

WS1 onto LGSF and Masonry Direct Fix External Wall Insulation Systems

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Introduction

WS1 External wall insulation systems are extensively used directly fixed onto lightweight steel framed and masonry structures. The systems have multiple finishes available to create a high quality finish to meet the specifier and clients demand for an attractive building façade design. Its versatility as a cladding system really lends itself to accommodate façade designing to create a modern striking building or alternatively a traditional look to fit in with the local planning requirements.

The WS1 systems hold recognised third party tested certification from the BBA and KIWA BDA. This confirms that the systems have undergone scrutiny in testing and have met all the requirements as fit for purpose when installed. The A2 fire rated type systems have been successfully installed onto new build high rise domestic apartment dwellings and also played a part in replacement cladding schemes to re-establish an existing high rise to conform to the latest changes in cladding above 11m in height. Alternatively our range of B fire rated type systems are widely specified onto low rise projects across the UK.

The differences in the WS1 Systems is defined by the insulation type selected and the substrate type for the buildings height and its use with regards to the fire classification rating required to meet the latest building

regulations. WS1 with Grey Expanded Polystyrene or Phenolic insulation options onto masonry substrates would be selected for buildings below 11m and are the go to system selected for large housing refurbishment schemes. WS1 system onto sheathing board fixed to a lightweight steel framed structure is purely Mineral Wool based, making it an ideal choice for high rise buildings above 11m. With these differences it offers a choice of system design that can be specified to suit the projects requirements.

When installed and maintained in accordance with SPS Envirowall's recommendations and the BBA or KIWA BDA Agreement certificate, the system will have a service life durability of at least 30 years. This service life durability can be extended to 60 years, if all fixings and fully exposed beads, trims and profiles are specified as austenitic stainless steel and the system is subject to a suitable inspection regime and is maintained accordingly.

Key Product Features

- % Fully tested BBA & KIWA BDA Certified systems
- % Options for a Totally Mineral wool insulation A1 board
- % A1 or A2 & B Euro classification fire rated system solutions
- % Suitable for High Rise use above & below 11m meeting current Building Regulations
- % Re-clad solution for high rise buildings
- % High thermal performance
- % Low cost cladding solution
- % Fast application
- % Takes cladding out of the critical path by quickly weatherproofing the building
- % Service life durability of at least 30 to 60 years
- % Extensive colour ranges
- % High rise Brick slip finishes

Colours and Finishes

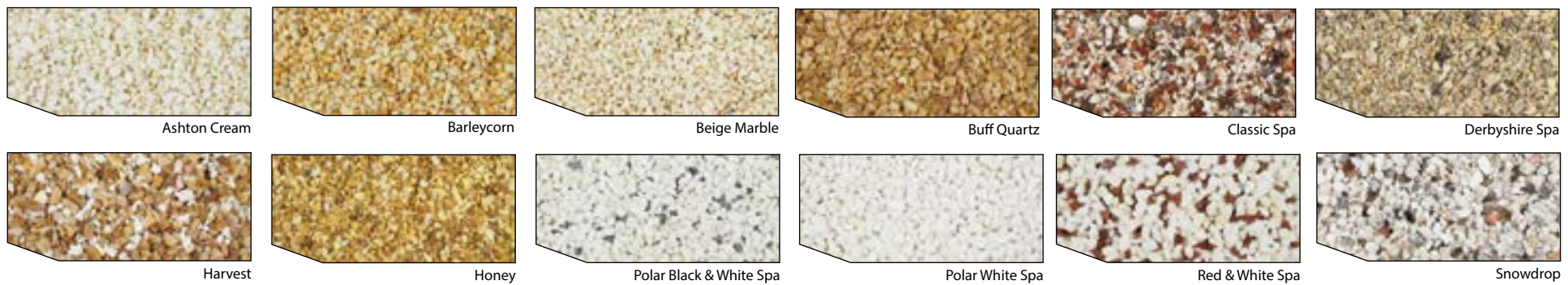
The WS1 systems have textured render finishes that are available in a wide range of colours to suit the look and use of the building to meet the clients criteria for a modern or traditional façade exterior.

With modern technology we are able to bring brick slips in a lightweight mineral material up to 5mm thickness, making them ideal for higher rise applications. The manufacturing process affords a “real brick effect appearance” and excellent matching qualities to existing or new brick textures, spotting and shading which gives the finish the look of real brickwork from the past to the present.

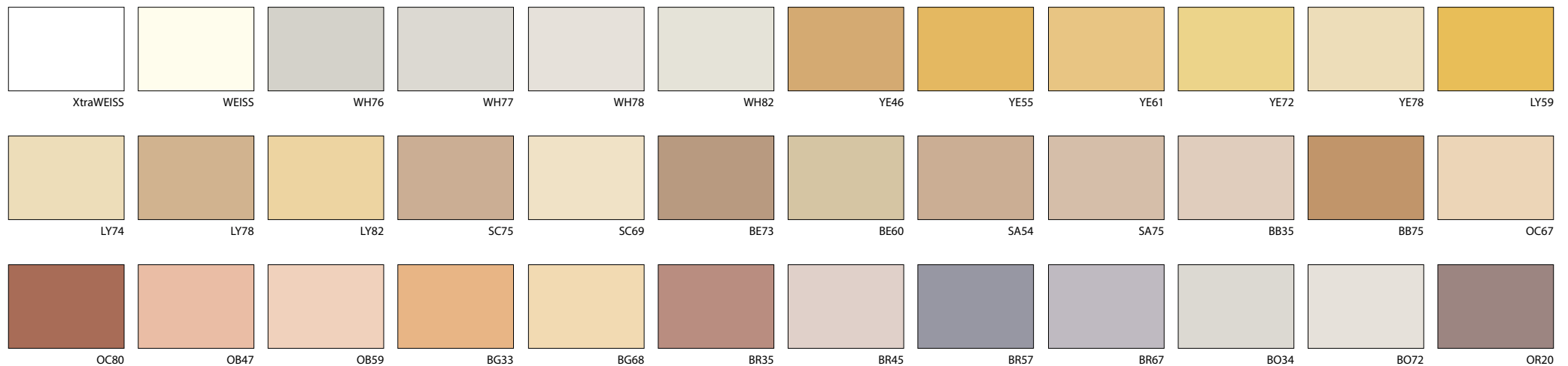


Colours and Finishes

A selection of Dash Finishes



A selection of Render Finishes



Colour swatches have been reproduced as accurately as possible, however there may be some variations due to technical, colour reproduction and render manufacture reasons. If you require an accurate swatch, please ensure you ask us for a sample of the product and colour chosen prior to commencing any works.

Design

System principle: External Wall Insulated System

WS1 are in principle, cladding systems, which are directly fixing the insulation boards to the sheathing board or masonry substrate. This feature meets the requirements of building insurers, enabling its use extensively across high rise dwelling projects.

The systems primary role is to wrap the building thermally to the latest building regulation U value targets, which it easily achieves.

The systems are much faster to install than traditional brick and block construction, which allows the client a quicker construction path to building handover to potential residents. When specifying these systems for re-cladding or refurbishment schemes, they offer a major advantage of not having the upheaval or expense of decanting the residents, as internal entry of individual dwellings is not necessary. Making it an ideal solution for a thermal upgrade to existing dwellings, be they high rise or low rise properties.

Fire performance: European fire classification

The WS1 external wall systems onto LGSF use A1 fire rated Mineral Wool (Rock fibre type) only, as the insulation boarding within the system. This

offers a safe and secure basis to these systems following the changes to Approved Document B (fire safety) Volume 1 Dwellings 2019 edition incorporating 2020 and 2022 amendments – for use in England and Scotland's Technical handbooks.

Behaviour in relation to fire means that both WS1 onto LGSF and masonry mineral wool systems hold BBA & KIWA BDA third party certifications clarifying it is classified as European classification A2-s1, d0 in accordance with BS EN 13501-1. They can also be elevated to an A1 fire rated system by simply using our Enviromin mineral type render texture finish. Both classifications mean that WS1 systems can be installed above 11m in height and so makes them ideal for high rise apartments and re-clad projects that require a new minimum A2 fire rated cladding system to be installed as a replacement for a none conforming existing cladding façade.

Where the building regulations allow the use of B-s1, d0 fire rated systems SPS Envirowall offer Grey Enhanced EPS or Phenolic systems, which are extensively specified for this building type category of below 11m in height. Full depth mineral wool (rock fibre) 200mm wide fire barriers fixed with adhesive and stainless steel fixings and stainless steel washers can be introduced where required at floor level or at Party wall junctions as required for low rise housing in Scotland.

Wind Loading & fixing patterns

WS1 systems carry a robust fixing procedure to suit the buildings location and height. SPS Envirowall can conduct a wind-load calculation to establish the required fixing pattern to suit its location and height that will establish its secure fixing application. This will give clear instruction on a grid fixing pattern to follow on site to meet the wind load calculation. We will also issue a fixing pattern drawing suite that includes the sacrificial fixing pattern, main grid through the mesh fixing pattern, BR 135 fire pin fixing pattern.

Both the WS1 onto LGSF and the WS1 onto masonry systems using Mineral wool insulation boards are adhesively fitted to the main substrate and are then mechanically fixed back to the façade with 1 sacrificial fixing, with the mineral wool boards requiring a 90mm oversized washer. This securely holds the boards in place prior to the main fixing grid being applied. Once the boarding is ready to receive the basecoating the main fixing pattern can be installed.

Within the KIWA systems, the reinforcement mesh plays a major role in this process, as the mesh is applied into the wet basecoat the fixings are then fitted through the mesh with a 60mm washer head, fixing into the main sheathing board or in the case of the masonry system, into the main masonry substrate. The fixing pattern is an easy to follow grid formation with 100x100mm mesh patches applied over the washer heads to prevent cracking around the washers, it is important to still apply the additional fixings required around window and down the corners of the system where wind pressure will increase. The fixing pattern for BBA Systems, both grey EPS and mineral wool variants, are a “domino

five” pattern per insulation board equating to 7 fixings per m², with no requirement to fix through the wet basecoated mesh layer.

As required to satisfy BR 135 fire fixings a stainless-steel fixing along with a stainless-steel washer is also fixed through the wet basecoated mesh at a grid pattern of 1 per m².

Thermal performance

The varying options of insulation types ranging from Grey EPS, Phenolic and mineral wool insulation elements of the system allows the WS1 systems to perform thermally to meet the high standards now required in the building regulation standards, both for new build and any upgrade required in the re-clad market.

SPS Envirowall can create in-house U value calculations using specialist software that can also include a condensation risk analysis of the structure inside to out. The facility of creating a U value offers our specifiers the opportunity to establish the project thermal target requirements early in the design stages. SPS Envirowall can also provide 3D modelling thermal calculations where a U value does not apply to a zone on a building such as window reveals or below DPC where a cold bridge requires a thermal calculation to identify its affect to thermal loss at that location. This is invaluable where existing masonry dwellings require careful treatment of such areas to ensure a best outcome.

Design

Sheathing board and system Application

SPS Envirowall EWI system accreditation does not state a specific sheathing board to avoid restrictions of use in application. In many applications SPS Envirowall technical services do not have control or influence over the specification of the sheathing board and subsequently can only set minimum stipulations of the sheathing board to achieve the required performance values for the system.

In the instances of a sheathing board already being specified or already installed, as with a reclad project, it is a requirement that the specification complies with to the below specification extract below taken from relevant accreditation section to ensure appropriate minimum design guidance and application of use.

Performance and structural integrity

Weather Resistant to Category A or B in accordance with BS EN 12467

Have a bending strength of Class 2 or 3 in accordance with BS EN 12467

Achieves class A1 or not less than A2-s1-d0 in accordance with BS EN 13501-1

Minimum pullout resistance of no less than 0.7KN per mechanical fixing, excluding the subframe, in line with EOTA TR 051 and EAD 330196-01-0604.

As well as this the boards are required to be structurally sound and in suitably good condition to receive the EWI systems proposed and associated fixings, in line with the agreed fixing pattern.

Confirmation from the manufacturer should be sought to ensure the correct fixing pattern has been used and a structural engineer consulted if there is any doubt about the boards' integrity.

Confirmation should also be from the manufacture of the sheathing boards in relation to the jointing application (weatherization and air-permeability) and any anticipated movement allowances and board edges for the board itself.

Fire performance

It is also a point of note that the fire performance of the system will only be valid over a substrate when the system is installed, bonded, and mechanically fixed or only mechanically fixed, to any end use substrates with a density at least 450 kg/m^3 and any end use substrate of classes A1 and A2-s1,d0.

The preferred sheathing boards for use with the SPS Envirowall systems would be RCM Y-Wall or RCM Multipurpose as both satisfy the above criteria and have been heavily tested both with and without the system in question.

The sheathing board is not warrantied in our EWI systems as they do not form part of the system components yet will need to be deemed acceptable prior to the installation of the SPS systems.

Movement Joints

With regards to movement joints in an insulated render system - these are required where there is a change in the substrate types that leads to shear movement such as masonry to timber or concrete to SFS or where on a structure the deflection exceeds $L/360$ or 15mm (whichever is greater). Otherwise, the insulated render system itself does not require movement joints unless the substrate requires one to be present through the whole wall section to the outside face, determined by the project structural engineer or unless it is a brick slip finish being applied to the EWI system.

Breather Membrane

There is no requirement within our WS1 systems for the use of a breather membrane as long as the sheathing boards are appropriately sealed for purpose. There may be a requirement from the sheathing board manufacturers or the project specifiers to install a breather membrane as good practice.

Installation

WS1 systems are principally installed in a similar way, the difference being the supporting sheathing board or masonry substrates will require differing types of fixings for the insulation boards and aluminium basebead.

As with all EWI systems it all starts with installing the aluminium basebead which is fitted along the level of the DPC (Damp proof course) at 300mm centres with the specified fixing for the substrate type. The corners are mitred to the front edge of the basebead and then folded to form a 90 degree angle, when butting two sections of basebead or folding in a mitred corner, use jointing clips to hold the two sections level and secure.

As required Fire barriers are fitted at floor levels. Full depth mineral wool fire barriers are fitted around windows or used vertically at compartment zones with adhesive and stainless-steel fixings and washers at maximum 500mm centres. When specifying a mineral wool option for the WS1 system there is no requirement to use separate fire barriers or the 500mm centres fire fixings.

WS1 insulation boards are fixed in a stagger bond pattern using Envirobed adhesive fully coated to the back of the boards, with mineral wool under KIWA has 1 sacrificial fixing across the centre of the boards with an

additional 90mm oversized washer to prevent pull over of the mineral wool insulation boards prior to the main fixing grid being installed. Grey EPS and phenolic insulation boards are fixed using the “Domino five” per board fixing pattern without the use of a 90mm oversized washer.

WS1 Mineral wool insulation systems are basecoated prior to the application of a reinforcement mesh positioned in the upper third of the basecoat layer and whilst still wet the main fixing grid pattern is applied through the mesh into the sheathing board behind. At this point as required to satisfy BR 135 fire fixings a stainless-steel fixing along with a stainless-steel washer is also fixed through the wet basecoated mesh at a grid pattern of 1 per m². These washer heads are covered over with 100mm x 100mm mesh patches bedded in with basecoat. A slurry layer of basecoat is applied over the fixings to a smooth or textured finish depending on the outer finish specified.

Handling & Storage

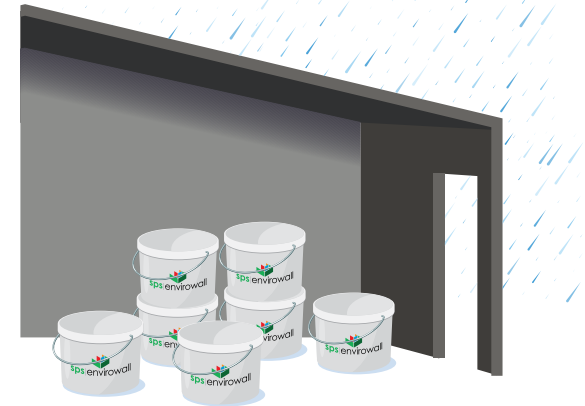
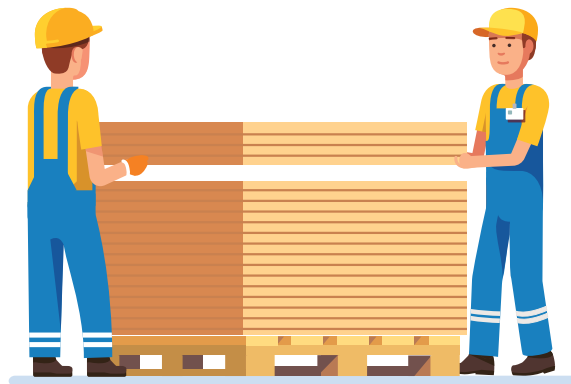
WS1 insulation boards should be stored undercover and off the ground to prevent water ingress into the boards.

Site storage of SPS Envirowall materials

Site storage and protection of SPS Envirowall materials must be in accordance with the manufacturer's instructions. It is essential to keep the render and liquid based materials out of high and low temperatures, as this could cause issues with the products application and performance.

Product application weather conditions

Application of the system must only be carried out in suitable weather conditions. SPS Envirowall renders, and adhesives must not be applied in rain, fog, or mist, at temperatures below 5°C or above 30°C or (application may start +3°C and rising and cease at +5°C and falling) or if exposure to frost is likely to occur during drying. SPS Envirowall renders must not be applied to saturated, or frost bound walls and insulation boards. In sunny weather work should commence on the shady side of the building and be continued round following the sun to prevent the rendering drying out too rapidly.



8 Stages to WS1 System Installation

- Stage 1** → Fitting Main sheathing board – Suitable condition of existing substrate
- Stage 2** → Fit Basebead
- Stage 3** → Fit Fire Barriers
- Stage 4** → Application of insulation boards
- Stage 5** → Fit Movement bead profiles
- Stage 6** → Application of beads and Profiles
- Stage 7** → Apply basecoat layer with reinforcement mesh
- Stage 8** → Application of Finishes

System & Finish Finishes Overview

1. EnviroSil Silicone – Quartz grain textured Finish
2. EnviroMin mineral Quartz grain textured finish
3. Speedyslip Flexible Brick Slip System Always carry or lift the Specified
4. Dash spar finish
5. Envirobrick “Brick effect” render finish
6. Mechanical Fixings
7. SPS Envirowall Reinforcing Mesh
8. Envirorend/Retrobase Basecoat Render
9. Mineral Wool Insulation Slab (Mono high density / Dual Density), Grey EPS & Phenolic insulation boards
10. Envirobed Adhesive
11. Substrate / Sheathing Board-masonry

This guide should be read in conjunction with the project specific specification and project agreed details.

SPS Envirowall have branches across several locations across the UK which not only hold a full stock level of products sold over our trade counter facilities or delivered to site, they also offer full training courses held within the branches training facility. Our in-house training manager delivers pre-booked training courses on all of our systems, which conclude with each attendee receiving a training card to verify that they have attended the course. This offers the attendees and their company a facility to prove they are trained to install SPS Envirowall systems and products. At least one operative has to be carded by SPS Envirowall as receiving the relevant training for application and a rate of no less than 1 person per 4.

Regular visits will be made by SPS Envirowall to the site to ensure the system is being installed in accordance with the project specification and details. Operative cards will be checked during these visits and SPS Envirowall reserve the right to visit unannounced.

No work on bonding, pointing and mixing of any adhesive preparations should proceed on site during a time when the temperature is below 5°C or above 30°C or if exposure to frost is likely to occur during drying. SPS Envirowall renders must not be applied to saturated, or frost bound walls and insulation boards. In sunny weather work should commence on the shady side of the building and be continued round following the sun to prevent the rendering drying out too rapidly. Do not apply material in rain, fog or mist.



Stage 1 - Application of Main SFS Sheathing Board

1. Store Specified Sheathing Boards in a dry atmosphere and off the ground.
2. Do not drag the Specified Sheathing Boards off the pallet.
3. Lift Specified Sheathing Boards clear of the pallet to prevent damage. Always carry or lift the Specified Sheathing Boards on their sides with 2 persons
4. Do not install cracked or damaged Specified Sheathing Boards unless the damaged sections are removed by using the board as cut pieces.
5. Specified Sheathing Boards can be fixed horizontally (landscape) or vertically (portrait)
6. All Specified Sheathing Boards vertical edges must be located over SFS studs
7. Specified Sheathing Boards must have minimum 2mm maximum 5mm gap at joints
8. Fix Specified Sheathing Boards back through the into the SFS studs using fixings as per project specification fixings at maximum 300mm centres vertically and 600mm centres horizontally. Fixings to be minimum 15mm in from Specified Sheathing Boards edge.
9. Seal the board joints with a fire rated mastic and if required taped and liquid joint sealer.

Please refer to Fixing Pattern drawings for visual representation.

As required by the project designers or the sheathing board manufacturers a Breather Membrane should be installed at this stage.

Stage 2 - Application of Basebead & trims

Aluminium Basebead Application

Apply the aluminium base profile at the Damp Proof Course level and not below, using specified screws at max. 300mm centres ensuring that the base profile is always fixed in the last plug slot on both ends of the plate. Unevenness in the wall surface should be overcome using packing shims.

At building corners, cut and mitre the base profile to size. Join mitred edges with baseboard connection clips. Apply the clip on PVC bead with mesh ready to receive the basecoat application.

Stage 3 - Application of Fire Barriers – as required

Full Depth Cavity Barriers

Compartmentation – Party Wall Junctions

Vertical fire barriers at compartmentation zones can be achieved by using a full system depth 200mm wide section of mineral Wool (Rock fibre) insulation board. Using Envirobond adhesive fully covering the

fully covering the back of the mineral wool fire barrier applied to the face of the substrate, along with stainless-steel fixings with stainless-steel washers at maximum of 500mm centres or a minimum of two per shorter sections of board.

Stage 4 - Application of Insulation boards

1. Insulation should be stored in original packaging and off the floor or in a dry environment.

2. Base track for MW Insulation must have drainage holes to allow trapped moisture to escape post completion of finish coatings.

3. Insulation Adhesive Application

Supply, mix and apply Envirobed adhesive in accordance with the manufacturers printed instructions.

Work in Envirobed adhesive using a thin pressed trowelled, coat across the whole surface of the insulation board and then apply a notch pattern with a 10-12mm notched trowel.

Ensure the Envirobed adhesive covers the whole surface of the prepared board with combed method.

4. Ensure minimum of 70% coverage on the ribbon method and that the adhesive is applied in a continuous band around all sides of the back of the board, to ensure no cavity can exist.

5. Apply the insulation boards firmly against the wall ensuring they are in

contact with the adjacent board leaving no gaps. No insulation boards measuring less than 200mm in height or width should be used L-Shaped insulation boards to be installed at the corners of all window/door or any type of aperture on the façade. boards to be fixed using stagger bond pattern with alternate interlocking up all corners of building and apertures.

Mineral Wool Insulation boards are fixed with the following pattern:

1. Minimum of 1 fixing across the centre line of the MW Insulation boards to offer temporary securement. Please see project specification for exact fixing number based on site wind loads.

2. Primary fixings are secured through the wet base coat and reinforcing mesh in a maximum 400 x 400mm grid pattern in line with the project wind load calculation. These primary fixings through the mesh layer must be covered with a 100 x 100mm scrim patch. Please see project specification for exact fixing pattern / grid based on site wind loads.

3. The fixing pattern for the Grey EPS system is a “domino five” pattern per insulation board equating to 7 fixings per m², with no requirement to fix through the wet basecoated mesh layer.

4. All calculated loadings for the fixings are based on them being secured back to the Sheathing Board or Masonry substrates.

5. Additional stainless-steel fixing at a rate of 1 per m² must be used to retain the reinforced base coat in the event of a fire. This fixing is installed in addition to the above fixings and must be installed through the base coat and reinforcing mesh and covered with a 100 x 100mm scrim patch. Please consult with third party warranty providers as they may require this fixing per insulation batt.

6. Offcuts less than 200mm of Insulation should not be used.

7. Gaps between Insulation boards should be filled with slithers of insulation, or if less than 5mm, FR grade expanding foam and trimmed once set

8. No board joints should be present at corners of openings. Insulation boards should be fitted in an 'L' shape to reduce stress being applied

9. Leading edge of the Insulation should be protected from inclement weather.

Please refer to Fixing Pattern drawings which shows all fixings to be used.

Stage 5 - Horizontal Movement Joints – As required

1. Check elevation drawings for location of movement joints.

2. If required, they are to be installed following the below instructions:

a. Ensure the insulation is stopped short above and below to create a gap size as required for the expected level of movement

b. Install SPS Expanding Sealing Tape into this joint at the leading edge of the insulation

c. The movement joint is supplied in two parts, a lower section designed to slip into the upper section

d. The upper and lower sections should be installed to the surface of the insulation using EnviroRend base coat prior to the main application of the reinforced base coat. Care should be taken to ensure the moving parts are kept clean and free from mortar and the gap created is at least the same as the expected level of movement.

Stage 6 - Application of beads and profiles

Set all corner beads, stop beads, APU beads and any surface mounted movement beads to line and level bedded on with basecoat prior to the main basecoating layer being applied. Please note the Dash range of beads will differ from the texture topcoat and Envirobrick beads used in the system.

Stage 7 - Application of Base Coat

1. No work on bonding, pointing and mixing of any adhesive preparations should proceed on site during a time when the temperature is below 5°C or above 30°C or if exposure to frost is likely to occur during drying. SPS Envirowall renders must not be applied to saturated, or frost bound walls and insulation boards. In sunny weather work should commence on the shady side of the building and be continued round following the sun to

prevent the rendering drying out too rapidly. Do not apply material in rain, fog or mist.

2. EnviroRend or Retrobase base coat should not be applied to wet insulation boards.

3. Using a notched trowel apply EnviroRend or Retrobase base coat to the Insulation ensuring it bites into the fibres of the MW Insulation. Total thickness of EnviroRend base coat is 3 to 5mm including slurry coat or Retrobase at 5-7mm including slurry coat.

4. Whilst EnviroRend or Retrobase base coat is wet, install High Performance or Retromesh Reinforcement Mesh with 100mm overlapping joints.

a. At corners of all opening install minimum 300 x 500mm stress patch at 45 degrees to main mesh layer

b. High Performance Mesh must be in the top third of the base coat.

5. With Mineral Wool KIWA systems the primary insulation fixings must be installed through the mesh whilst the base coat is still wet as per section 3, in line with project fixing pattern, typically maximum 400 x 400mm grid pattern.

EPS and phenolic boards are face-fixed in a domino 5 per board pattern

6. All fixing heads covered with a 100 x 100mm prior to application of final slurry coat and allowed to dry.

7. Once set, apply final slurry coat at 1 – 2mm thick (total build up no more than 5mm) over High Performance/Retromesh Reinforcement Mesh and float ready for the application of the finish, Textured topcoat finishes require a smooth basecoat surface, whereas Envirobrick and Envirodash require a key left in the basecoat surface.

Stage 8 - Application of Finish

EnviroSil silicone render

1. No work on bonding, pointing and mixing of any adhesive preparations should proceed on site during a time when the temperature is below 5°C or above 30°C or if exposure to frost is likely to occur during drying. SPS Envirowall renders must not be applied to saturated, or frost bound walls and insulation boards. In sunny weather work should commence on the shady side of the building and be continued round following the sun to prevent the rendering drying out too rapidly. Do not apply material in rain, fog or mist.

2. Ensure EnviroRend reinforcing base coat has cured and inspect for surface contamination.

3. Remove any surface contamination if found and if required, brush the façade to remove surface dust.

4. Using a brush or roller apply Silicon Primer (tinted when using non-pastel colours) ensuring an even and consistent coating is achieved. Must be touch dry prior to the application of the main Silicone Render finish.

5. Use a paddle mixer to ensure a consistent mix and grain dispersion.
6. Using a plastic or stainless-steel float, apply a tight coat of Silicone Render. Using consistent pressure, ensure any excess material is removed prior to texturing taking the Silicone Render down to the specified grain size.
 - a. Using a plastic float, lightly roll the float in a circular or figure of 8 pattern to roll the texture ensuring no bald spots are created
 - b. Any excess material on the float must be removed to ensure a clean consistent finish. This excess material must not be used again as there will be no grain.
 - c. It is key to ensure all operatives use the same float type, thickness and are all texture in the same direction and pattern to create an even consistent finish.

Application of EnviroMin Mineral Render

1. No work on bonding, pointing and mixing of any adhesive preparations should proceed on site during a time when the temperature is below 3°C or above 25°C or if exposure to frost is likely to occur during drying. SPS Envirowall renders must not be applied to saturated, or frost bound walls and insulation boards. In sunny weather work should commence on the shady side of the building and be continued round following the sun to prevent the rendering drying out too rapidly. Do not apply material in rain, fog or mist.
2. Ensure EnviroRend reinforcing base coat has cured and inspect for

surface contamination.

3. Remove any surface contamination if found and if required, brush the façade to remove surface dust.
4. Using a brush or roller apply Silicon Primer (tinted when using non-pastel colours) ensuring an even and consistent coating is achieved. Must be touch dry prior to the application of the main EnviroMin Mineral Render finish.
5. Using a paddle mixer, mix one 35kg bag of EnviroMin Mineral Render with 6.5 to 7 litres of cold clean water for 5 minutes. Leave to stand for 2 minutes and then whisk again for 2 minutes ensuring a consistent mix and grain dispersion.
- 6.6. Using a plastic or stainless-steel float, apply a tight coat of EnviroMin Mineral Render. Using consistent pressure, ensure any excess material is removed prior to texturing taking the EnviroMin Mineral Render down to the specified grain size.
 - a. Using a plastic float, lightly roll the float in a circular or figure of 8 pattern to roll the texture ensuring no bald spots are created
 - b. Any excess material on the float must be removed to ensure a clean consistent finish. This excess material must not be used again as there will be no grain.
 - c. It is key to ensure all operatives use the same float type, thickness and are all texture in the same direction and pattern to create an even consistent finish

Application of Speedy Slip adhesive and slips

1. No work on bonding, pointing and mixing of any adhesive preparations should proceed on site during a time when the temperature is below 5°C or above 30°C or if exposure to frost is likely to occur during drying. SPS Envirowall renders must not be applied to saturated, or frost bound walls and insulation boards. In sunny weather work should commence on the shady side of the building and be continued round following the sun to prevent the rendering drying out too rapidly. Do not apply material in rain, fog or mist.
2. Ensure EnviroRend reinforcing base coat has cured and inspect for surface contamination.
3. Remove any surface contamination if found and if required, brush the façade to remove surface dust.
4. Mark out the area to be covered with the Speedy Slip flexible brick slips evenly with chalk lines and agree brick pattern bond style and areas for cut bricks with the client.
 - a. Use existing lines such as windows and door lines as starting points when marking out the height and bond.
 - b. Consider the use of soldier coursing at the base and head of the façade if it is not to brick dimensions.
5. Mix Speedy Slip Combination Bedding Adhesive and Pointing Mortar thoroughly within its tub prior to application.

6. Apply using a 4mm notched trowel with the notches running perpendicular to the length of the brick tile.

a. Apply an area no more than can be covered in 30 minutes.

7. Apply the Speedy Slip Flexible Brick Tile to the Speedy Slip Combination Bedding Adhesive and Pointing Mortar by floating and pressing into place.

a. In colder weather it is advisable to store the Speedy Slip Flexible Brick Tile in a heated unit to aid application and reduce the risk of breakage.

b. Speedy Slip Flexible Brick Tile can be cut using scissors or a sharp Stanley knife.

8. Once Speedy Slip Flexible Brick Tiles have been applied the pointing process should begin immediately. Using a damp 10mm brush, spread the Speedy Slip Combination Bedding Adhesive and Pointing Mortar between the Speedy Slip Flexible Brick Tiles ensuring all joints are pointed evenly.

a. Ensure mortar is pointed consistently, i.e., all bed joints first or all perp joints first.

b. Speedy Slip Combination Bedding Adhesive and Pointing Mortar must fully seal all the edges of the Speedy Slip Flexible Brick Tiles. Inspect carefully, remove and replace any tiles that are not fully sealed.

c. Corners are supplied preformed as Speedy Slip Pistol Tiles and fixed

using the same method as the Speedy Slip Flexible Brick Tile.

d. Ensure the slips are clean of any adhesive/mortar material before it is allowed to set, as this cannot be cleaned off once it has set.

Application of Envirobrick Render Finish

1. The working day areas of application will be dictated by the skill of the operatives, weather conditions and architectural requirements. Where possible, application on individual wall surfaces should be completed without breaks in one operation. If breaks cannot be avoided they can be terminated where services or architectural features, such as drainpipes, reveals or lines of doors and windows, which help mask joints.

2. Mortar Layer - Add approximately 4-5 litres of clean water to each 25kg bag of material; mix thoroughly for a minimum of 5 minutes. The mixed materials are then applied to the prepared background, 6-8mm thick, using hawk and trowel or projection render machine. Rule off to a flat finish. Warning: DO NOT over-trowel, polish surface, or apply water during set.

3. After the mortar layer has started to stiffen, the face layer is applied. NB: The Face Layer must not be applied if the mortar layer has been allowed to dry and/or set. Face Layer - Add approximately 4-5 litres of clean water to each 25kg bag of material; mix thoroughly for a minimum of 5 minutes.

4. The mix is applied on to the mortar layer following its initial stiffening, using hawk and trowel, or projection render machine. It is applied to an average thickness of 3- 5mm. To achieve the desired shading effect, apply Envirobrick in powder form, in contrasting or blending shade, to freshly applied face layer using hand dispenser or hopper spray. Immediately texture the surface. To achieve a textured surface finish, use the appropriate tool – stiff brush, comb, sponge, spatula or other implement as required, but do not over-trowel, polish surface or apply water during set.

5. After the face layer has been shaded and textured, and following initial stiffening of the applied materials, the face layer is cut through and the mortar layer cut into, using an appropriate cutting tool. This reproduces recessed mortar coursing of the brick-work or stone-work, spirit levels, templates and straight edges should be used for guiding this operation. Experience will dictate the best time for the operation to take place; too soon and the spirit levels and other guides will mark and spoil the surface, the cutter will rag and tear the material; too late and it becomes difficult and then impossible to cut. At the correct time a clean cut is easily achieved.

6. Following further stiffening of the materials and using a soft bristled brush, lightly brush and remove any face materials left by the cutting out process, taking care not to bruise surface skin of face materials. Provisions must be taken to protect Envirobrick against torrential rain and also from drying too quickly. Where possible avoid working in direct sunlight.

Covering the façade and scaffold as a precaution will help prevent the Envirobrick from drying prematurely. Do not apply when the substrate or the environmental temperatures are below 5° C or above 35° C.

7. Tools and equipment must be cleaned with water immediately after use. Surrounding building parts, such as windows, windowsills etc. must be properly protected before application

8. Avoid adding or splashing any further water onto the elevation as this could mark or change the colour of the brick render.

9. When fully cured brush off the excess left from the joint cutting process.

Application of Envirodash Render Finish

1. Envirodash should be mixed with clean water at a rate of approximately 4.75 litres per 25kg bag using a suitable paddle or pan mixer, mix for 2 minutes, allow standing for 2 minutes then re-mix to allow the additives to dissolve and activate. NB- The mix may stiffen on standing. Re-mixing the product can regain a workable consistency but do not add any extra water. Do not apply when the substrate is hot (at or above 30°C) or below 5°C or the environmental temperatures are below 3° C or above 25°C.

2. Apply one coat of Envirodash dash receiver 4-6mm thick onto the set basecoat and then whilst the receiver is still wet apply the dashing

aggregate onto the dash receiver ensuring an even spread of dash aggregate across the elevation.

Provisions must be taken to protect the dash receiver against torrential rain, direct sunlight and wind in the first 24 hours after application. Do not apply if frost is forecast or in wet conditions. Do not apply when relative humidity is above 95%. If these parameters are not met, the product is at risk of Lime Bloom efflorescence colour variation, cracking and potential failure.

3. Covering the façade and scaffold as a precaution will help prevent the receiver from drying prematurely. To avoid colour variations, ensure that the same batch numbers where possible are used up to natural breaks in the elevation.

4. Dashing Aggregate (Spar) Application - Do not apply aggregate direct from the bag. Any fines contained in the bag will usually collect towards the bottom of the bag and this can cause patching when applied. Areas with a higher percentage of fines will differ in texture, colour and finish to an area dashed with aggregates containing little or no fines. All dashing aggregates should be decanted from the bags into a clean drainable container (i.e. a plasterer's bath) and blended with 3 to 4 other bags ensuring that the colour and any fines are mixed evenly within the container prior to application.

5. The aggregates used for dry-dashing are predominantly naturally

occurring minerals that will have colour variations that allows little control over colour consistency. It is important to ensure that the aggregates used are from the same manufactured batch in order to reduce any potential colour matching issues. The re-use of aggregate that has been collected up following the first application is not recommended.

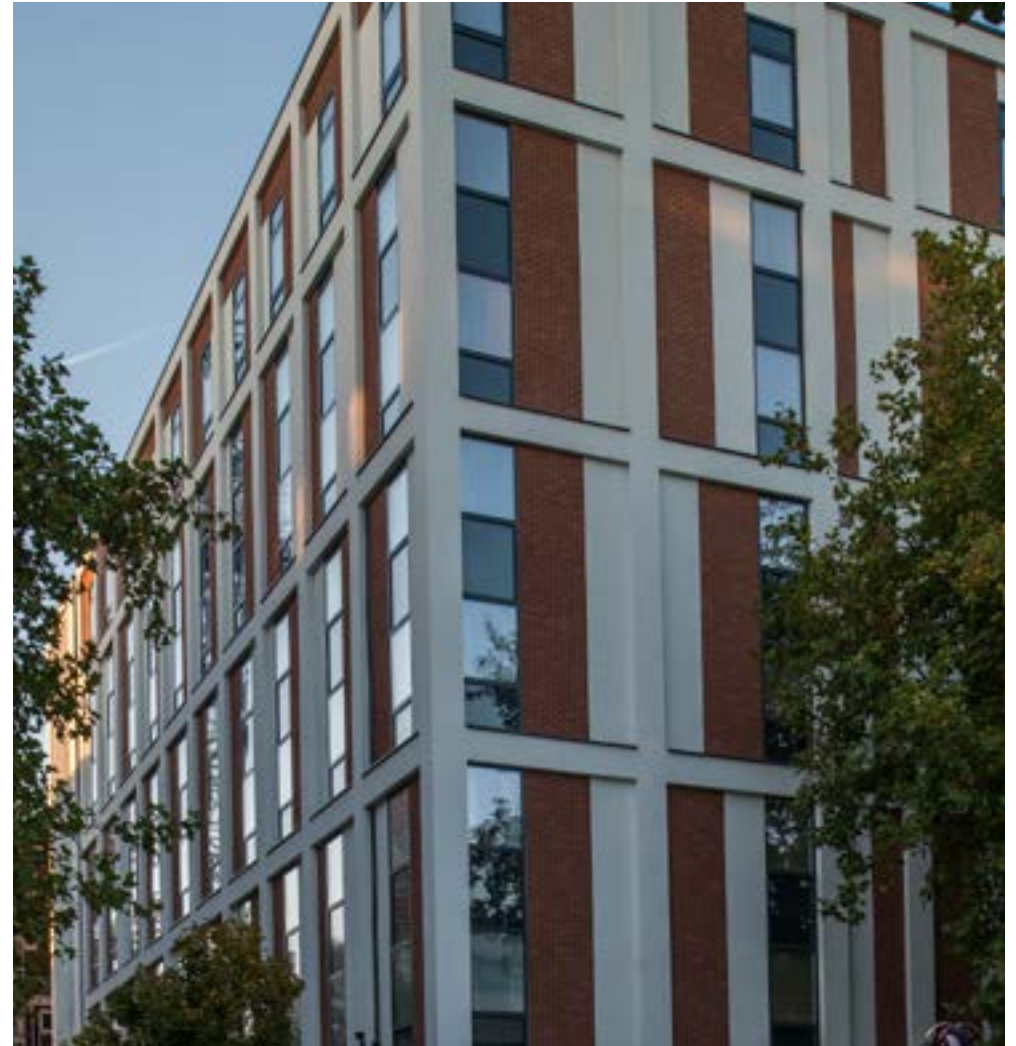
3. Any aggregate that has been walked on or exposed to any substance that could contaminate it should be disposed of in the responsible way and not re-used as a dashing aggregate. NB: Certain types of dash aggregate contain iron which may be susceptible to future iron staining.

Observation Application Points

1. No work on bonding, pointing and mixing of any adhesive preparations should proceed on site during a time when the temperature is below 5°C or above 30°C or if exposure to frost is likely to occur during drying. SPS Envirowall renders must not be applied to saturated, or frost bound walls and insulation boards. In sunny weather work should commence on the shady side of the building and be continued round following the sun to prevent the rendering drying out too rapidly. Do not apply material in rain, fog or mist.

2. Inspect the EnviroSil silicon render at completion of every 10m₂ to ensure an even consistent finish is achieved.

3. Keep re-mixing the material in the tubs to prevent material skinning on the surface.





Warranties & System Durability

SPS Envirowall offer a 10 year warranty on materials used in the WS1 systems. To support this a written request is required pre-start on site to confirm that a warranty will be required at the end of the installation. This will be backed up with regular site inspections by our experienced Site Inspectors who will audit the site with a written report including stage photographs. It will be the responsibility of the installing contractor to support this process with photographic evidences of the key installation stages in between our site inspections. All materials for the system require to be procured from SPS Envirowall to ensure a warranty can be issued.

The systems are confirmed within our KIWA & BBA Certifications as when installed and maintained in accordance with the agreement holders recommendations and the agreement certificates, the system will have a service life durability of at least 30 years. The service life durability can be extended to 60 years, if all fixings fully exposed beads, trims and profiles are specified as austenitic stainless-steel and the system is subject to a suitable inspection regime and is properly maintained accordingly.



Health & Safety

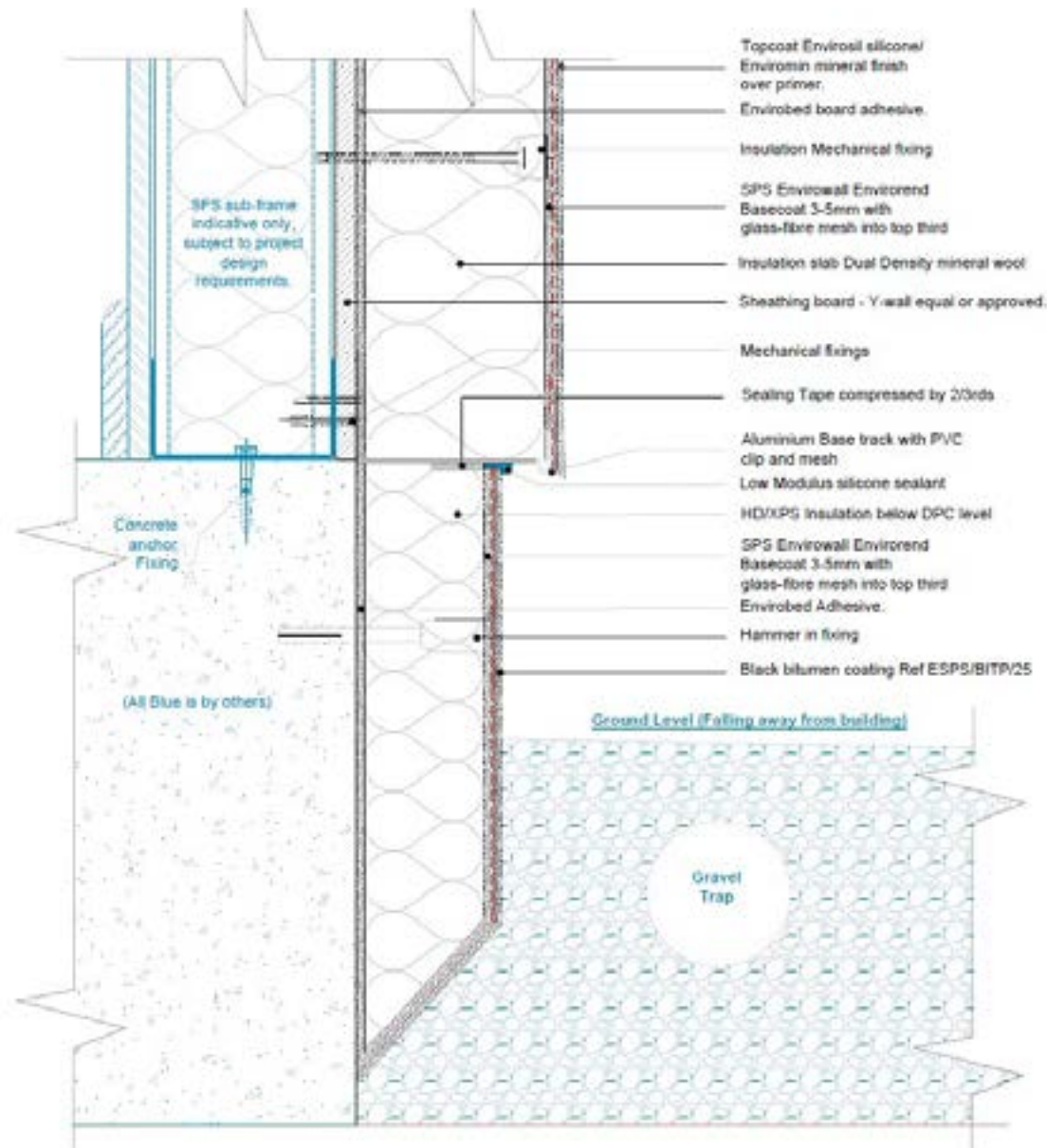
The fibres as used in SPS Envirowall renders may irritate the skin. Protective clothing should be worn to avoid contact with both dry, unmixed material and with wet mortar. Great care must be taken to avoid contact with eyes.

When mixing SPS Envirowall materials a filter respirator should be worn.

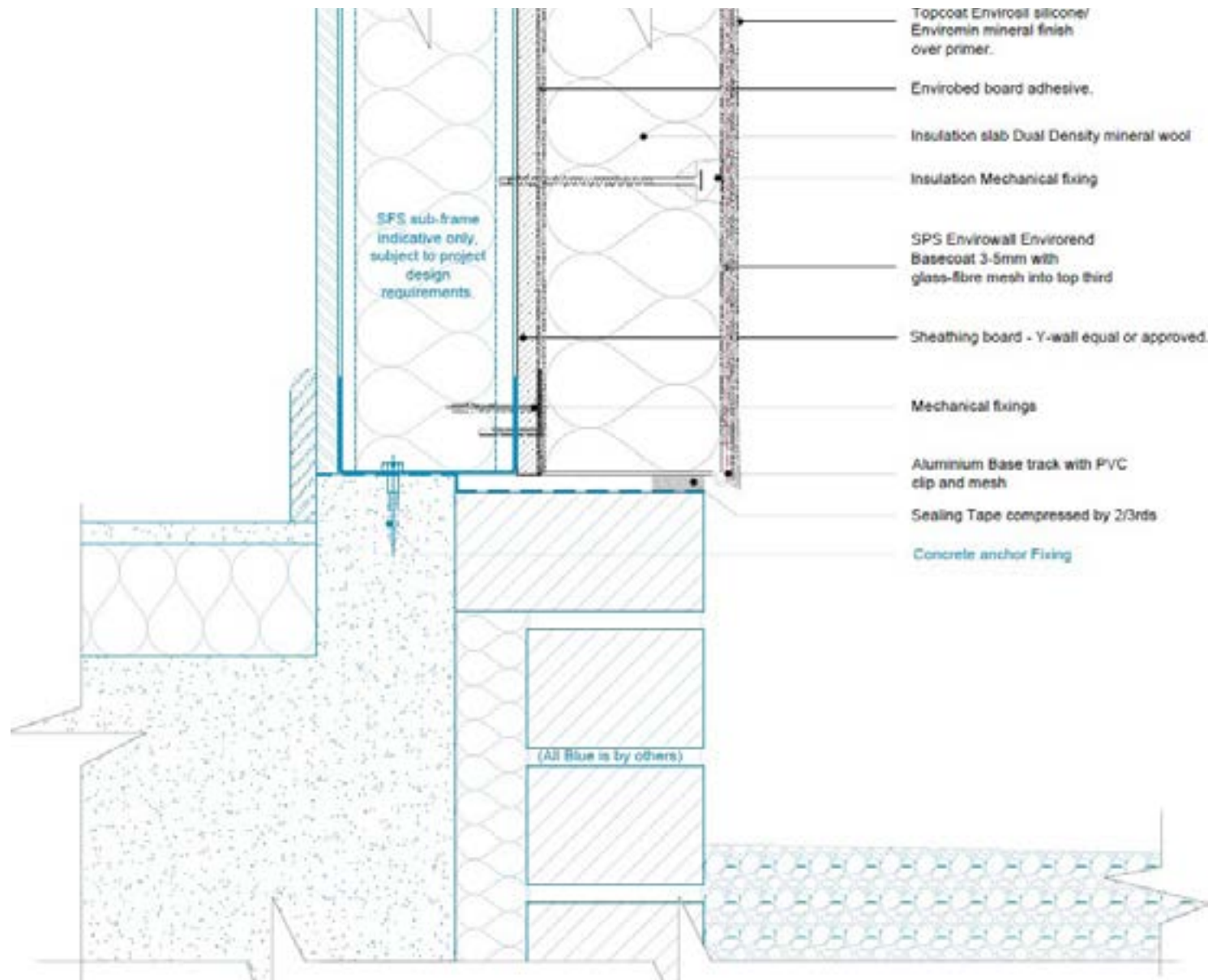
Where excessive concentrations of dust may accumulate the measures defined in the Health and Safety Executive publication EH40/2005 Workplace exposure limits for unlisted substances should be followed. Note that EH40 is published annually, and the current edition should be followed. Any concerns regarding application, use and disposal of products please request the relevant MSDS data sheets.



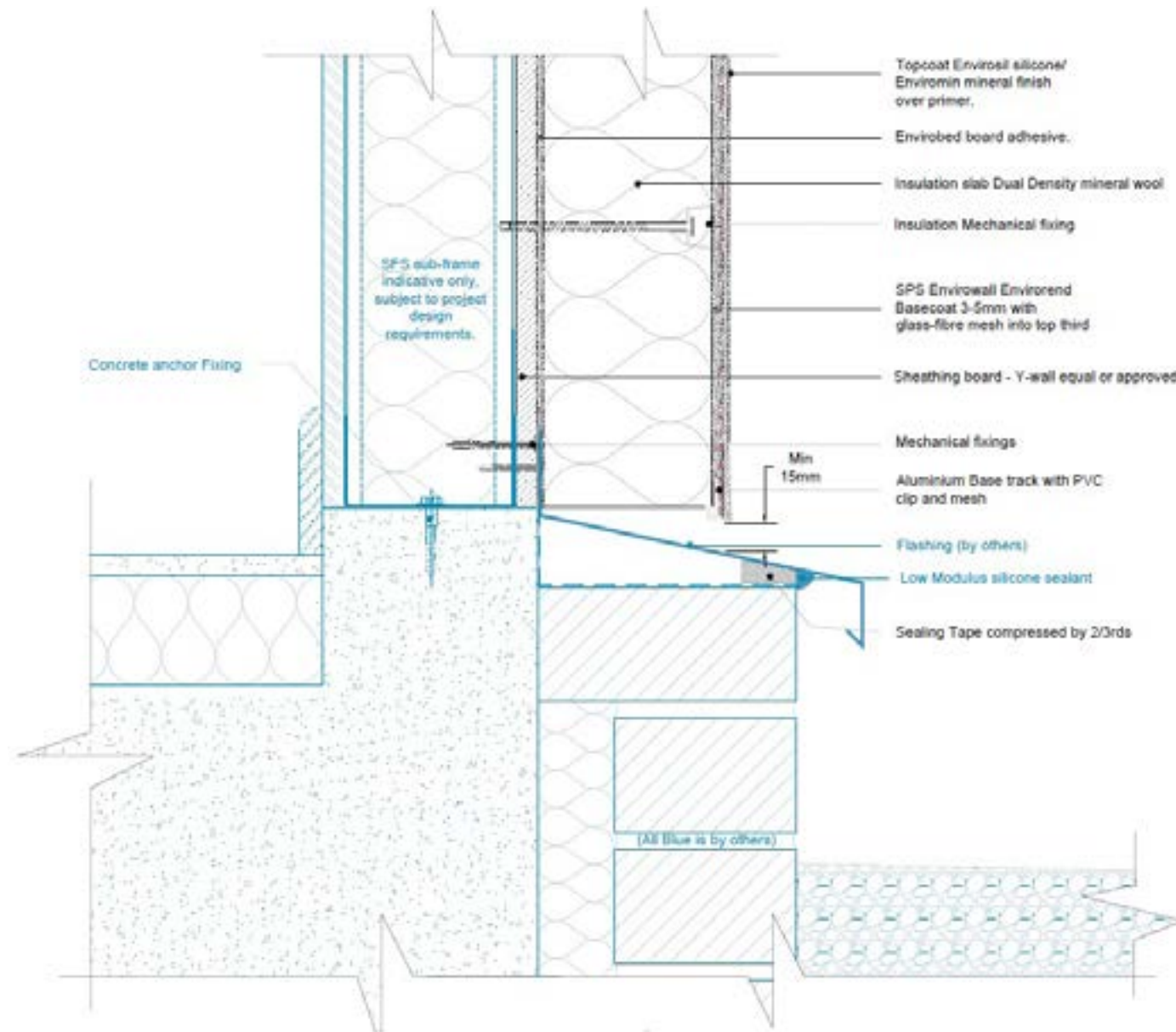
LGSF - Insulated Detail



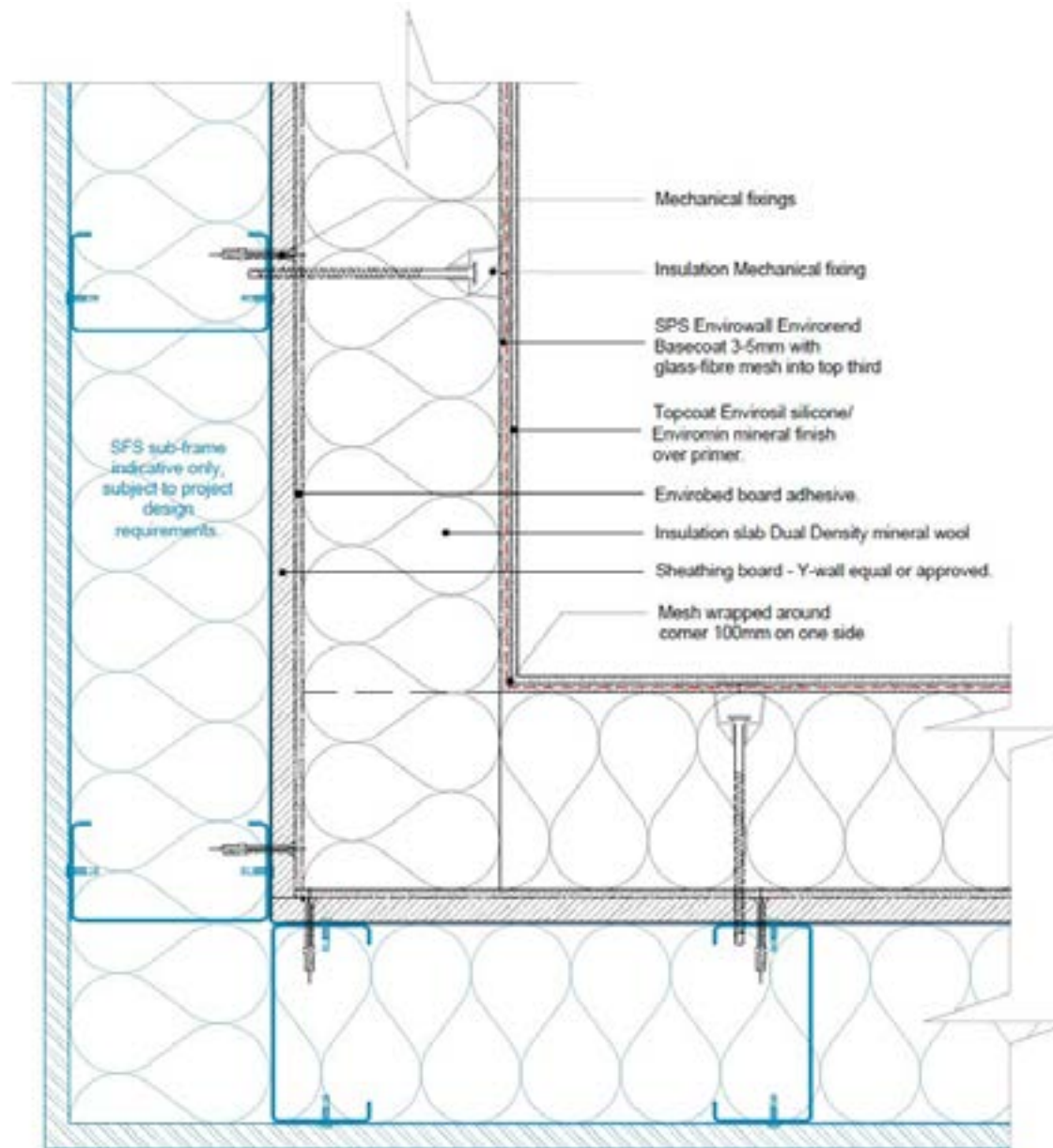
LGSF - Base Brick Detail



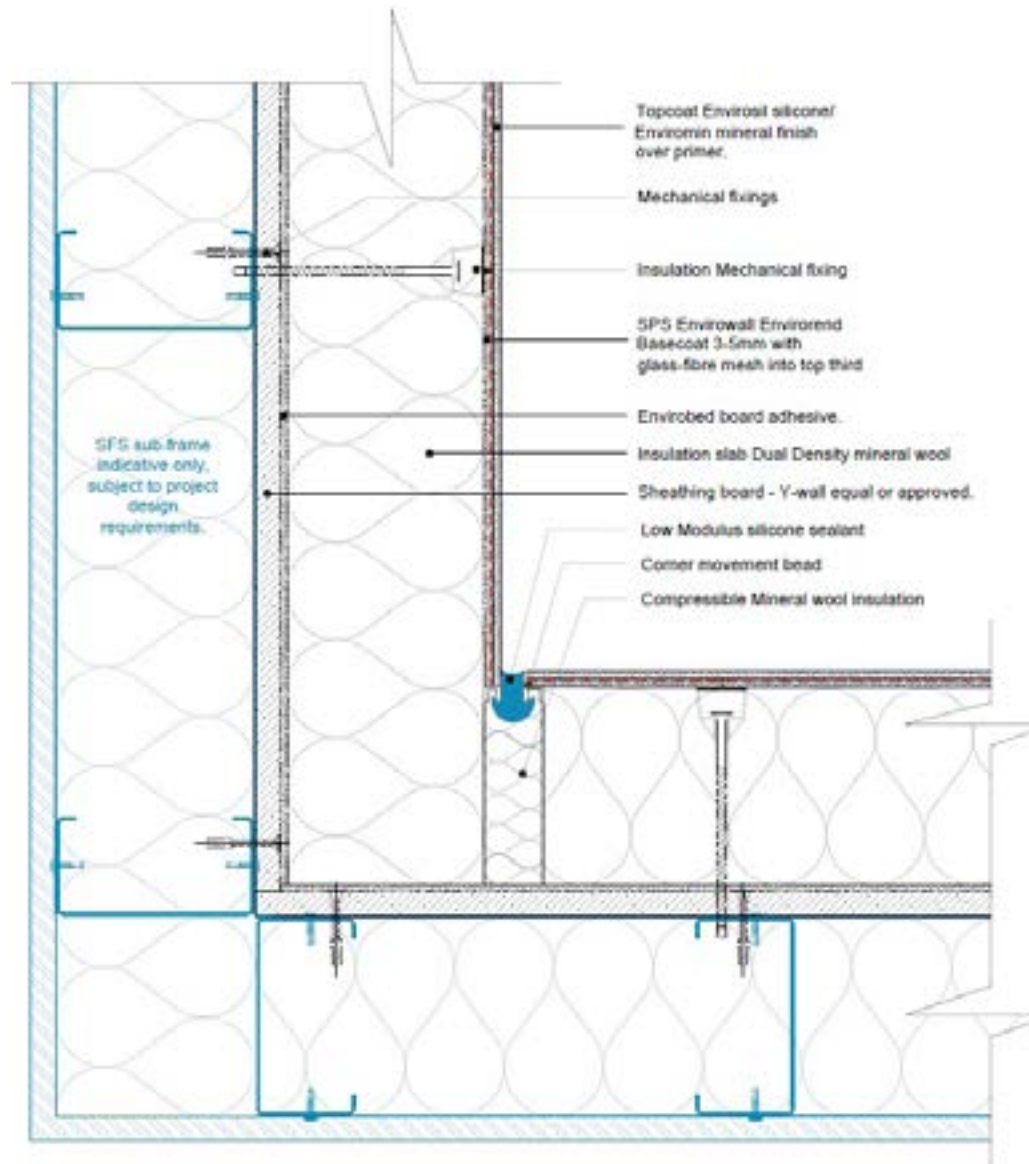
LGSF - Base brick Detail with flashing cover



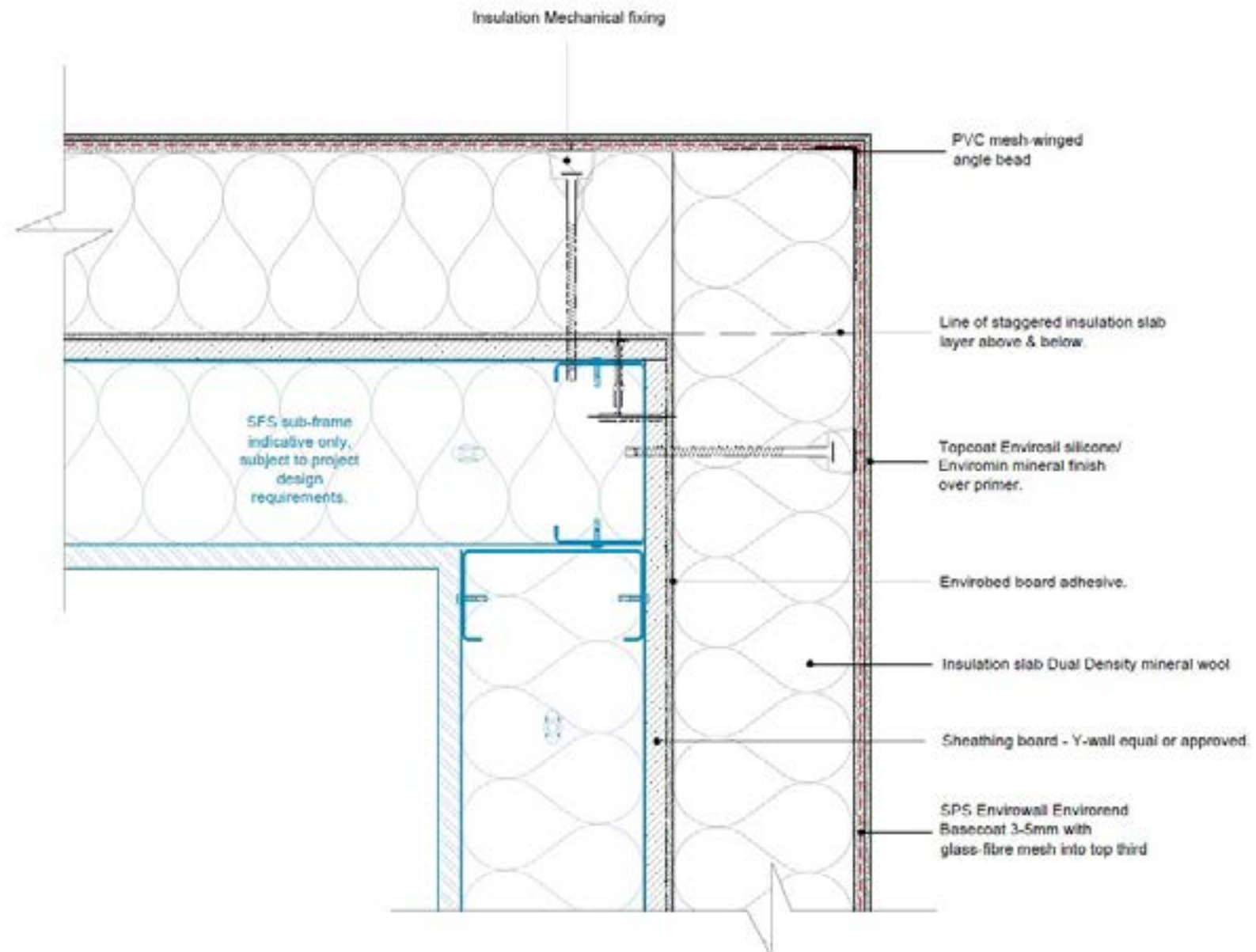
LGSF - Internal Corner



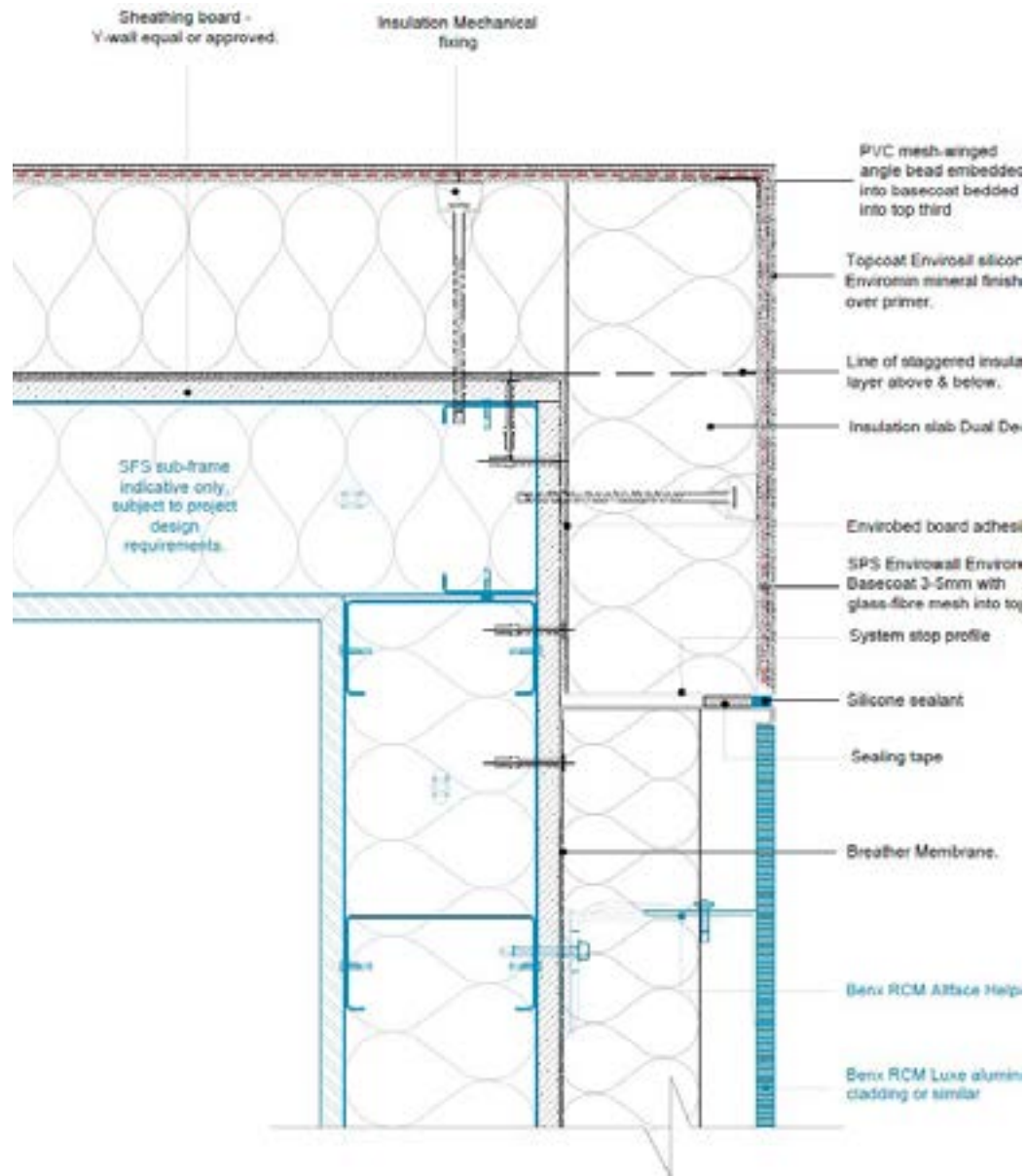
LGSF - Internal Corner with movement joint bead



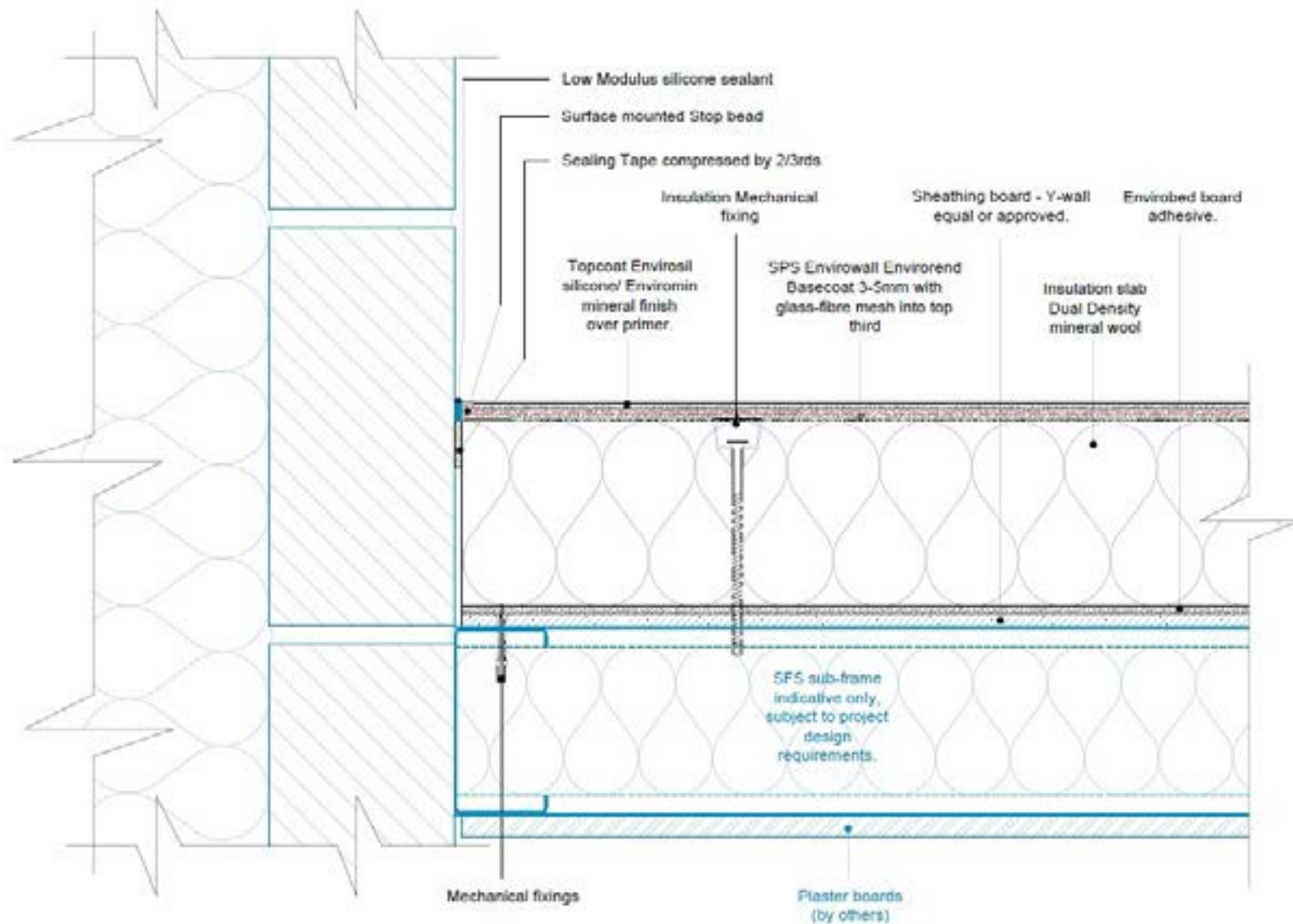
LGSF - External Corner



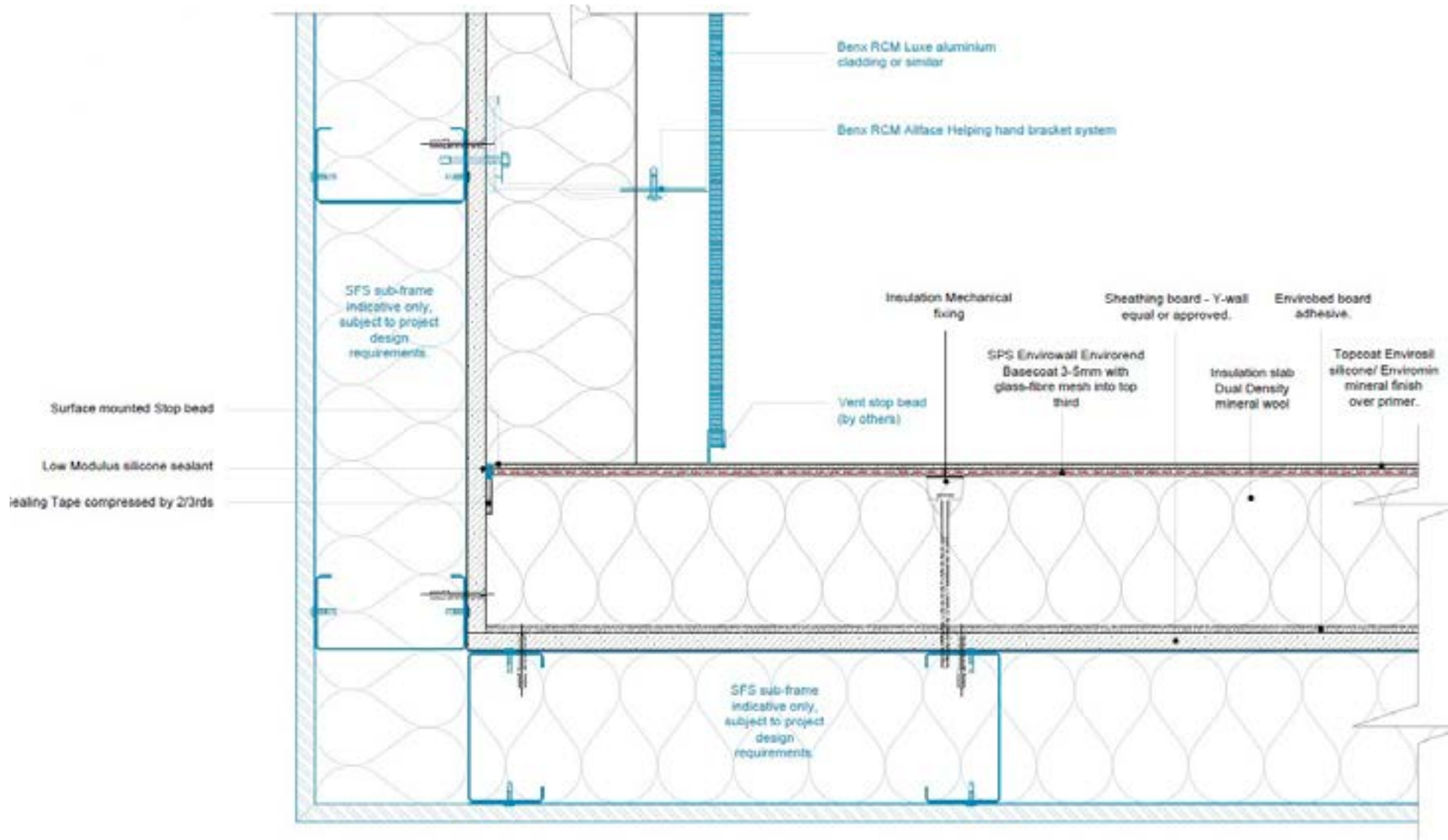
LGSF - External Corner joint with other cladding



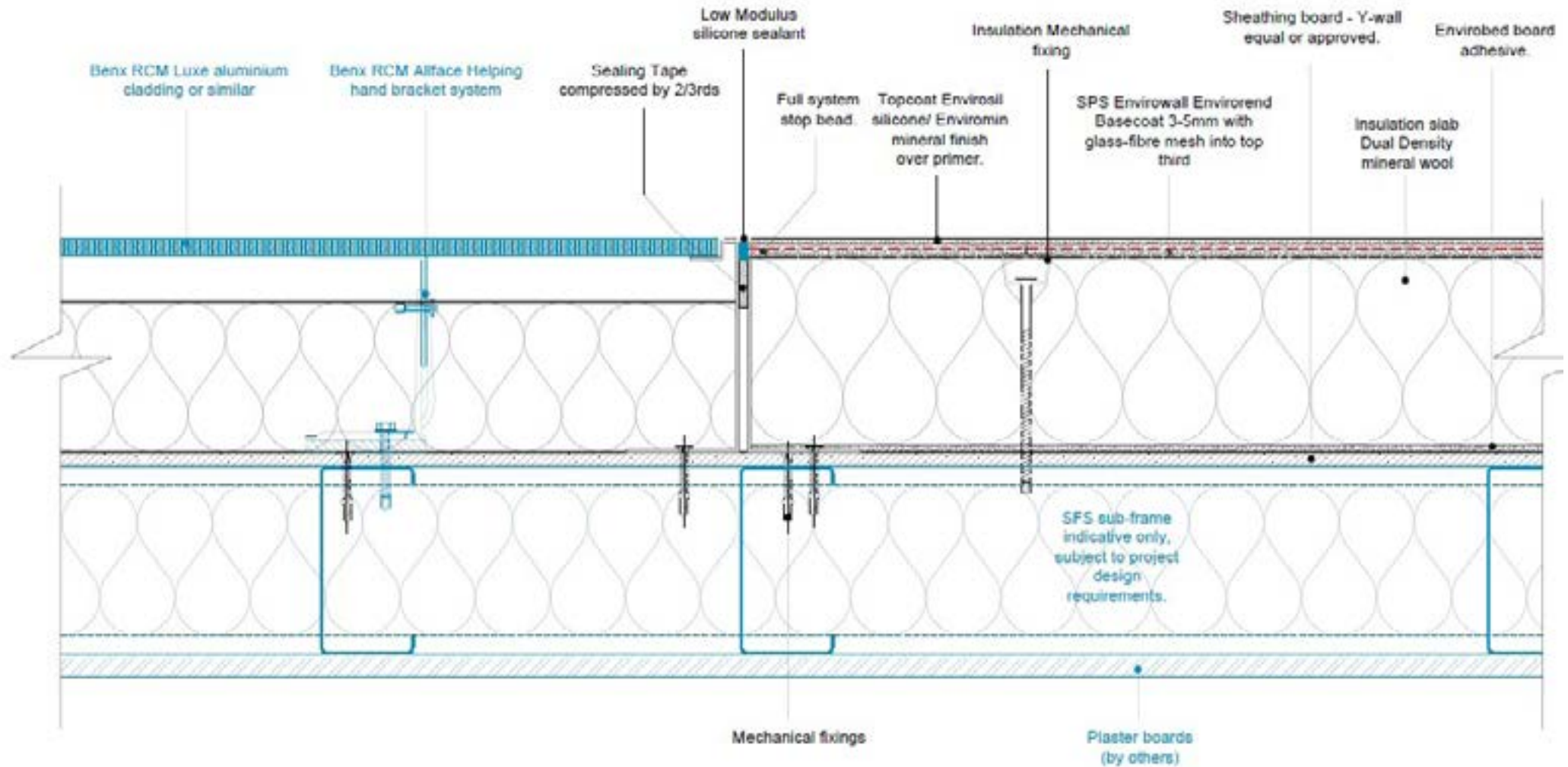
LGSF - Brick work Abutment Joint



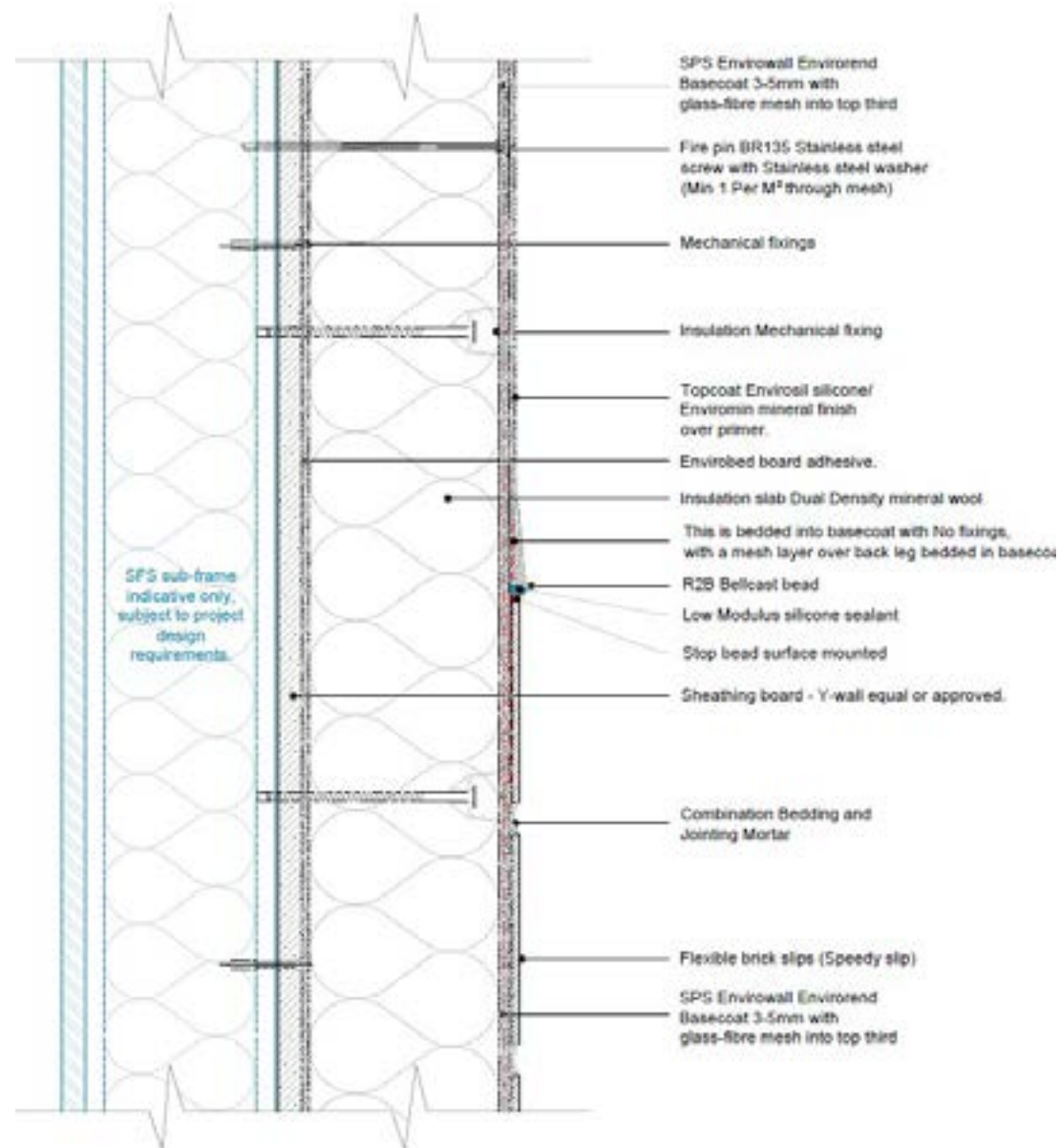
LGSF - Abutment joint with other cladding



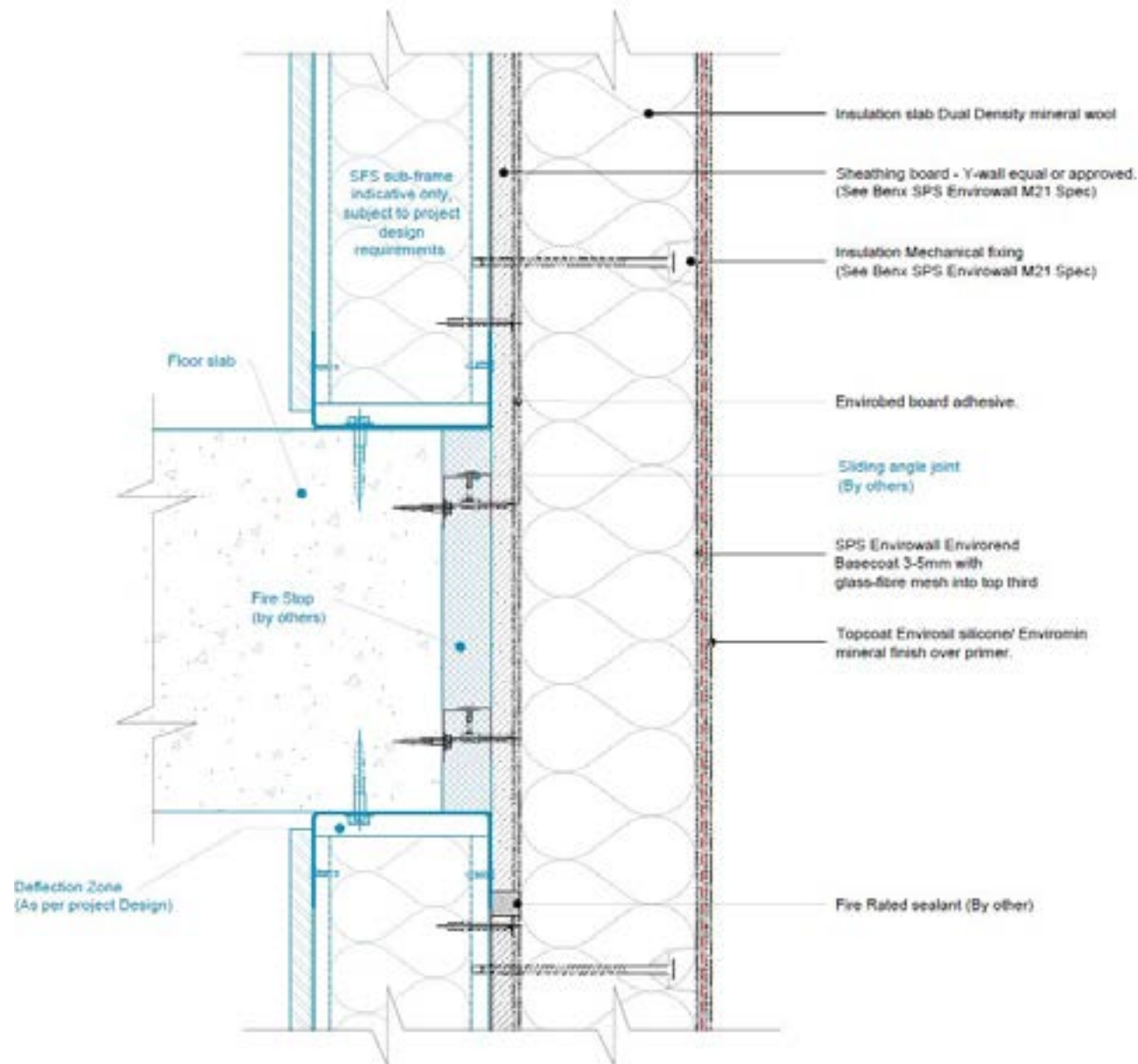
LGSF - Joint with other cladding system



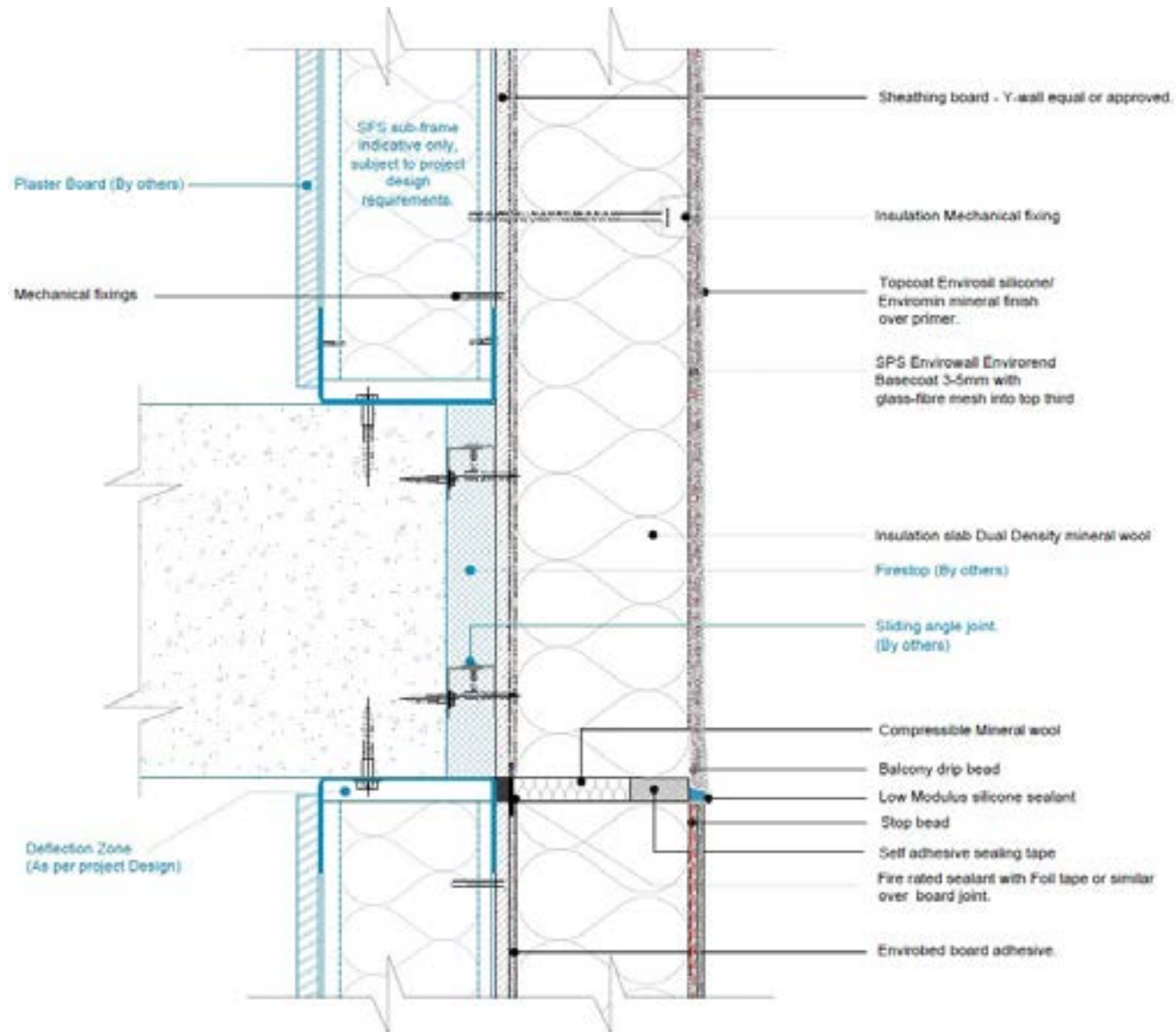
LGSF - Section through with render and Flexible brick horizontal joint



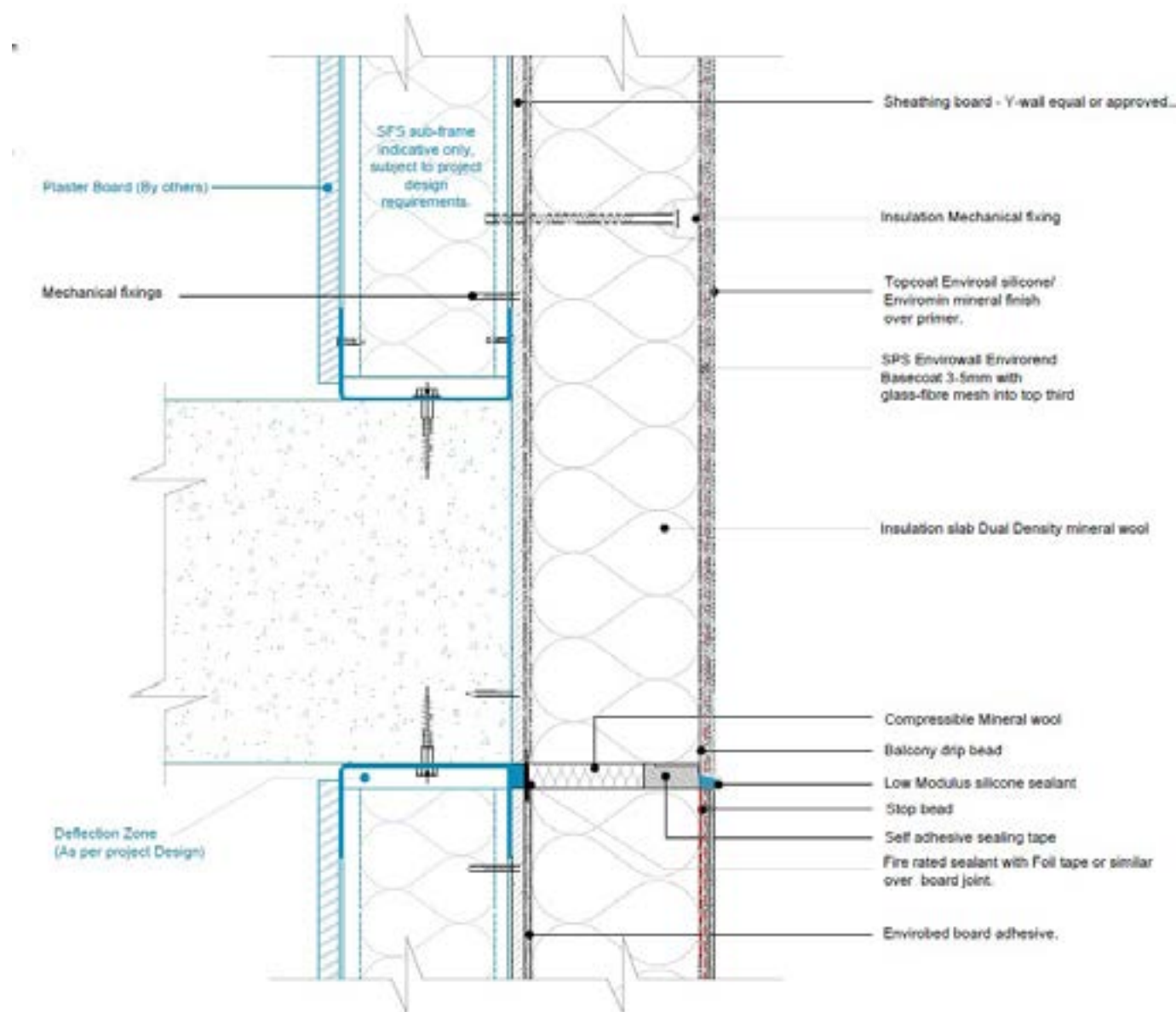
LGSF - Standard floor slab edge detail, No deflection zone



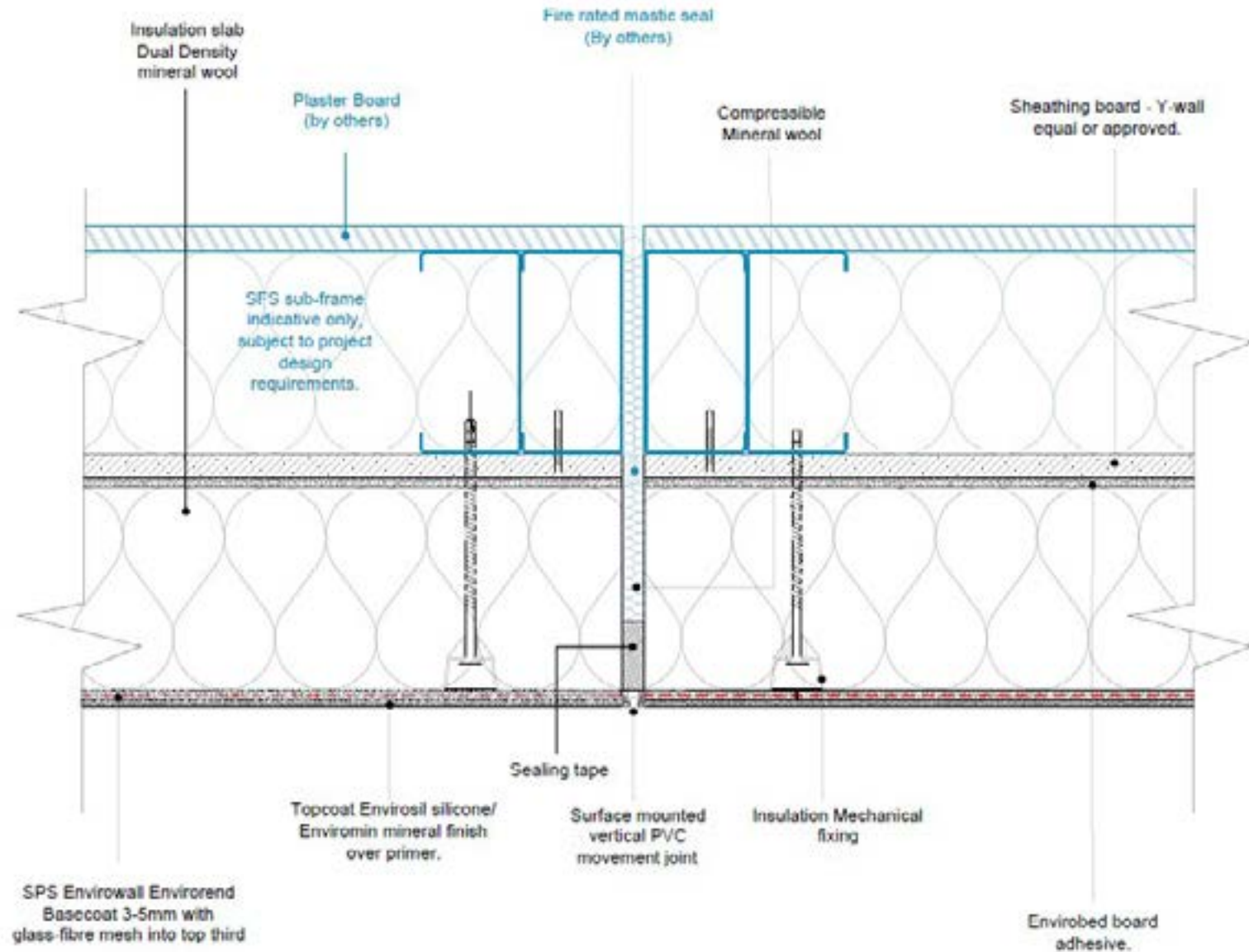
LGSF - Edge slab detail with inbuilt movement detail



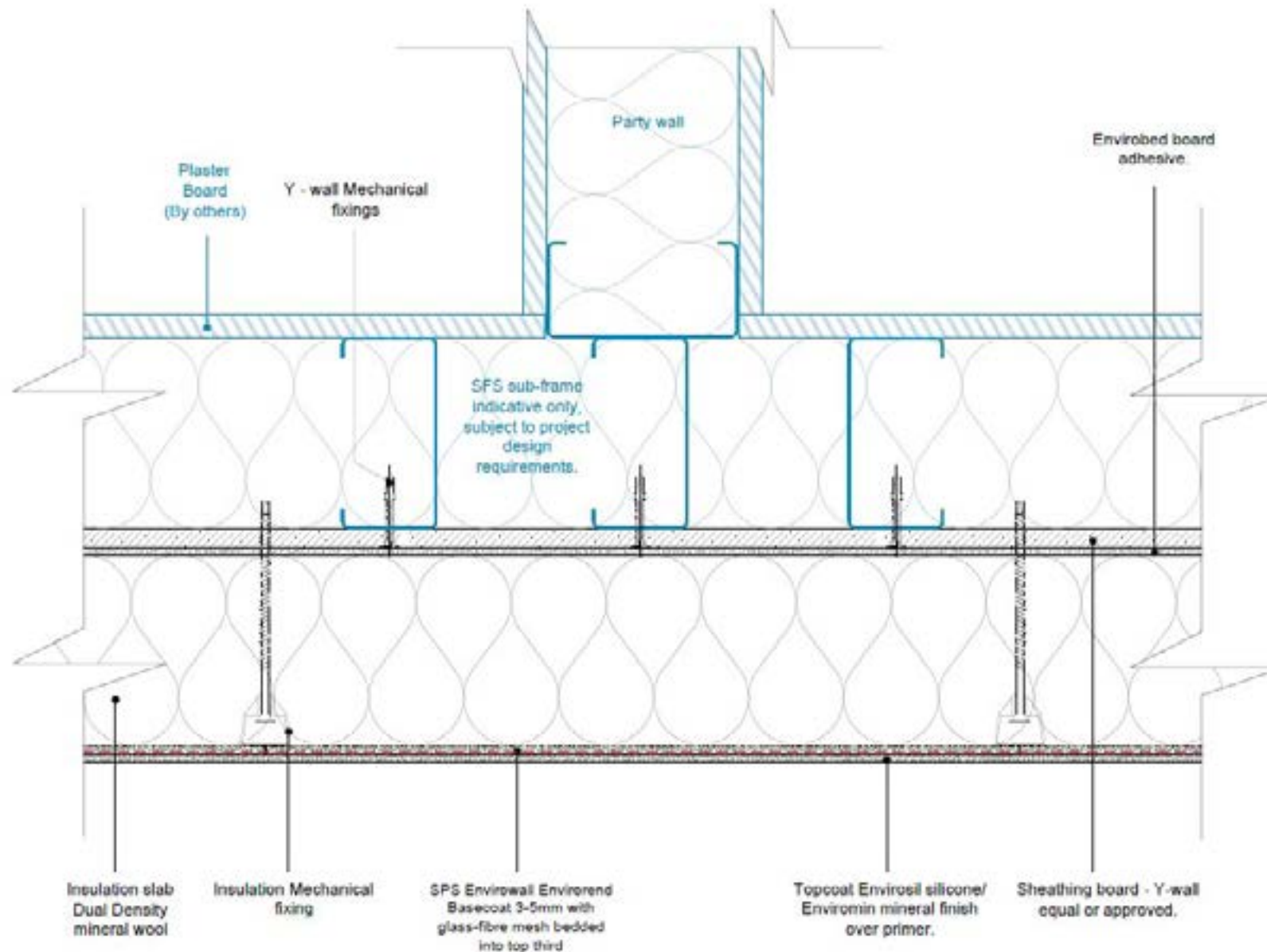
LGSF - Deflection Zone with flush slab edge



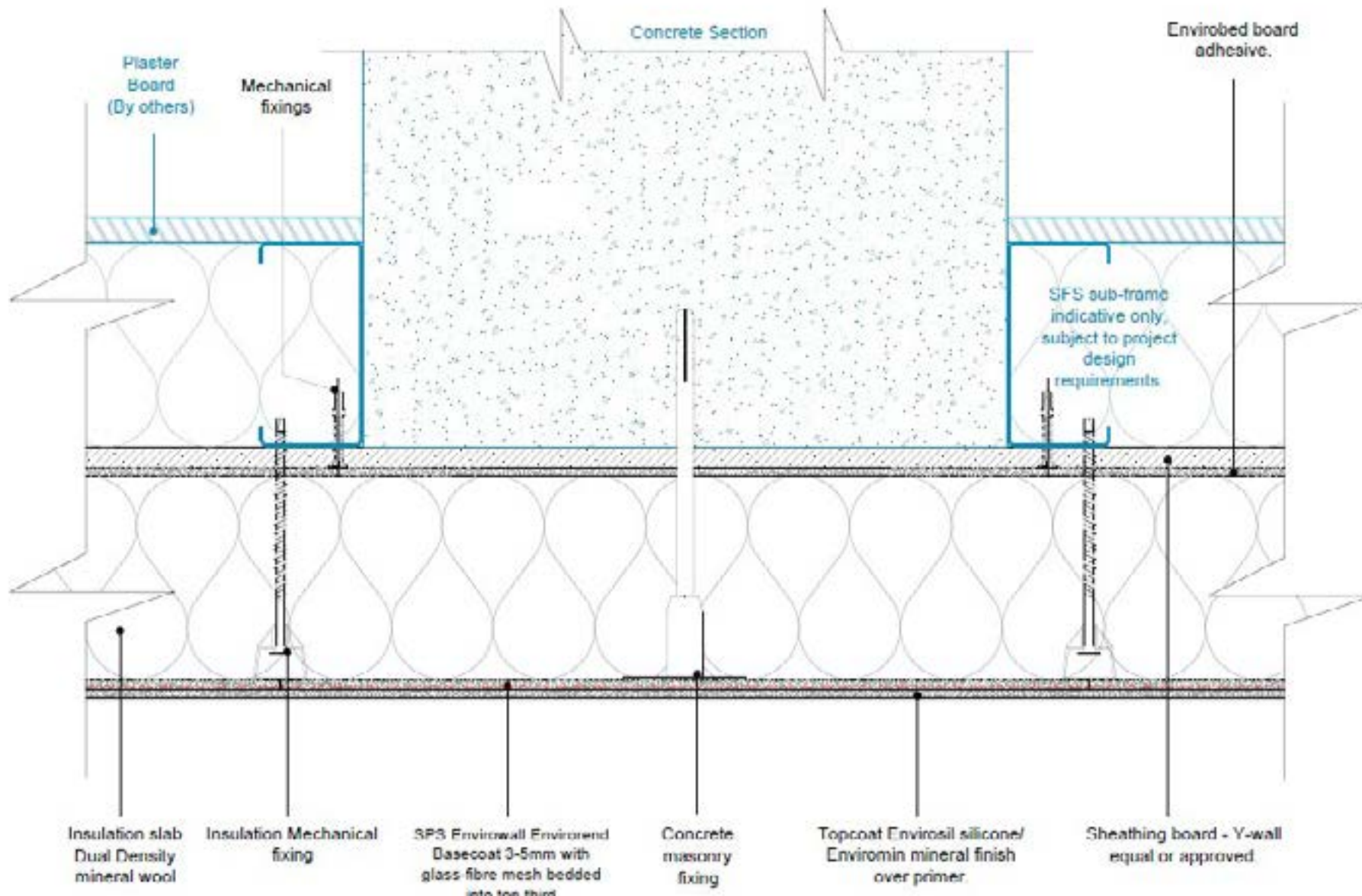
LGSF - Vertical Movement joint



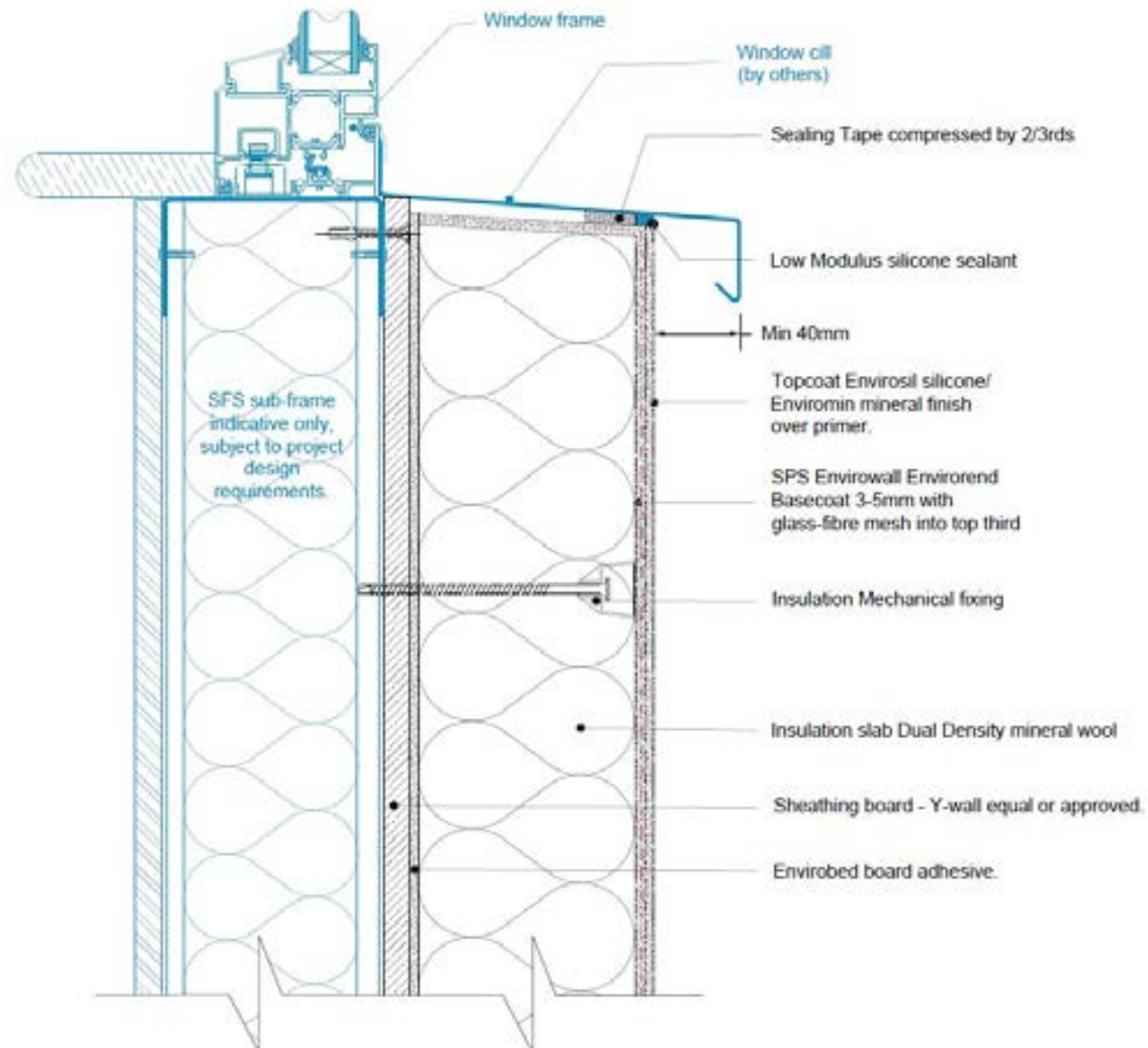
LGSF - Plan detail at party wall junction



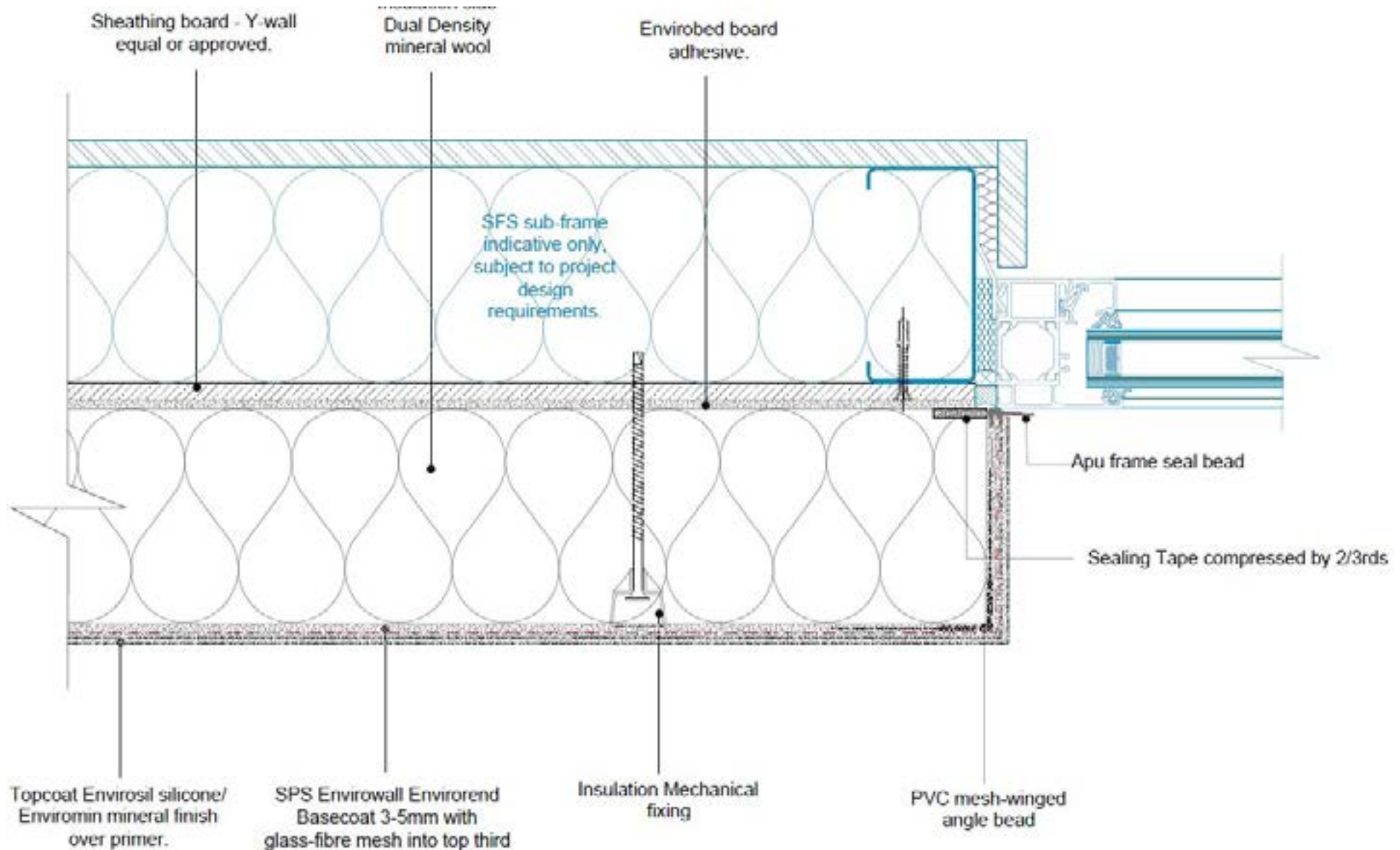
LGSF - Concrete column junction



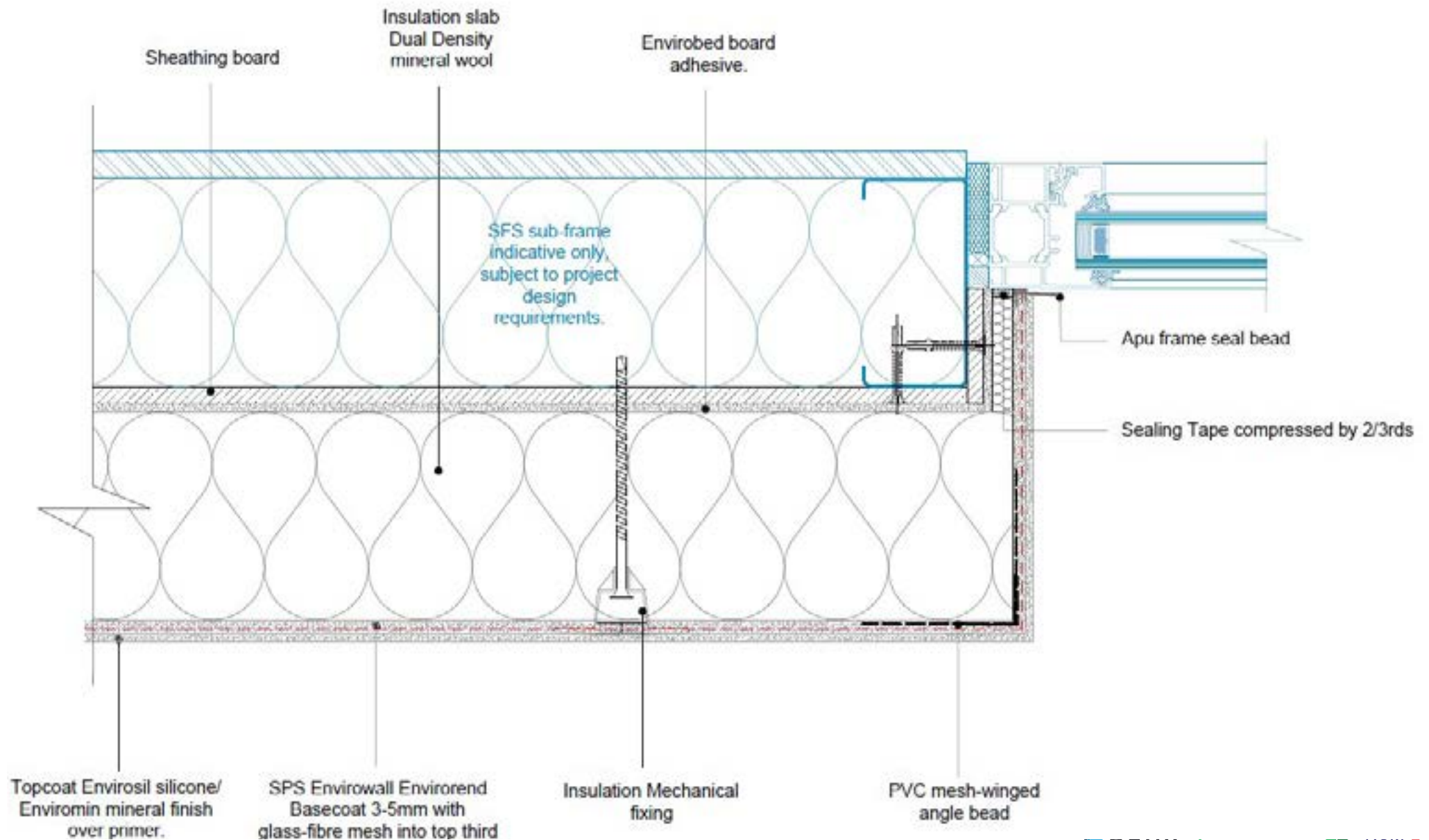
LGSF - Window Cill



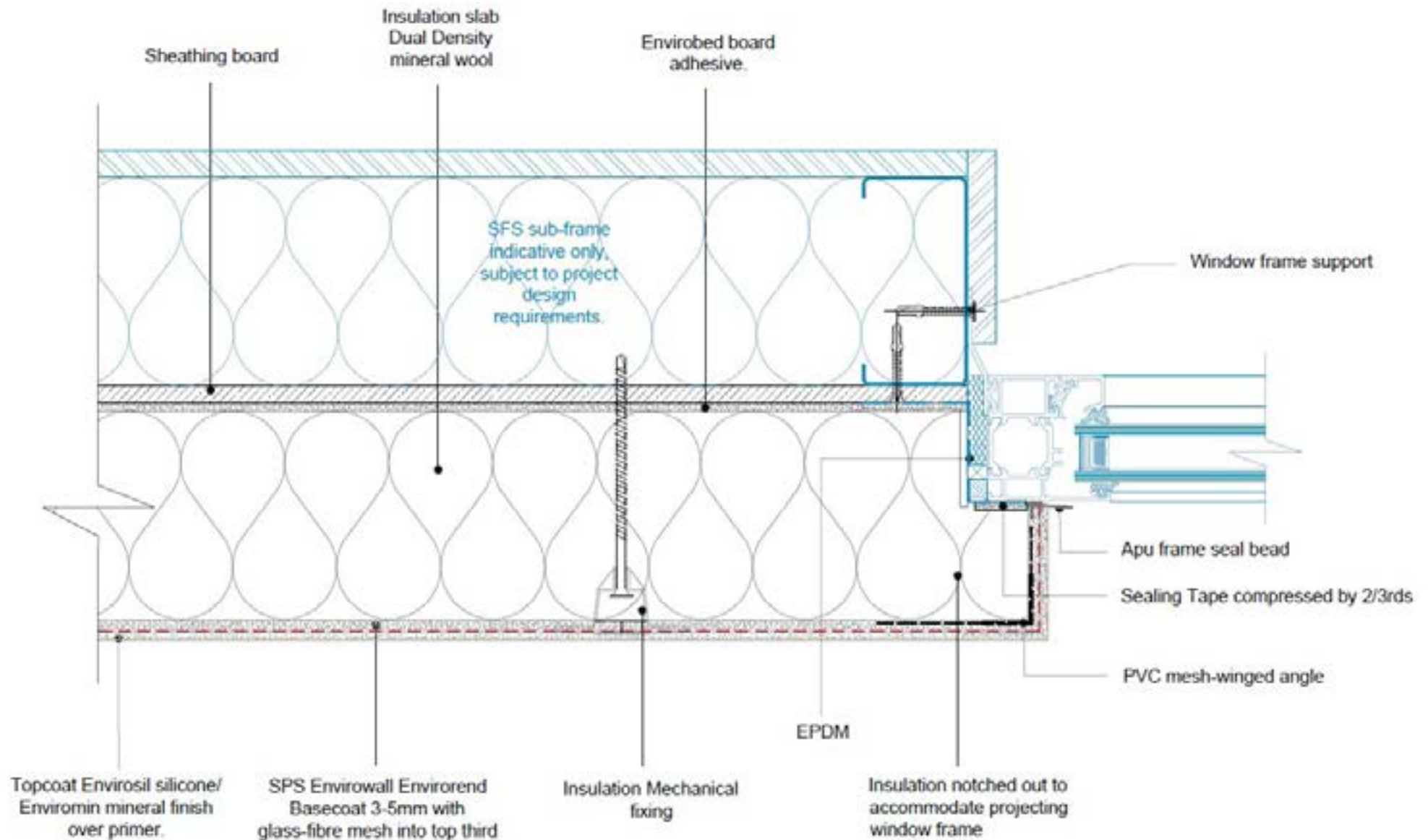
LGSF - Window Reveal



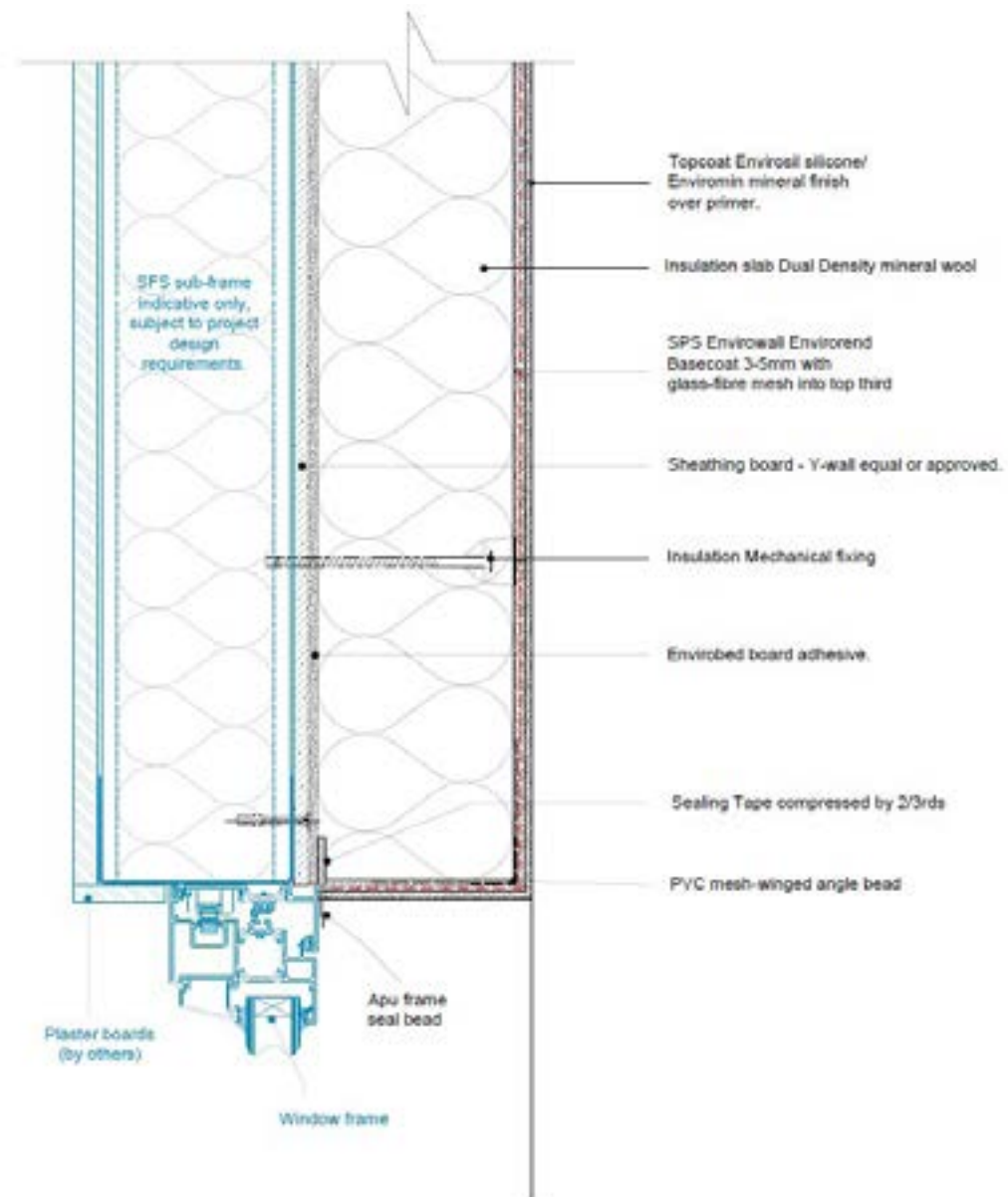
LGSF - Window Reveal with window set back



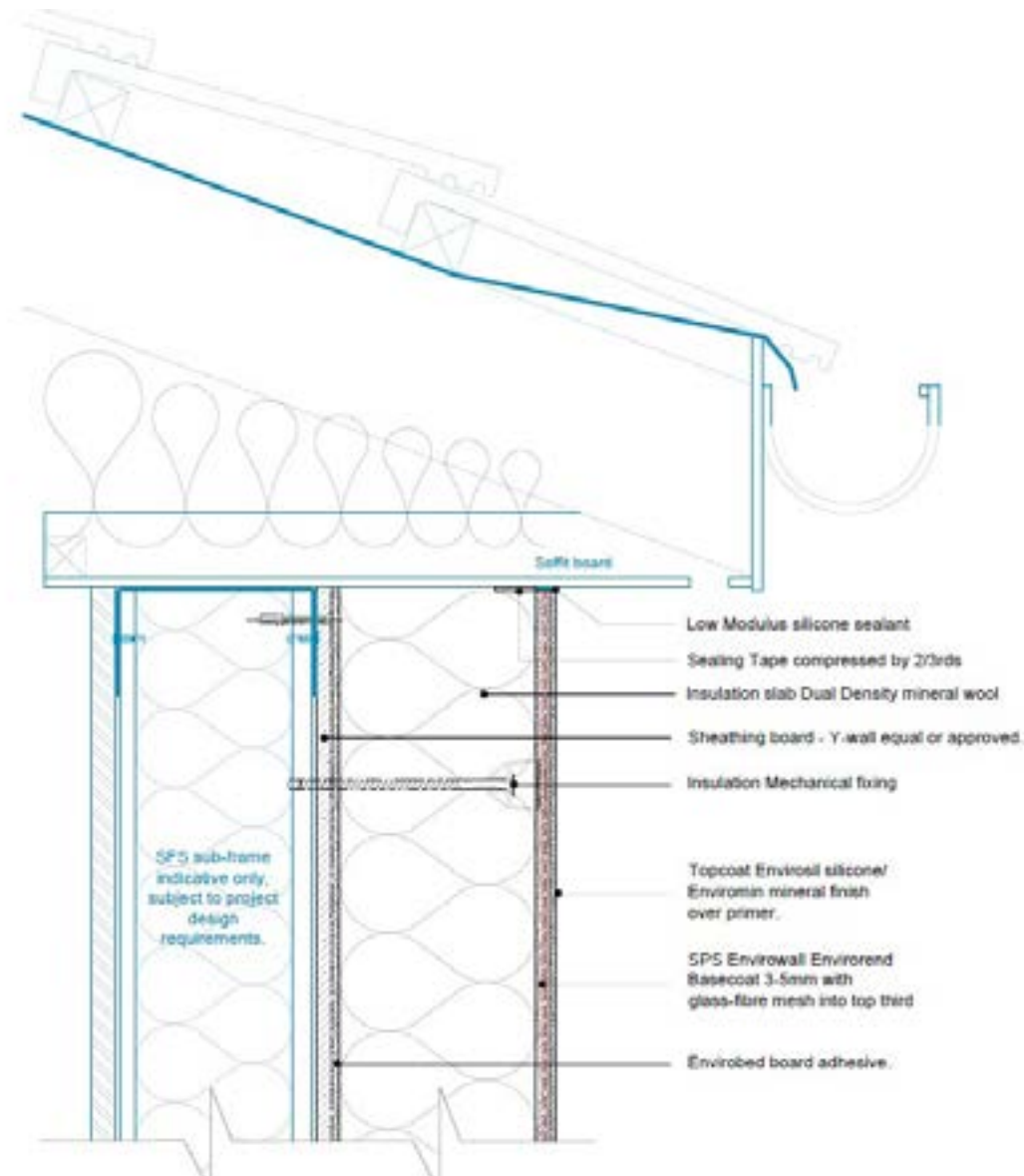
LGSF - Window Reveal with window set forward



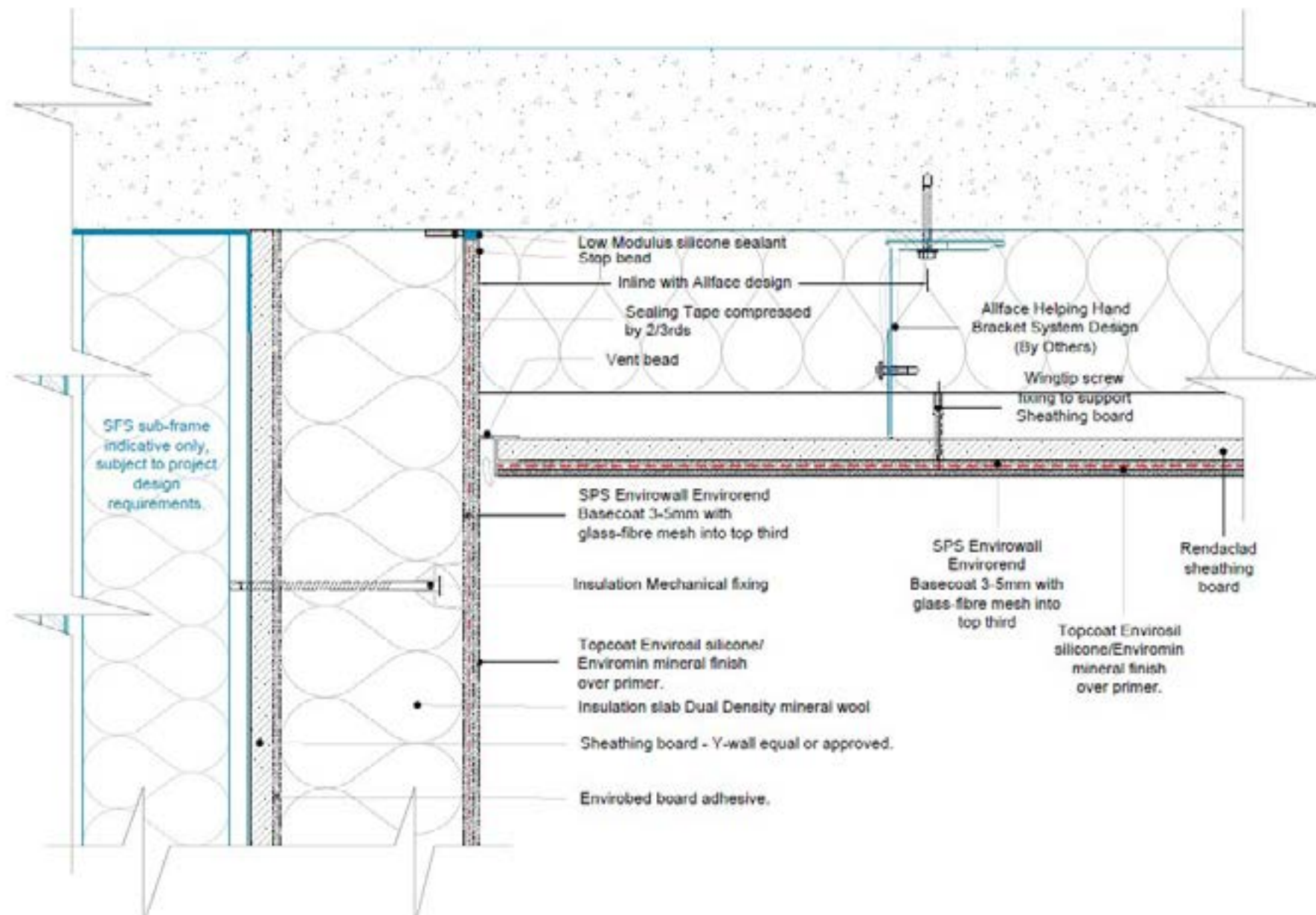
LGSF - Window Head



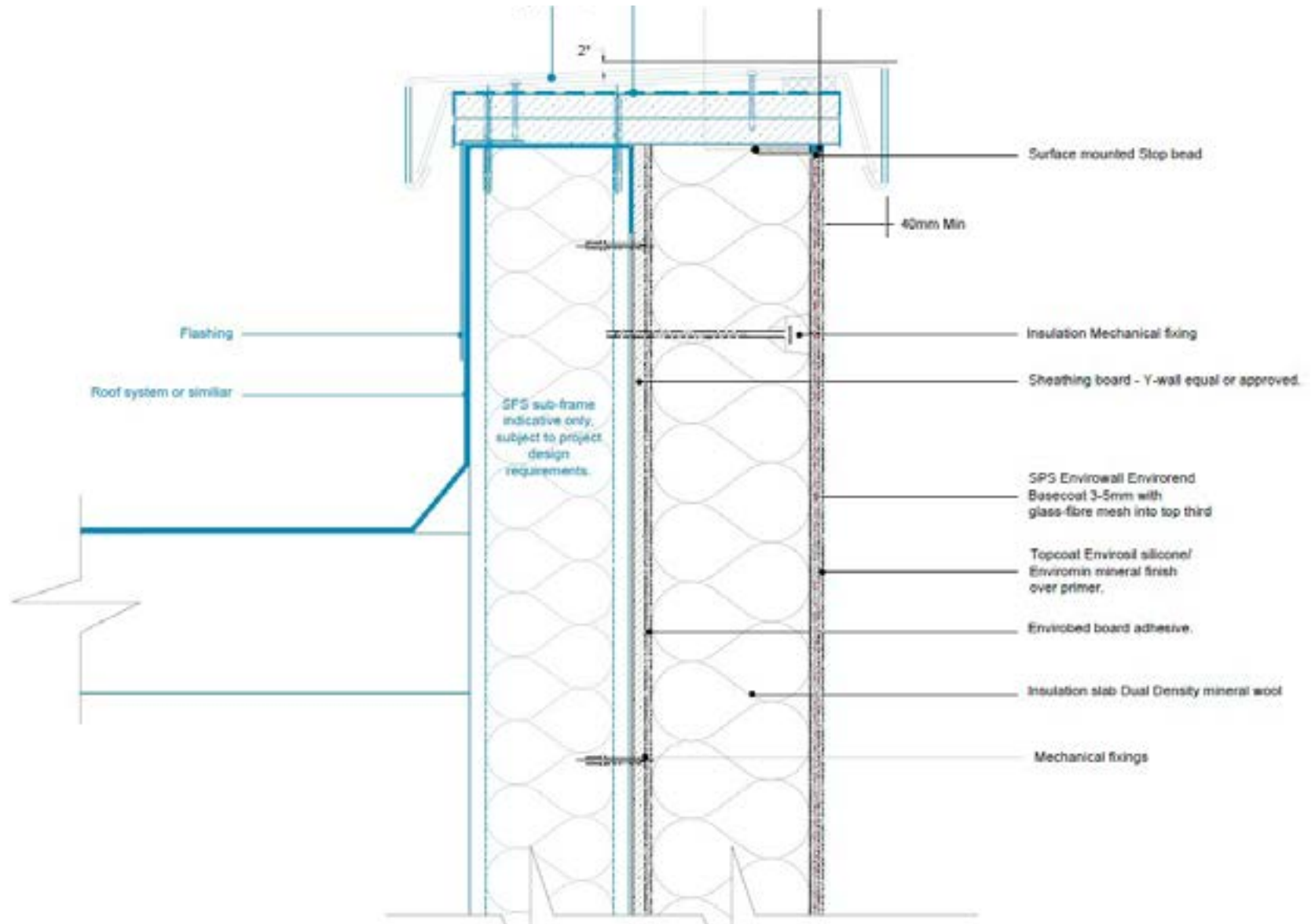
LGSF - Soffit Detail



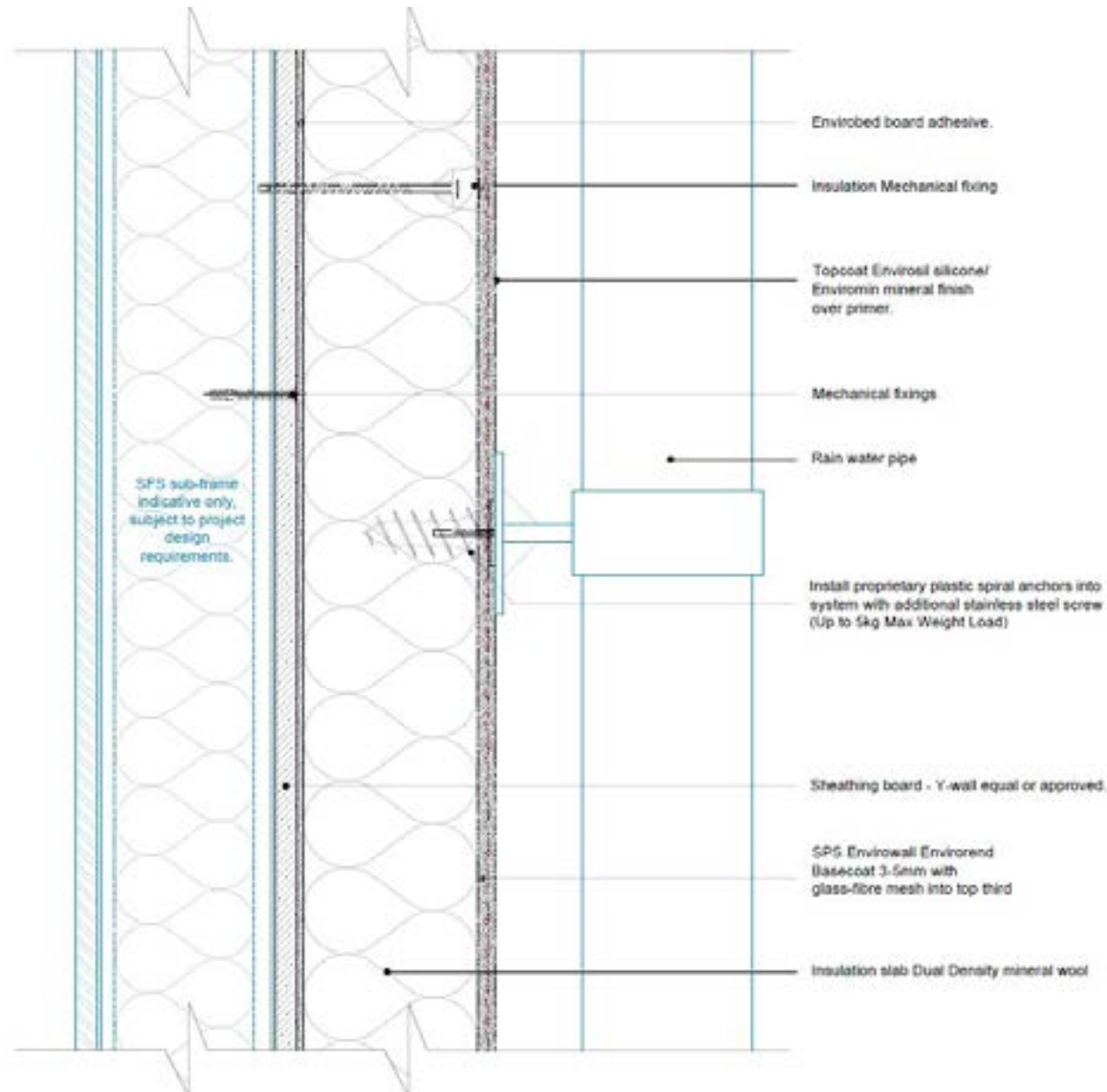
LGSF - Suspended soffit Detail



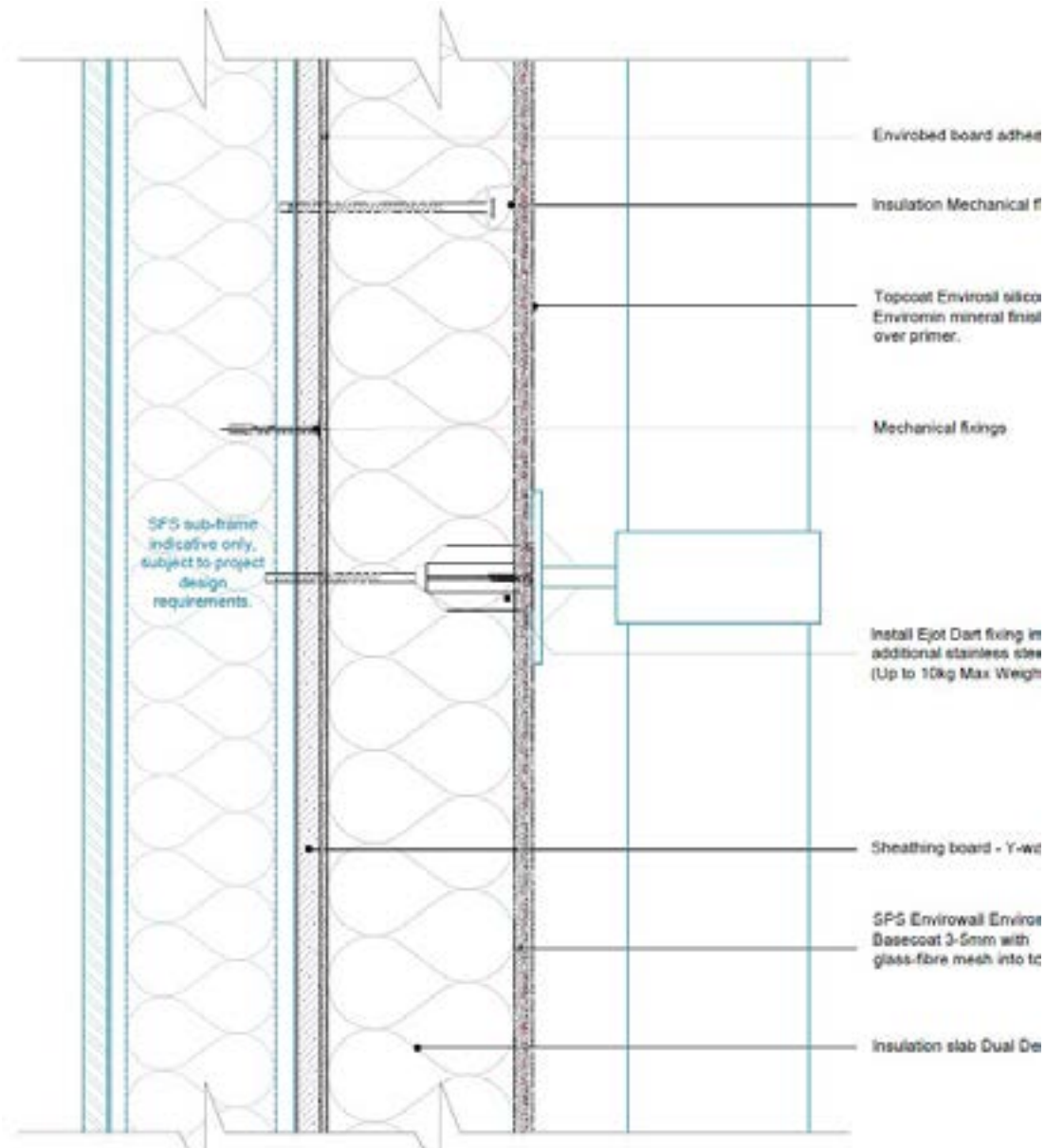
LGSF - Coping Detail



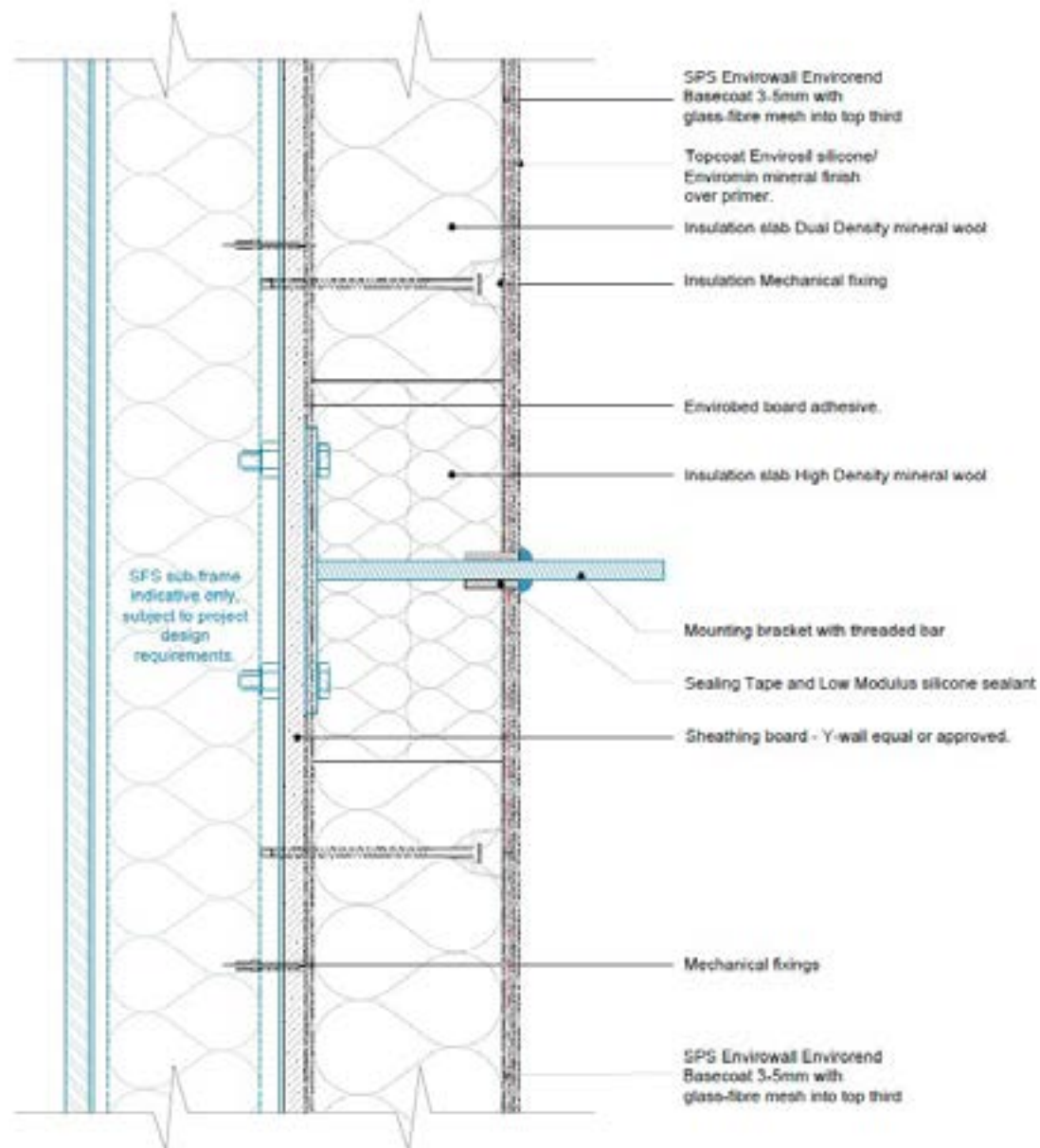
LGSF - External fixing detail - Lightweight (Opt 1)



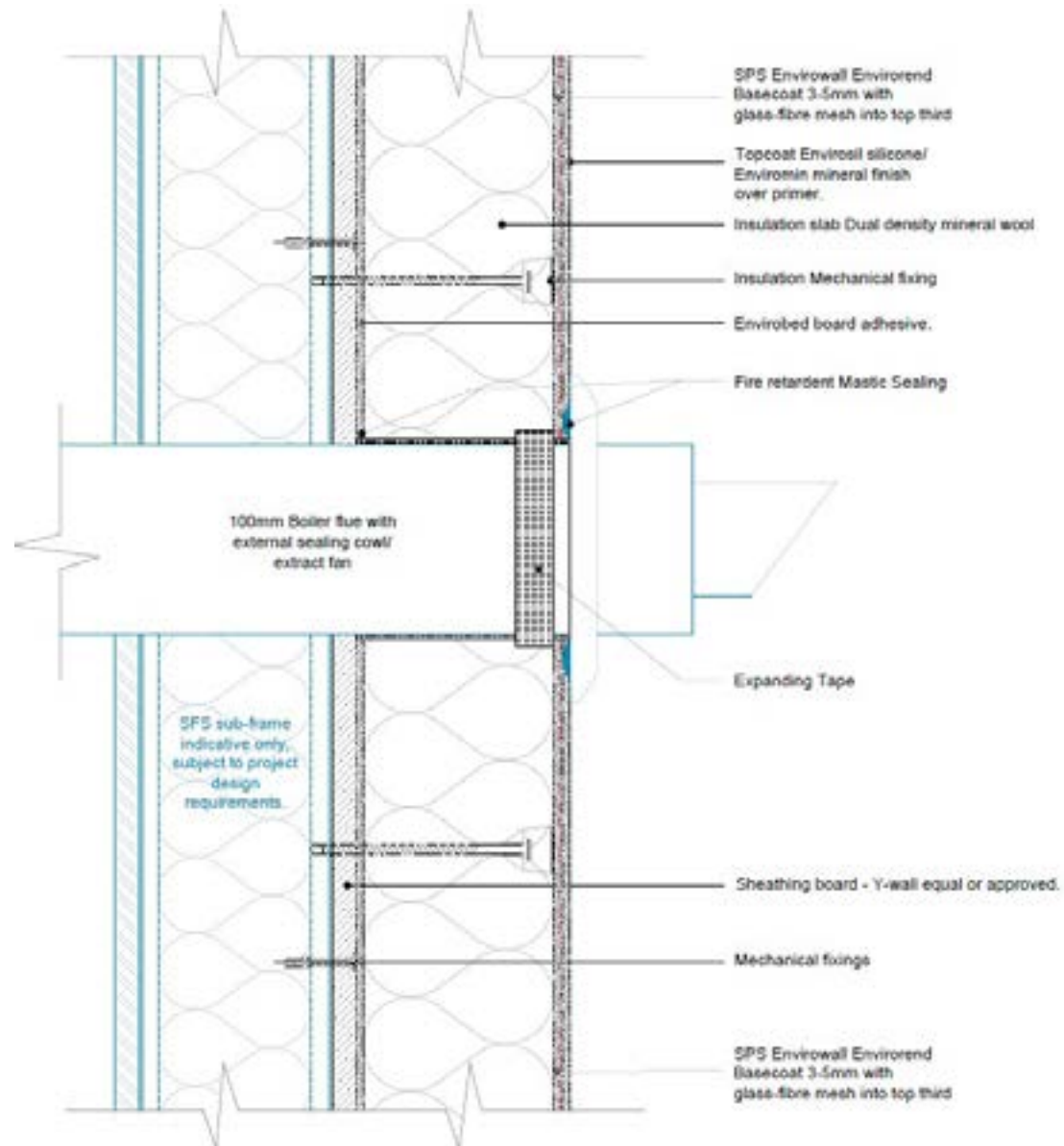
LGSF - External fixing detail - Medium weight (Opt 2)



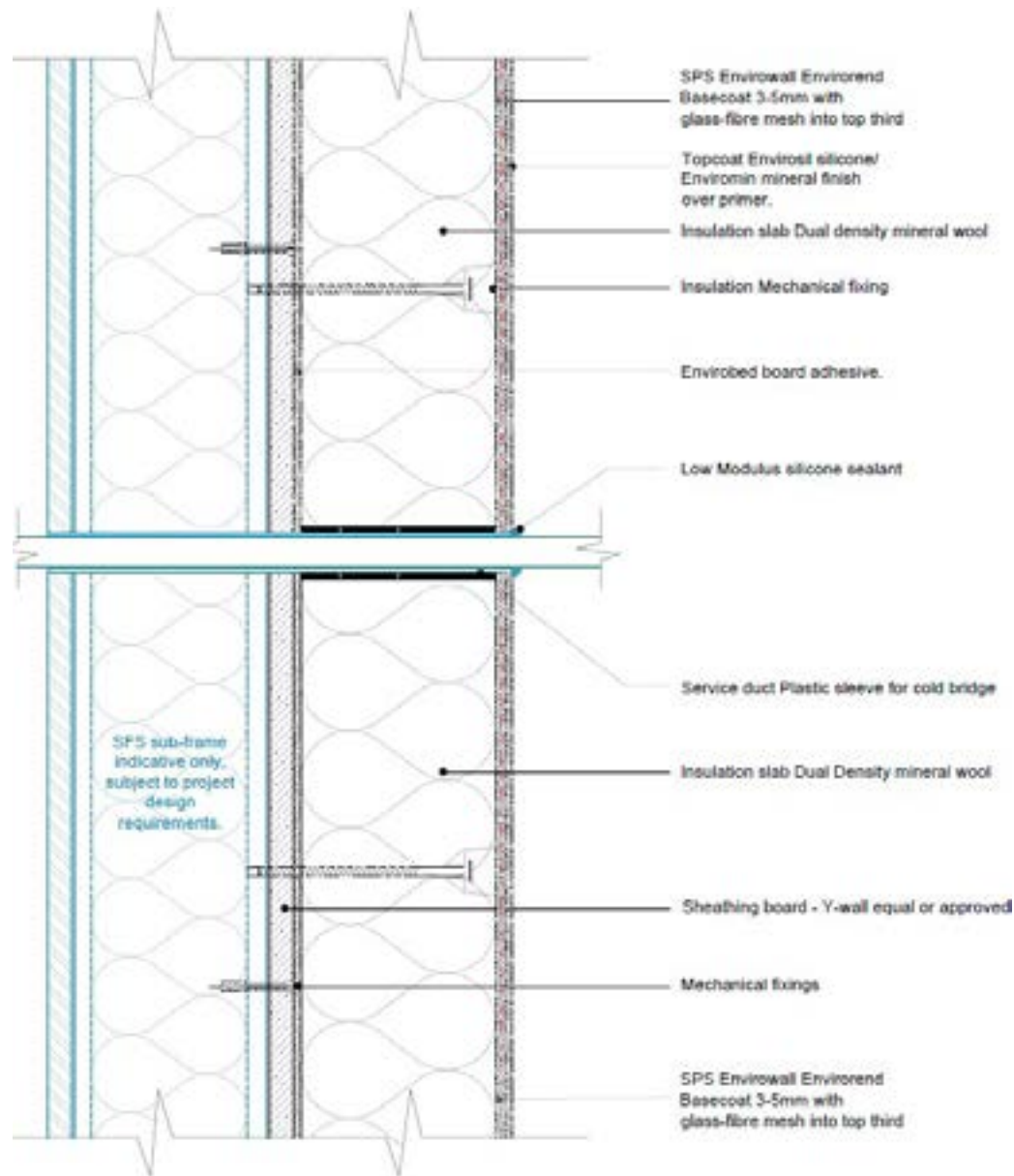
LGSF - External fixing detail - Heavy duty



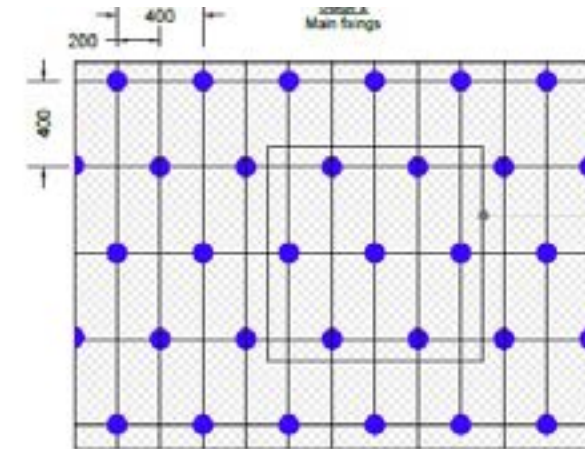
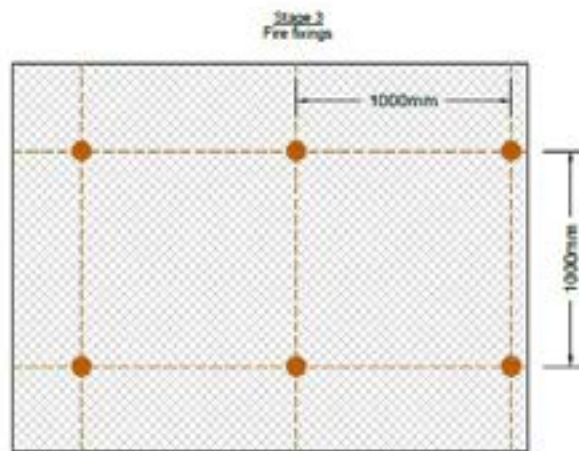
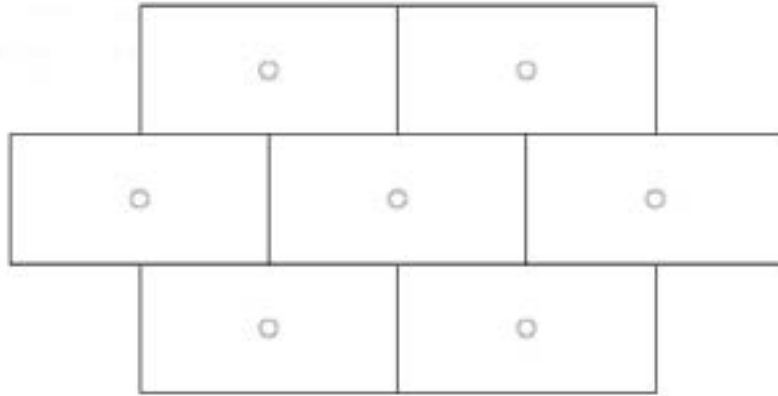
LGSF - Flue or extract fan detail



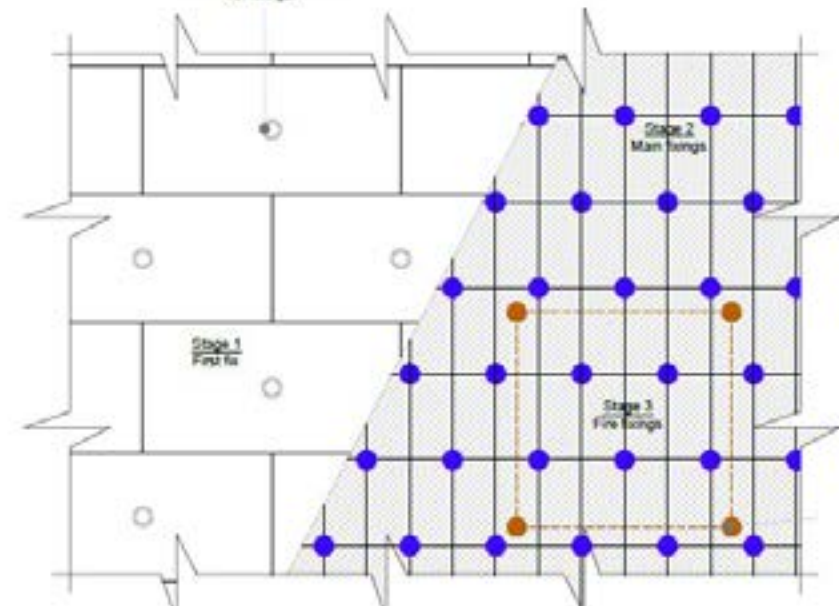
LGSF - Pipe or Cable Detail



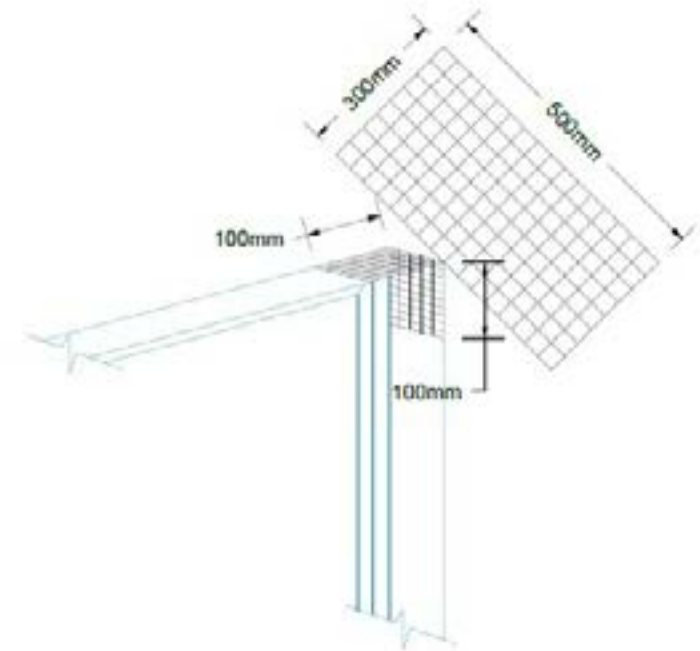
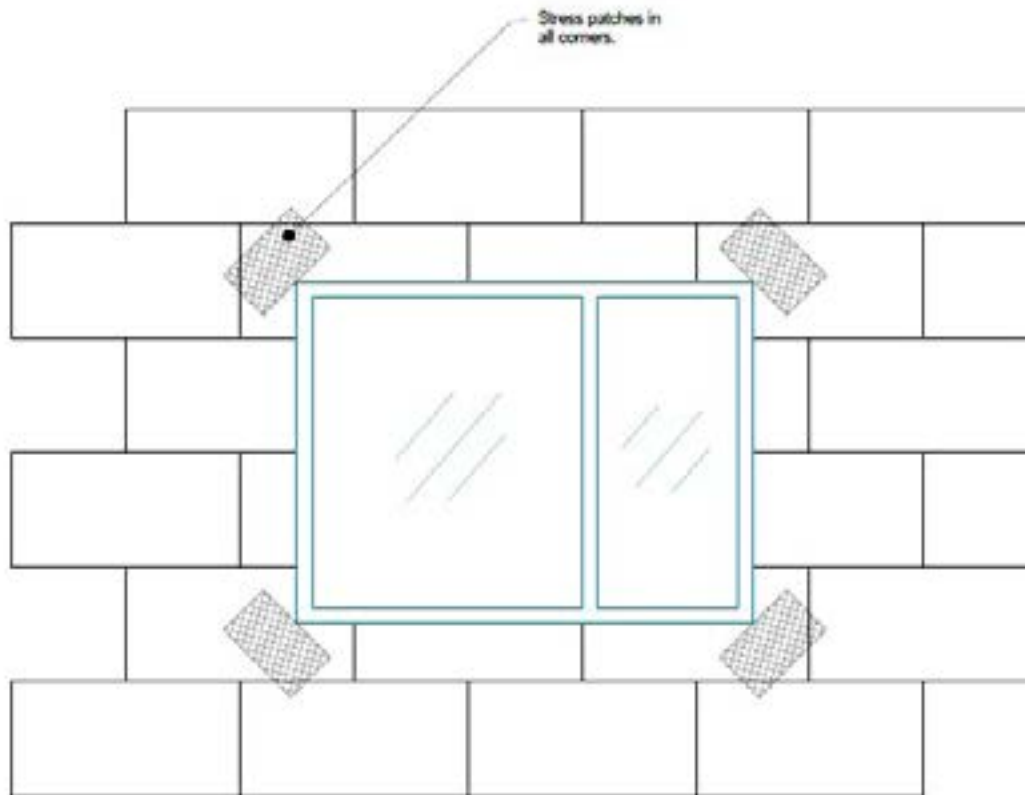
LGSF - Fixing Pattern through meshed basecoat



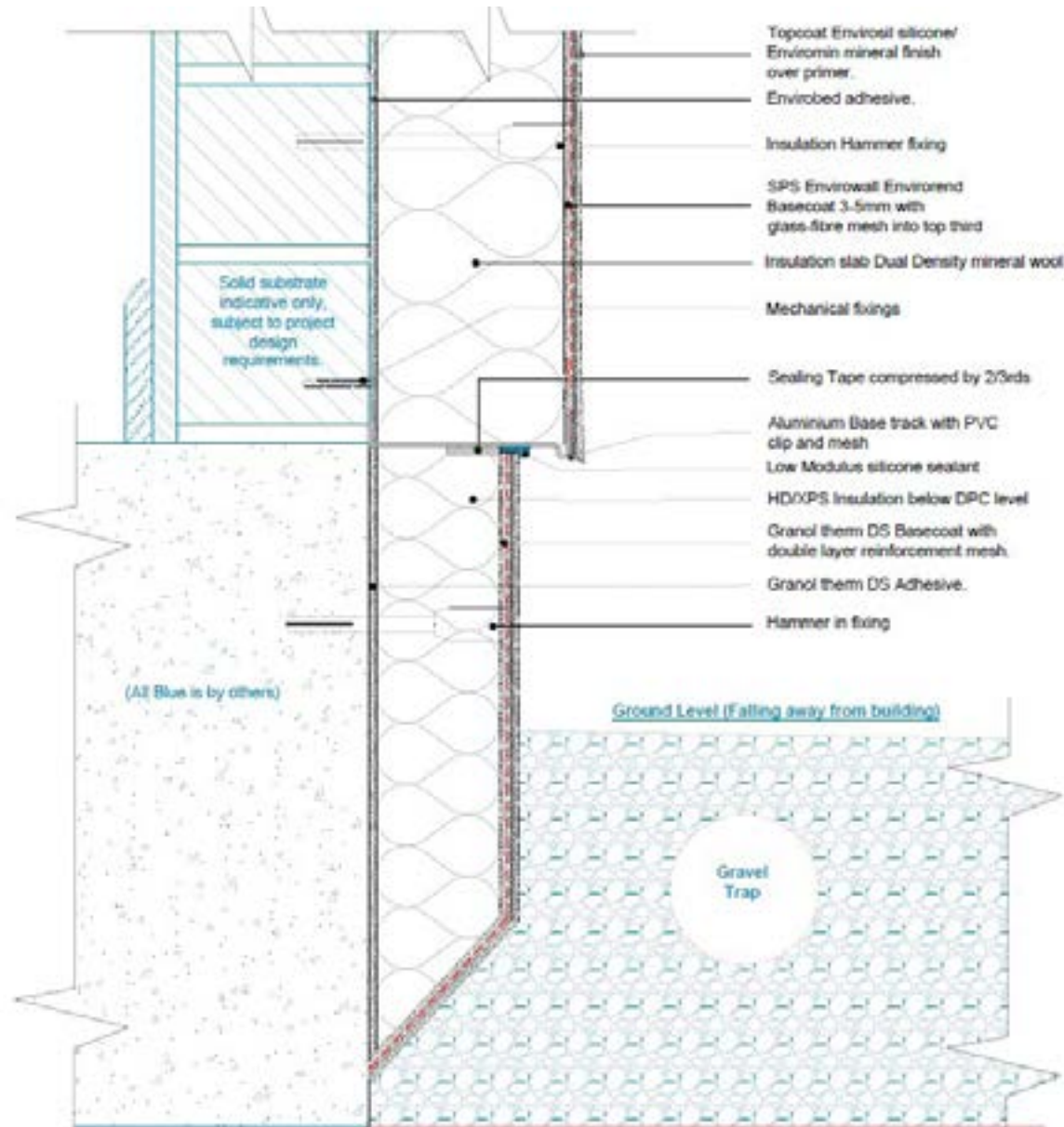
Sacrificial Fixings
60mm fixing washer to sit inside
A minimum 50mm
oversized washer required
for fixings.



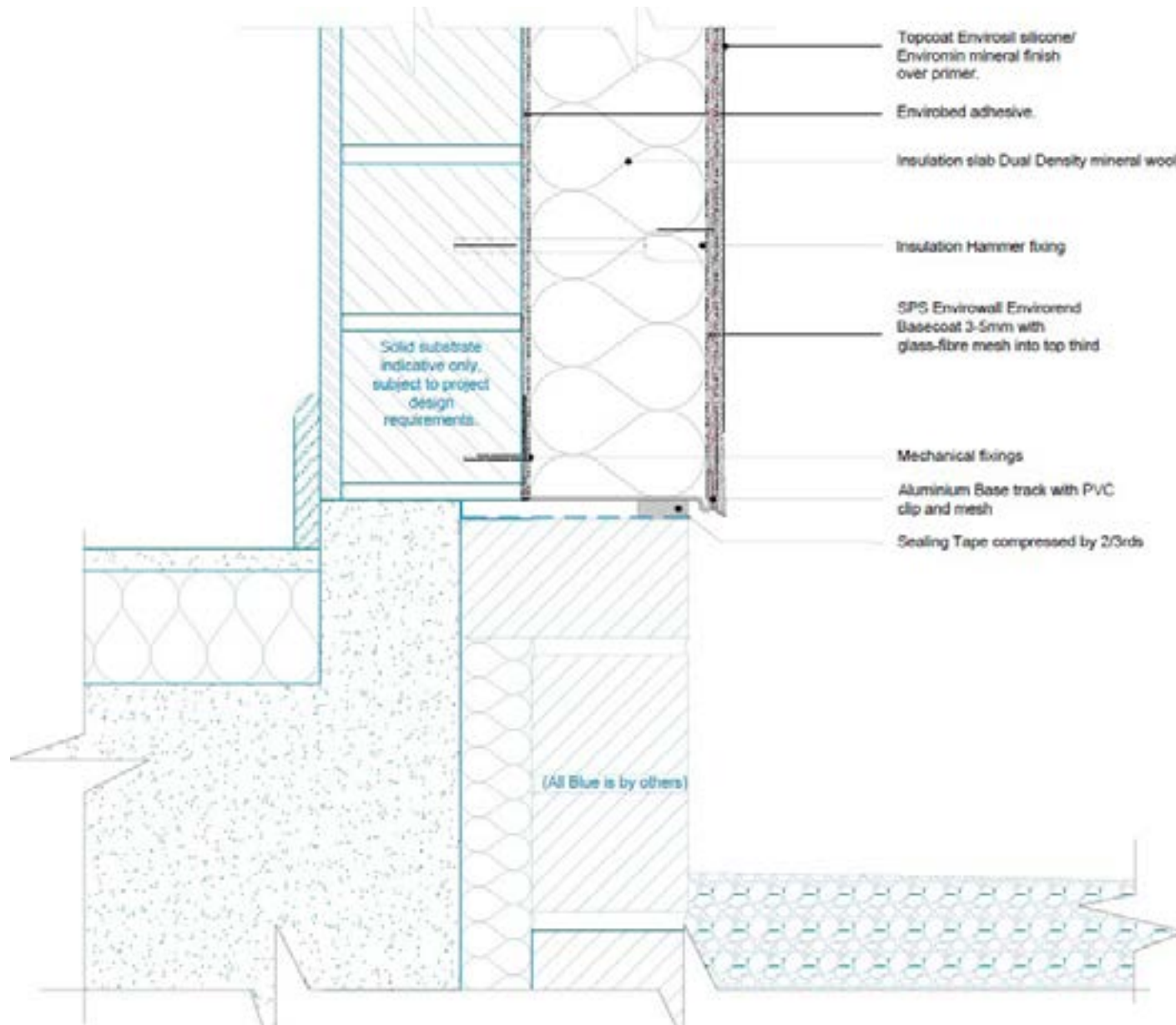
LGSF - Stress patches



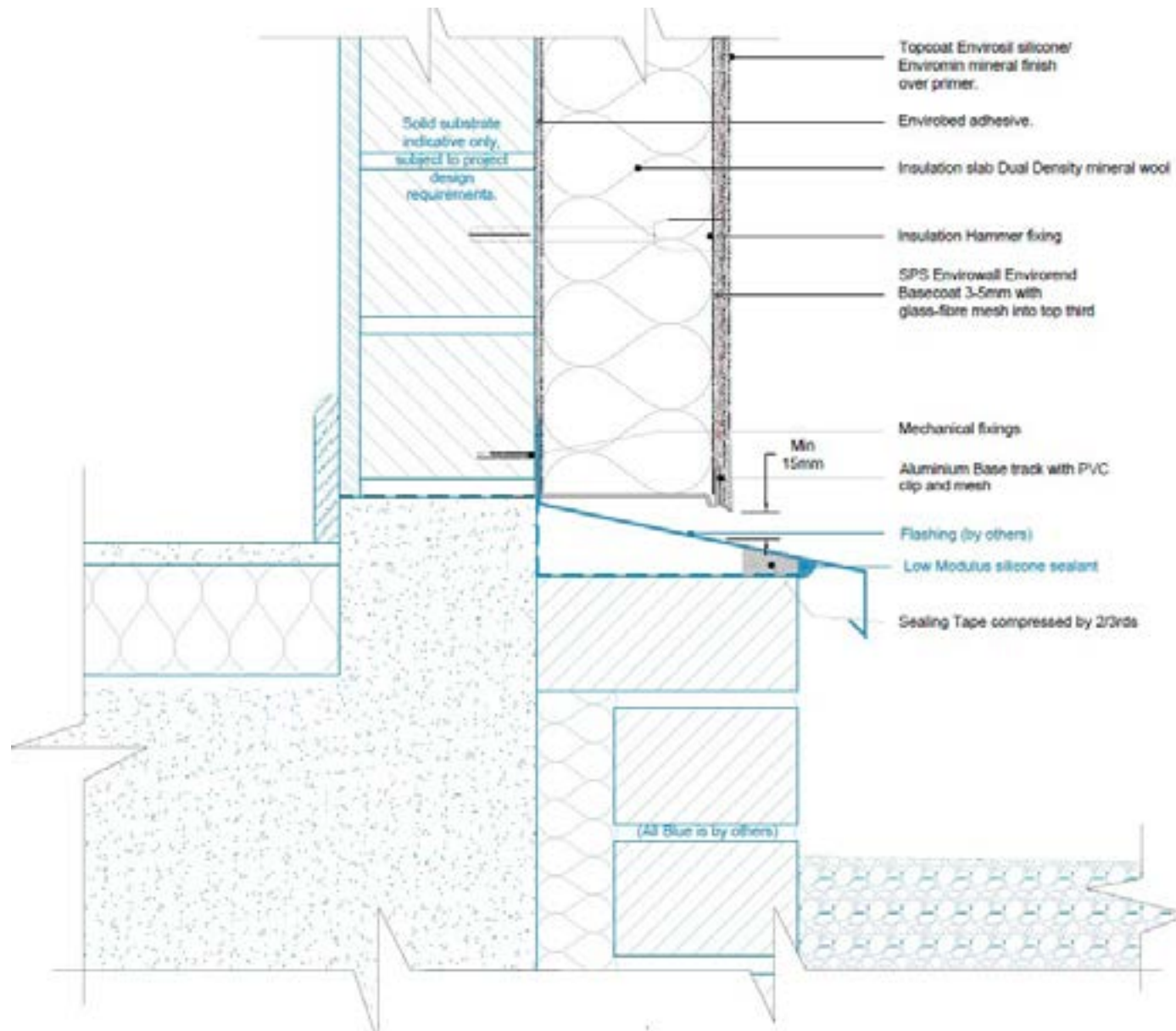
Masonry - Insulated Detail



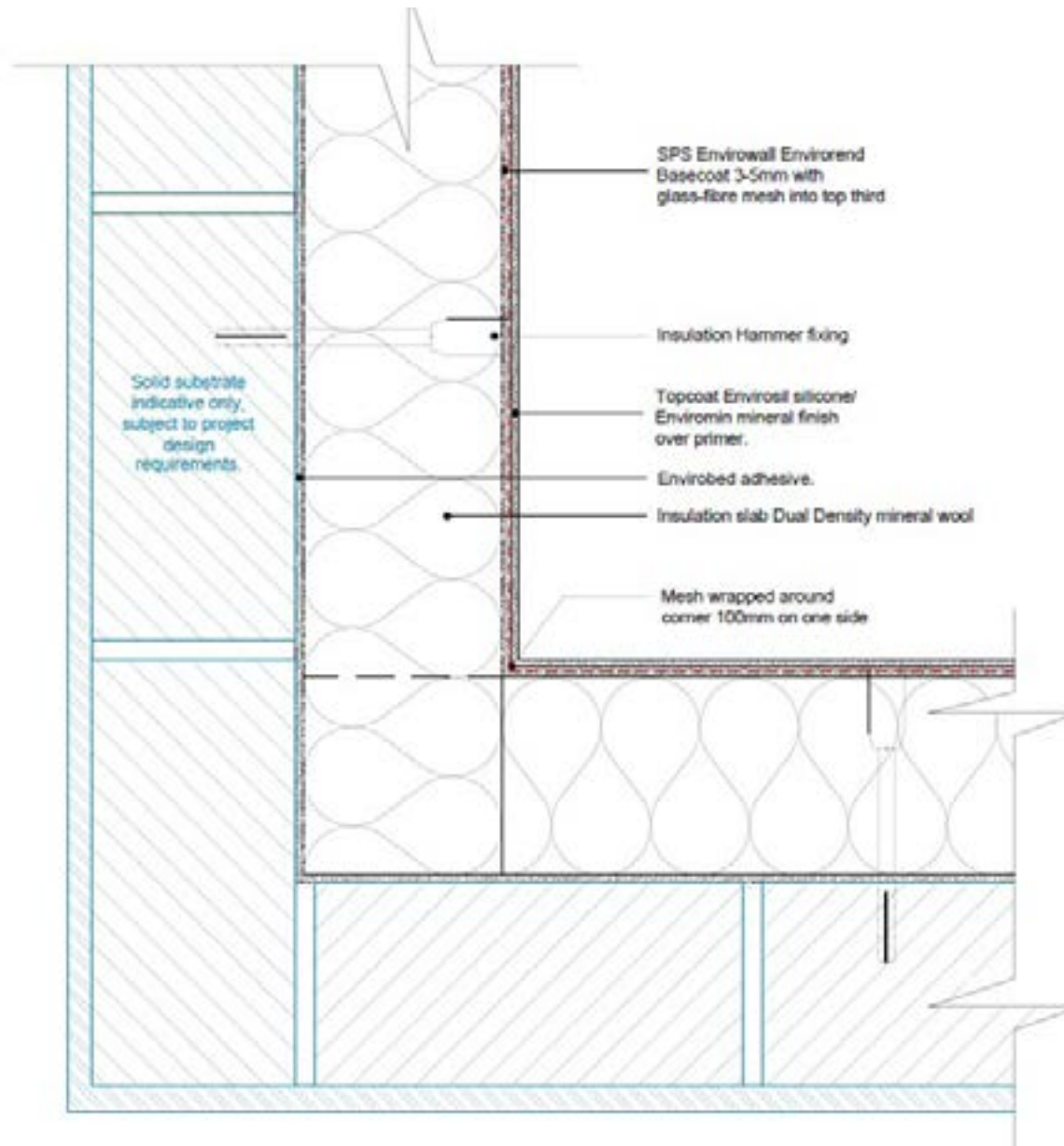
Masonry - Base Brick Detail



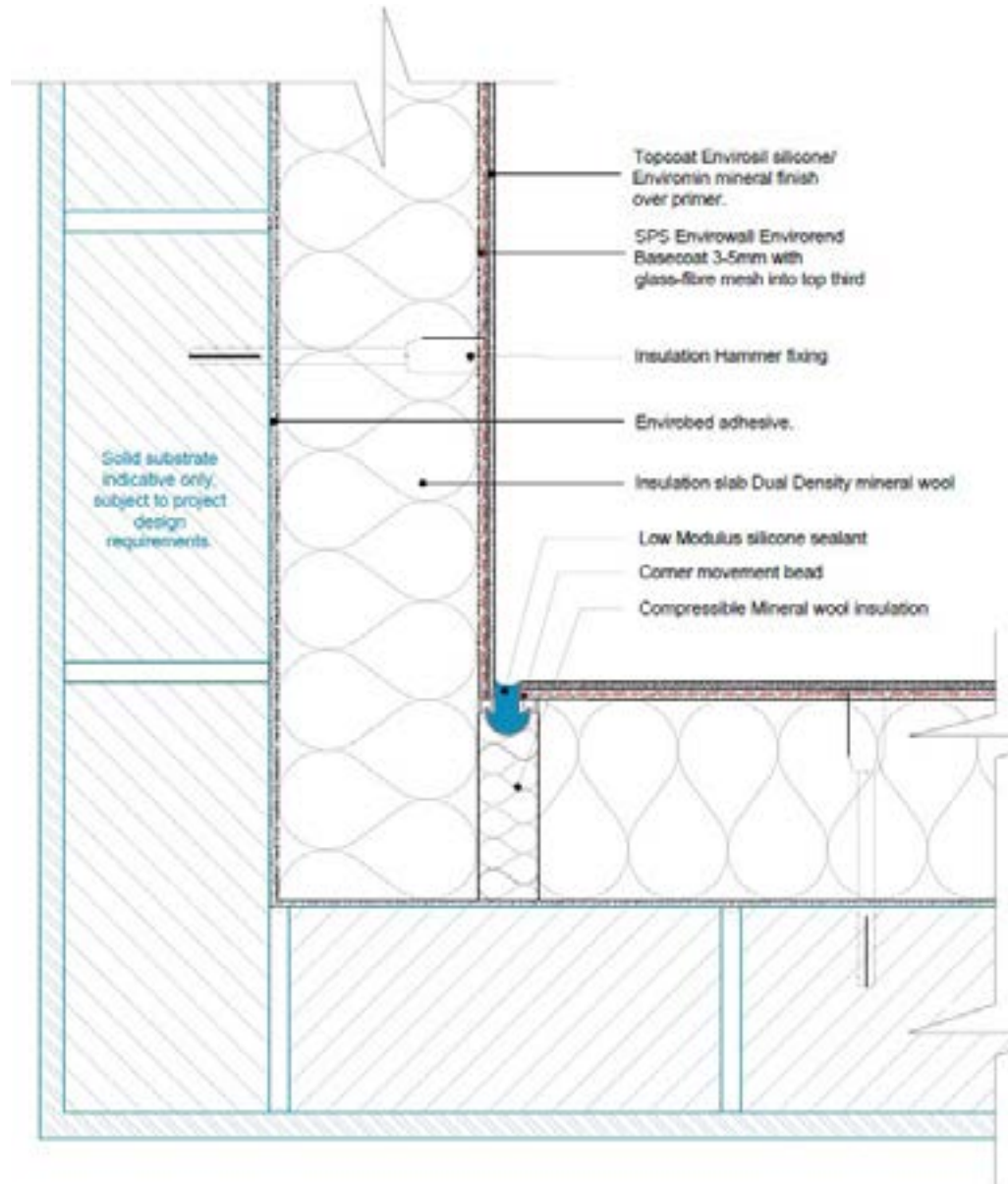
Masonry - Base brick Detail with flashing cover



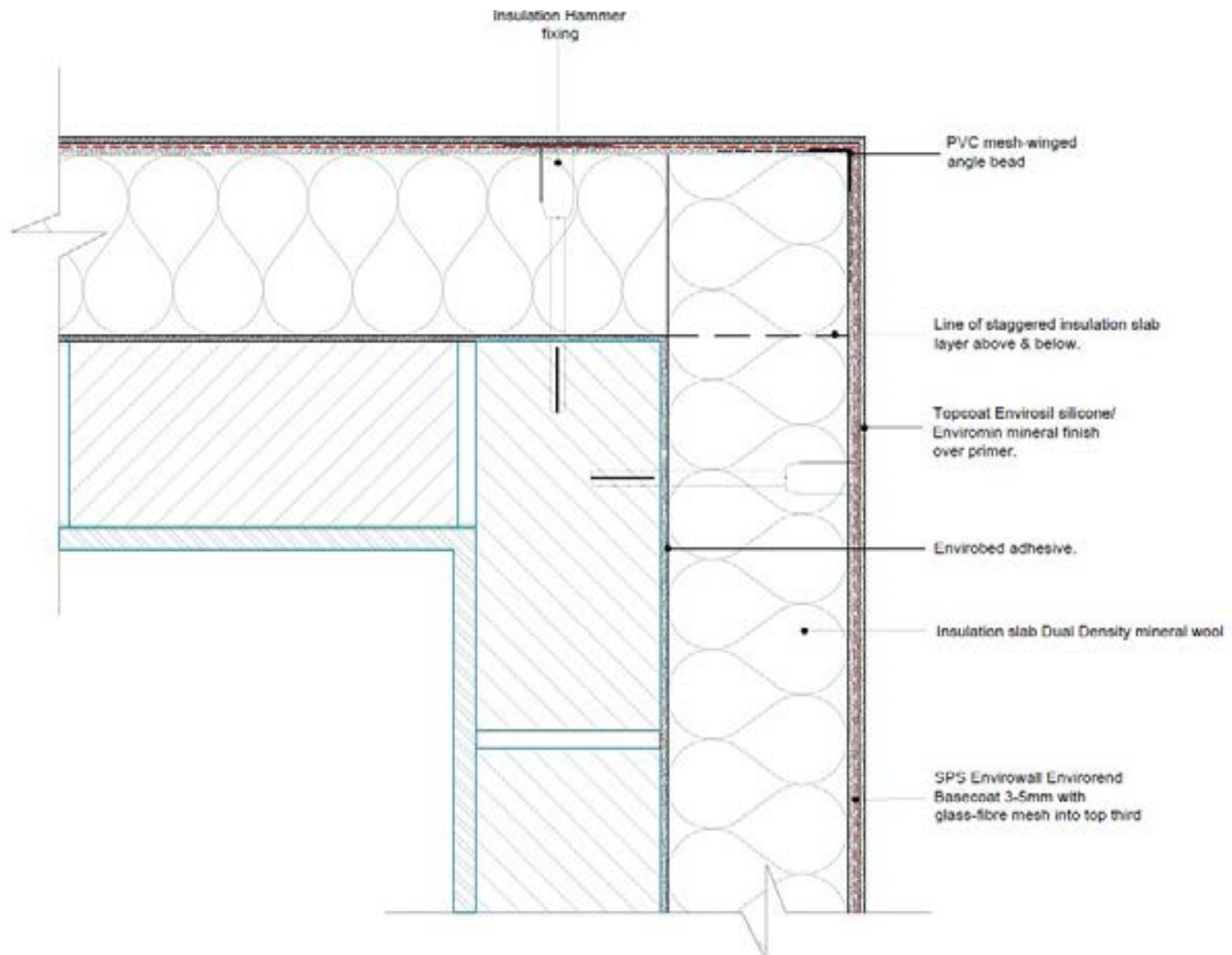
Masonry - Internal Corner



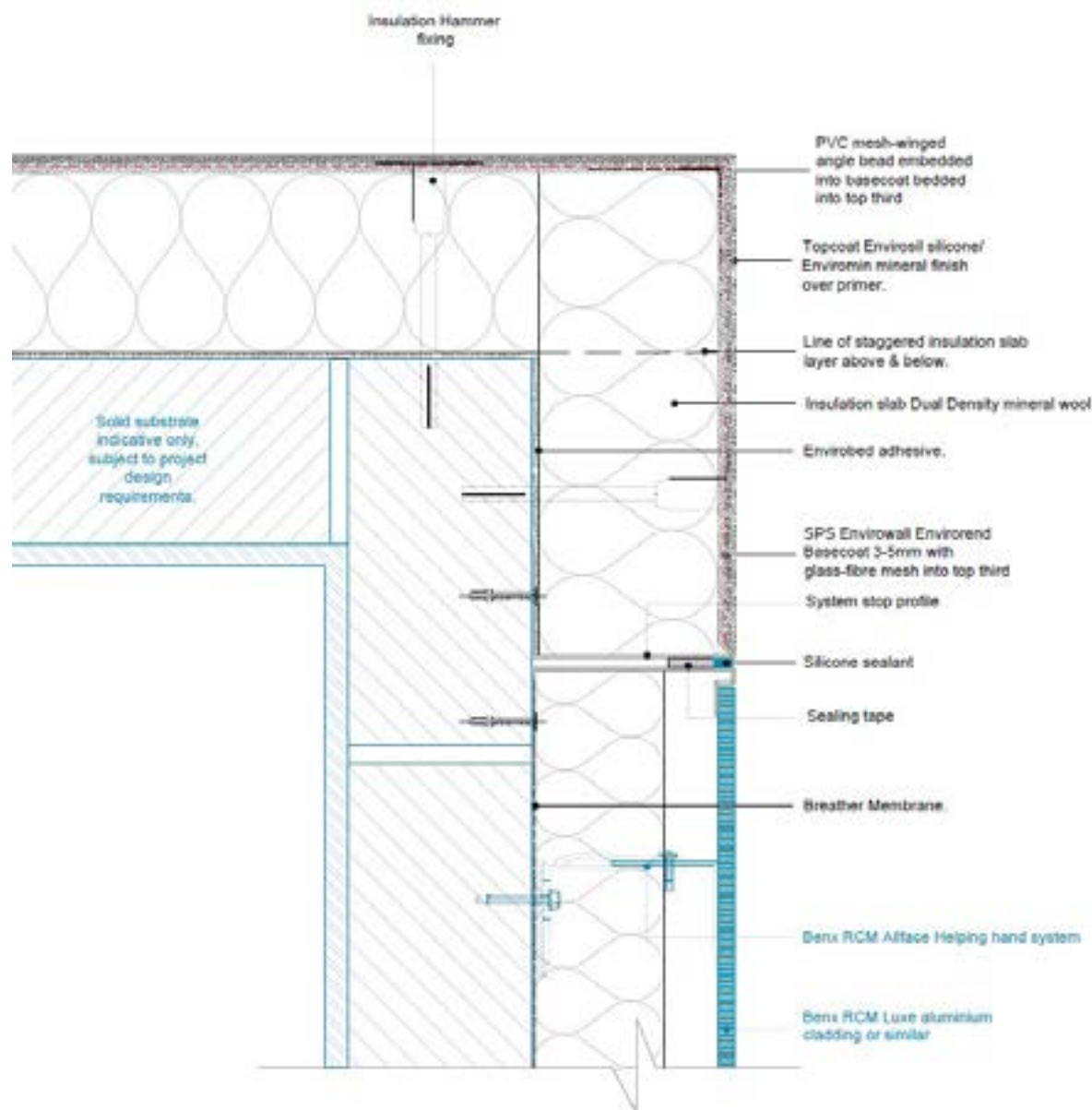
Masonry - Internal Corner with movement joint bead



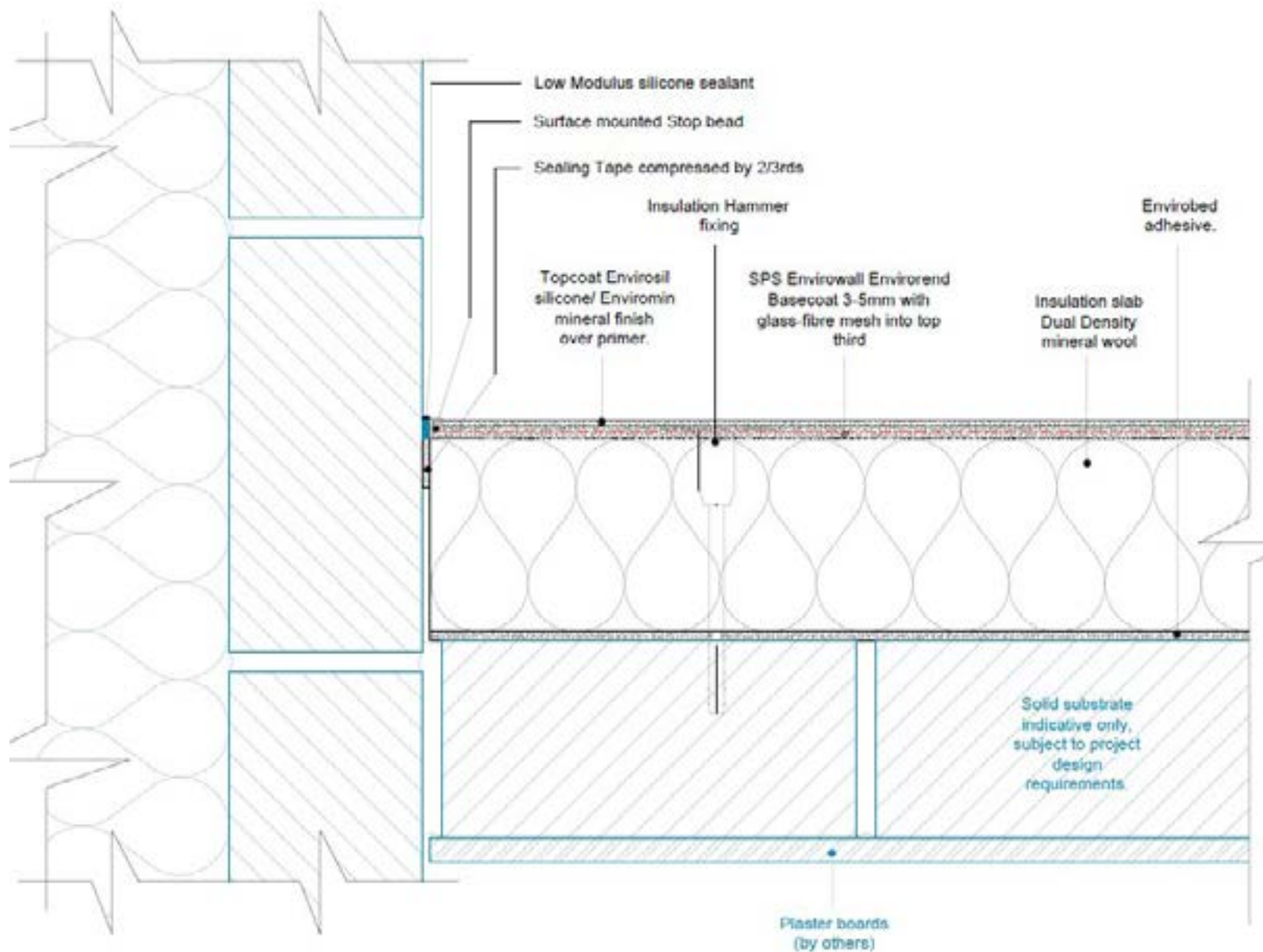
Masonry - External Corner



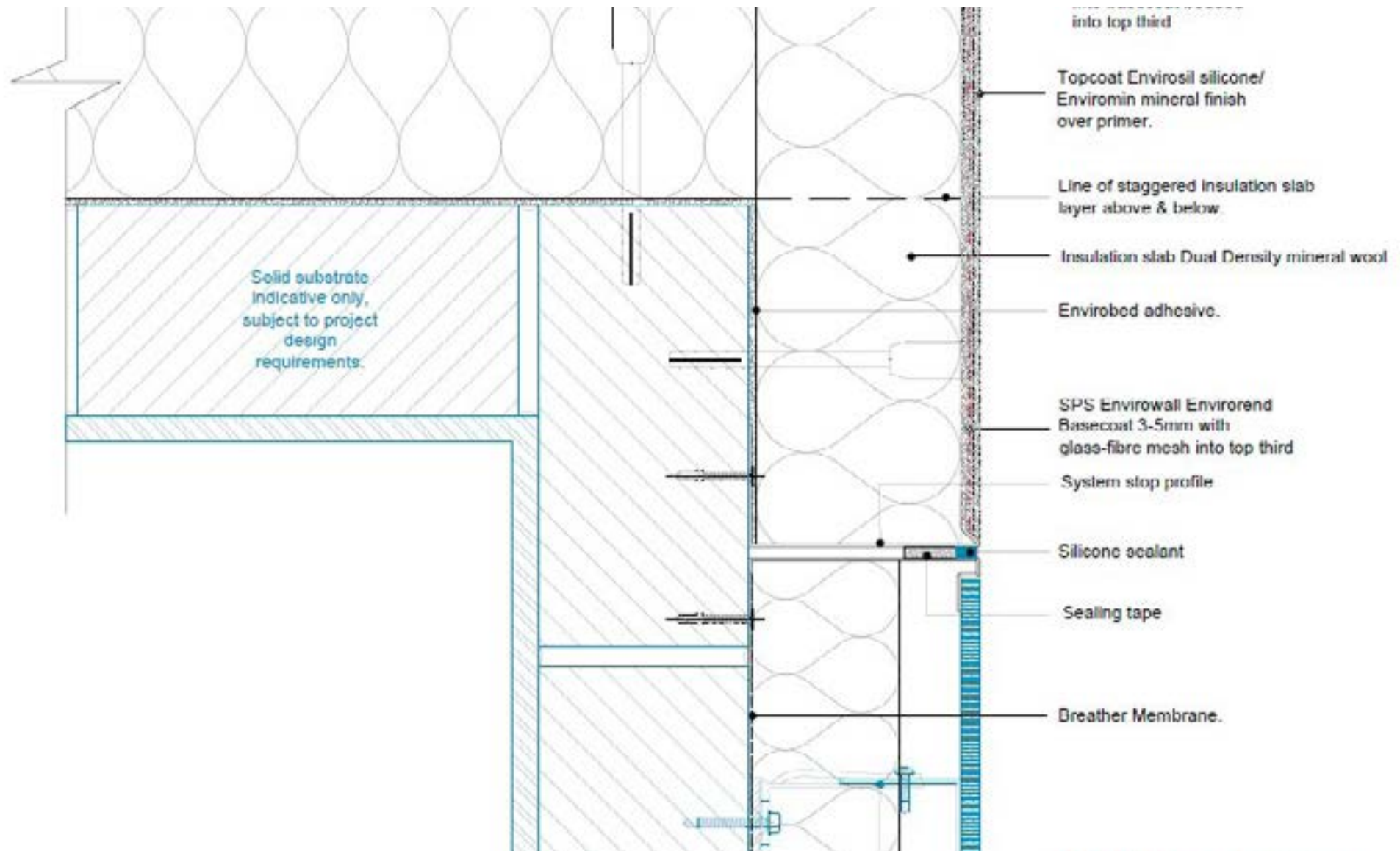
Masonry - External Corner joint with other cladding



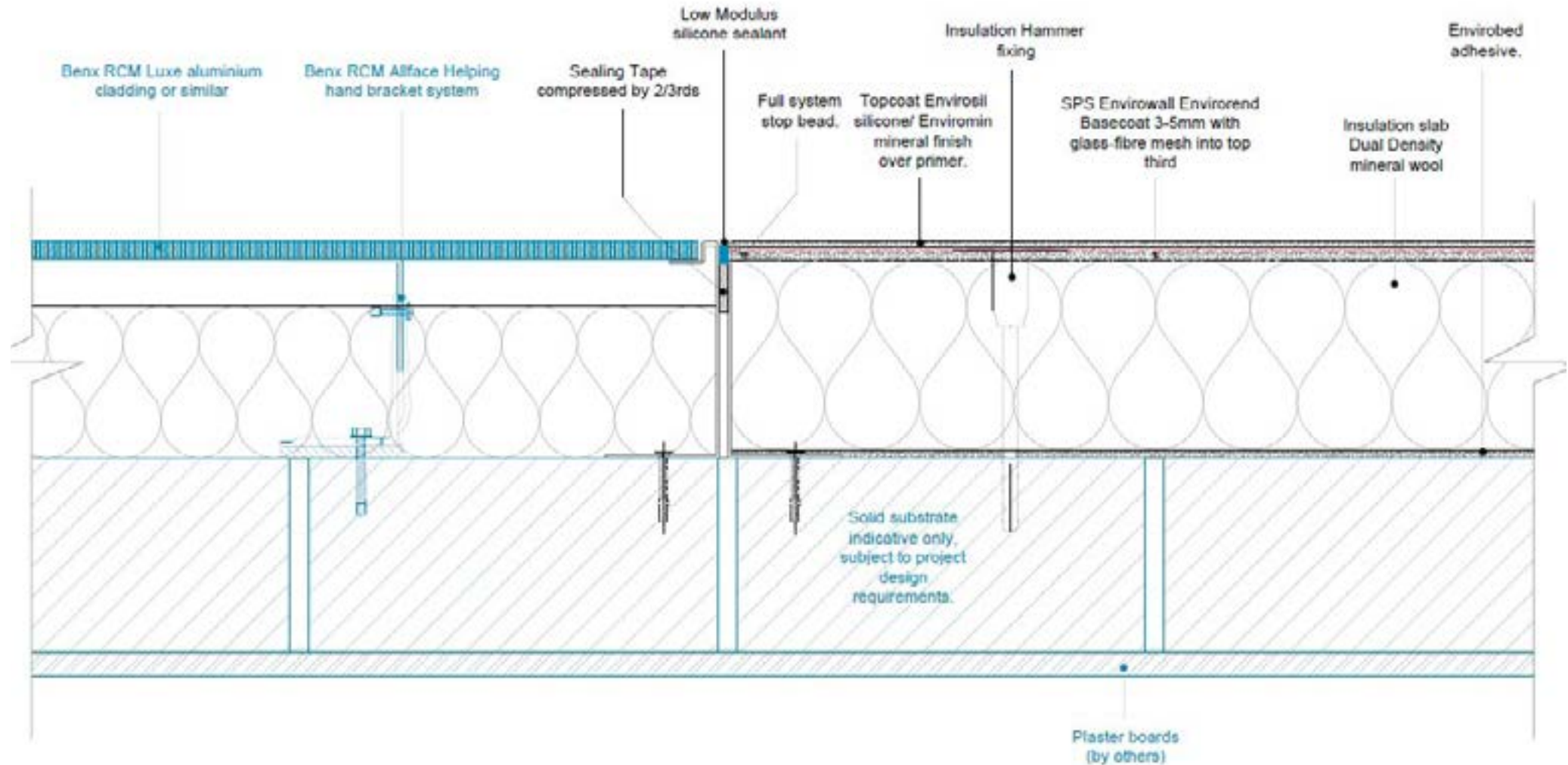
Masonry - Brick work Abutment Joint



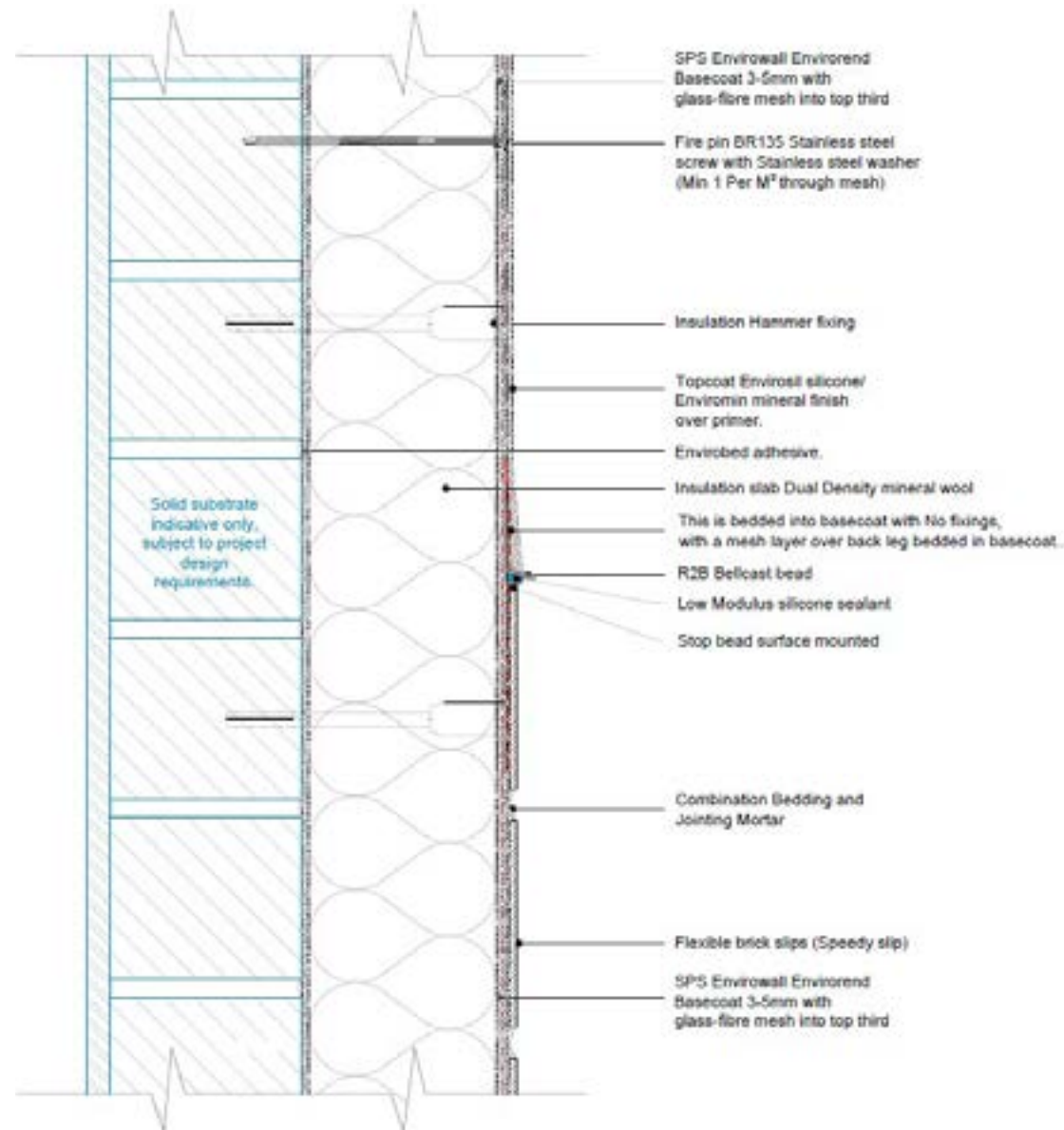
Masonry - Abutment joint with other cladding



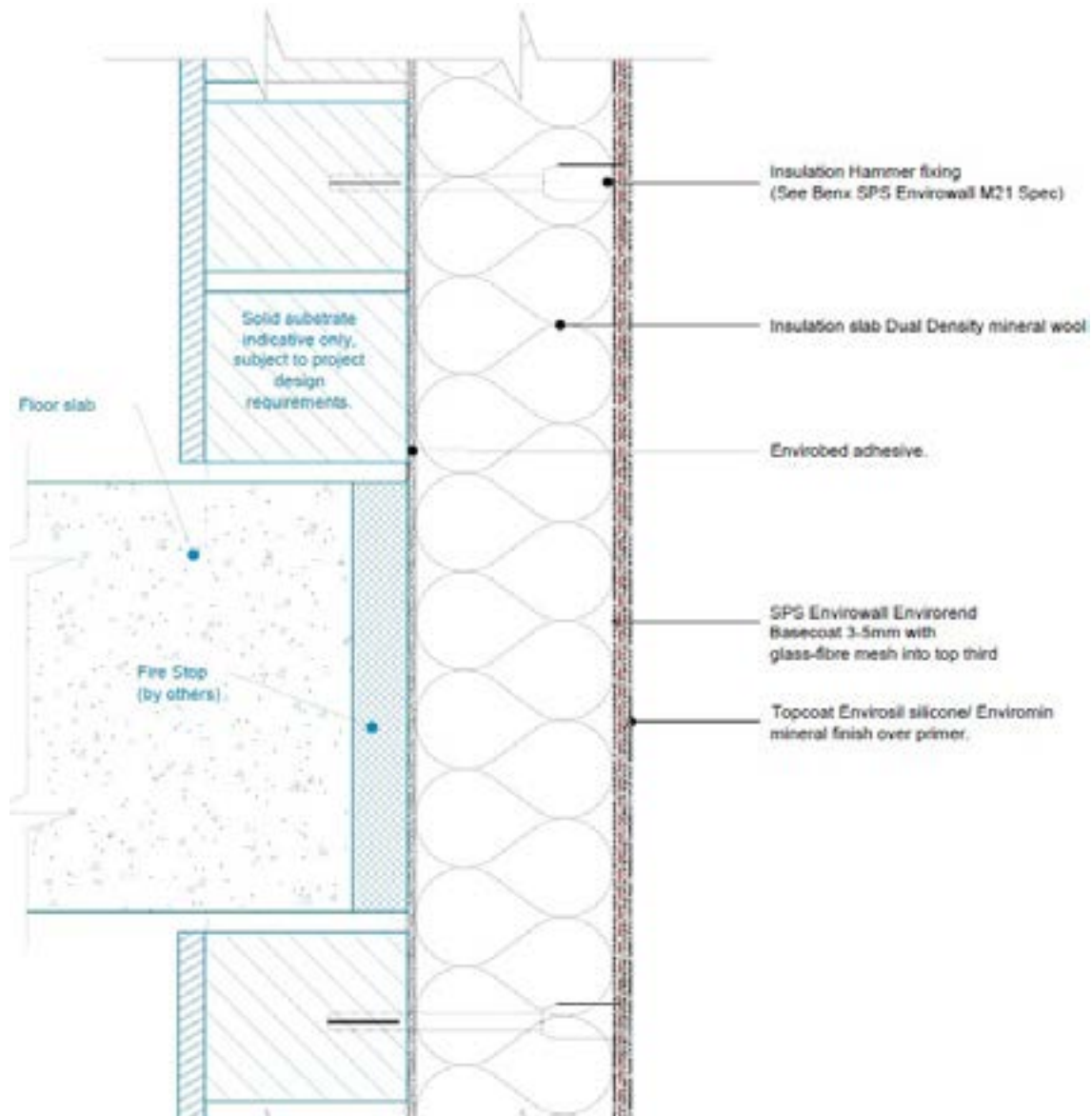
Masonry - Joint with other cladding system



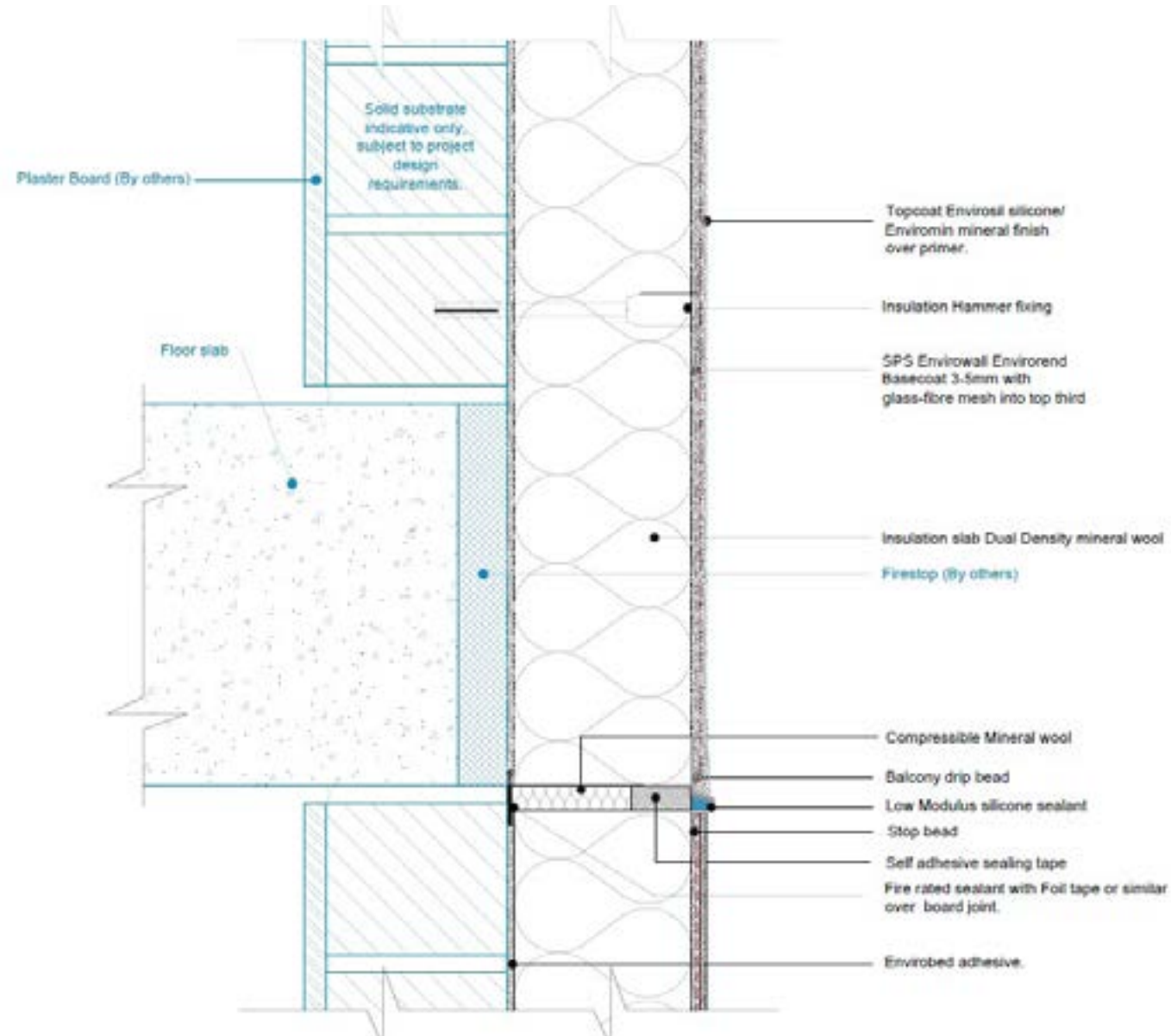
Masonry - Section through with render and Flexible brick horizontal joint



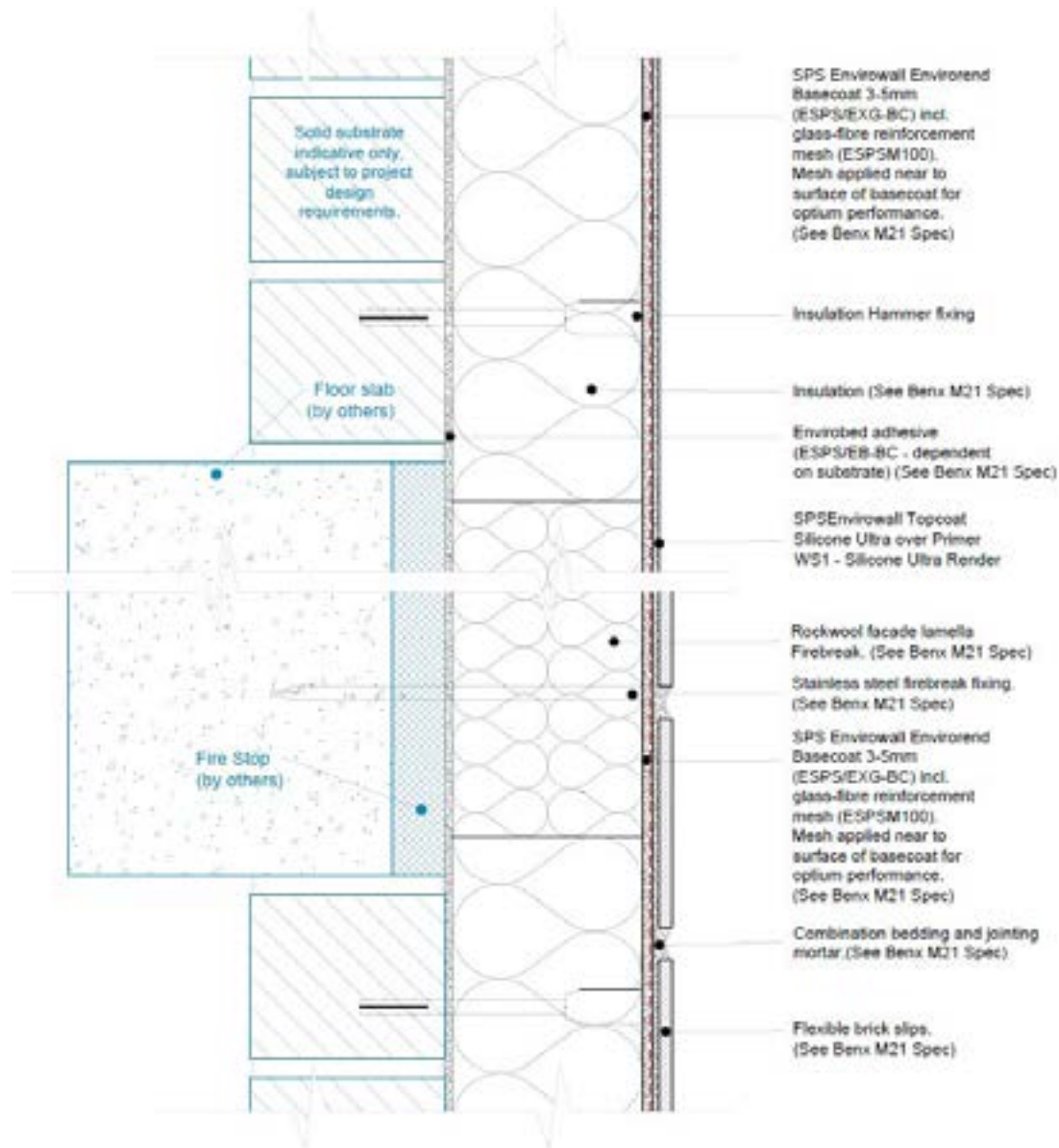
Masonry - Standard floor slab edge detail, No deflection zone



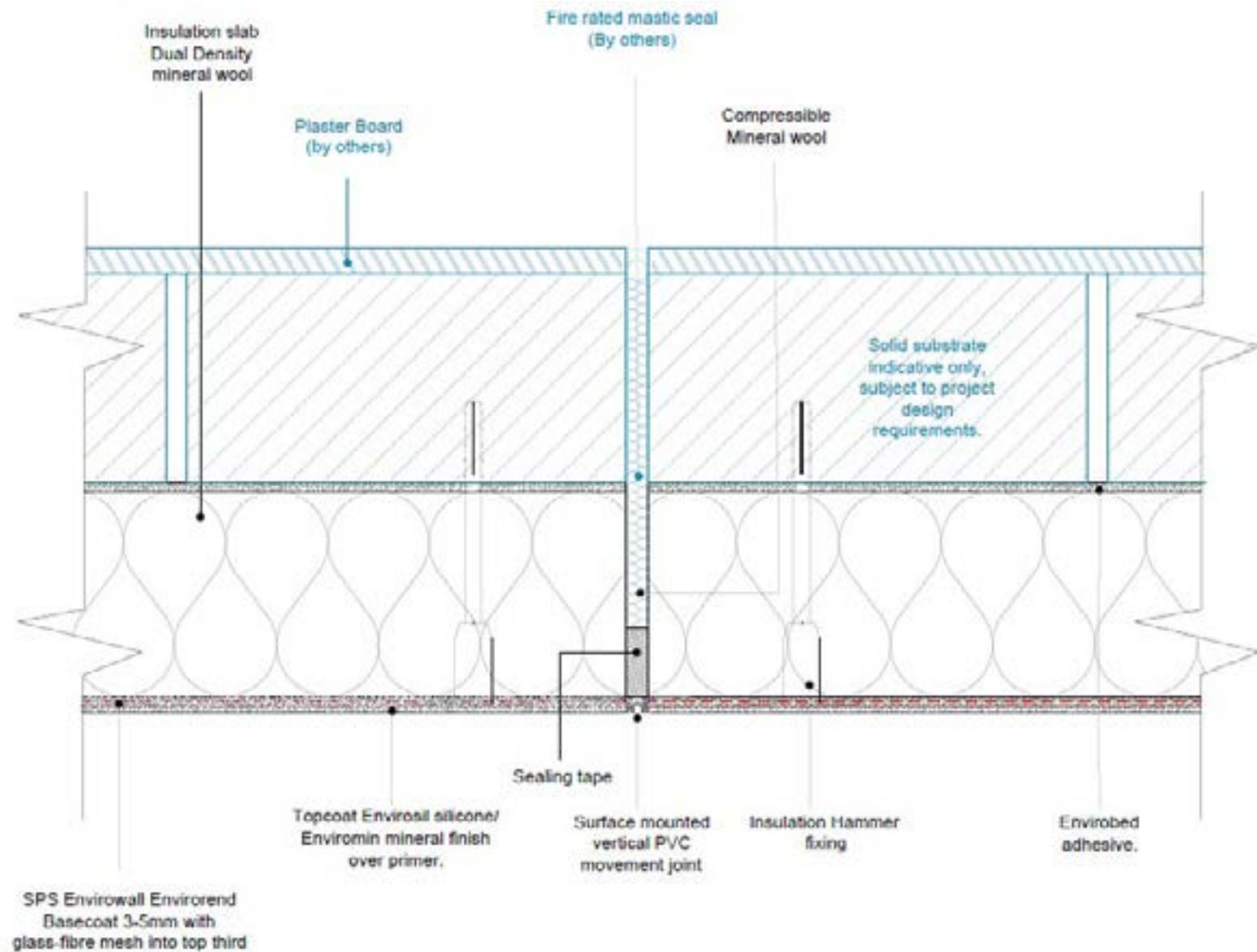
Masonry - Edge slab detail with inbuilt movement



Masonry - Deflection Zone with flush slab edge

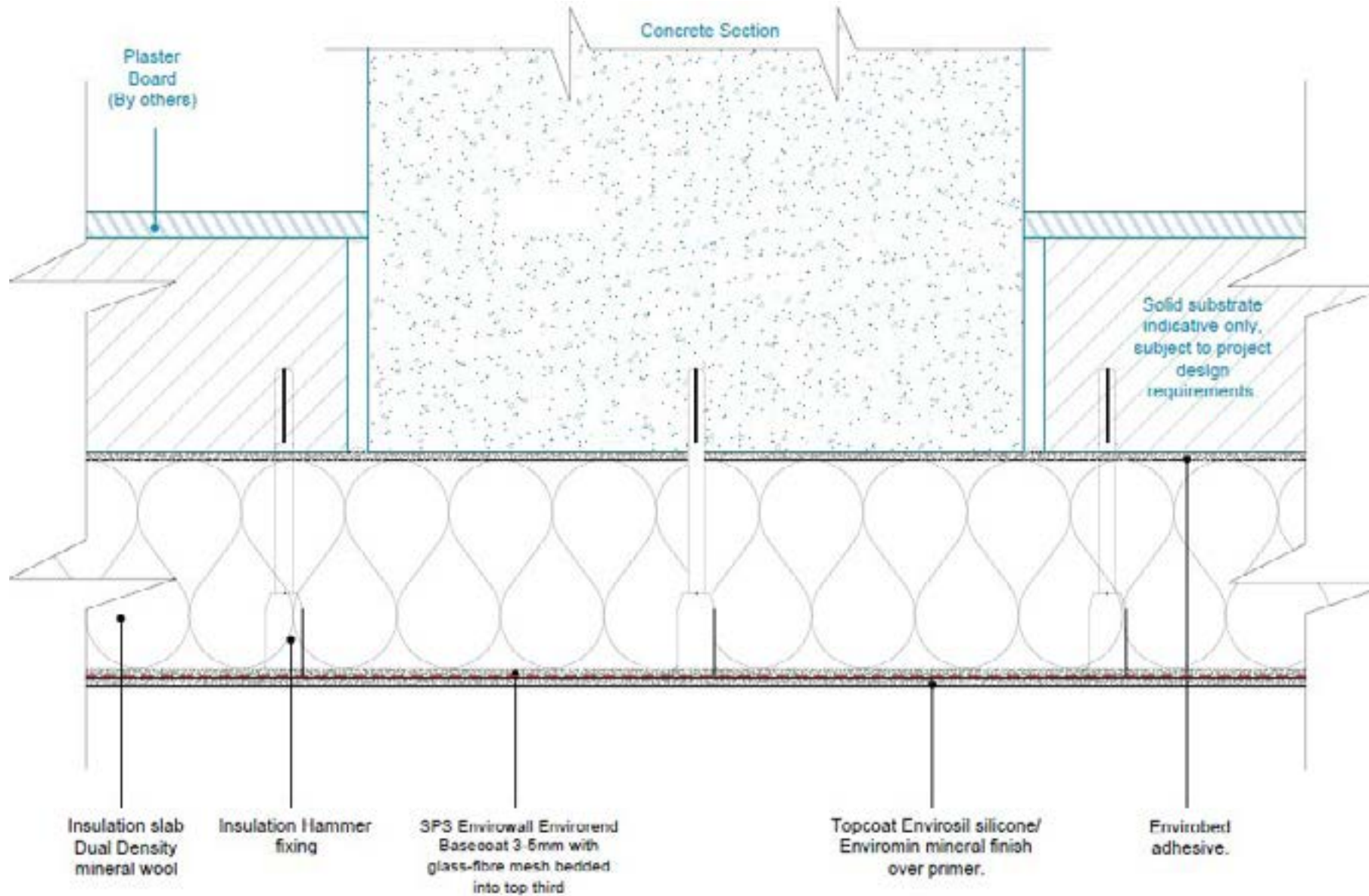


Masonry - Vertical Movement joint

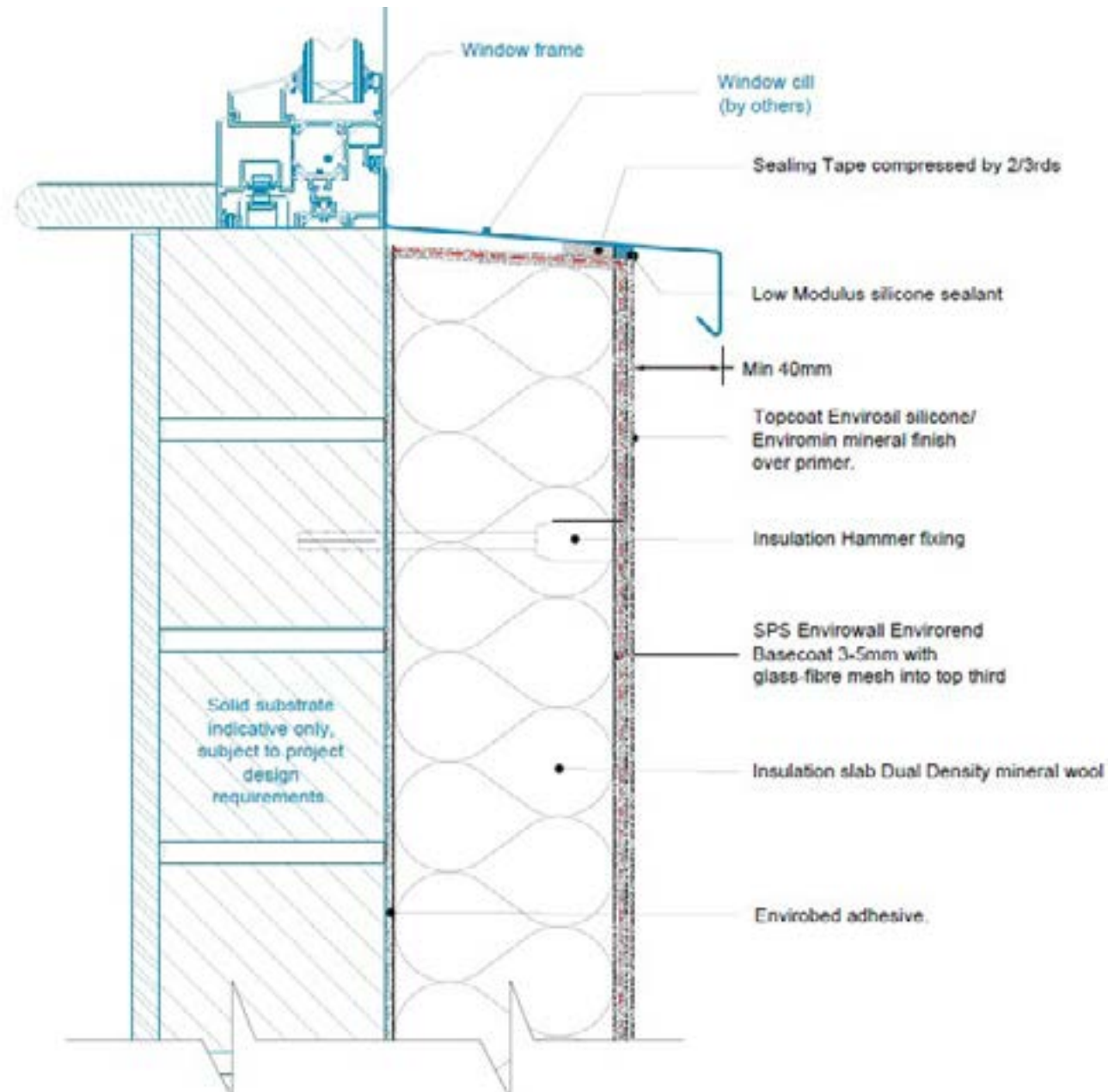


Masonry - Plan detail at party wall junction

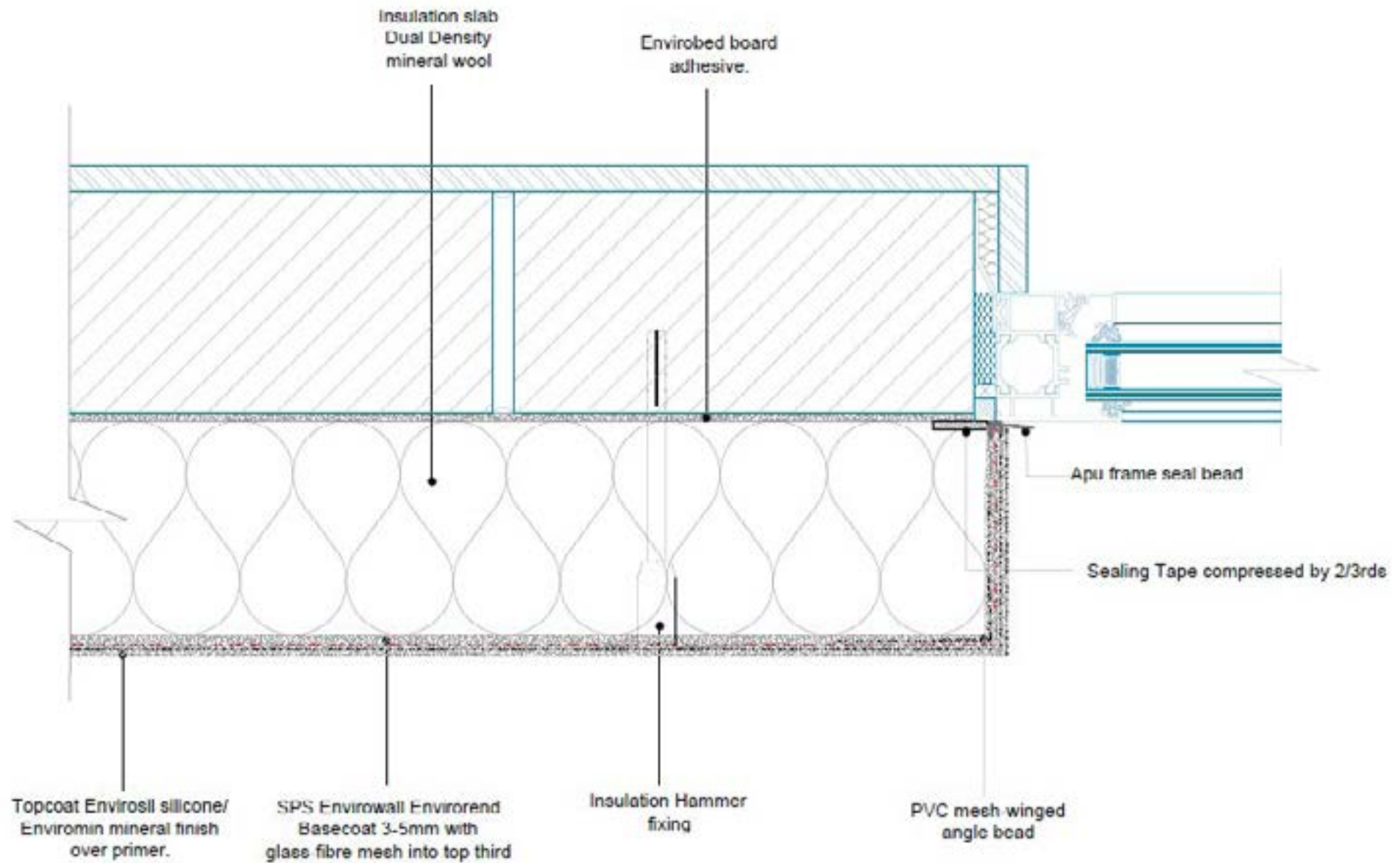
Masonry - Concrete column junction



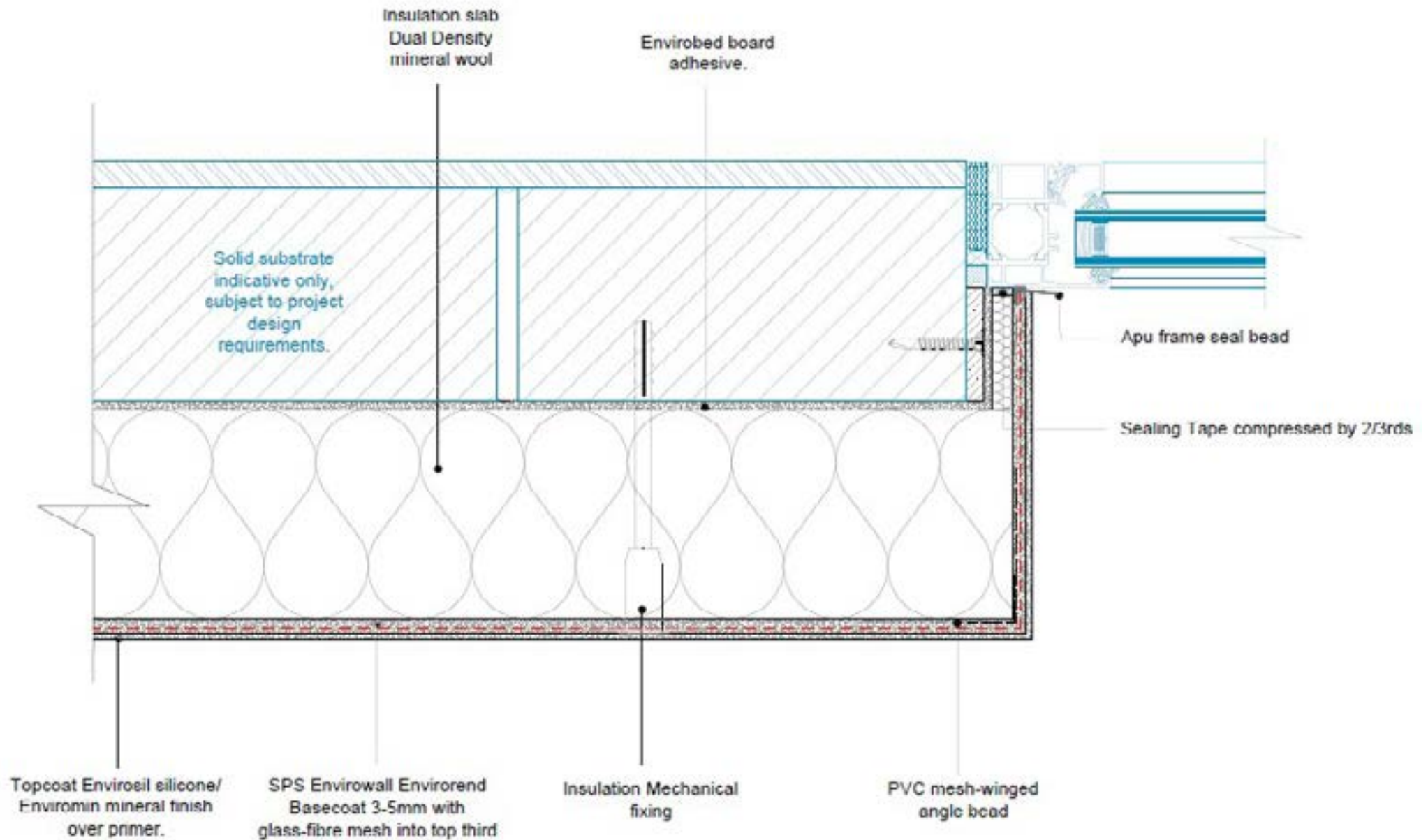
Masonry - Window Cill



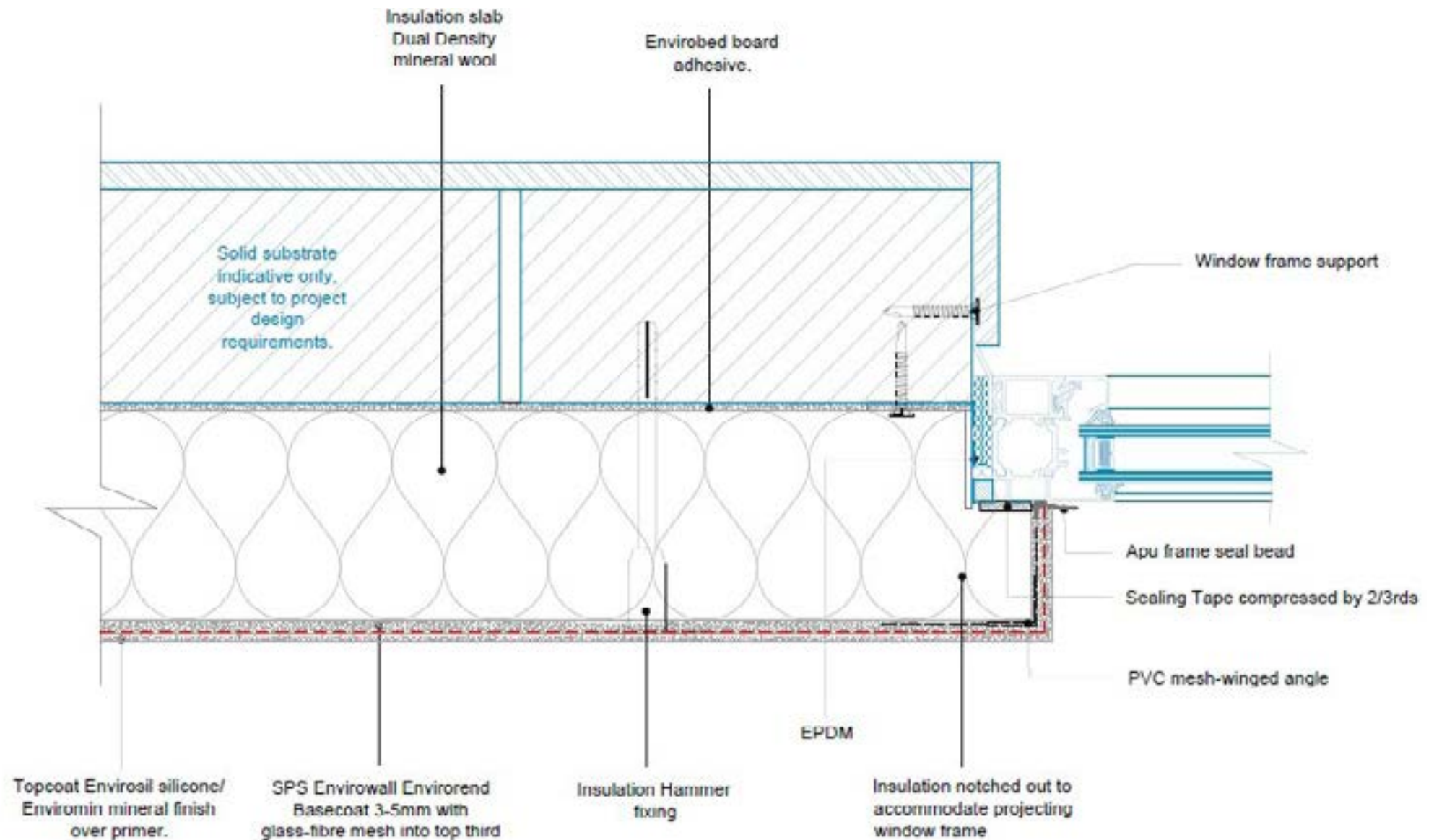
Masonry - Window Reveal



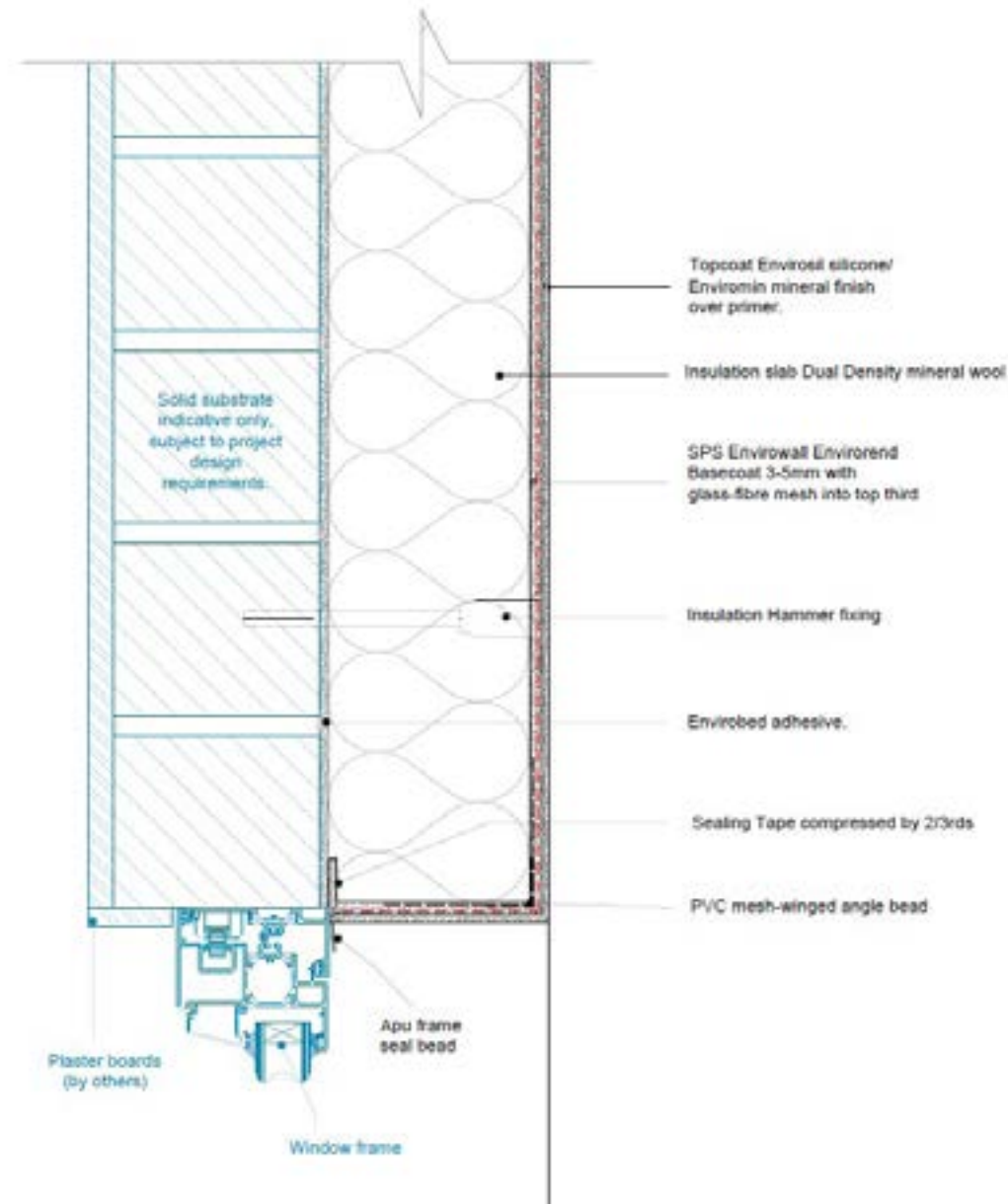
Masonry - Window Reveal with window set back



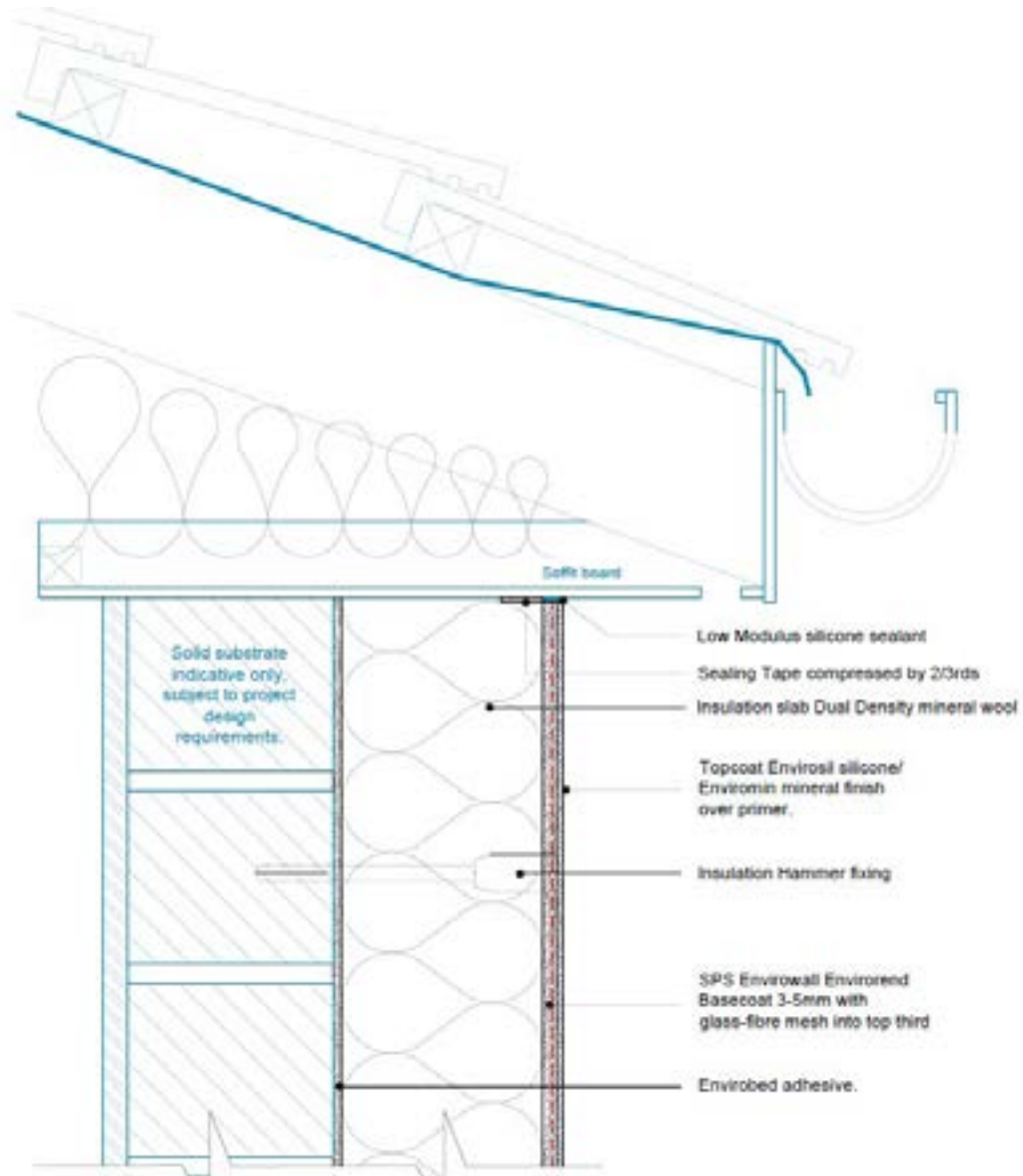
Masonry - Window Reveal with window set forward



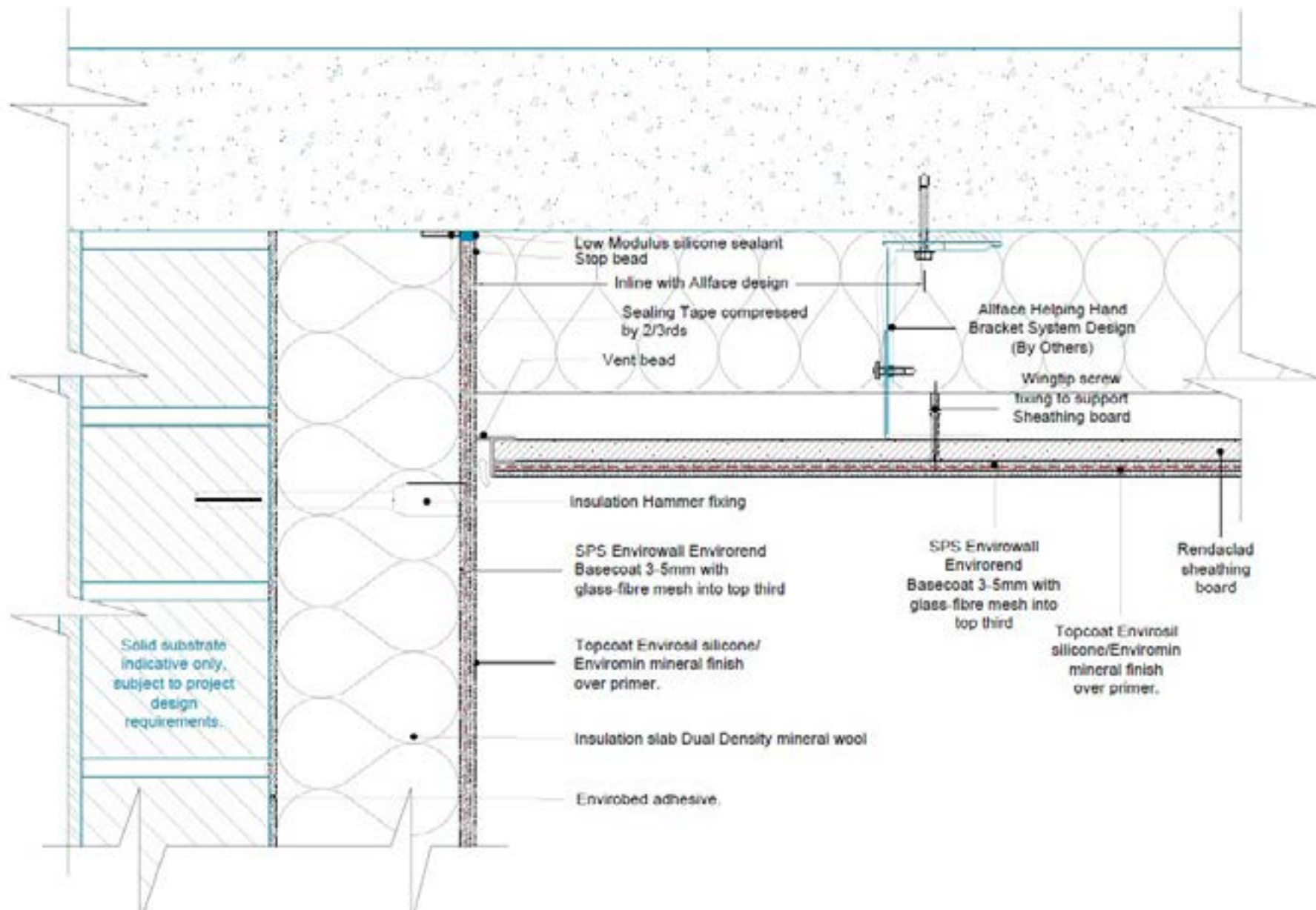
Masonry - Window Head



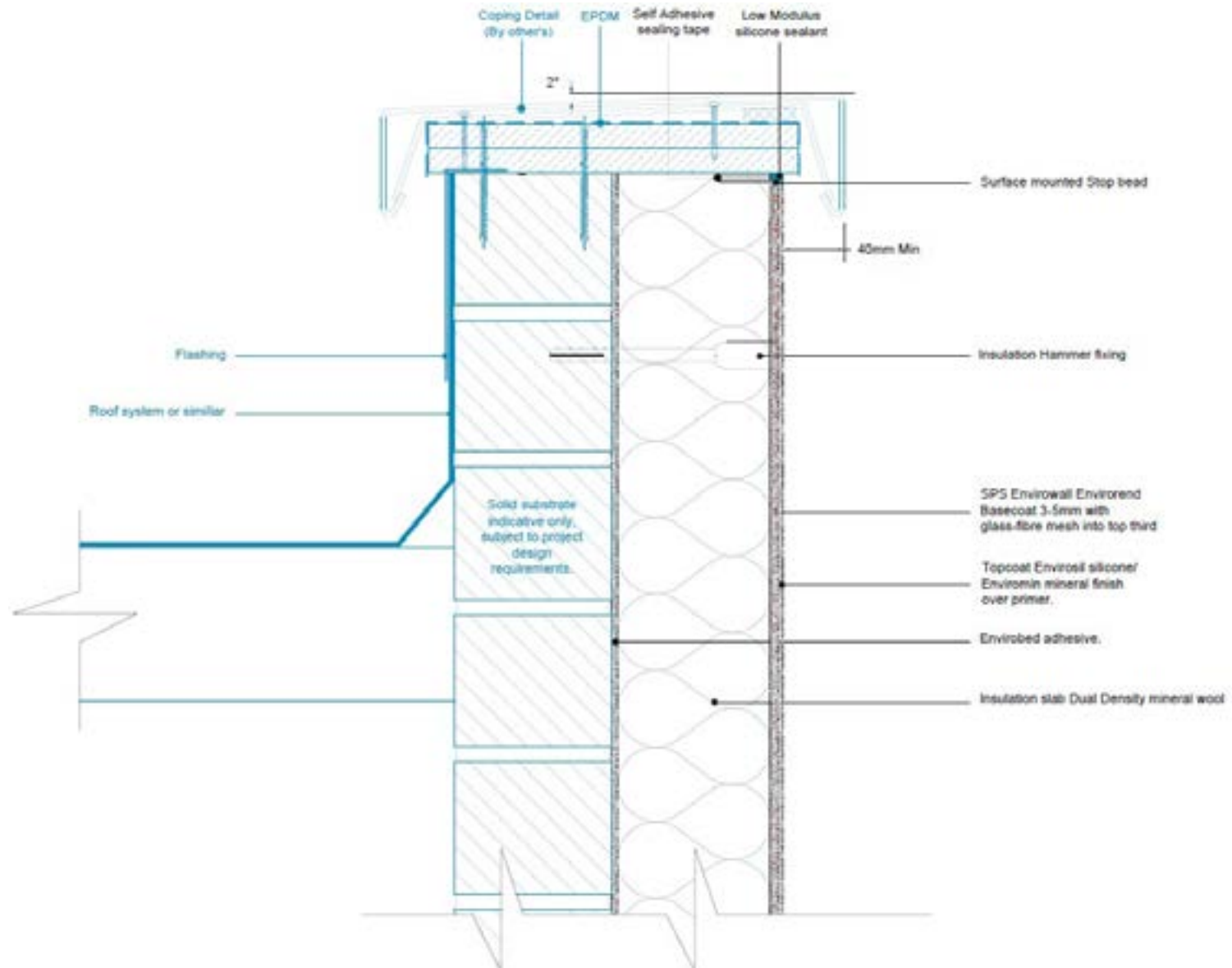
Masonry - Soffit Detail



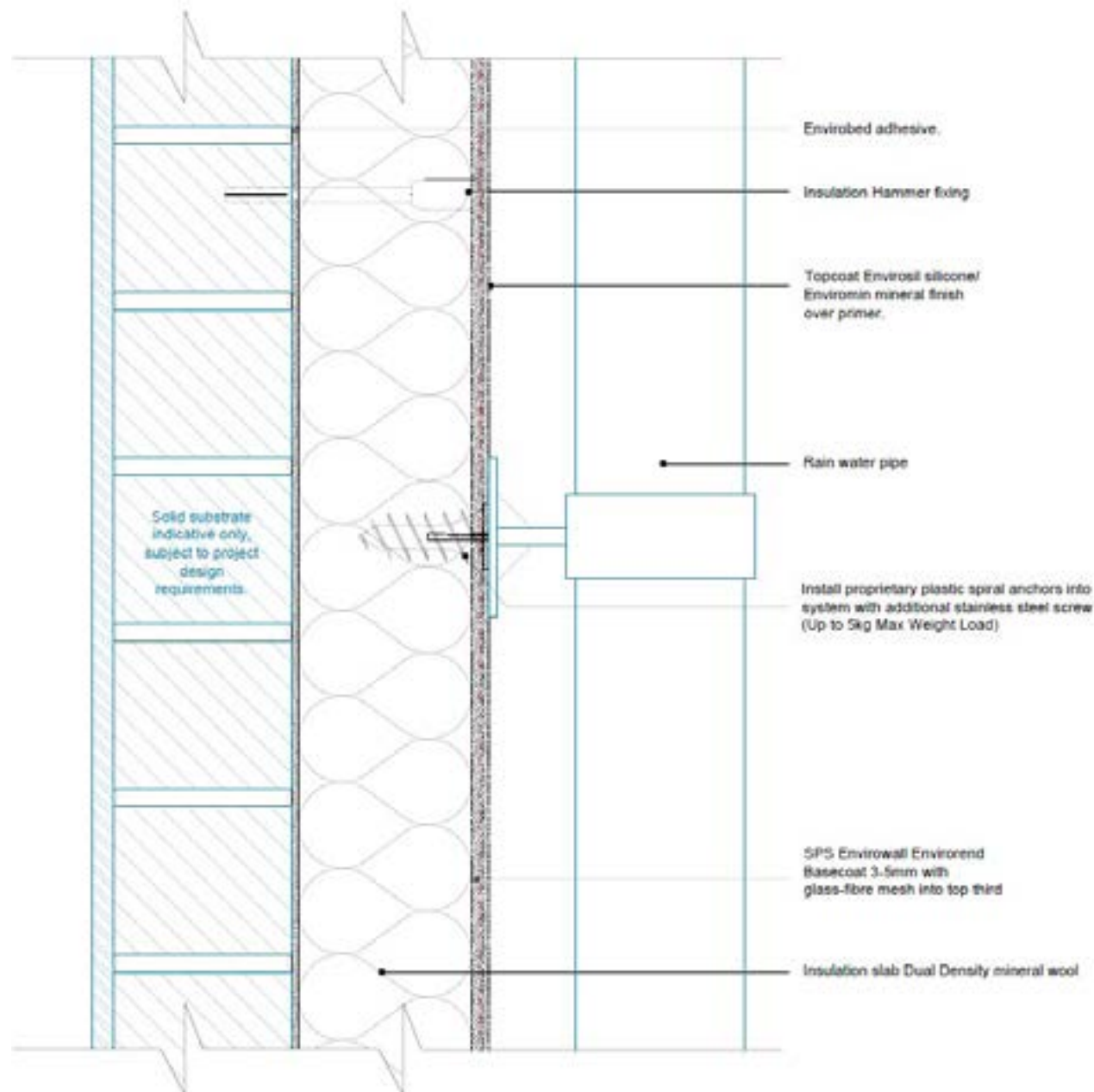
Masonry - Suspended soffit Detail



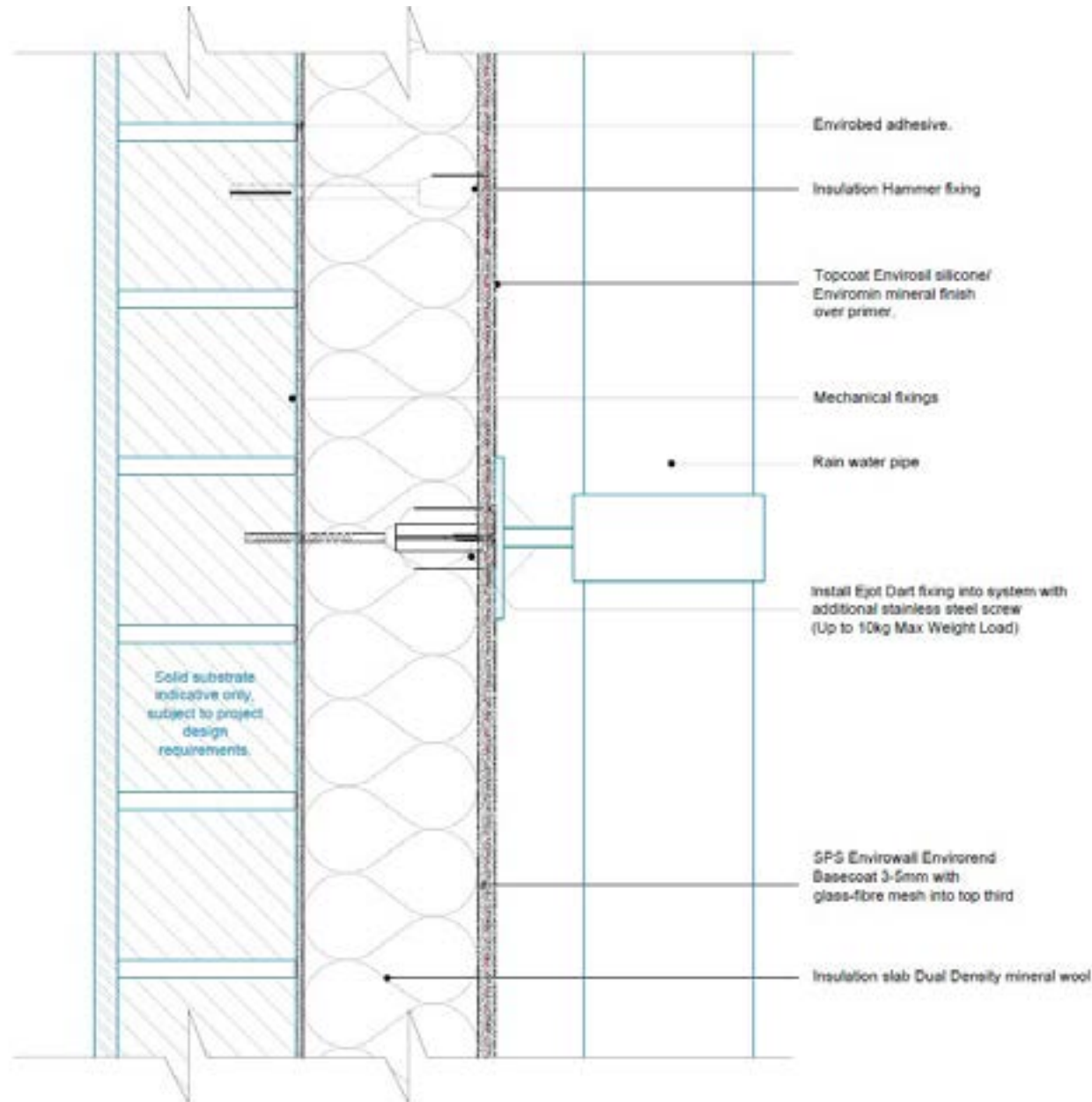
Masonry - Coping Detail



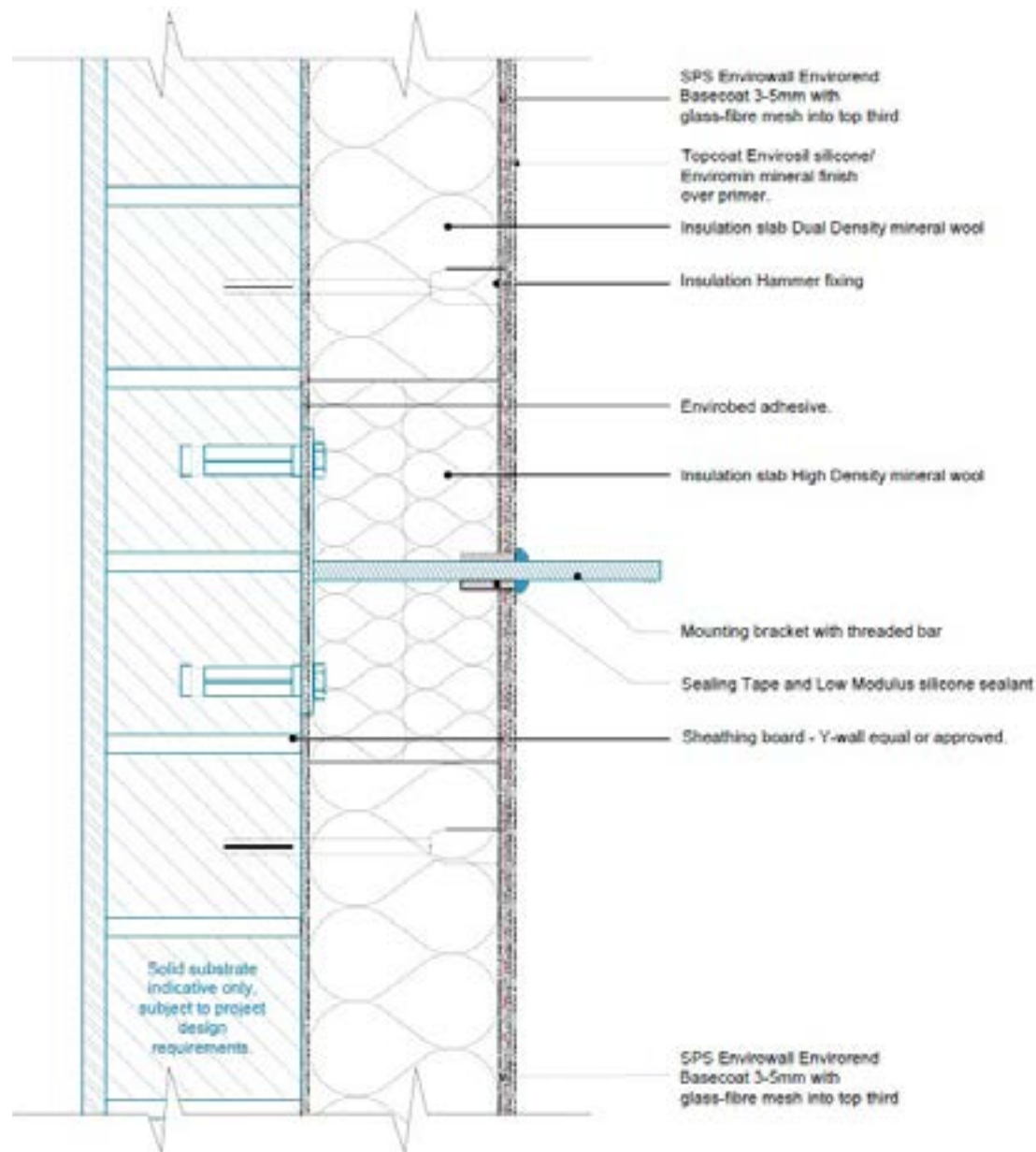
Masonry - External fixing detail - Lightweight (Opt 1)



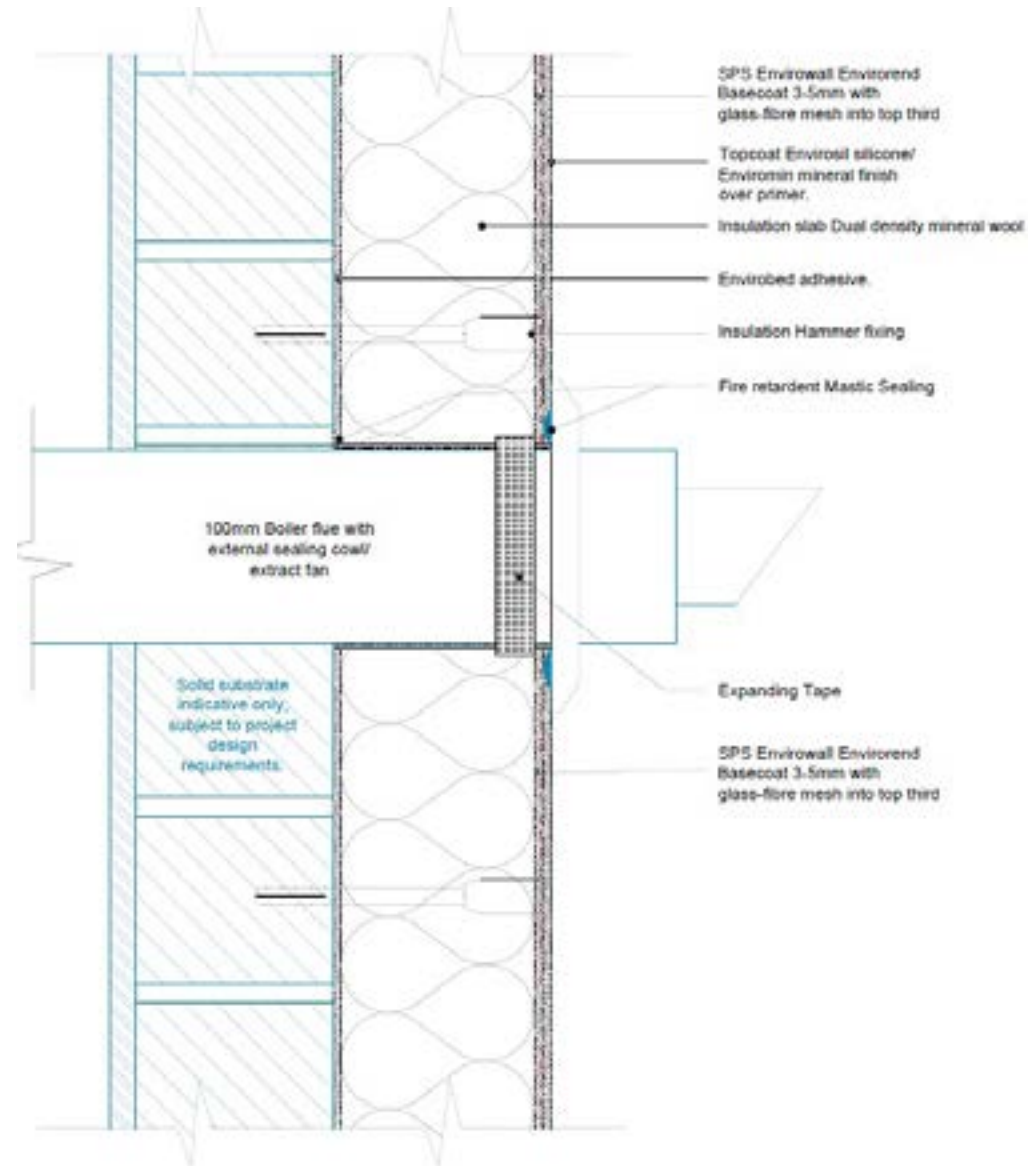
Masonry - External fixing detail - Medium weight (Opt 2)



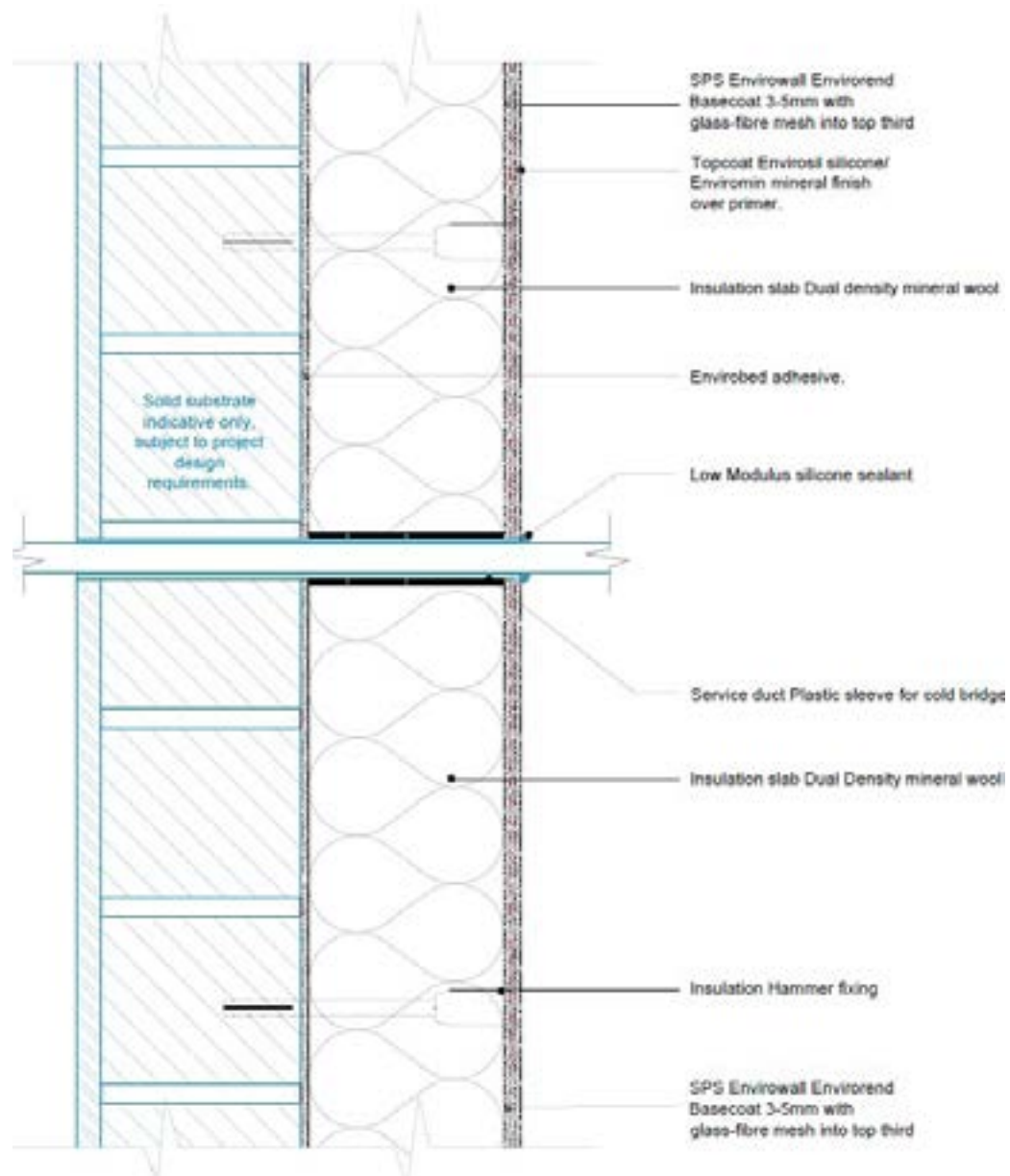
Masonry - External fixing detail - Heavy duty



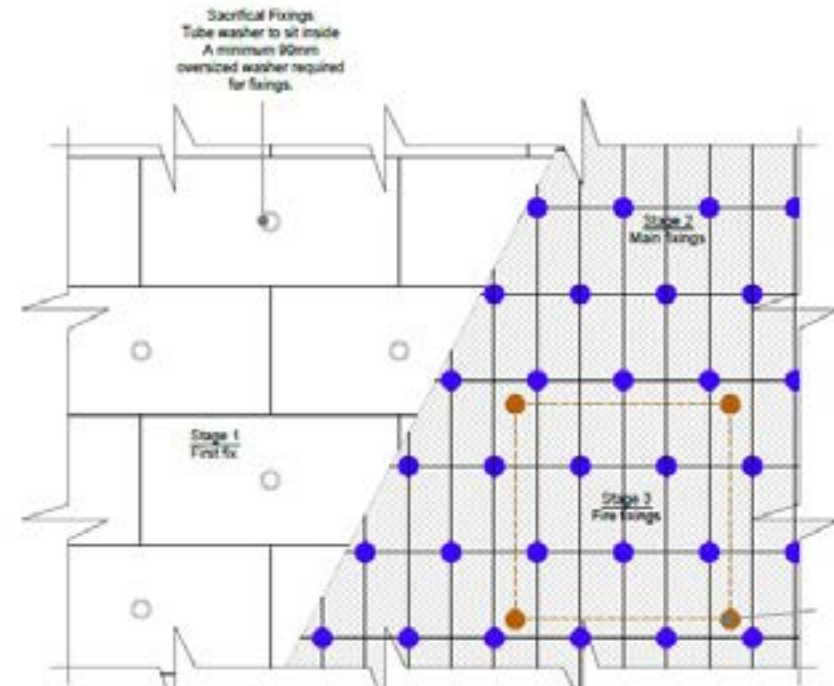
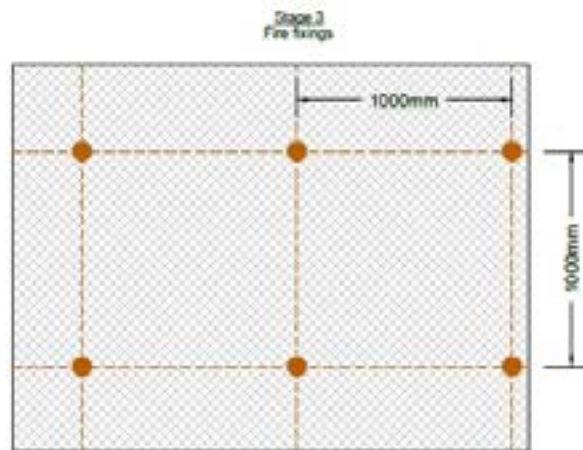
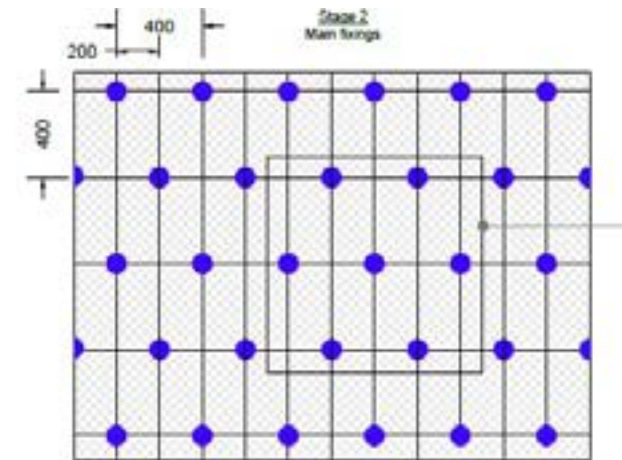
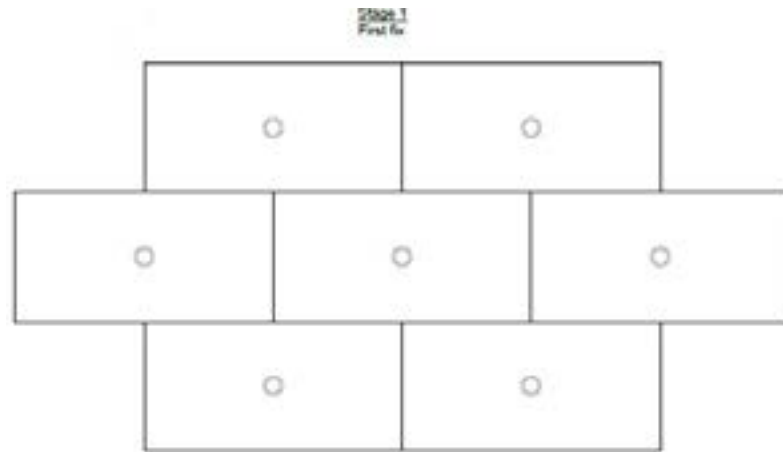
Masonry - Flue or extract fan detail



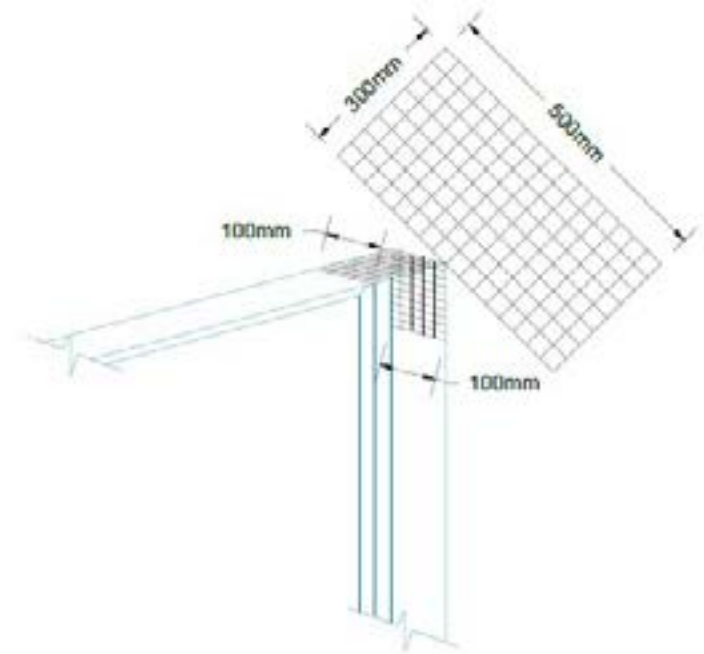
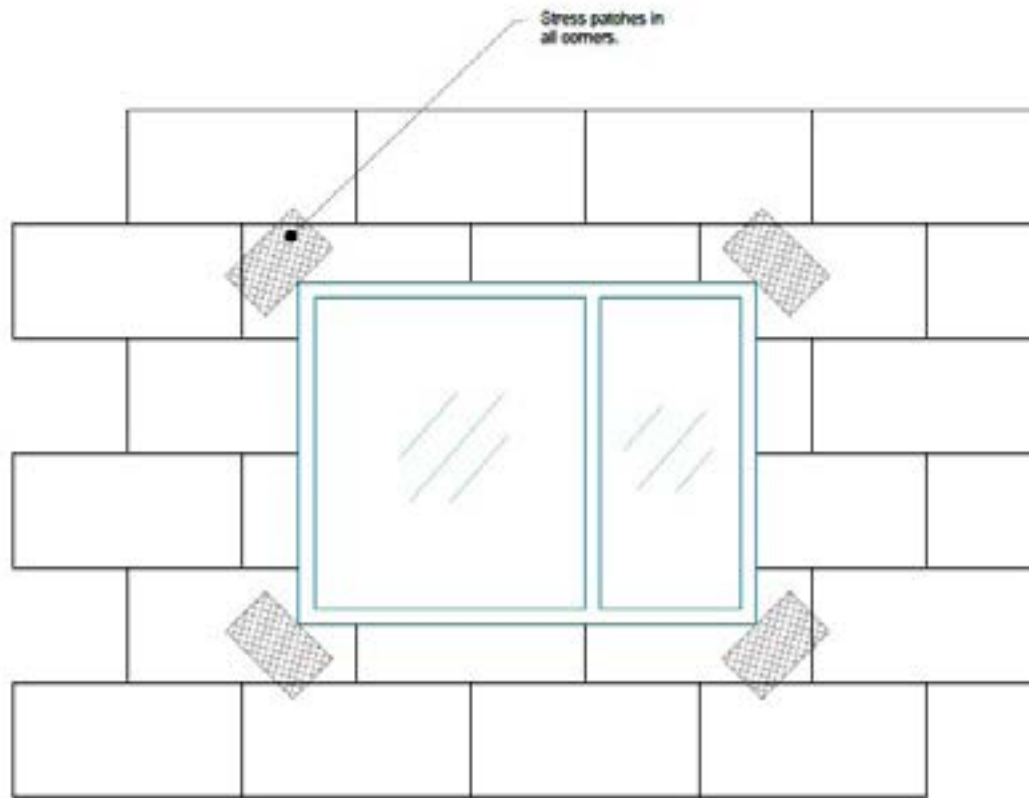
Masonry - Pipe or Cable Detail



Masonry - Mineral Wool Fixing Pattern through meshed basecoat



Masonry - Stress patches



Notes

For more than 20 years, Benx has been a leading innovator in the facades sector. We are constantly refining our portfolio of products, systems and services in line with our customers' requirements. In recent years, this has meant an increased focus on supplying fully certified systems and supporting modern methods of construction.

We now offer certified façade systems for most new build, retrofit and reclad project types, and, whether you are a cladding installer, a fully-fledged volumetric manufacturer or are simply seeking to reduce on-site content, we can help.

We offer you more choice whilst reducing complexity and risk. We believe our approach is the future of façades.

At our core, Benx offer a wide and varied range of building boards, providing a solution for all structural applications. From timber to steel frame, concrete to modular, high to low rise, internal to external linings and buildings with high weather exposure, we offer a solution.

Benx group are a market leader in providing innovative products and solutions; finding the latest technology is an ethos which lies at the very heart of our business and one which separates us from the competition. At the forefront of industry research and development, we constantly strive to innovate and develop our range of solutions. By providing a complete solution, from a single supplier, we can help reduce costs, time complexity and risk.

Benx work openly in collaboration with clients and supply-chain partners to mutual benefit to ensure that the most efficient and appropriate solutions can be found for every project.

At Benx we take great care to ensure that we offer a complete service, from initial advice through to delivery. Our experienced and complimentary technical support team can provide advice at all stages of your project to help you achieve your vision. We offer a service which is flexible and meets your needs whilst remaining competitive. A fully integrated fabrication service allows customers to order both boards and façades to exact size in order to reduce construction time, minimise wastage and improve environmental impact. Benx's products are specified for use in external façades, fire protection, acoustic, airtightness and decorative applications amongst other uses.



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Wall System 1 - Applied to
Framed Structure
Product Information



WS1 onto SFS
KIWA certificate
BAW-21-224-S-A-UK



Wall System 1 BBA Certificate
05/4206



Wall System 1 Applied to
Masonry KIWA Certificate
BAW 18-079-S-A-UK



Fire Rated: A1/A2-s1,d0



Building offsite solutions in timber

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