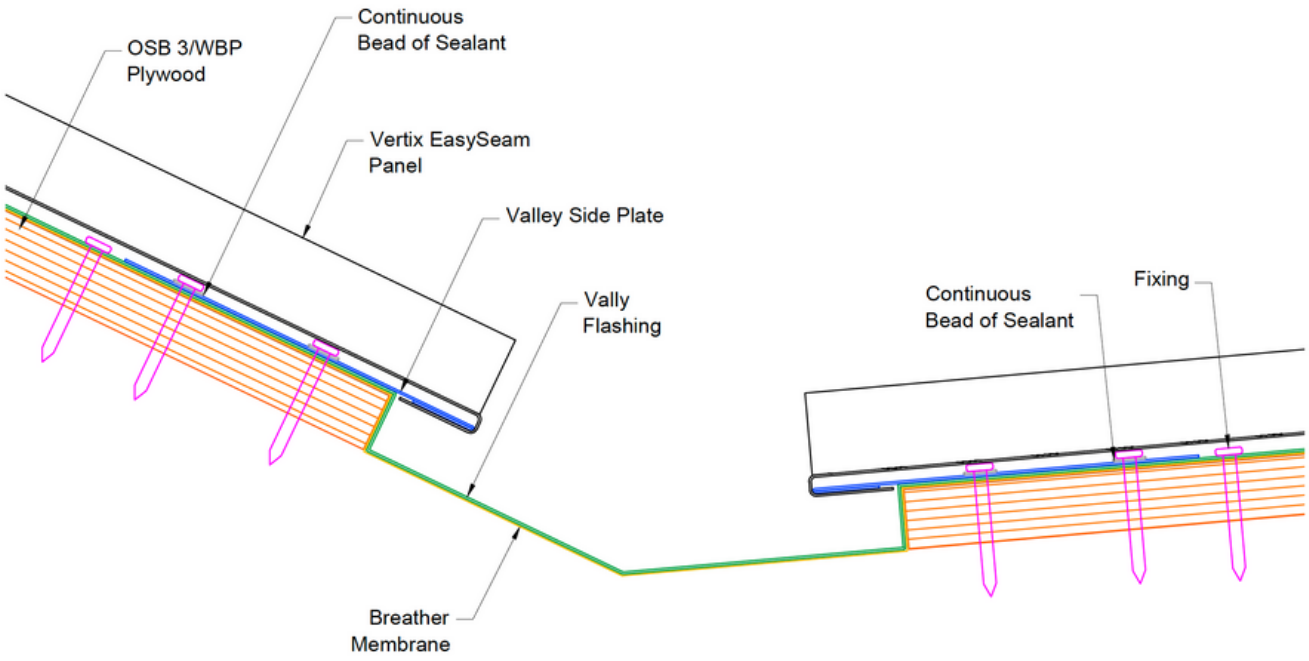
**Figure 7.3 Internal gutter detail**



## 7.4 Valley Gutter

Valley gutters going down the slope of a roof do not generally require a gutter calculation as the water runs down the slope out of an open end. Drop down valley gutters need to be used when a high pitch roof drains onto a low pitch roof. For example, if there is a 45 degree roof draining onto a 5 degree roof, then water could end up being pushed under the lower pitched roof if using a V shaped valley gutter. The Drop-down valley gutter would prevent this from happening. A V shaped valley gutter should be used around a dormer window and for SIP Panels. Good Sealing practice is critical on this type of valley gutter if used for low pitch roofs.

**Figure 7.4 Valley gutter detail**




All gutters need annual inspection and cleaning program to ensure they are free from debris.

## 7.5 Down pipes

The size of down pipes and the number used will often improve the gutter calculation. They can sometimes help a certain sized gutter pass the gutter calculation, if for space and structural reasons it cannot be resized. Round and tapered outlets increase the flow of the gutter over square outlets. Leaf guards over the outlet dramatically reduce the flow into the gutter.

Vertix® Systems can provide technical support to help ensure the correct gutter is specified for the building requirements.

Vertix® Systems can provide technical support to help ensure the correct gutter is specified for the building requirements.

# 8. Acoustic performance

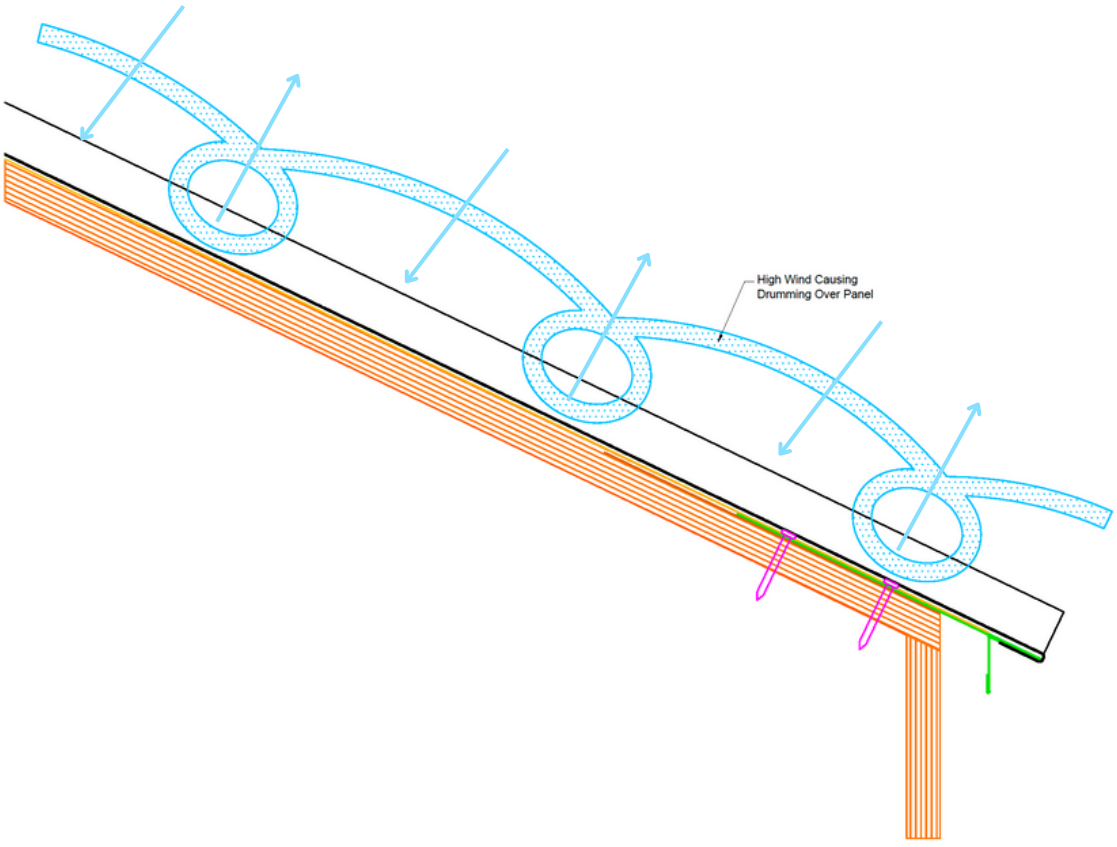
## Part E Building regulations

Building Regulations do not stipulate a specific noise reduction level for roofs, ad instead refer to party wall junctions with roof and ceilings to prevent airborne noise escaping from one home to another.

Metal roofs have historically had a reputation for being noisy during rainfall however, this tends to be when the roof construction is single skin. Vertix EasySeam® Roof System is mounted on Oriented Strand Board (OSB) 3, with insulation to 0.15 U-value or higher with an air gap for the service void or ventilation gap. As a result, it can achieve a noise reduction level of RW 45dB.

As highlighted in Section 3, an issue that can sometimes occur with metal roofs, is they are noisy during high winds. Tile roofs can chatter and low pitch standing seam roofs can drum. To reduce drumming, Vertix® Systems recommends the use of Either Vertix EasySeam ® Flat Standing Seam profile in 300mm width or Vertix EasySeam® Wide Rib Profile which has a 50mm central stiffening rib.

**Figure 8.1 Wind drumming**

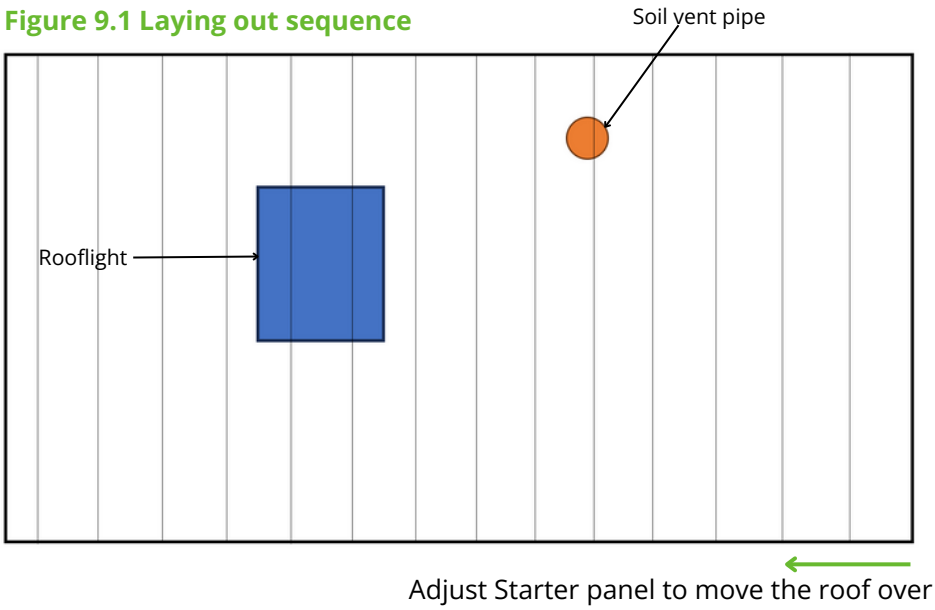


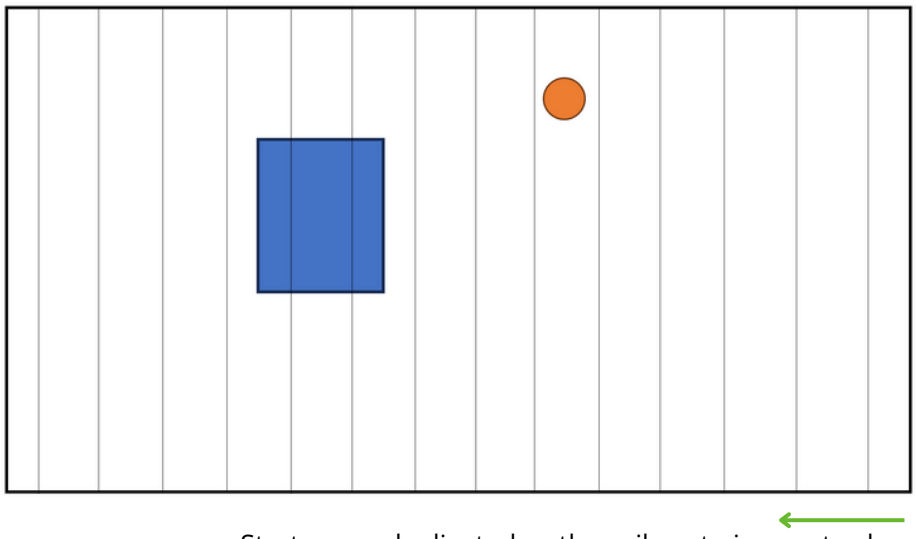
# 9. Laying out panels

It is important to mark the layout of the roof or wall prior to installation. The end panels are reduced to adjust the position of the standing seam. When using rooflights, 150mm of Vertix EasySeam ® profile is required each side of the roof light. For windows on a wall, 100mm of Vertix EasySeam® profile needs to fall outside of the window.

For Soil Vent Pipes (SVP) and Flues, a 250mm flue is not going to fit in a 300mm profile. Wide pipes need to either be mounted on a plinth and then flashed as a square penetration or alternately used with a 500mm Vertix EasySeam® profile in that location.

**Figure 9.1 Laying out sequence**



# 10. Material options

Vertix® Systems is able to provide extra choice and flexibility by offering the EasySeam® Roof System in both SSAB GreenCoat® and Tata Steel Colorcoat® pre-finished steel options.

## 10.2 Colorcoat® by Tata Steel

Colorcoat® has been manufacturing pre-finished steel products for 60 years and they are comprehensively tested and manufactured to the highest European standards. Extensively used for roofs and walls, applications include industrial warehouses, commercial buildings, schools, retail and leisure and residential applications. Vertix Systems can offer both Colorcoat HPS200 Ultra® and Colorcoat Prisma® options.

Colorcoat HPS200 Ultra®

Designed to withstand even the most demanding and aggressive environments, Colorcoat HPS200 Ultra® pre-finished steel provides super durability and corrosion resistance. It features a Scintilla® emboss and exceeds the requirements of Ruv4 as per EN 10169:2022, providing excellent colour retention.

Available from Vertix Systems® in Matt Anthracite, with other colours available on request.

Colorcoat Prisma®

Utilises cutting edge three layer manufacturing technology to create a chrome free pre-finished steel product with enhanced aesthetics and long term performance and durability. All colours surpass requirements of Ruv5 as per EN 10169:2022, providing outstanding colour retention.

Available from Vertix® Systems in Standard Gloss Anthracite, with other colours available on request.

## 10.1 SSAB GreenCoat®

GreenCoat® pre-finished steels are the sustainable solution for durable roofs, facades and rainwater systems. Colours and appearance are inspired by Nordic nature and products are optimised for weathering. Vertix® Systems can offer GreenCoat® Pural BT.

GreenCoat® Pural BT

Uses a patented bio-based coating with Swedish rapeseed oil to help substantially lower the environmental footprint of a building and is chromate free. GreenCoat® Pural BT has been developed specifically for standing seam systems and offers excellent durability, UV resistance (Ruv5 for matts) and a slightly structured surface.

Available from Vertix® Systems in Matts: Slate Grey and Stone Grey and Standard Gloss: Juniper Green, Ridge Grey and Light Grey (GWG).

# 11. Integration of Photovoltaic panels

There are three main options for a Photovoltaic panels to generate electricity for the property.

## 11.1 Stick on laminate photovoltaic panels

These have been in existence for several years and are now a proven technology. They tend to be more efficient in the low light levels that the United Kingdom experiences during winter periods. When used with a standing seam they are also almost invisible on the roof and cabling is hidden under the ridge cap. They are light weight and tend not to require the structure of a roof to be upgraded to take the weight.

Stick on laminate photovoltaic panels are not a retro fit option and require factory application to achieve the best results. The cost tends to be higher than crystalline options per peak watt. There are an increasing number of manufacturers producing this type of photovoltaic panels entering the UK market. The buyer will need to ensure they are compliant to the MCS Microgeneration scheme.

The Microgeneration Certification Scheme (MCS) certifies, quality assures and provides consumer protection for microgeneration installations and installers. These consist of small-scale renewable electricity technologies such as solar (PV) Photovoltaic panels, biomass, wind, heat pumps and heat products. The photovoltaic panels should be CE marked or UKCA marked for electromagnetic compatibility and this should be displayed on the product.

## 11.2 Standard crystalline photovoltaic panels

These are highly efficient and need less roof space to achieve the same power level as alternative options. They are a cost effective solution, Vertix® Systems offers a clamp to attach the panels to its standing seam profile. When Vertix Easy Seam® Roof System is mounted on 18mm Oriented Strand Board (OSB) using the correct fixing and frequency, the standard crystalline photovoltaic panels can be retro fitted to the roof, with cabling hidden under the panels.

As the panels stand off the roof, an air gap allows them to cool naturally. Retro fit is a good option, however, the panels are heavier than stick on laminate photovoltaic solutions and the structure would need to checked to ensure it could take the additional weight. If any panels become defective, they can easily be replaced.

## 11.3 Crystalline panels integrated into the roof

These panels tend to sit on a plastic mat to maintain the water integrity of the roof. The advantages are the same as the standard crystalline panels.

When considering photovoltaics, all structures will need to be checked by a competent structural engineer to ensure they can take the added weight of the photo voltaic panels.

# 12. Detailing

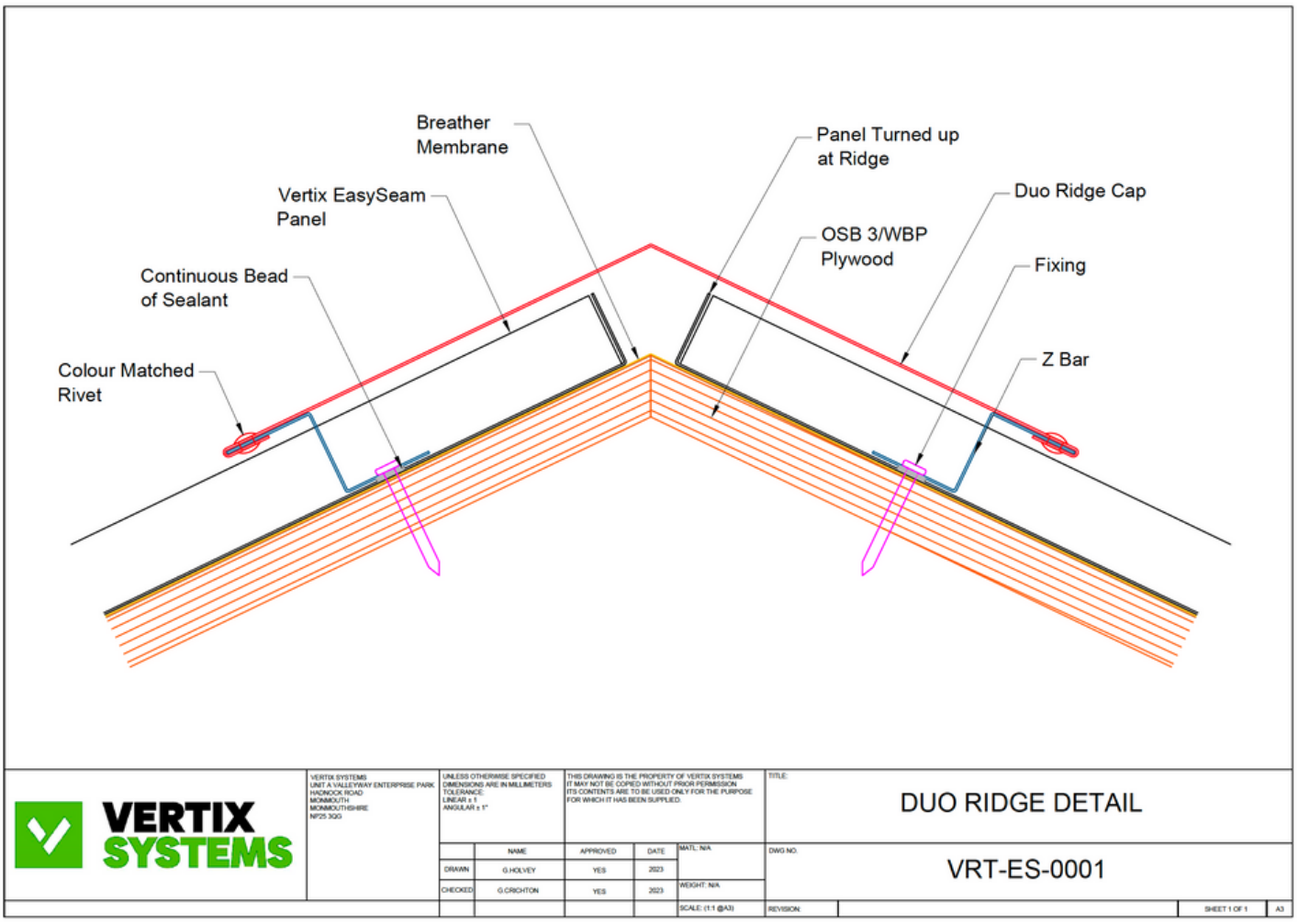
Vertix® Systems have produced a comprehensive detailing pack for the Vertix EasySeam® Roof System. To ensure weather tightness, the roof details provided comply with relevant best practice in roof cladding. Upstands as standard should be 150mm. There is a difference between 5–15-degree low pitch roof and 16–45-degree pitch roofs. All overlaps should be 150mm and it is best practice is for them to be fixed and sealed off. On low pitch roofs, the joints should always be sealed underneath with an high elastic sealant.

Vertix® Systems have created a range of detailing for the EasySeam ® Roof System that achieves the specifiers' aims for the project. Neat detailing is very important for this type of roofing but this should not be at the expense of weathertightness. Some traditional techniques in standing seam look aesthetically better than some of the standard details Vertix® Systems suggests, but they do not comply with ENBS5250:2020 requirements for weather tightness.

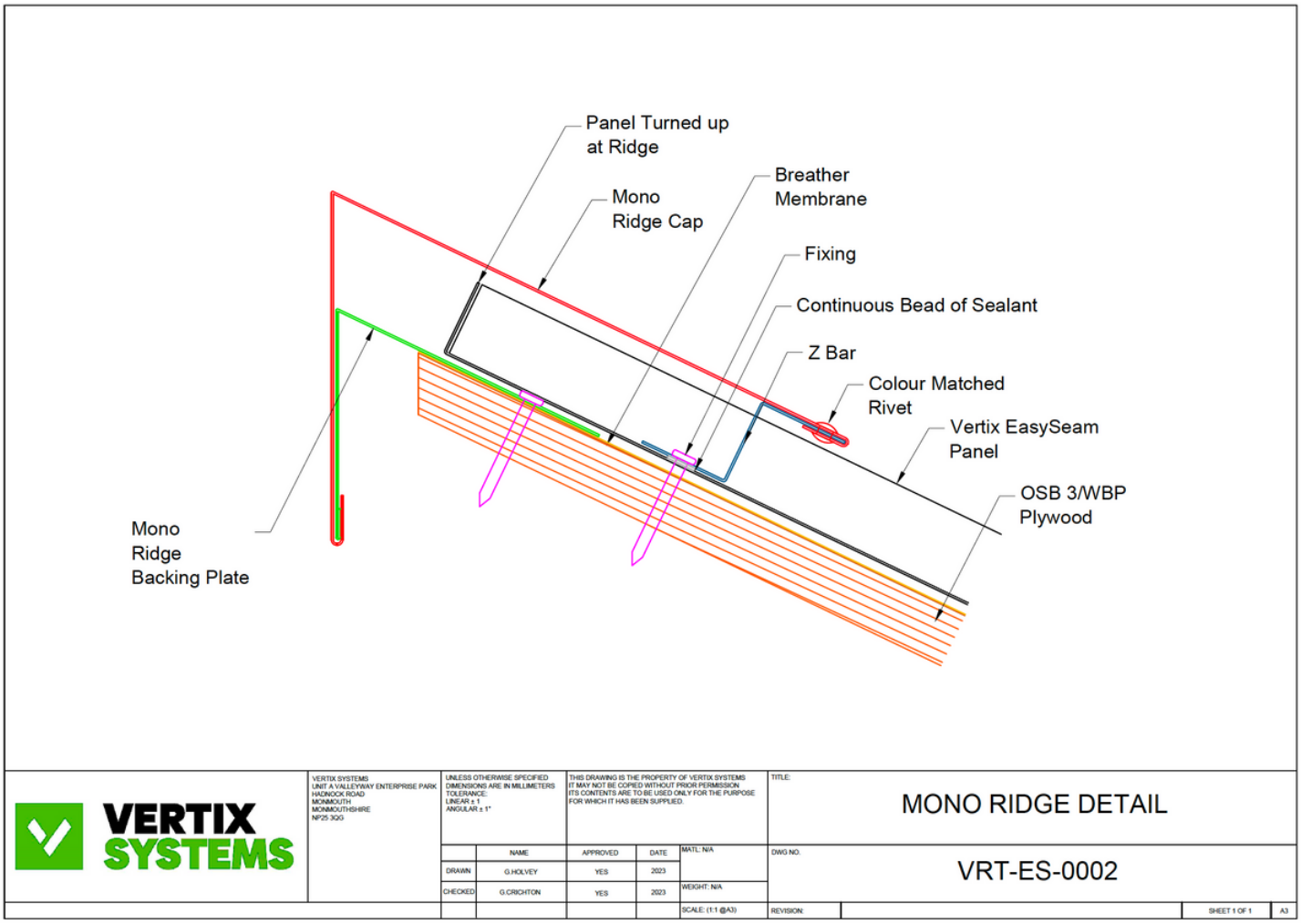
## List of EasySeam® roof details

1. Duo ridge detail
2. Mono ridge detail
3. Eaves detail
4. Verge detail
5. Top abutment detail
6. Side abutment detail
7. Ventilated duo ridge detail
8. Ventilated mono ridge detail
9. Ventilated eaves detail
10. Venitlated top abutment low pitch detail
11. Mansard eave detail
12. Round pipe pentration detail
13. Eaves soffit detail
14. Mono ridge soffit detail
15. Verge soffit detail
16. Cold roof build up detail
17. Warm roof build up detail

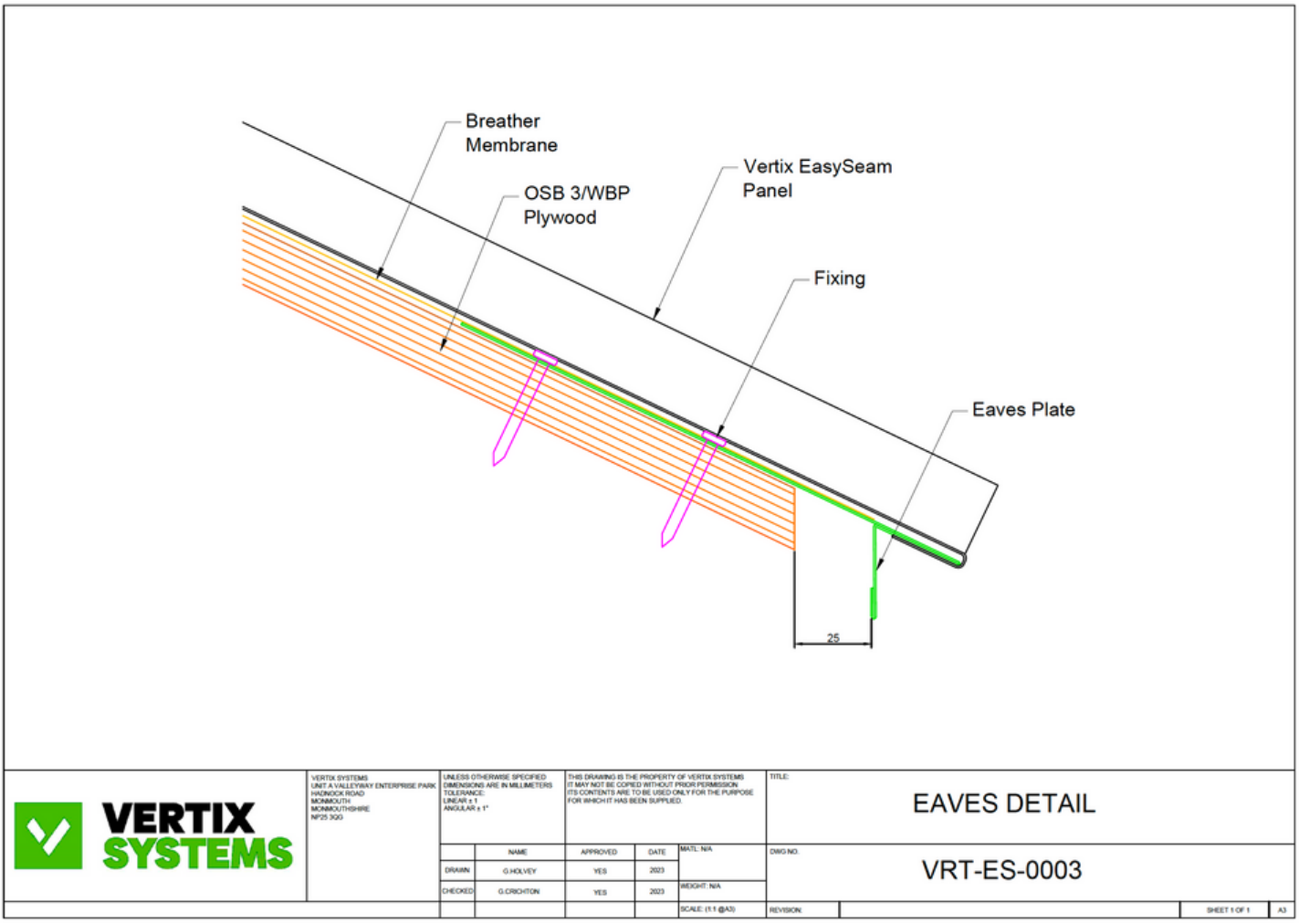
# 1.Duo ridge detail



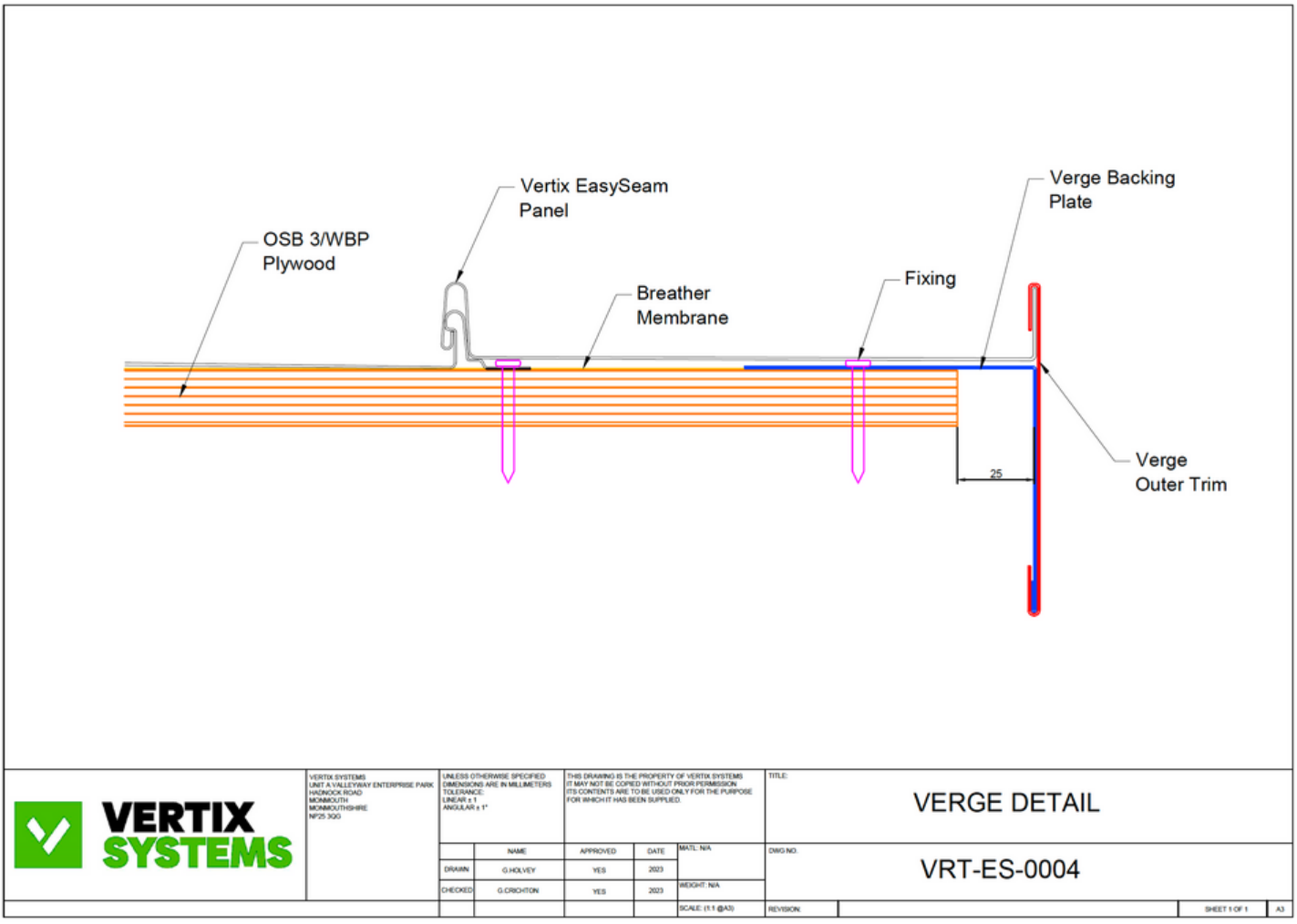
## 2.Mono ridge detail



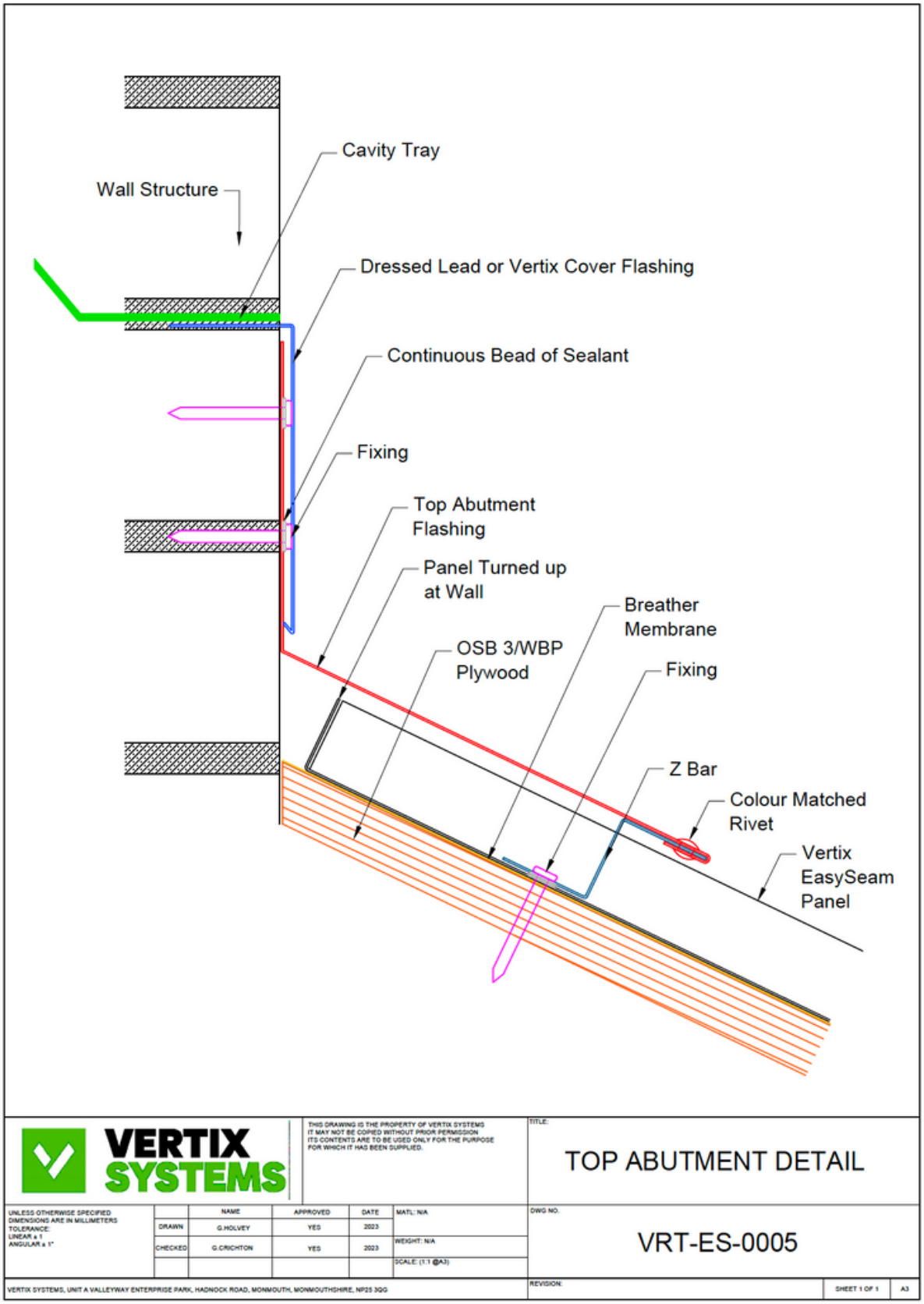
## 3.Eaves detail



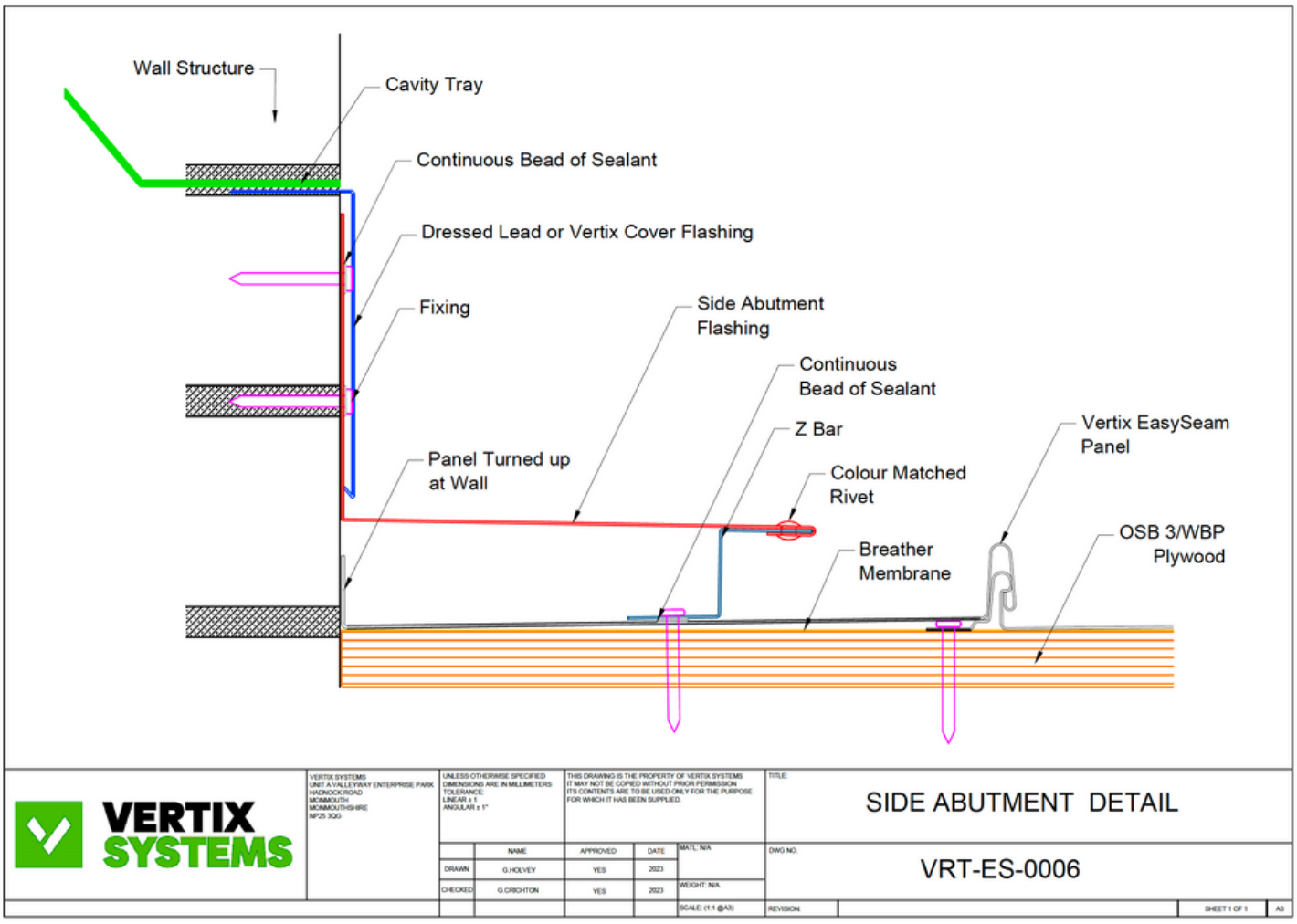
# 4.Verge detail



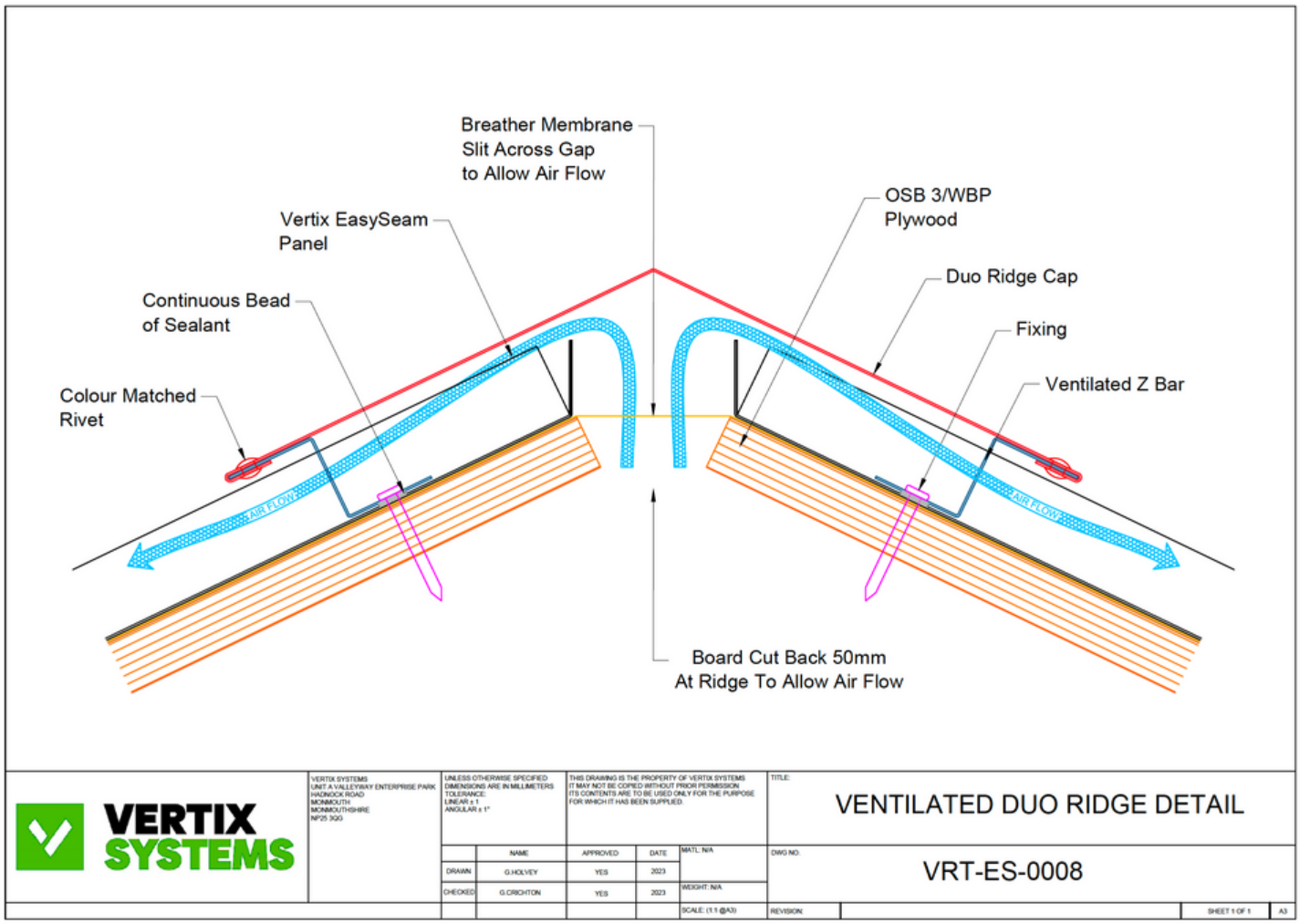
## 5.Top abutment detail



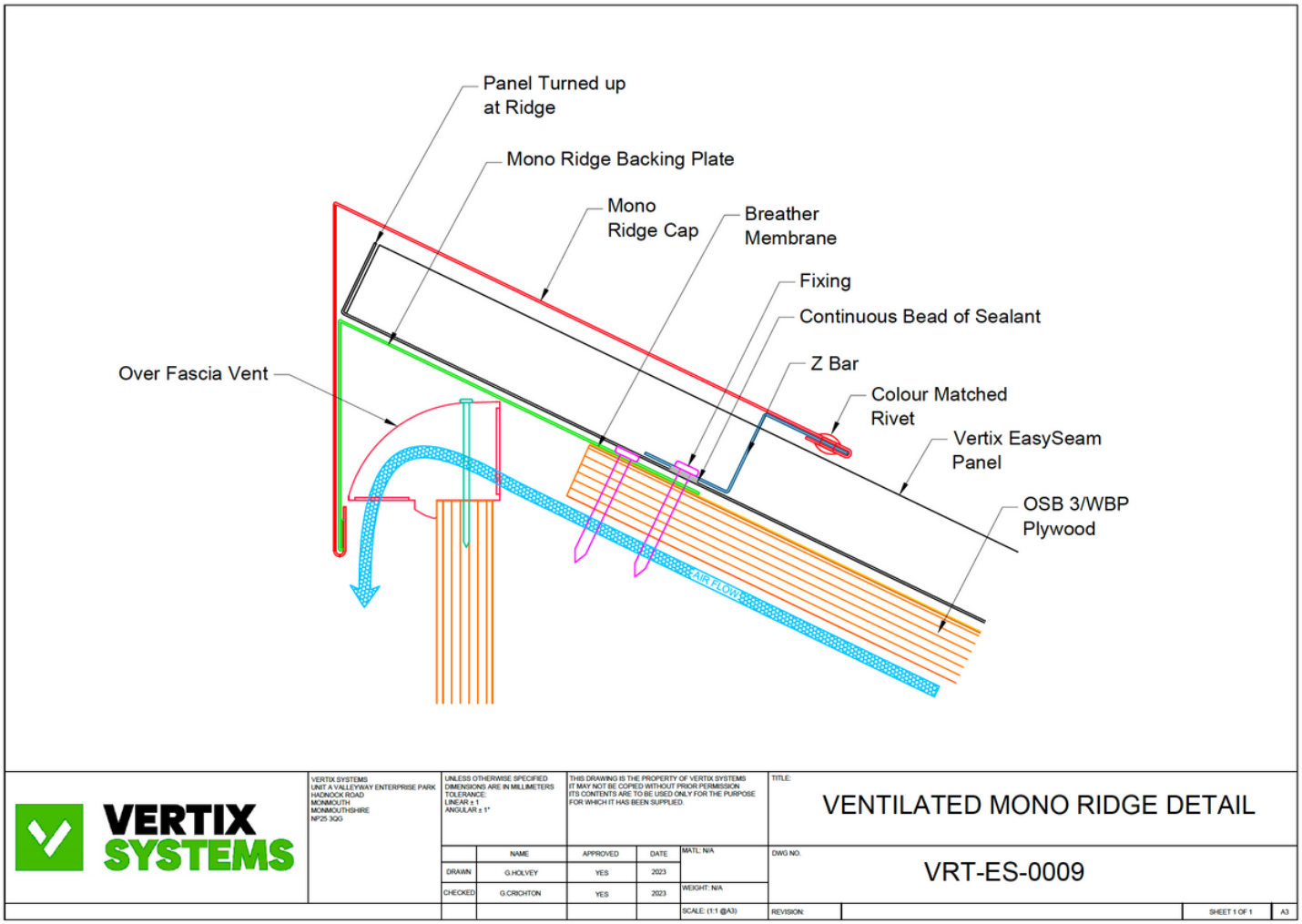
## 6.Side abutment detail



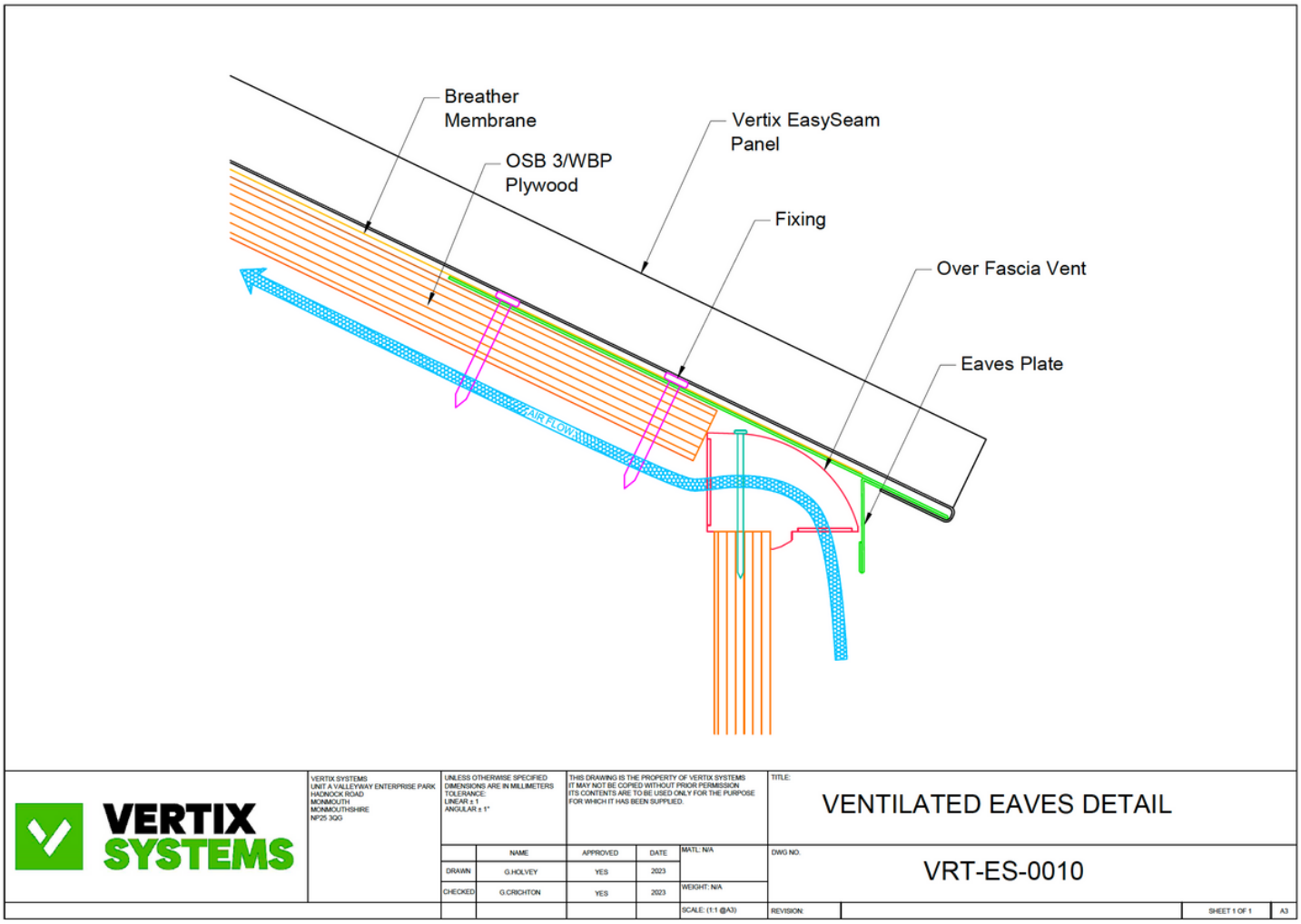
## 7.Ventilated duo ridge detail



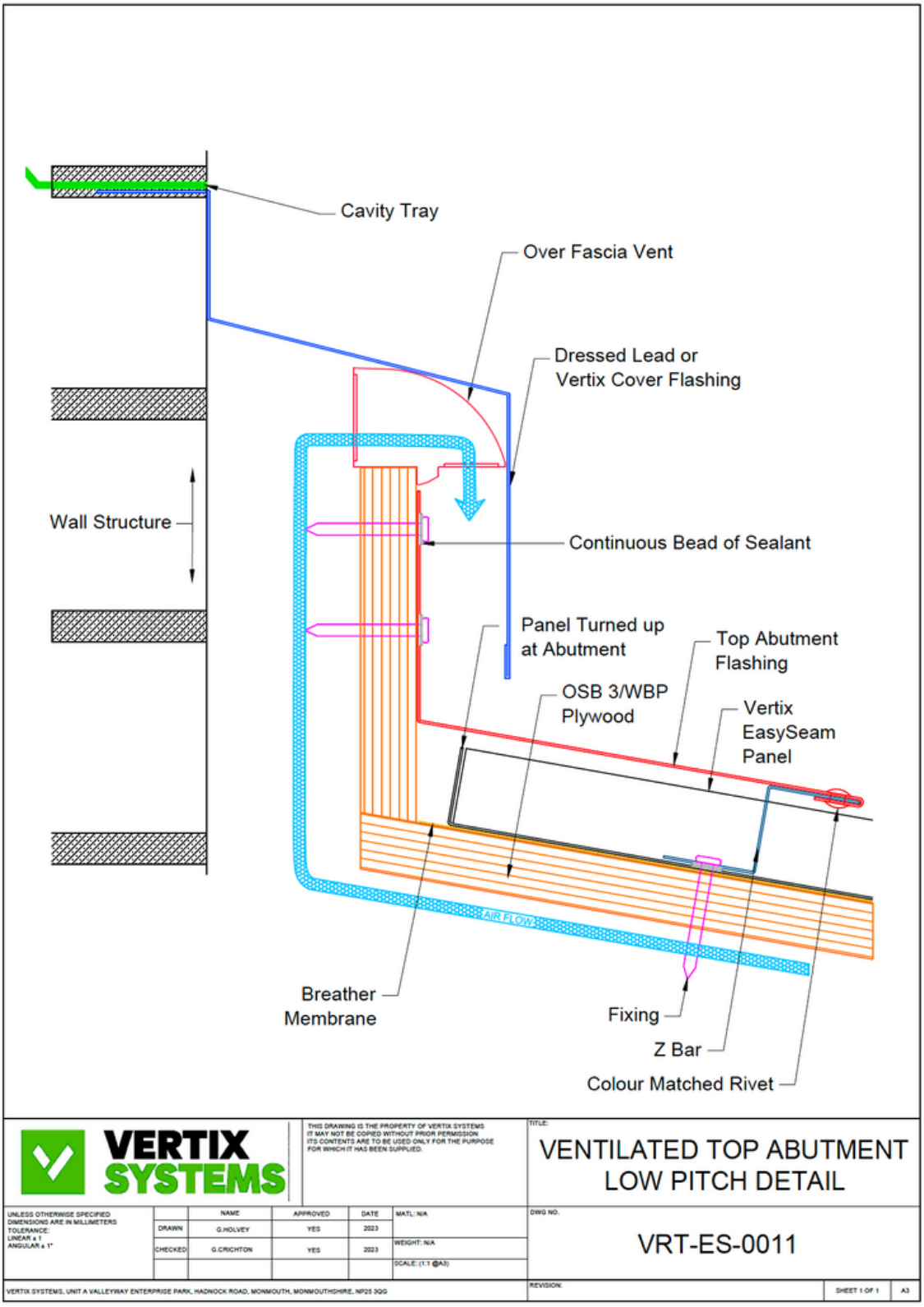
# 8.Ventilated mono ridge detail



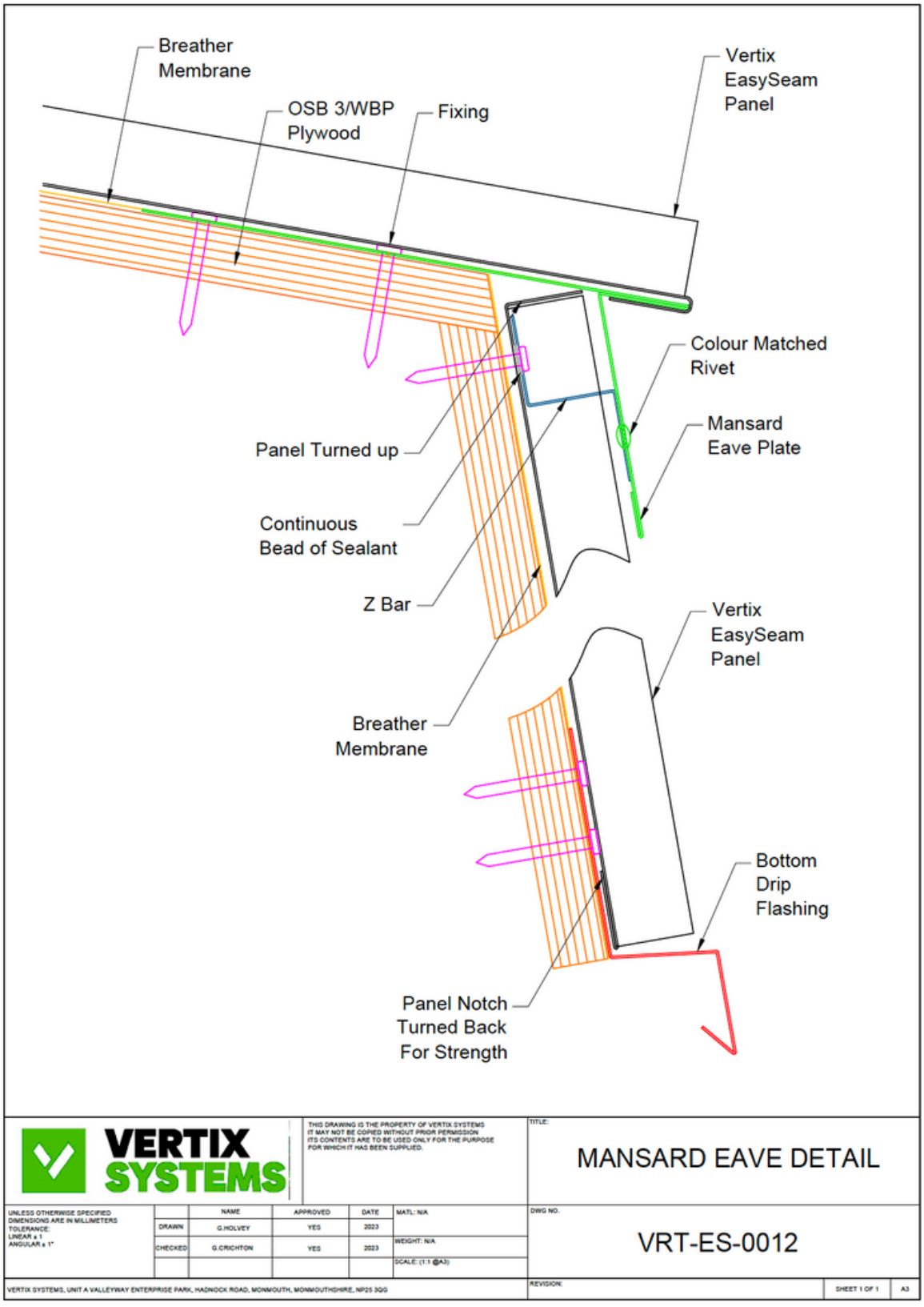
## 9.Ventilated eaves detail



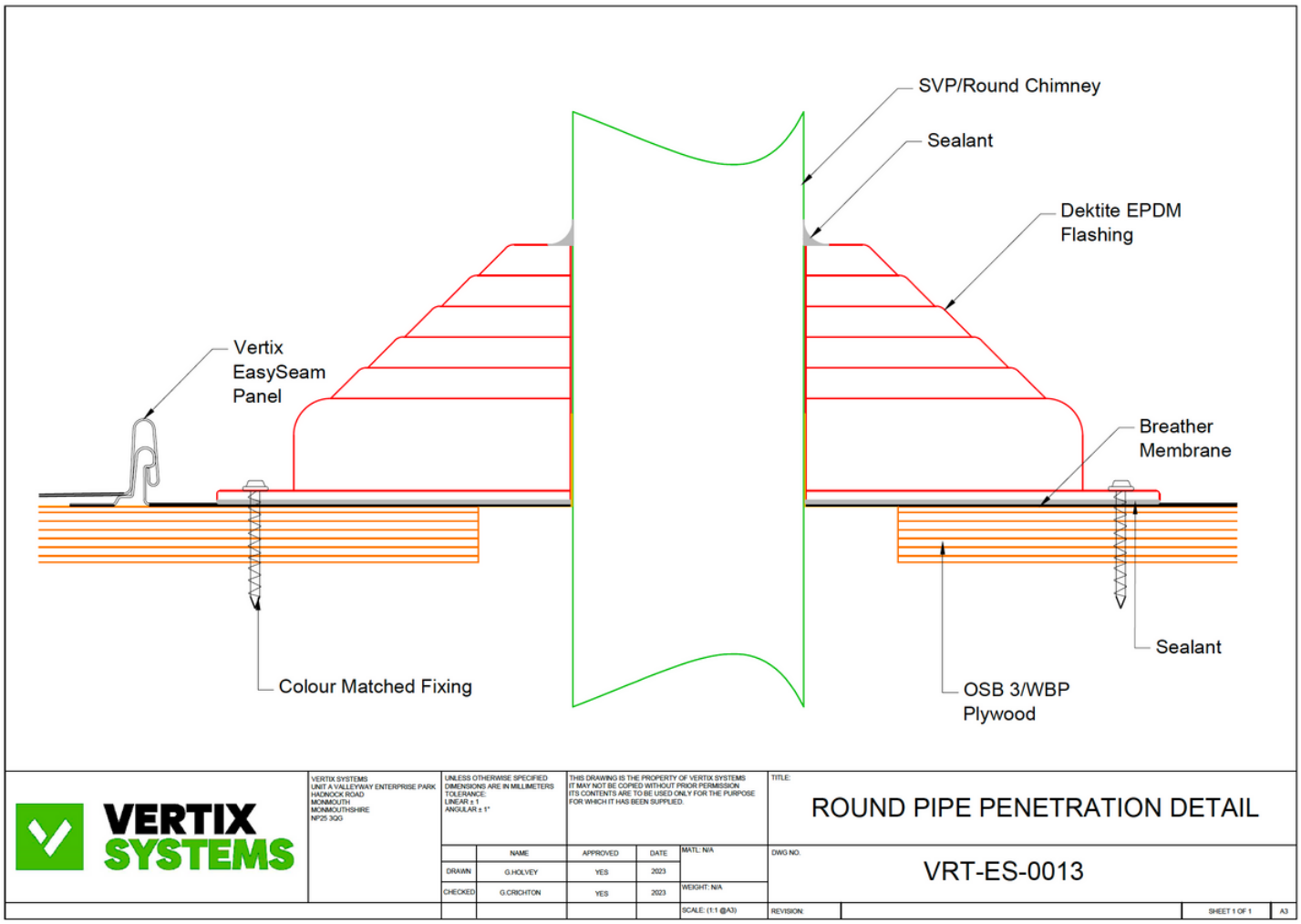
## 10.Ventilated top abutment low pitch detail



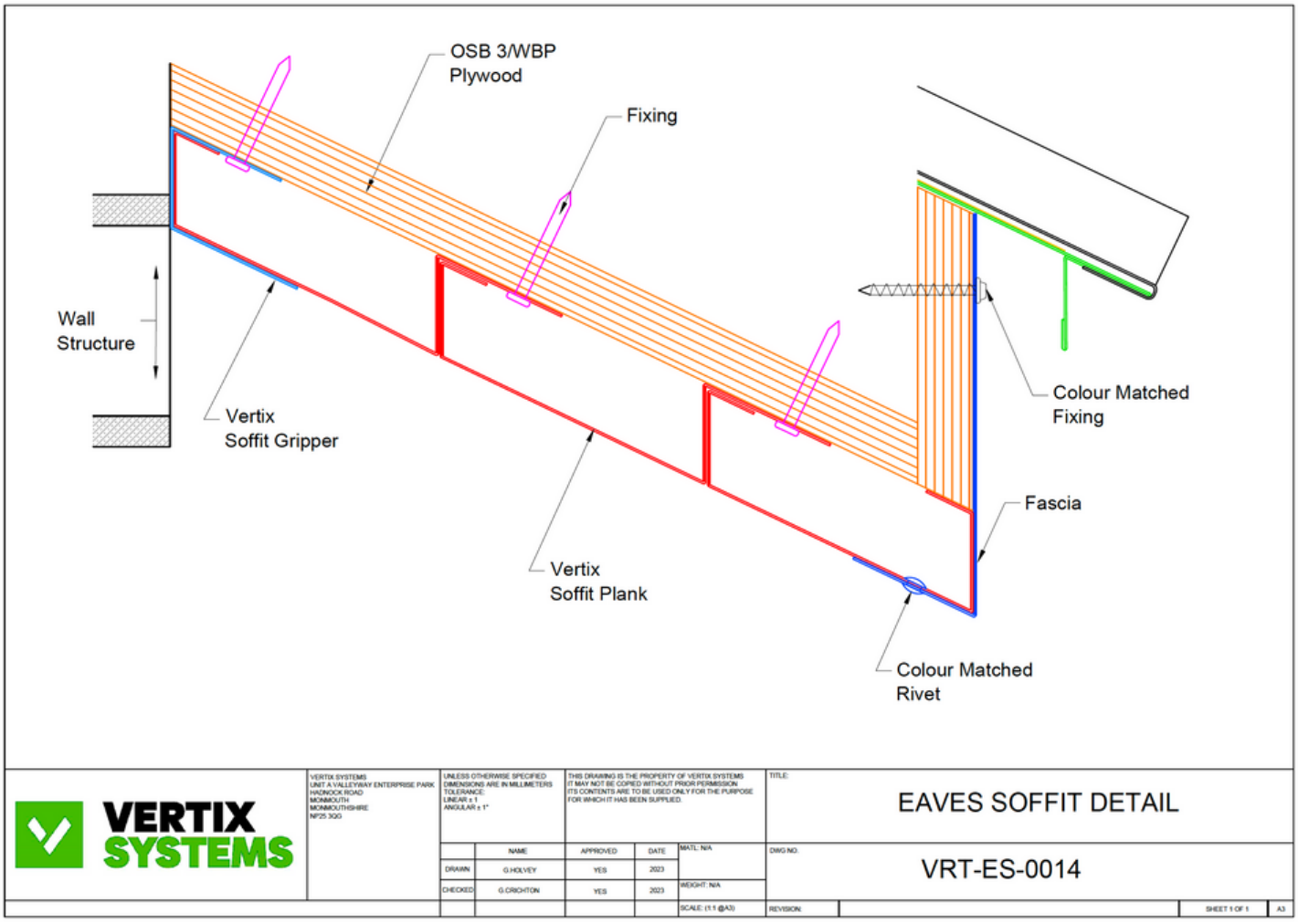
## 11.Mansard eave detail



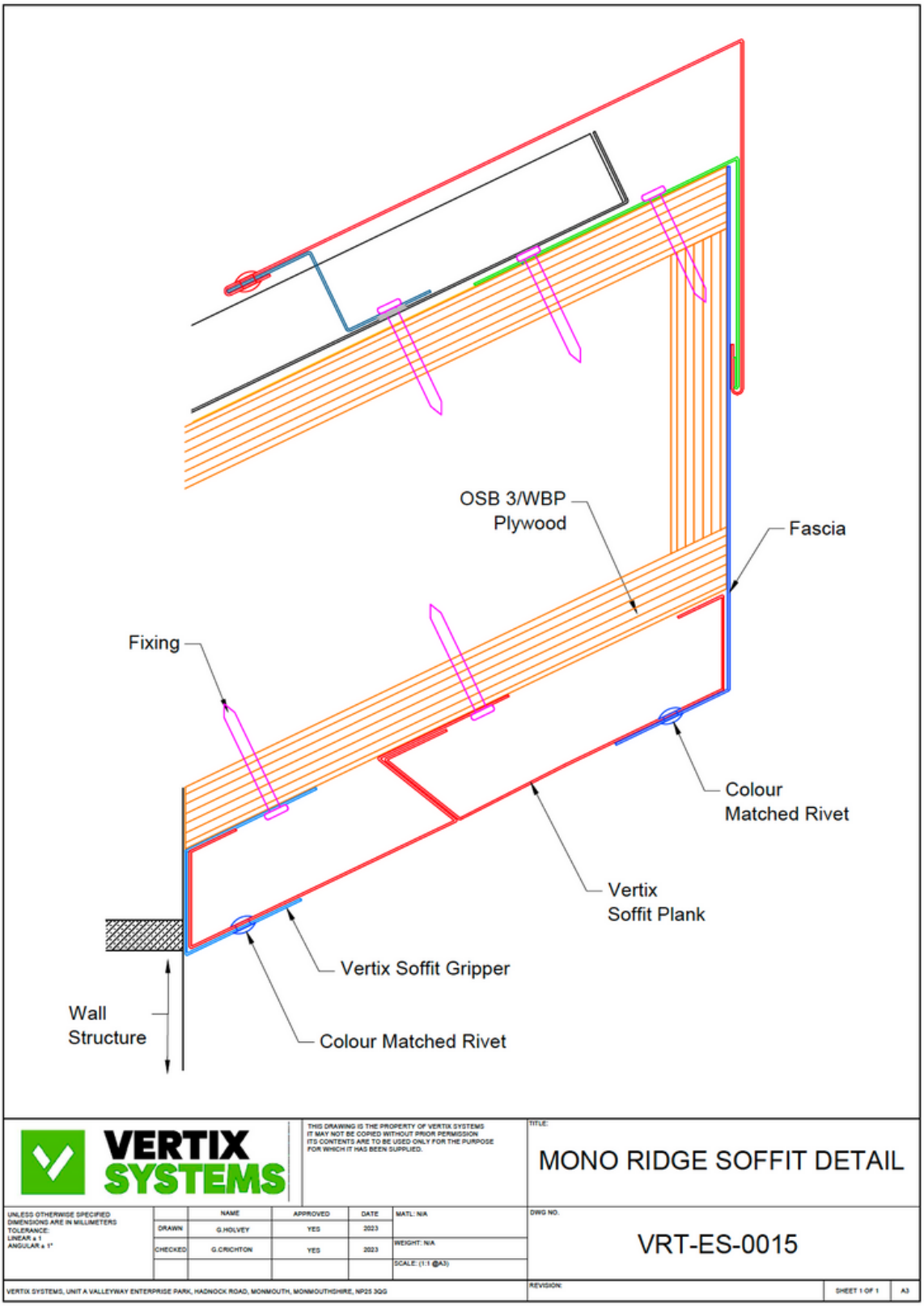
## 12.Round pipe penetration detail



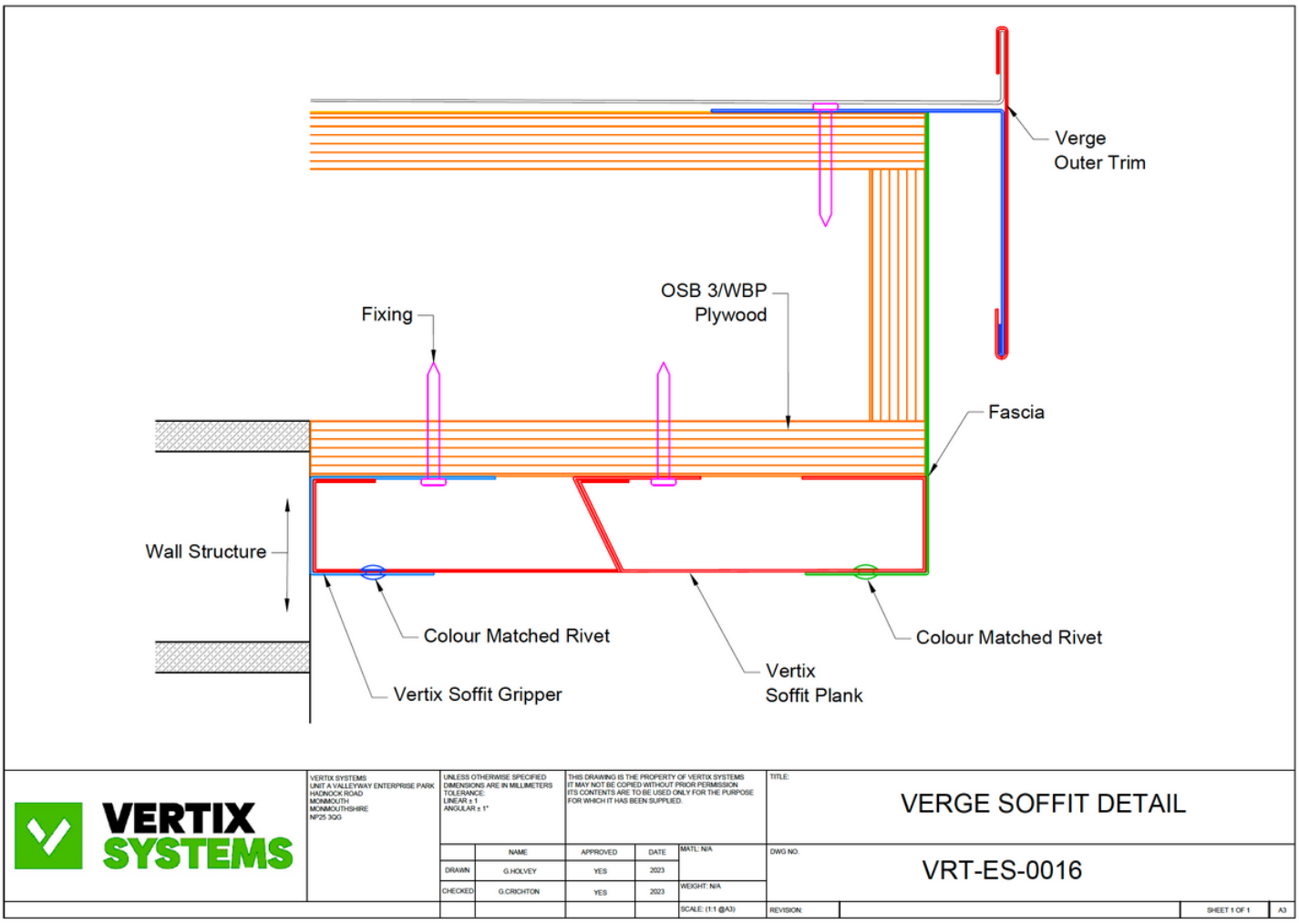
## 13.Eaves soffit detail



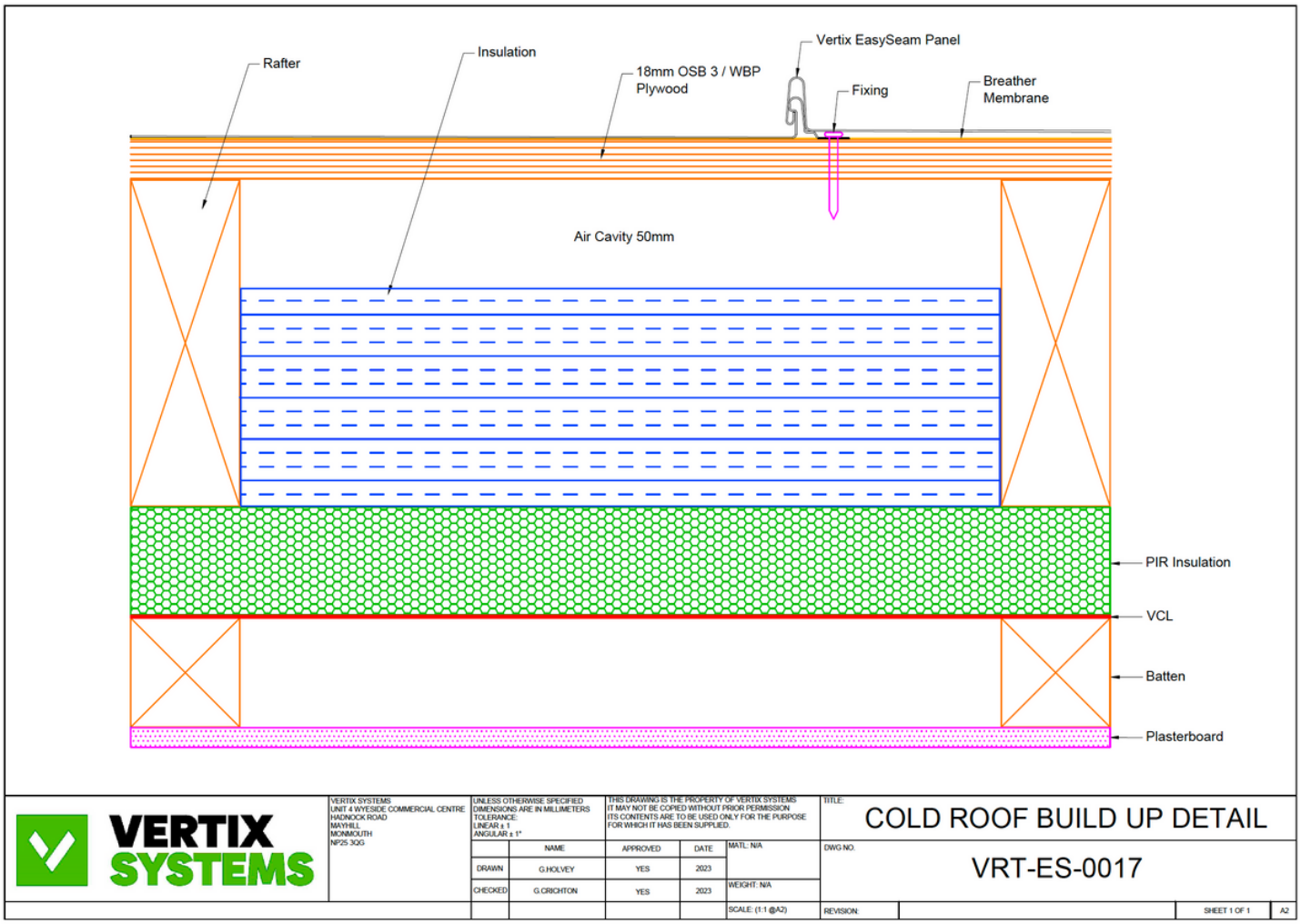
## 14.Mono ridge soffit detail



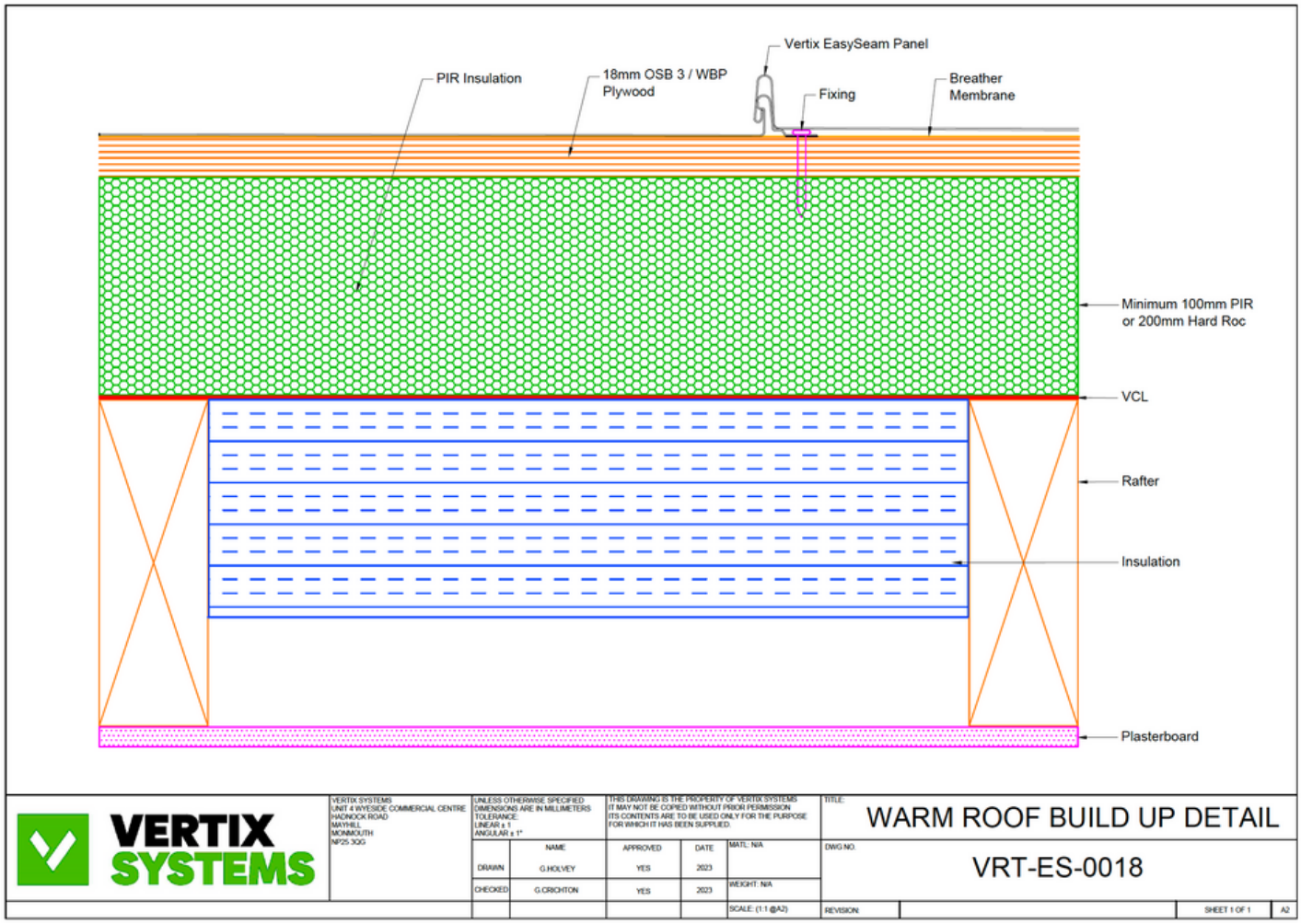
# 15.Verge soffit detail



# 16.Cold roof buildup detail



## 17.Warm roof buildup detail



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