

PROJECT TECHNICAL SUBMISSION DOCUMENT

Contract Name: Design House, Manchester

Contractor: Thomason

Contract Ref: NV369

Technical Sub No: NV369-TQS-SUB-0005 **Revision:** 1



For the Attention of: THOMASONS

Equipment Specifying Schedule ☐ Builder's Work Requirements ☐

Manufacturer's Data ☒ Assembly / Installation Details ☒

Design Check Calculations ☐ O & M Manuals ☐

Certified Performance Data ☐ Reports ☒

Submission Details: Wetherby render system- Direct fix

- Specification: Wetherby Stone Wool Silicone External Wall Insulation System
- BAW-21-201-S-A-UK - Wetherby Steel Frame Direct Fix MW Silicone Render
- Typical details
- 2021 HECK Holzbau A2 3.1-21-173-1_KB_EN- Fire rating for Direct fix system

Issued By: Levi Wright

Date Issued: 24.11.23

Position: Senior Façade Design

For: Novo Facades Ltd

APPROVED:

REJECTED:

Signed By:

Date:

Position:

For:

Design House, Manchester



Technical Helpline: 0800 1073299



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KIWA APPROVED
- BAW-21-201-S-A-UK -
WBS STEEL FRAME DIRECT FIX
EWI SYSTEM (ETICS)

Project Specification

Project Name:	Design House, Manchester
System:	Wetherby Stone Wool Silicone External Wall Insulation System
Substrate:	Steel Frame Sheathed in Cement Particle Board
Insulation:	60mm Stone Wool Insulation
System Finish:	WBS Heck Silicone 'K' 1.5mm Textured Finish
Technical Sales Manager:	Pat Stanley
Tel:	07703 974663
E-mail:	pat.stanley@wbs-ltd.co.uk
Technical Support Manager:	Matt Cawley
Tel:	07568 129677
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WETHERBY BUILDING SYSTEMS

Wetherby Buildings Systems are the UK's market leading EWI system supplier, providing quality products and systems and unrivalled technical and on-site project support. We aim to provide environmentally responsible and sustainable building products of the highest quality, continually improving on our quality and system accreditations to ensure that optimum standards are met.



WETHERBY PREMIUM CERTIFIED PRODUCTS

Wetherby Buildings Systems products and EWI systems are tested to the highest level with an unrivalled range of BBA, BDA and ETA certificates available for use on projects in the UK. All testing achieves the highest European standards, ensuring long term durability, strength and premium performance. BBA/BDA approved systems provide a minimum life expectancy of 30 years. BRE Fire Certification has also been achieved for a large number of systems, with certain certification extending to 60-year life expectancy.



UK MANUFACTURING

Here at Wetherby, we take our responsibility to 'Buy British' extremely seriously. All of our current and potential suppliers undergo a rigorous annual assessment. Each supplier is reviewed over a number of areas including responsible procurement, product suitability, commitment to sustainability, quality etc. Only when we are completely satisfied are they included on our Supply Chain Database.



ISO 9001, ISO 14001, & ISO 45001

Wetherby Building Systems have a strong pro-active approach to internal Quality Systems, Environmental Management Systems and Health and Safety. Our ISO Integrated System is regularly audited internally by qualified auditors and annually by independent external auditors, Alcumus ISOQAR. This ensures consistency in the supply and quality of our materials and services, and our environmental responsibilities and targets which we take very seriously. This includes our ongoing commitment to recycle, re-use, reduce GHG's and improve products and systems alongside our partners and suppliers. The main aim is to maximise sustainability for all products and systems across our extensive range. We have a strong pro-active approach to Health and Safety. We manage all risks associated with our activities by regularly monitoring our premises, revising Risk assessments, Safe Systems of work, and Method Statements when required. We strive to provide the best training, support, and management on all our projects providing knowledge and experience throughout the task being undertaken.



TECHNICAL SERVICES

Wetherby offer a wide range of technical services to support project design and system installation. In depth NBS Specifications, project specific CAD drawings, photographic overlays, U-values and condensation / humidity risk analysis documents are all readily available via our Technical Support Team. For **Technical Enquires** please contact on **0800 1073299** or technical@wbs-ltd.co.uk

NBSPlus

AUTODESK®
AUTOCAD® 2020

TRAINING SERVICES AND TRAINED APPLICATORS

We provide a variety of in-depth training courses, covering all systems, to ensure that installations are completed to the highest possible standards.

For training enquires please contact: 01942 529336.

For information on our Trained Applicators please contact your Area Sales Manager as per details on page 2 of this specification.

TRAINED APPLICATOR



Ref No: 99999
Skill Level: 1, 2a etc
Expiry: xxxxx/20xx

Individual Name
Company Name

I AGREE TO THE CONDITIONS AS SET OUT ON THE REVERSE OF THIS CARD

SITE SUPPORT, PULL OUT TESTS AND INSPECTIONS

Wetherby Building Systems offer unrivalled site support for EWI projects with 8 Site Supervisors strategically positioned across the UK. Pull out testing, product information, detailing advice and application assistance are all available from our experienced team.



SAMPLE SERVICE

We provide a FREE sample service for all of our products and systems.

To access this service, contact our sample department on 0800 1073288 or alternatively e-mail Angela Naylor who will be more than happy to assist you with your enquiry: angela.naylor@wbs-ltd.co.uk



GUARANTEES

Wetherby can provide a guarantee covering defects in materials on Wetherby BBA / BDA / ETA approved EWI systems installed by Wetherby recognised contractors, for the first 10 years of the system lifespan*. Extended guarantees are available for government backed schemes provided by carefully selected third party insurance partners such as SWIGA and GDGC*. Please contact Wetherby for further information.

(*conditions apply)



CDM REGULATIONS 2015

Wetherby Building Systems provide technical support as a supplier of façade systems and we hold the position of 'designers' according to the CDM Regulations 2015.

Wetherby have a number of legal responsibilities in this role when preparing or modifying designs, to eliminate, reduce or control foreseeable risks that may arise during construction, maintenance and use of a building once built. We are also obligated to provide timely information to other members of the project team to help them fulfil their duties.

Further information is contained in our CDM document (WF224) which is applicable to all designs and is available on our web site (www.wbs-ltd.co.uk/xpage) or on request



WETHERBY STONE WOOL SILICONE SPECIFICATION

M21

Insulation with rendered finish

To be read with Preliminaries/General Conditions.

This specification is valid for 6 months from issue date, due to the changing industry regulations and requirements. For an updated version of the specification please contact the relevant technical sales manager.

This specification is specifically for the named project and is not transferable to other projects, projects require specific custom specifications, please contact Wetherby Technical departments for further information.

GENERAL / SYSTEM REQUIREMENTS

120 SURVEY OF EXISTING WALLS

- Timing: Before starting work covered in this section.
- Objective: To confirm suitability for application of external wall insulation system.
- Survey report: Submit, covering all relevant matters listed below:
 - The form and condition of the structural substrate.
 - A schedule of repairs and / or additional works necessary to render the substrate suitable to receive the system.
 - A schedule of services, fixtures and fittings requiring removal to facilitate installation of the system.
 - Proposals for treatment of potential cold bridges e.g. reveals, concrete floor edges.
 - Remove existing rainwater pipes and re-direct away from work surface whilst work proceeds. Ensure all rainwater from the roof area is carried away from the work area by means of temporary fixed rainwater goods.
 - Remove, extend beyond the surface of the proposed system and securely re-fix, to the satisfaction of the supervising officer, soil stacks, waste water pipes, overflows, vent pipes etc.
 - Any other information considered relevant.

150 WIND LOADING

- When installed on suitable walls, the system can adequately transfer to the wall the self-weight and negative (suction) and positive (pressure) wind loads normally experienced in the United Kingdom.
- Wetherby or the fixing manufacturer will undertake fixing pull out tests on site to verify the adequacy of the fixings.
- Wetherby will provide information on the system dead load weights on request to allow an independent check to be made of the substrates adequate strength and suitability.
- On projects where higher wind load coefficients are expected, wind load calculations are required in order to establish the minimum number of fixings required per m² to resist the maximum wind loads acting on the building. In order to do this, wind loads must be calculated by a suitably qualified and experienced structural engineer in accordance with BS EN 1991-1-4:2005 and provided to Wetherby. Wetherby will then confirm an adequate fixing pattern for the project.

160 REMEDIAL WORK

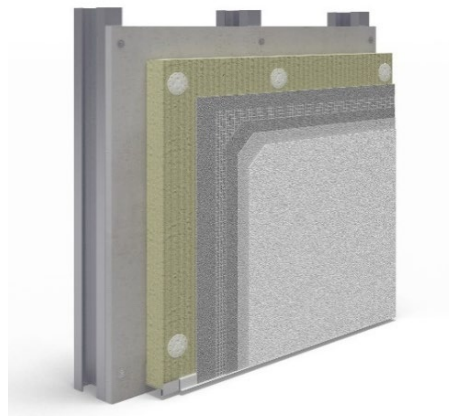
- Remedial work shown to be necessary by survey: Employer's responsibility.

180 STRUCTURAL SUBSTRATE

- Description: Steel Frame Sheathed in Cement Particle Board
- Preparation:
 - All sheathing boards must achieve minimum pull out requirements to be suitable for the system application.
 - All sheathing boards must achieve minimum A2-s1,d0 to BS EN 13501-1 for fire performance on high rise projects over 18 metres in height.
 - The substrate to receive the WBS system must be completely dry and not damaged by rain / frost to reduce the board performance in any way. The board manufacturer should be consulted and pull out tests redone before continuing if rain / frost damage is evident.
 - The substrate shall be clean and structurally sound.
 - Sheathing boards / panel substrates should be line and level ensuring insulation boards can be installed flush to the substrate. Slight variances in the substrate can be overcome by using the WBS Insulation Bedding Adhesive where no membrane is in place but packing out of the insulation boards on direct fix applications is not recommended.
 - All sheathing boards must be securely fixed, correctly jointed and sealed (where required) as per the board manufacturer's instructions.
 - If the walls are not line and level, the fixing lengths must be checked to ensure adequate embedment into the sheathing board / frame substrate. This will need to be confirmed on site prior to the installation of the Wetherby system. Sizing of flashings, trims and beads may also require alterations.
- Breather Membrane
 - A breather membrane may be specified by the project designer / frame manufacturer. Where this is positioned on the face of the sheathing board, the membrane will prevent the Wetherby system from being adhesively fixed to the substrate.
 - **Wetherby must be contacted if a breather membrane is installed to the face of the sheathing board and the specification revised to reflect this, possibly resulting in an increase in mechanical fixings.**
- Treatment to Substrate
 - Remove any defective areas of the existing substrate and where required make repairs ensuring the surface is ready to receive the EWI system. The existing walls are to be cleaned to the satisfaction of the Contract Administrator, to remove any friable material, algae or lichen. WBS Biocidal Wash can be used to treat areas of moss, algae and mould growth.
- Wetherby Biocidal Wash
 - Where required, apply one coat of Wetherby Biocidal Wash to the entire surface by roller or knapsack spray and allow to dry. Brush the surface to remove all signs of growth before work commences.

210A EXTERNAL WALL INSULATION SYSTEM

- **Manufacturer:**
Wetherby Building Systems Ltd.
1 Kid Glove Road
Golborne Enterprise Park
Golborne
Greater Manchester
WA3 3GS
Tel: 01942 717100
Fax: 01942 717101
Email: info@wbs-ltd.co.uk
Web: www.wbs-ltd.co.uk
- System Reference: **Wetherby Stone Wool Silicone External Wall Insulation System.**



- Insulation: WBS Stone Wool Insulation Boards.
 - Thickness: 60mm.
 - Board Size: 1200 x 600mm.
 - Minimum Compressive Strength: 10 kPa.
 - Thermal Conductivity: 0.036 Wm²/K.
 - Performance in Relation to Fire:
 - Class A1 (BS EN 13501-1:2002).
 - Non-combustible.
 - Environmental:
 - CFC / HCFC Free.
 - Zero ODP.
 - GWP Less Than 5.

- Fixing: Mechanical and Adhesive.
 - Insulation Adhesive: WBS Insulation Bedding Adhesive.
 - Initial Fixing Type: Two fixing per insulation board - TiT/FiN Washer and 90mm TKR Screw.
 - Alternative Fixing: SBH-T 65/25 and 102mm JT2 Screw.
 - Fixing type's, lengths and frequency's subject to pull out tests / wind load calculations.
 - Where fixings are installed through a dense sheathing board into frame, an alternative fixing may be required to ensure the screw does not burn out. Subject to on site pull out test and to be confirmed prior to project start.
 - Fixing pattern located at back of specification (subject to pull out tests / wind load calculations).
 - Fixings must achieve a minimum pull out of 1.0kN.
- Protective Scrim Adhesive Coat (If Required).
 - Reinforcement Adhesive: WBS Heck K+A Scrim Adhesive.
 - All board edgers must be protected to prevent water ingress into the Stone Wool insulation.
 - Where boards are to be left exposed, 1-2mm tight coat to be applied over all Stone Wool Insulation on the day of the board being fixed, ensuring all Stone Wool Insulation is coated and protected from moisture.
 - Stone Wool insulation must be fully dry before basecoat is applied.
- Movement Joints: As Per Drawings.
 - Vertical Movement Joint Ref: WBS 80/80SS 10mm Stainless Steel Movement Joint.
 - Horizontal Movement Joint Ref: WBS RCJT & RCJB 10mm Horizontal Compression joint.
 - Movement joints must be used to replicate any structural movement in the existing substrate to be adequately designed for the building's movement as per site survey / Structural Engineers report.
 - All beads must be fully meshed in.
- Fire Breaks: Not Required.
- First Reinforcement: WBS Alkali Resistant Scrim Cloth incorporated into top third of the WBS Heck K+A Scrim Adhesive.
 - Reinforcement Adhesive: WBS Heck K+A Scrim Adhesive.
 - Fixing Through Mesh: TiT/FiN Washer and 90mm TKR Screw.
 - Alternative Fixing: SBH-T 65/25 and 102mm JT2 Screw.
 - Fixing type's, lengths and frequency's subject to pull out tests / wind load calculations.
 - Where fixings are installed through a dense sheathing board into frame, an alternative fixing may be required to ensure the screw does not burn out. Subject to on site pull out test and to be confirmed prior to project start.
 - Fixing pattern located at back of specification (subject to pull out tests / wind load calculations).
 - Stainless Steel Fixing: Required at a rate of 1 per m².
 - Stainless Steel Fixing Type: 120mm TKE S/S Screw and Stainless Steel Washer (subject to pull out tests).
 - Secondary mechanical fixings are required on all projects 2 storeys and above as per BRE Report BR135:2013.
- Second Reinforcement: WBS Alkali Resistant Scrim Cloth incorporated into top third of the WBS Heck K+A Scrim Adhesive.
 - Reinforcement Adhesive: WBS Heck K+A Scrim Adhesive.

- Decorative Finish.
 - Wetherby Primer: Solvent free pigmented bonding primer in a colour to match the finish coat.
 - Wetherby Finish Coat: Heck Silicone 'K' 1.5mm Textured Finish.
 - Colour: TBC.
- Beads / Trims / Accessories.
 - Full System Beads / Trims:
 - Wetherby Starter Track Ref: WBS 9146 (90606) 60mm Aluminium Base Rail with WBS 9121 Profile Clip.
 - Wetherby Full Depth Stop Bead Ref: WBS 9246 (93306) 60mm Aluminium Full System Stop Profile.
 - Mechanical Fixing: WBS LS 5.5 x 38mm Bead Fixing.
 - Wetherby Roof Detail: TBC.
 - Specialist flashing or WBS 781 type trim to be used subject to roof design, ensuring a minimum 40mm overhang and a long-lasting watertight detail (approval required from Wetherby).
 - The top of the system must be protected at all times during installation, using temporary capping protection where required.
 - Wetherby Cills: Type TBC.
 - Specialist Cills to be designed and installed to provide a minimum 40mm overhang.
 - Cill manufacturer to design and advise on Cill type, end caps and fixing.
 - Surface Render System Beads:
 - Wetherby Corner Bead Ref: WBS 9075 Aluminium Corner Bead with mesh.
 - Wetherby Render Bellcast Bead Ref: WBS 413SS Stainless Steel Bellcast Bead.
 - Wetherby Render Stop Bead Ref: WBS 80SS 10mm Stainless Steel Stop Bead.
 - Wetherby Vertical Movement Joint Ref: WBS 80/80SS 10mm Stainless Steel Movement Joint.
 - Wetherby Horizontal Movement Joint Ref: WBS RCJT & RCJB 10mm Horizontal Compression joint.
 - Wetherby APU Frame Seal Ref: WBS APU 37909 PVC Frame Seal.
- Accessories:
 - WBS Sealing Tape: Pre-compressed, expanding waterproof sealing tape.
 - WBS Firtree Fixings.
 - WBS Fire Rated Silicone Sealant.

N.B. Beads / trims may need to be altered depending on site inspections and job specific detailing / application.

310 DESIGN

- Complete the detailed design of system and associated features shown on drawings: Complete to meet requirements of this specification. Refer to Wetherby detail drawings.
- Please note all compliance needed to meet Building and Fire Regulations is the responsibility of the principle designer/ main contractor.
- Detailing of system junctions & ancillary items are to be agreed by all parties.

320 INTEGRITY

- Installation Requirements:
 - Weathertight under all anticipated conditions.
 - Capable of resisting all dead loads and design live loads, including impact and wind loads, and accommodating all thermal movements without damage.

330 IMPACT LOADING

- Impact Resistance of Finished Walls: Resistance to hard body impacts (3 joules to 10 joules) and to perforation.

340 WIND LOADING

- Design Wind Loads: The system shall be designed to withstand all design wind loads.

360 SAMPLES

- Procedure: Submit samples / examples of designated items for approval. Keep approved samples on site for the duration of the contract for inspection / comparison purposes.
- Designated items: Textured sample of Wetherby Silicone Finish.

370 UNIFORMITY OF COLOUR AND TEXTURE

- Type / proportion of constituent materials: Unchanged once samples of coatings have been approved.
- Supplies of materials: Sufficient to give consistent and uniform colour and texture.
- All materials shall be manufactured and supplied in accordance with BS EN ISO 9001: 2008.
- WBS renders and mortars are pre-blended during the manufacturing process by the supplier, although care should be taken to ensure colour uniformity between individual batches of material.

380 LIGHTNESS

- It is advised that Silicone Textured Render Systems for application over insulated render backgrounds shall be selected in colour(s) with a lightness factor of >20. Should the lightness factor of the selected colour(s) be <20, please contact the Wetherby Technical Support Team for further information.

390 AVOIDANCE OF COLOUR SHADING

- To minimise the risk of variations in colour shade and to avoid dry line jointing, decorative finishes should be applied continuously without a break.
- Where breaks are unavoidable, they should be made where services or architectural features such as the lines of doors, windows, reveals or drainpipes help to conceal the position of the joint. Surface render beads can be used to provide a clean break in the render.
- Material sharing the same batch number should be used to complete an entire elevation where possible.
- Material with different batch numbers should be checked for colour consistency.

410A INSTALLATION

- Installer: The system shall be installed by a specialist contractor approved for the project by Wetherby Building Systems.

415A WBS STONE WOOL SILICONE SYSTEM APPLICATION**Base Bead**

Securely fix Wetherby starter track with profile clip above DPC level at base of the system. Mechanically fix starter track at max. 300mm centres, 50mm from each end. WBS 3756 base rail connectors should be used to join the tracks, packing shims may be required to ensure the starter track is true to line and level. Any gaps behind the basetrack allowing free air movement behind the insulation should be sealed appropriately.

Full System Stop Bead

Securely fix Wetherby full system stop beads on WBS Sealing Tape to the extent of the system and its abutment to untreated areas i.e. meter boxes, rising service supplies or any other untreated abutment. Stop beads are to be fixed at max. 300mm centres, 50mm from each end. A continuous bead of WBS Fire Rated Silicone Sealant must be applied to seal the stop bead to the substrate.

Roof Detail

The EWI system must be sealed against a suitably stable & water tight roof junction/ flashing to ensure the system is adequately protected.

Where the existing roof does not provide an adequate overhang to the EWI system (minimum 40mm), a specialist roofing profile or flashing must be installed to provide adequate protection. All flashings must be correctly jointed and fixed, ensuring no weak points or potential areas for water ingress. Where required, temporary capping protection must be provided to protect the insulation from moisture until flashings / roof trims are in place. The EWI system must be sealed to the roofing profile using WBS Sealing Tape and Silicone Sealant.

Cills

Securely fix cills, ensuring they are secure and provide a water tight detail to protect the EWI system. Sealing tape & silicone sealant are required where the EWI system abuts the cill. Install end caps and apply Wetherby Fire Rated Silicone Sealant where required. All cills must be correctly jointed and fixed, ensuring no weak points or potential areas for water ingress.

WBS Insulation Bedding Adhesive

Trowel apply WBS Insulation Bedding Adhesive to the entire face of the insulation boards. The bedding adhesive shall be of sufficient thickness in which to bed and level the insulation boards. The adhesive must be applied immediately before the insulation boards are offered to the wall to ensure a good bond, a minimum 10mm notched trowel must be used to ensure an adequate thickness of adhesive. Insulation boards must be fully bedded into the adhesive and laid as true to line as possible. A fixing should be installed through the centre of each board to hold in place whilst the adhesive dries.

Application of Stone Wool Insulation Boards

Position and securely fix the Stone Wool insulation boards to the substrate. The boards should be tightly butt jointed, laid with staggered joints and overlapped at building corners. Board joints should not occur within 200mm of the corners of openings. Board pieces narrower than 200mm shall not be used. Where the insulation butts up against dissimilar materials, supply and install WBS Sealing Tape and ensure the boards are fitted tight against the seal, ensuring full compression of the tape.

N.B. thinner insulation may be required in passageways and to window reveals.



Initial Fixings of Insulation Boards

Fix boards mechanically to the substrate using approved WBS fixings at a rate of two per insulation board. Fixings shall be installed so that the fixing head embeds 1-2mm in to the face of the insulation board surface.

Protective Scrim Adhesive Coat (If Required).

Apply a protective scrim coat at 1-2mm where required to prevent water ingress into the Stone Wool insulation. The board edges must be protected to ensure no water ingress into the Stone Wool insulation. Where boards are to be left exposed, a 1-2mm tight coat is to be applied over the face of the Stone Wool Insulation. The insulation must be fully dry before basecoat is applied.

Movement Bead / Slip Joints

Fix movement beads / slip joints at agreed locations using WBS approved fixings. Structural movement joints must be mirrored through the EWI system.

Surface Mounted Render Beads

Fix surface mounted render beads directly to the insulation board at required locations using WBS Firtree Fixings.

Existing Air Vents, Grilles etc.

Identify live or used air vents, grilles etc. and extend through the insulation system as work progresses.

APU Beads (where required)

Install APU beads around openings where required. Beads must be applied to a clean surface to ensure optimum adhesion.

Angle Bead

Fix by bedding into first pass of scrim adhesive, Aluminium angle beads with mesh reference WBS 9075 to all external building corners, window / door jambs and heads.

Alkali Resistant Glassfibre Scrim Coat

Trowel or machine apply a 4-6mm thick coat of scrim adhesive to the entire surface of the insulation boards. Lightly run a notched trowel through the scrim adhesive at a 45 degree angle to ensure the correct thickness of adhesive is applied. Bed WBS Alkali Resistant Scrim Cloth into top third of the wet adhesive, overlapping joints by 75mm minimum (ensuring mesh cloth isn't over embedded). The scrim cloth must be overlapped around all building corners, stop beads, movement beads and returned into all reveals and heads. All beads must be fully scrimmed in. Install additional 500mm x 250mm minimum pieces of scrim cloth diagonally across corners of all wall window and door openings including for any utility box areas.



Insulation Fixings through Mesh and Second Layer of Mesh

Fix boards mechanically to the substrate using approved WBS fixings as per the WBS fixing pattern (fixing pattern located at the back of this document subject to wind load calculations). Fixings shall be installed through the wet WBS scrim adhesive and WBS alkali resistant mesh. Additional fixings should be installed to ensure a maximum of 300mm centres at either side of building corners and around all openings. Install stainless steel secondary fixing through the scrim adhesive and alkali resistant scrim cloth whilst wet. Finally smooth out scrim adhesive using a spatula. Allow sufficient drying time before applying second layer of scrim adhesive.

Scrim Adhesive Coat (Second Application)

Trowel or machine apply a further 3-4mm thick coat of scrim adhesive to the entire surface of the first pass of basecoat and mesh cloth (once dry). Lightly run a notched trowel through the scrim adhesive at a 45 degree angle to ensure the correct thickness of adhesive is applied. Bed WBS Alkali Resistant Scrim Cloth into top third of the wet adhesive, overlapping joints by 75mm minimum (ensuring mesh cloth isn't over embedded). Level the scrim adhesive using a spatula / speed skim. As the basecoat tightens remove any lines / ridges using a purpose made sponge float to achieve a uniform flat and even surface ready to receive the WBS final finish. Ensure all fixings and mesh are fully covered and are not visible.

Allow sufficient drying time before applying the Primer. Cold conditions and high humidity will result in the basecoat taking longer to dry / cure. The basecoat must be fully hardened with no signs of moisture visible. Moisture trapped in the basecoat can potentially damage the curing of the Primer / Silicone Render causing failure after completion of the system.

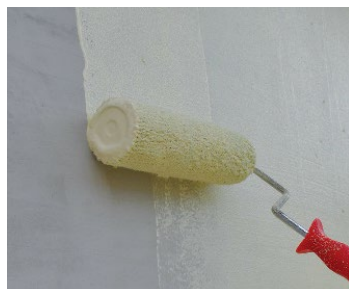
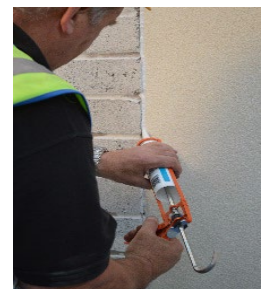
Silicone Primer

Apply Wetherby Primer with a brush or lamb's wool roller as per manufacturer's printed instructions. Allow Primer to fully dry, minimum 12 hours.

Silicone Render Finish

Mix and apply Wetherby Silicone Textured Finish strictly in accordance with the manufacturer's printed instructions. The top coat should be applied with a stainless steel trowel to the thickness of the grain and finished with a plastic float. Apply in a continuous application always working to a wet edge and in the same direction to ensure consistency of finish. Wherever possible, entire elevations should be completed in a single operation to avoid joint marks in the finish. This can often be achieved by working to natural breaks in the building or working to breaks in colour or texture.

Do not apply Wetherby Silicone Textured Finish with differing batch numbers on the same elevation. Care should be taken to avoid texture changes at different levels. Prior to setting, polish render with plastic float to give an even texture and remove all trowel marks.



Silicone Sealant

Gun apply a continuous bead of Wetherby Fire Rated Silicone Sealant at points where the renders will butt up against other materials, e.g. window frames, door frames, eaves, fascia's, projecting wall vents, gas and electric meter boxes etc. ensuring water tightness. Surfaces must be clean and suitable for the application of the Silicone Sealant which must be installed as per manufacturers guidance.

Cleaning

Wipe clean all exposed nosing, cills etc., at each work stage whilst render is still wet.

Application Videos

Wetherby have detailed application videos available online, please see <http://www.wbs-ltd.co.uk/videos/>.

420 ADVERSE WEATHER

- Materials / Surfaces: Do not use frozen materials and do not apply materials to frost bound substrates.
- Adhesives / Mortars / Renders: Do not apply when air temperature is at or below 5°C. Render products may be applied where temperatures are above 3°C on a rising thermometer and are forecast to stay above 5°C for an extended period on the same day.
- Adhesives / Mortars / Renders: Do not apply when relative humidity is equal to or greater than 90%.
- Do not apply materials when the air temperature or wall surface is in excess of 30°C without protection of the surface.
- Temperature of the work: Maintained above minimum level recommended by manufacturer until adhesive / mortar / render has fully hardened.
- Drying Times: Drying times of decorative finishes, particularly pre-mixed water based materials, may be greatly extended during periods of low temperature and / or high relative humidity 90% and above.
- Newly rendered surfaces: Protect newly rendered surfaces against rain, snow or other precipitation. Ensure that material is protected from frost, wash-offs etc.
- Application of renders, mortars or decorative finishes shall not be carried out on elevations where summer strength sunlight is hitting the area square on for prolonged periods without affording protection.
- Coatings damaged by rain or frost: Remove and replace.

440 ON SITE PULL OUT TESTS ON FIXING PINS

- Objective: To prove suitability of structural substrate and determine size and number of fixings required.

490 CONSTRUCTION / MOVEMENT JOINTS / SLIP JOINTS

- Location: As shown on drawings.
- Formation: Accurately to detail.
- Modifications to joint locations / design: Agree revisions before proceeding.
- All structural movement joints must be mirrored through the EWI system.

500 FLUES, CHIMNEYS AND COMBUSTION AIR VENTILATORS

Reference to be made to CIGA's Technician's Best Practice Guide to Flues, Chimneys and Combustion Air Ventilators, or similar, so that the performance and safety of fuel burning appliances is not compromised by the installation of the EWI measure.

- The combustion air supply must be isolated and air ventilator continuously sleeved through the wall.
- Flueless gas fires require a ventilator that provides a free air area of 10,000 mm². Under PAS 2030, both surveyor and installer have strict responsibilities placed upon them when it comes to the identification and safeguarding of essential ventilation requirements. Failure to comply will result in PAS 2030 being revoked. Please refer to Wetherby document **WBS-VENTINFO-01**.

With regards to gas flues there are two methods of installation, either a clear gap is left around the flue (300mm for fanned draught flues / 600mm for natural draught flues) or a 200mm non-combustible insulation slab installed around an extended flue. While WBS includes both alternatives in their detail drawings, main contractors and installers must ensure the chosen method is approved in conjunction with the boiler manufacturer's specification.

515 LIGHTNING CONDUCTOR

- Should be relocated to the surface of the system or fix Stone Wool insulation strip around the lightning conductor. Notch the back of the insulation board to allow for movement of lightning conductor leaving a 10mm gap as per Wetherby detail drawing.

520 SUPPORTS FOR SERVICES / FITTINGS

- Supports for soil and rainwater pipes, signs, CCTV cameras etc: Provide in locations shown on the drawings.
- Sleeved fixings shall be installed into the load-bearing background after completion of the render works in accordance with Wetherby recommendations.
- No load is to be transferred to the insulated render system.

528 POWER CABLES

- External power cables must not be covered over by the EWI system or cover plates in any circumstances. Power cables must be relocated, left open and visible or suitably & safely enclosed with guidance from the power distribution authority.
- Installers must be aware of any cables / utilities hidden within the frame and ensure there is no risk of coming into contact with these during the installation of the Wetherby System.

530 SEALANT JOINTS

- Sealant: WBS Fire Rated Silicone Sealant.
- Joints: Formed in accordance with section Z22 and system manufacturer's recommendations using any necessary joint fillers, backing strips etc.

540 STORAGE OF MATERIALS

- Adequate dry weatherproof and ventilated storage shall be provided for materials.
- All materials shall be protected against frost.
- Insulation boards must be kept dry at all times.
- Cementitious products shall be stored off the floor.
- Renders to be stored in temperatures of at least 5°C.
- Materials should be protected from prolonged exposure to sunlight.

550 INSPECTION OF COMPLETED INSTALLATION

- Timing: As soon as possible after completion of the work and before removing scaffolding.
- Notice for inspection (minimum): 7 working days.
- Defects: Report immediately.
- Onsite inspections for high rise projects are imperative. Each installation stage must be checked, signed off and documented or the Wetherby warranty will be void.

570 MATERIALS AND SITE CONDITIONS

- All materials shall be provided for the proper and efficient execution and completion of the works.
- Materials shall be mixed, applied and fixed in accordance with the relevant clauses of the specification and the manufacturer's instructions.
- A clean, fresh supply of water shall be provided for the works, via the management contractor.
- Suitable scaffolding that has a minimum gap of 300mm (all scaffold items) from the elevation surface in order to facilitate application requirements, shall be provided, erected, maintained and later removed for the proper and efficient execution and completion of the works.
- All necessary temporary supports for drains, water pipes, gas pipes, electrical cables and telephone cables shall be provided and maintained until the permanent supports are reinstated.
- Temporary flexible tubing shall be provided for the efficient discharge of rainwater from the buildings to protect the system during the progress of the works.

580 CLEANLINESS OF WORKS

- Protect all existing works, approaches and adjacent surfaces including windows and doors etc. using suitable sheeting, boards, covers etc.
- Remove all splashes, droppings etc. from completed works immediately and before drying takes place.

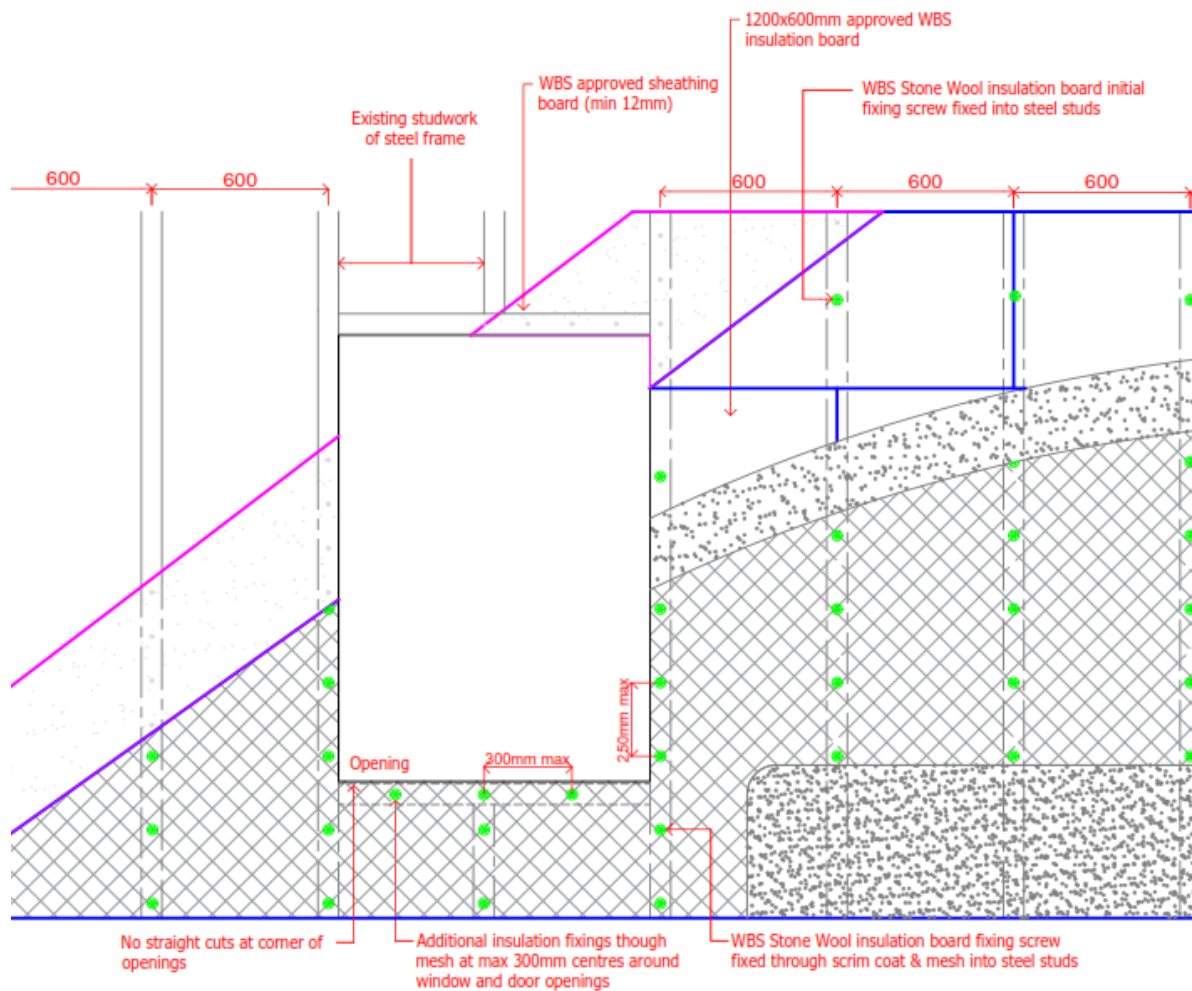
590 CONTROL OF POLLUTION

- All debris and rubbish arising from the works shall be removed off site from time to time to keep the site and works clean and tidy. All measures shall be taken to control the noise levels produced by the operatives on site to comply with the Control of Pollution Act. Precautions should be taken to prevent pollution of any river watercourse, reservoir, drainage or the like by the operatives on site.

600 MAINTENANCE

- An initial inspection should be made within 12 months and regularly thereafter to include:
 - visual inspection of the render for signs of damage. Cracks in the render exceeding 0.2 mm must be repaired. Impact damage must be repaired to prevent moisture ingress into the system.
 - visual inspection of architectural details designed to shed water to confirm that they are performing properly.
 - visual inspection to ensure that water is not leaking from external downpipes or gutters, as such leakage could stain or penetrate the rendering.
 - Sealant joints at window and door frames, etc which must be replaced as required.
- Maintenance schedules must be created and maintained for the building, which should include any repairs undertaken and the replacement and resealing of joints (for example, between the insulation system and window and door frame).
- The render may become discoloured with time, the rate depending on the initial colour, the degree of exposure and atmospheric pollution, as well as the design and detailing of the wall. In common with traditional renders, discoloration by algae and lichens may occur in wet areas and can be removed simply with a biocidal wash.
- Damaged areas must be repaired using the appropriate components and procedures detailed in the Certificate holder's installation instructions and in accordance with BS EN 13914-1: 2005. Please see Wetherby O&M Manual and Wetherby High Rise Maintenance Information for further details.

Wetherby EWI Fixing Pattern
(Subject to Wind Load Calculations and Pull-Out Tests)



- 2 initial fixings required per insulation board. 1 installed through the board centre line and 2 half fixings installed either side of the board edge. All fixings must be installed into the steel studs. Main fixings installed through scrim coat and mesh and into steel studs at 250mm centres.

Secondary WBS stainless steel fixing to be installed through the scrim coat and mesh into at a rate of 1 per m² (where required)

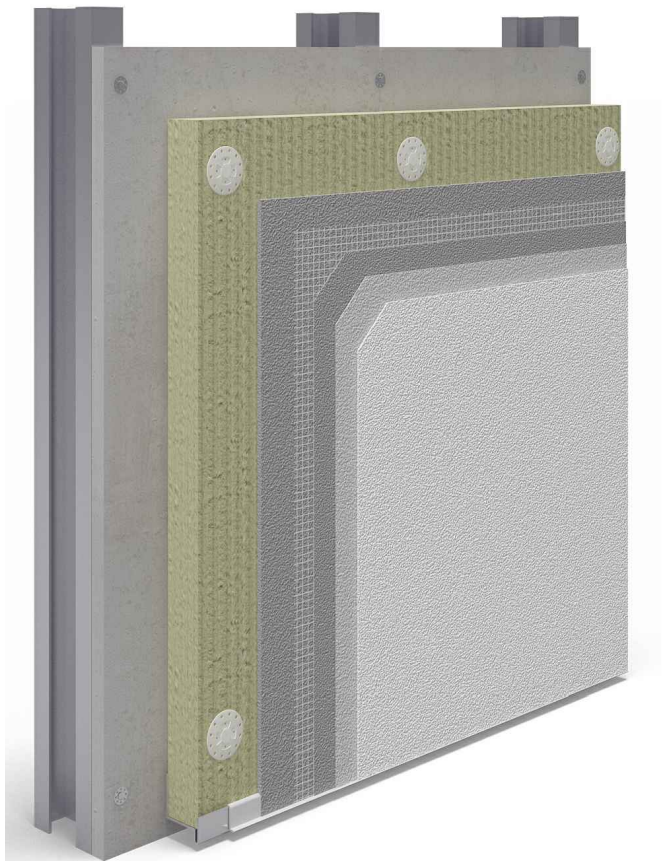
Studwork layout at 600mm centres

WBS approved sheathing boards to be fixed and jointed to manufacturers instructions



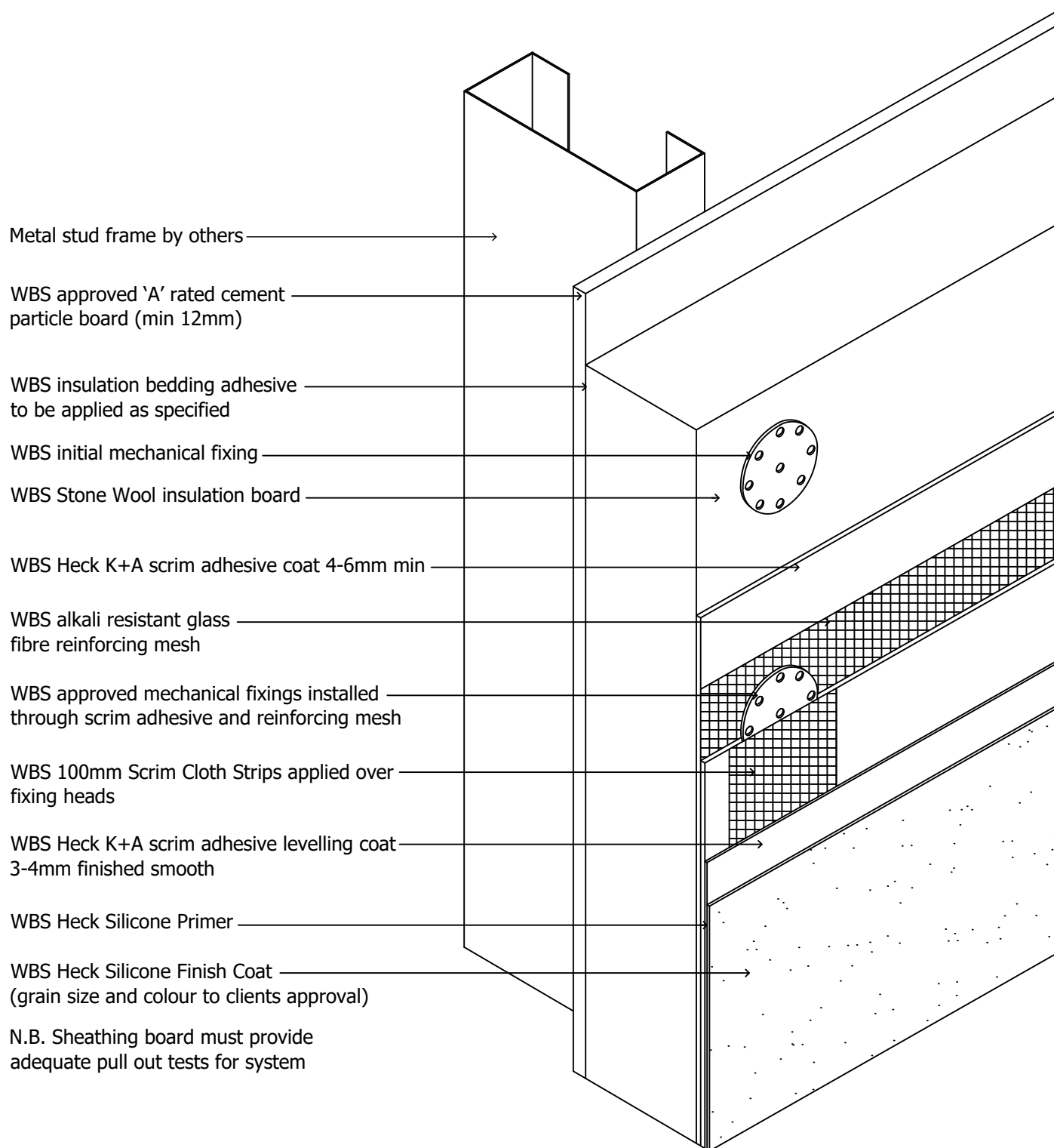
Wetherby Building Systems

External Wall Insulation Detail Drawings Insulation & Silicone Render Finish



The following Wetherby EWI detail drawing set is generic and is not to be used for a specific project. Cold Bridging solutions are available upon request. Please contact Wetherby Technical to obtain a project specific detail drawing set.

1 Kid Glove Road, Golborne Enterprise Park, Golborne, Greater Manchester, WA3 3GS
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drawing description.
Isometric - System build up detail

drawing no.
SFS-SW-SILICONE-01

project name.
Generic Detail Drawings

drawn by. BS

checked by. LS

revision. -

scale. nts

date. 24.11.2022

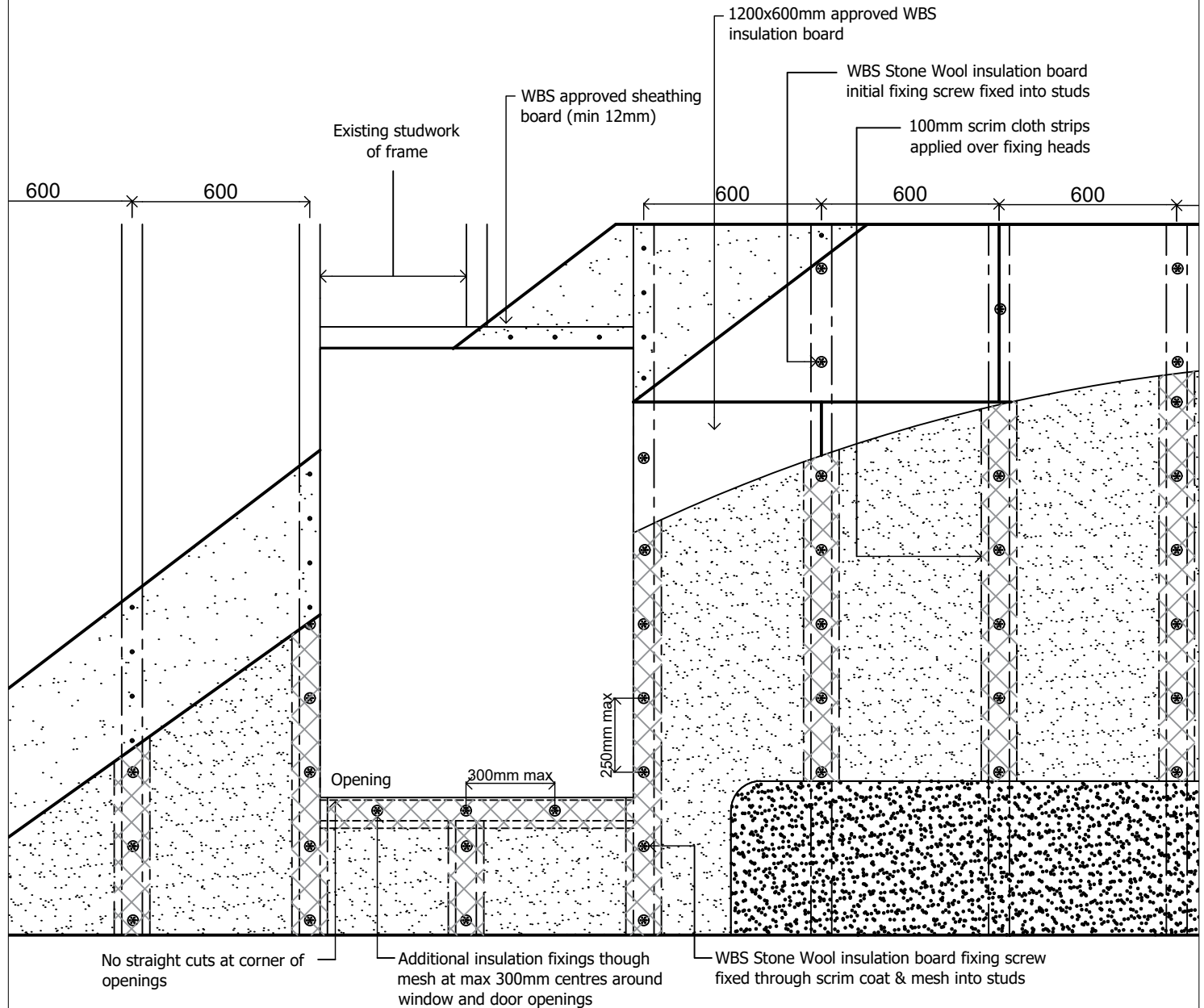
dwg set. 65

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N.B. Fixing arrangement subject to project specific pull out tests and wind load calculations



- 3 initial fixings required per insulation board. 2 installed through the board centre line and 1 half fixing installed either side of the board. All fixings must be installed into the studs. Main fixings installed through scrim coat and mesh and into studs at 250mm centres.

Secondary WBS stainless steel fixing to be installed through the scrim coat and mesh at a rate of 1 per m² (where required)

Studwork layout at 600mm centres

WBS approved sheathing boards to be fixed and jointed to manufacturers instructions

drawing description.
Fixing arrangement

drawing no.
SFS-SW-SILICONE-02

project name.
Generic Detail Drawings

drawn by. BS

checked by. LS

revision. -

scale. nts

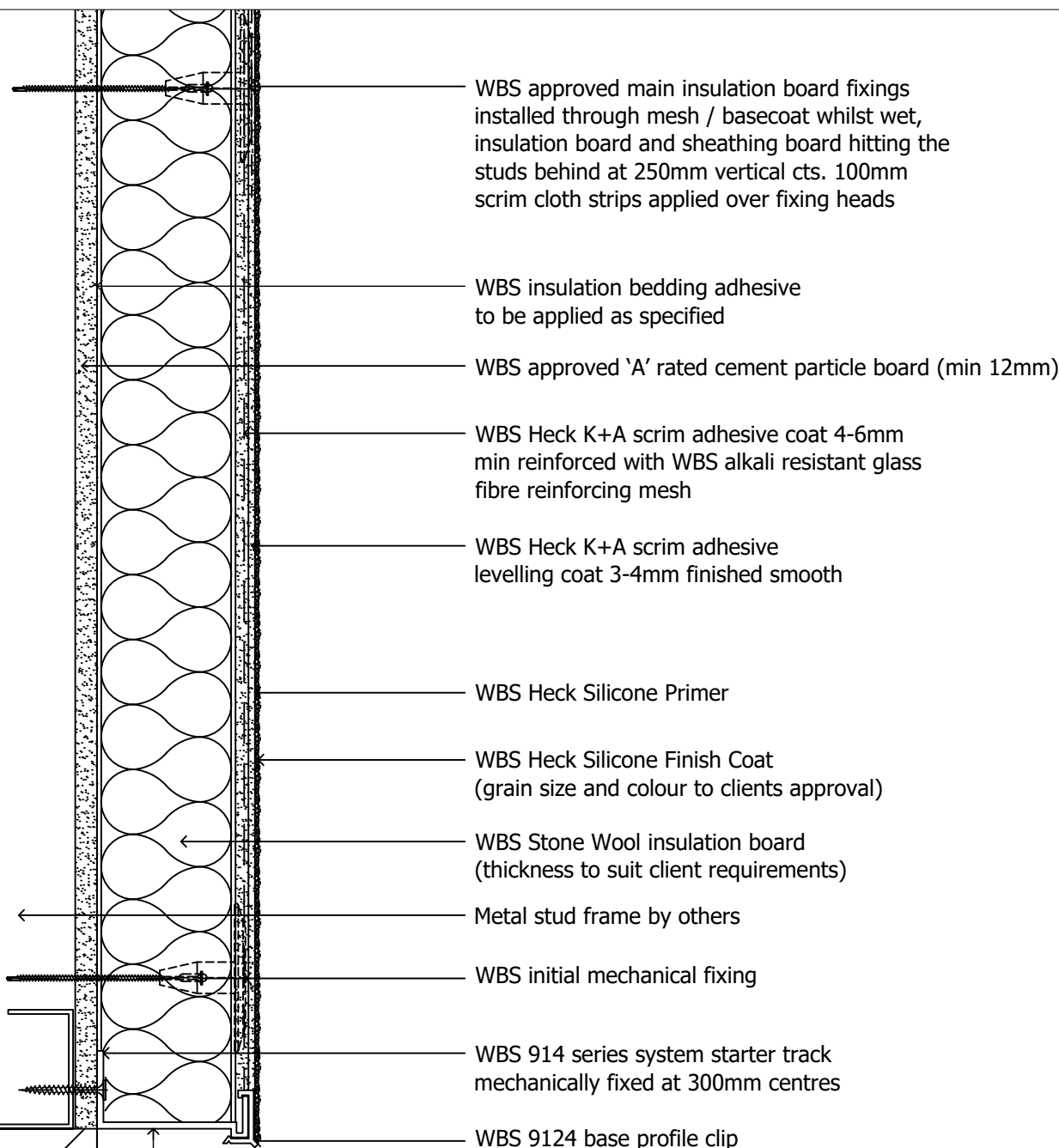
date. 24.11.2022

dwg set. 65

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drawing description.
Base bead detail

drawing no.
SFS-SW-SILICONE-03

project name.
Generic Detail Drawings

drawn by. BS

checked by. LS

revision. -

scale. nts

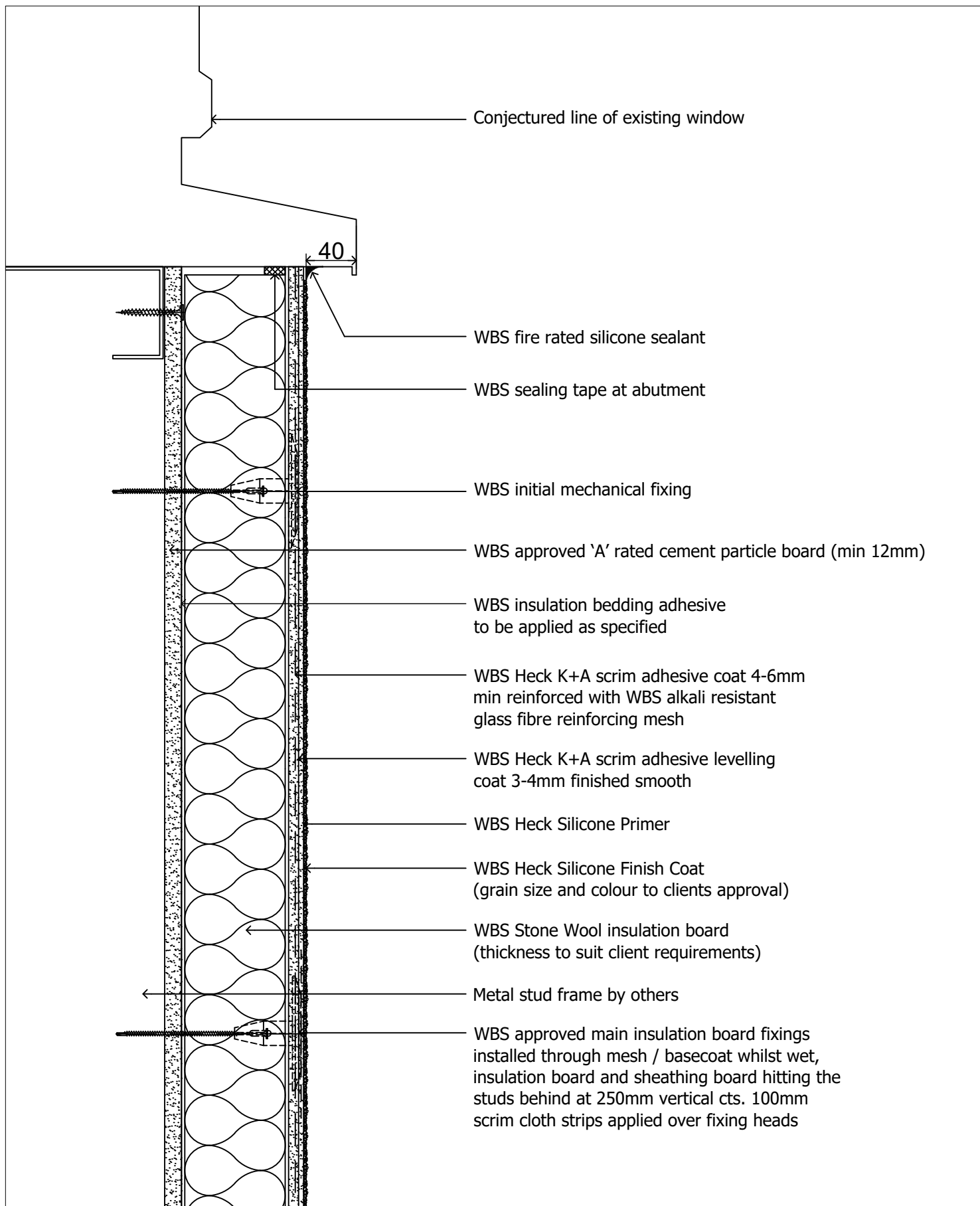
date. 24.11.2022

dwg set. 65

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drawing description.

Window cill detail

drawing no.

SFS-SW-SILICONE-04

project name.

Generic Detail Drawings

drawn by. BS

checked by. LS

revision. -

scale. nts

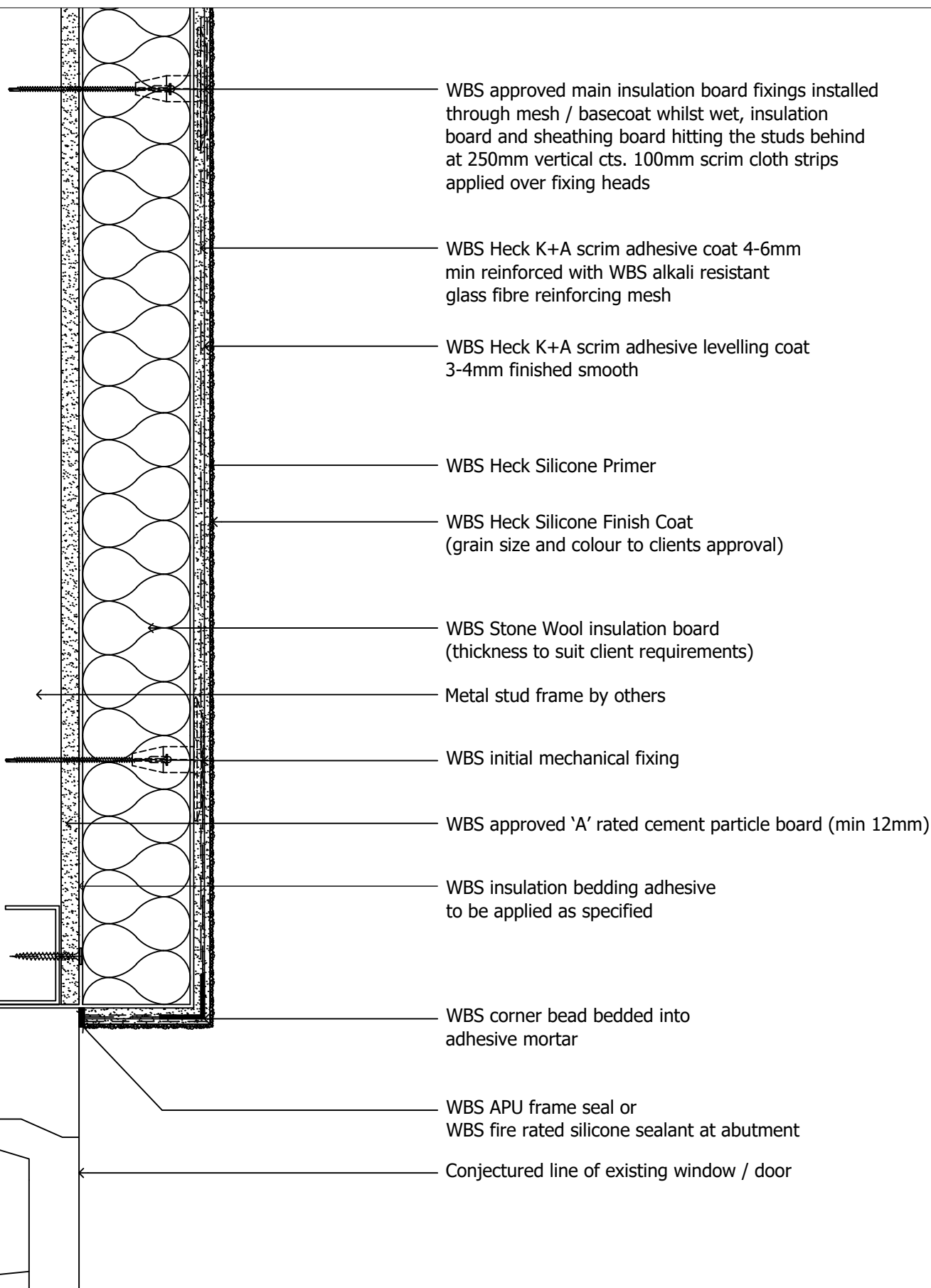
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drawing description.

Window/door head detail (1 of 2)

drawing no.

SFS-SW-SILICONE-05A

project name.

Generic Detail Drawings

drawn by. BS

checked by. LS

revision. -

scale. nts

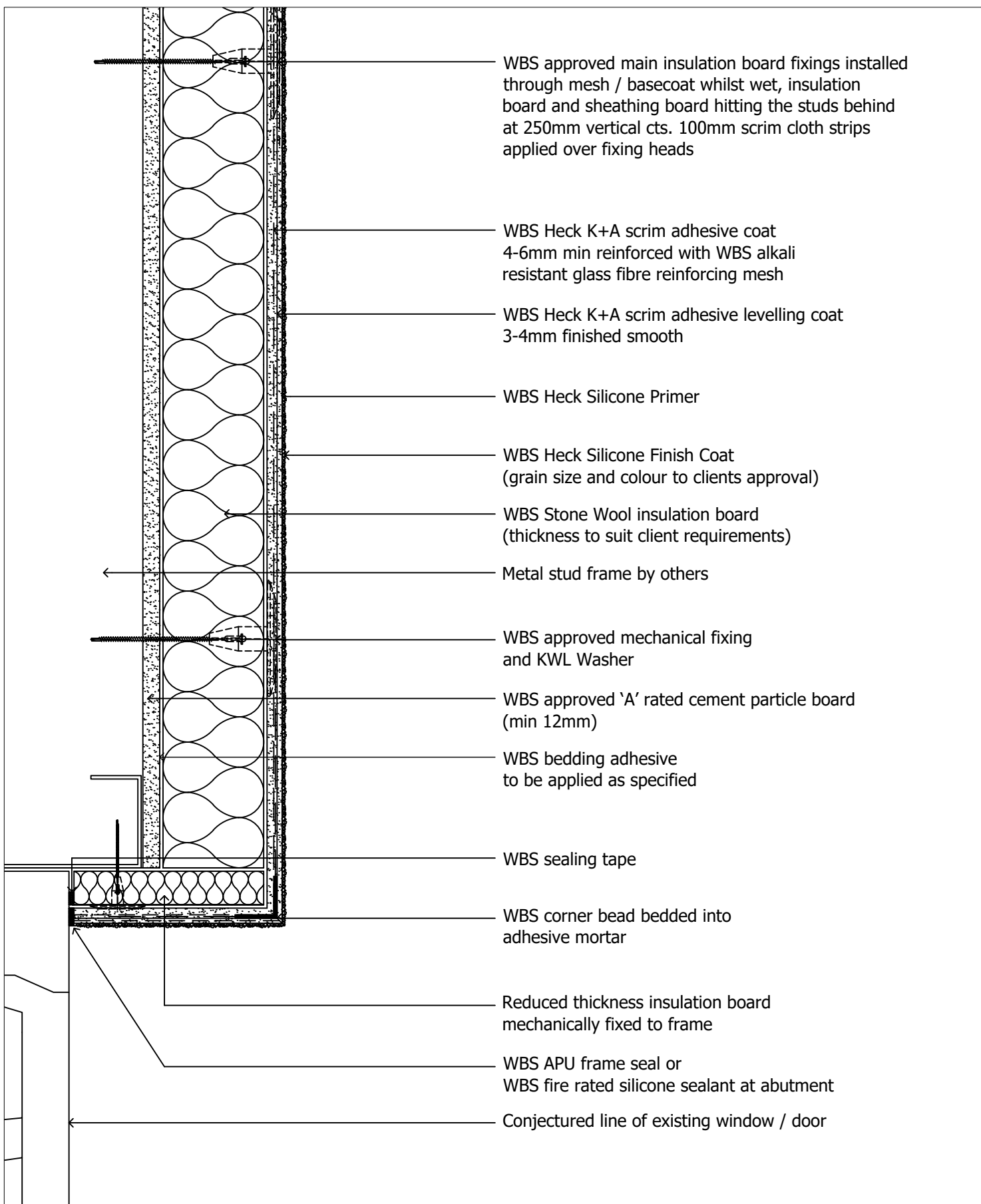
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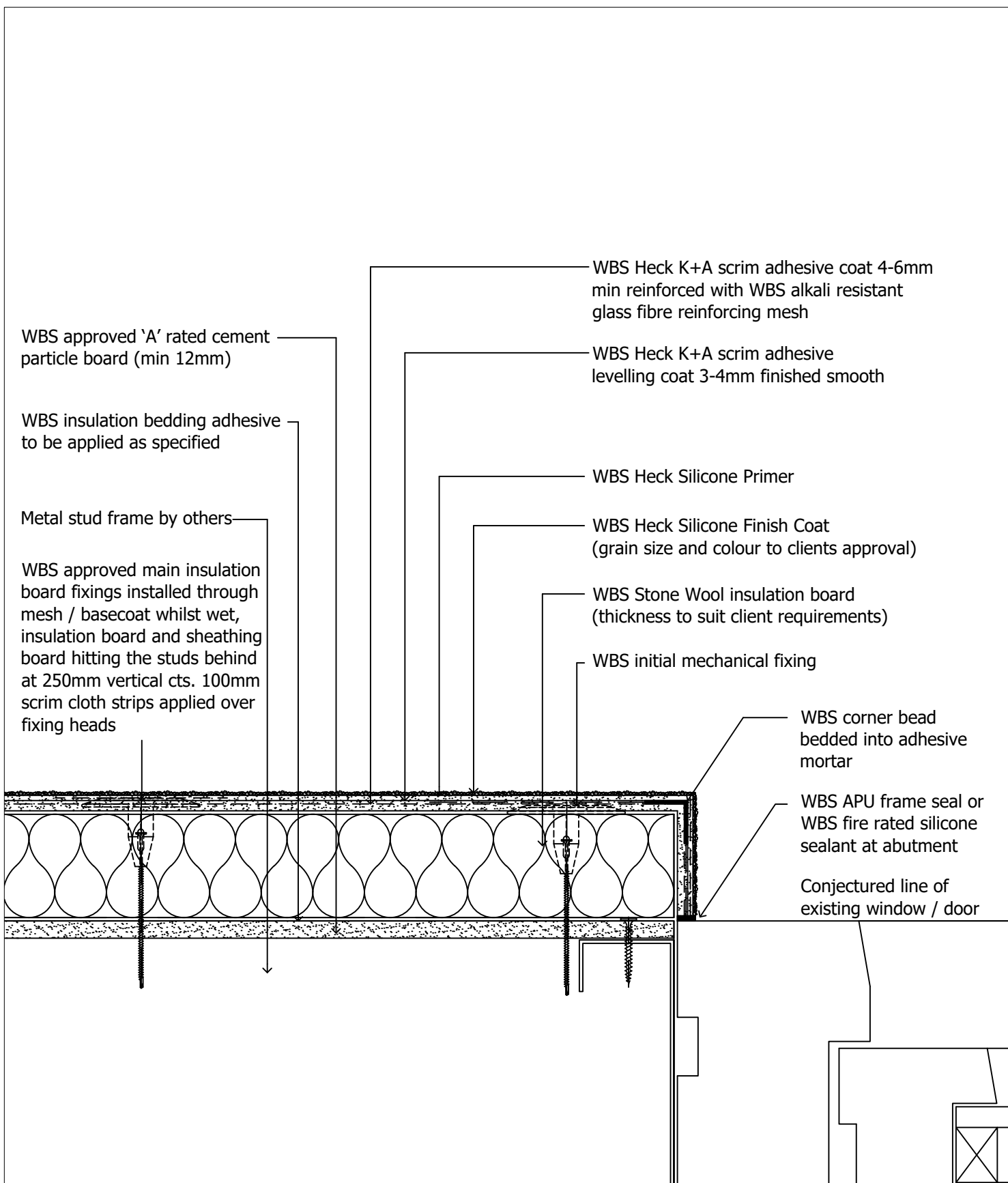
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drawing description. Window/door head detail (2 of 2)	drawn by. BS	 1 Kid Glove Road, Golborne Enterprise Park, Golborne, Greater Manchester, WA3 3GS Tel: 01942 717100 Fax: 01942 717101 Web: www.wbs-ltd.co.uk E-mail: technical@wbs-ltd.co.uk © WBS-LTD 1998-2022. All rights reserved
	checked by. LS	
drawing no. SFS-SW-SILICONE-05B	revision. -	
	scale. nts	
project name. Generic Detail Drawings	date. 24.11.2022	
	dwg set. 65	



drawing description.

Window/door jamb detail (1 of 2)

drawing no.

SFS-SW-SILICONE-06A

project name.

Generic Detail Drawings

drawn by. BS

checked by. LS

revision. -

scale. nts

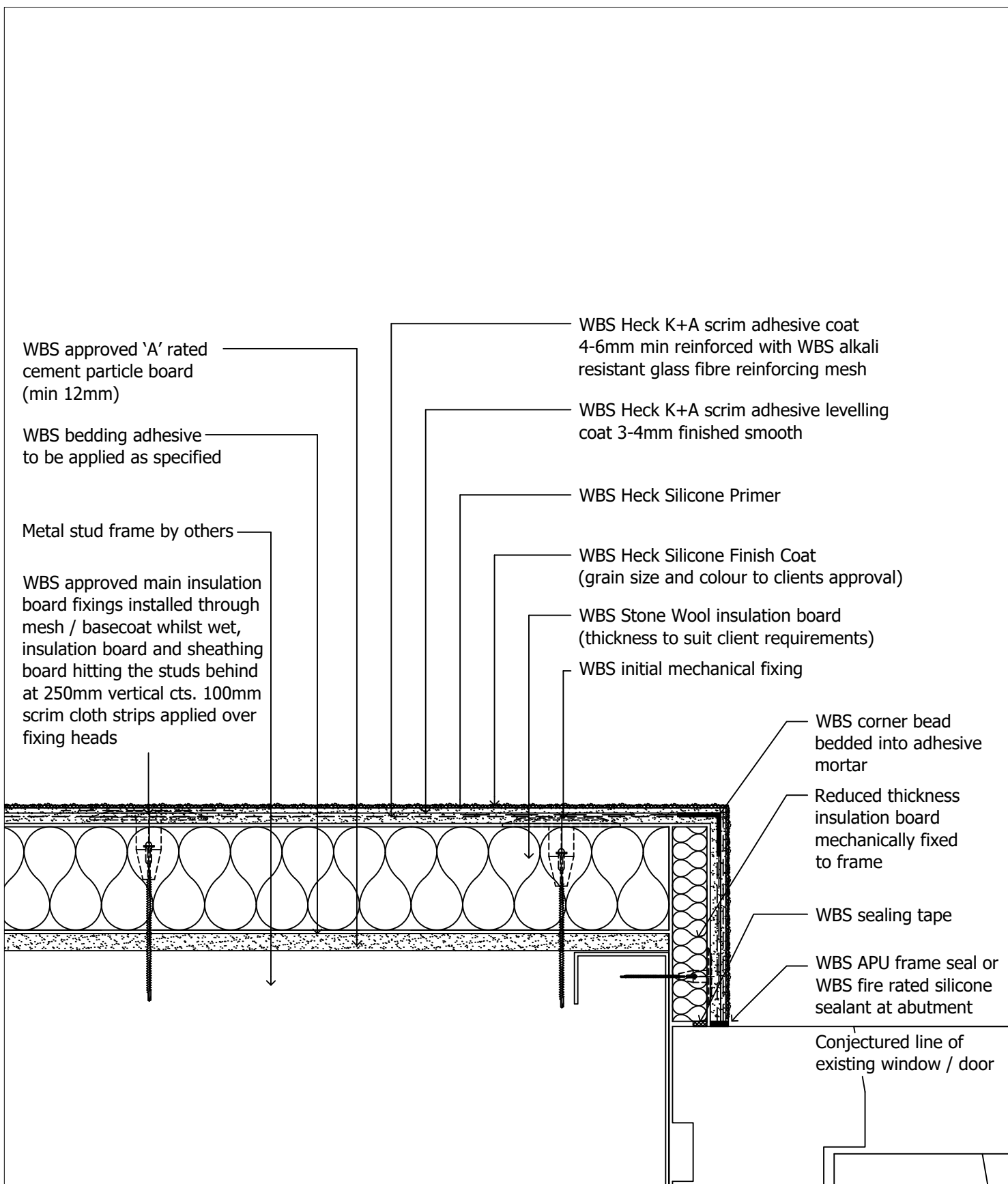
date. 24.11.2022

dwg set. 65

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drawing description.

Window/door jamb detail (2 of 2)

drawing no.

SFS-SW-SILICONE-06B

project name.

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checked by. LS

revision. -

scale. nts

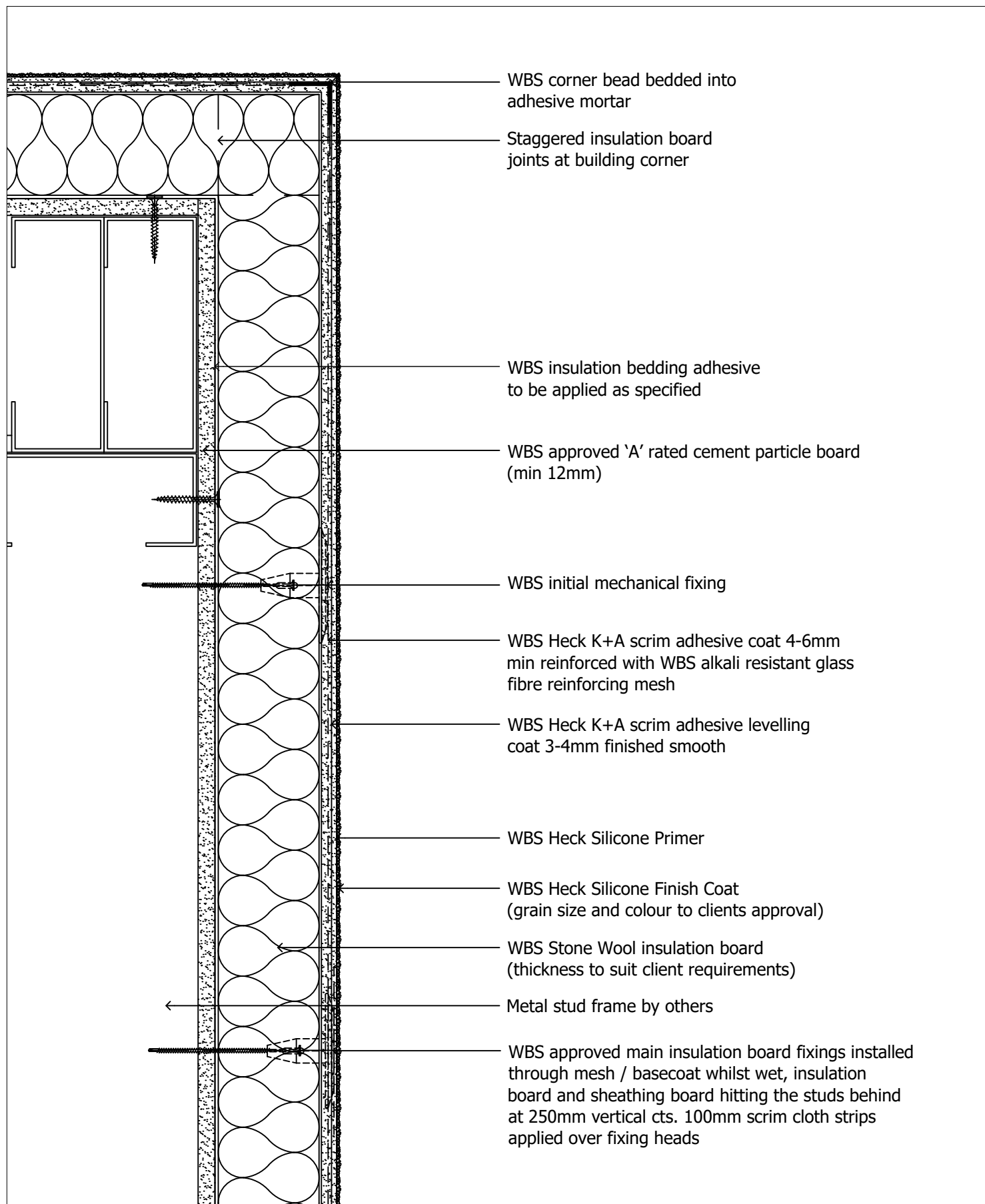
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drawing description.
External building corner detail

drawing no.
SFS-SW-SILICONE-07A

project name.
Generic Detail Drawings

drawn by. BS

checked by. LS

revision. -

scale. nts

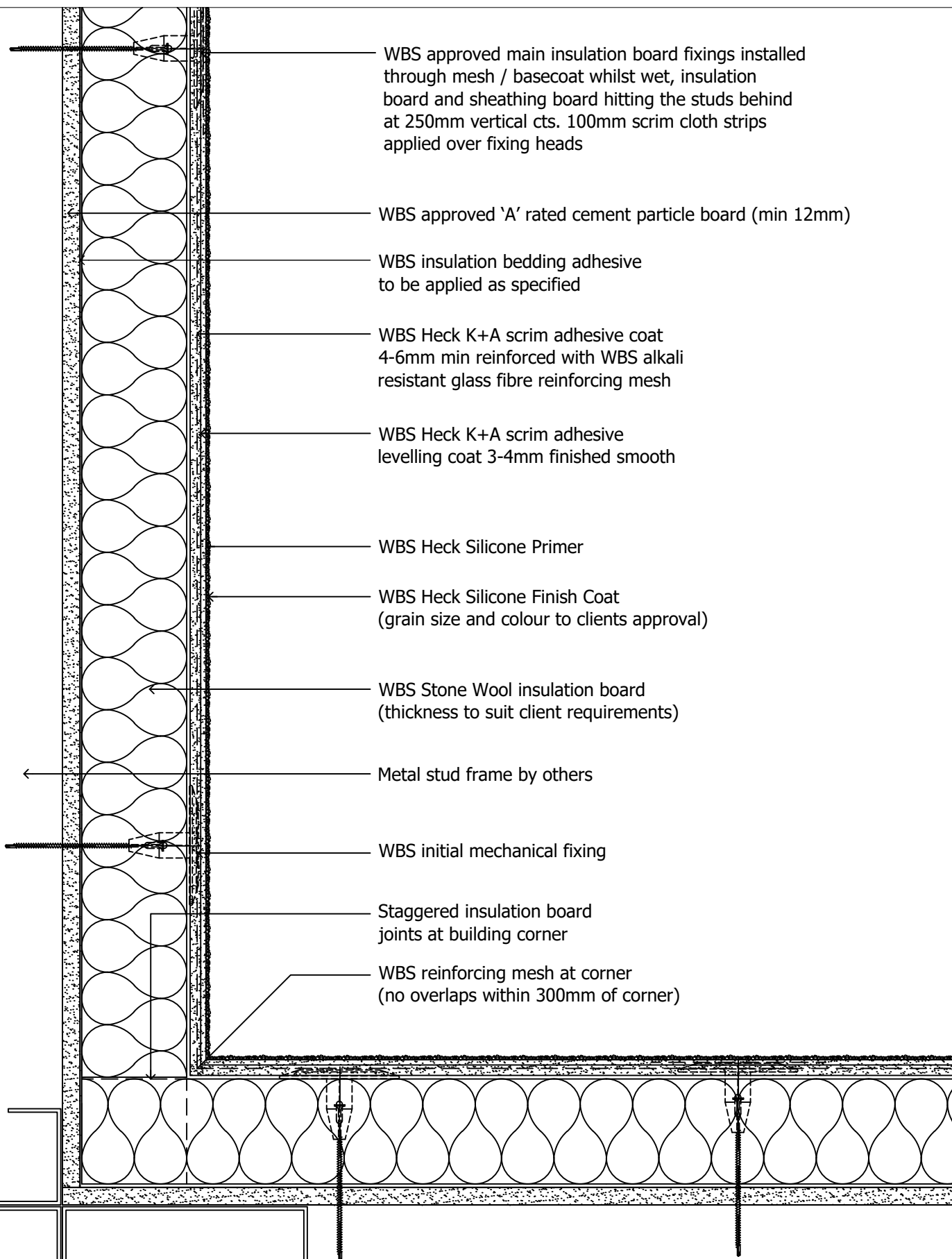
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drawing description.

Internal building corner detail

drawing no.

SFS-SW-SILICONE-07B

project name.

Generic Detail Drawings

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checked by. LS

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scale. nts

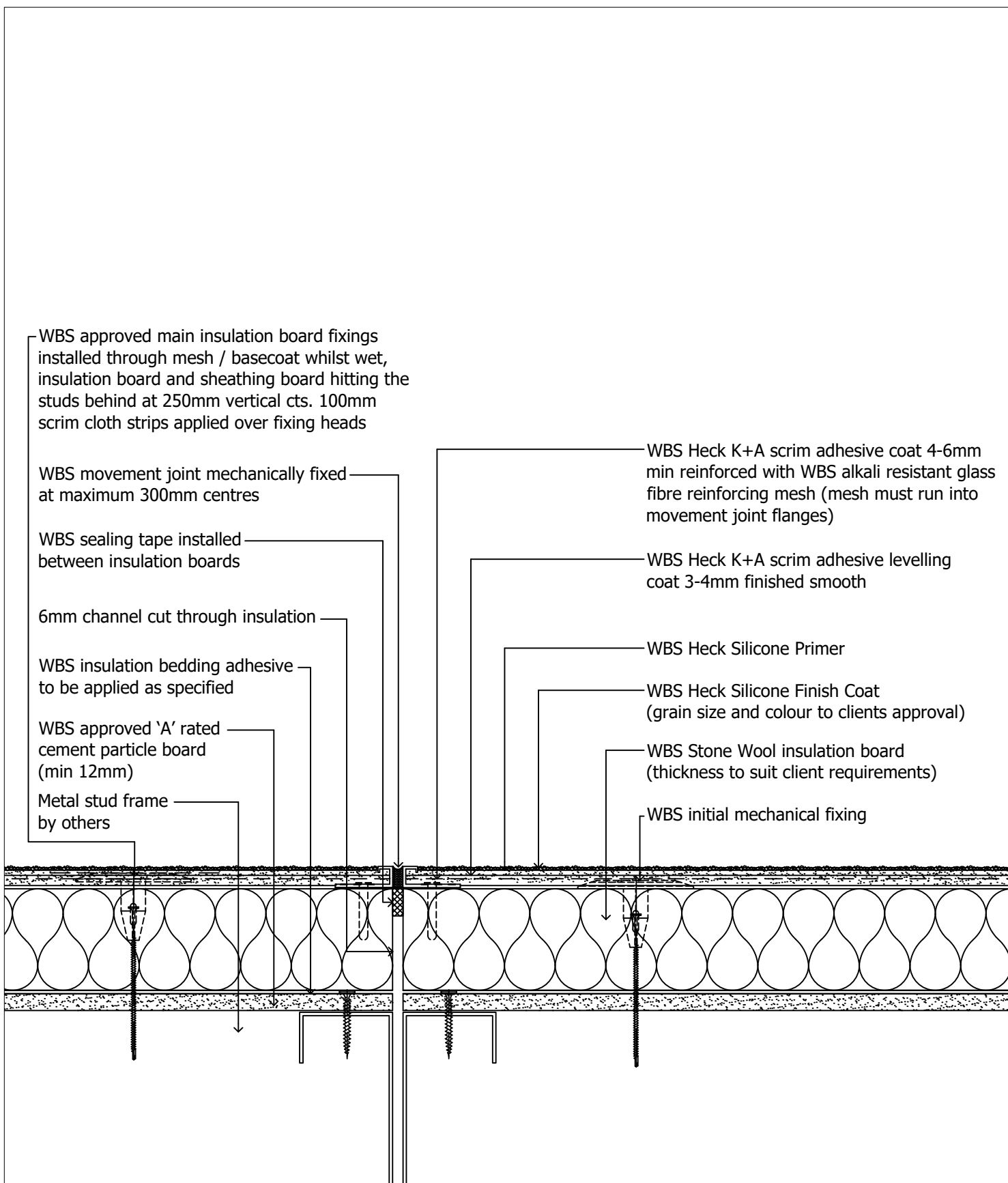
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drawing description.

Vertical movement joint detail

drawing no.

SFS-SW-SILICONE-08A

project name.

Generic Detail Drawings

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checked by. LS

revision. -

scale. nts

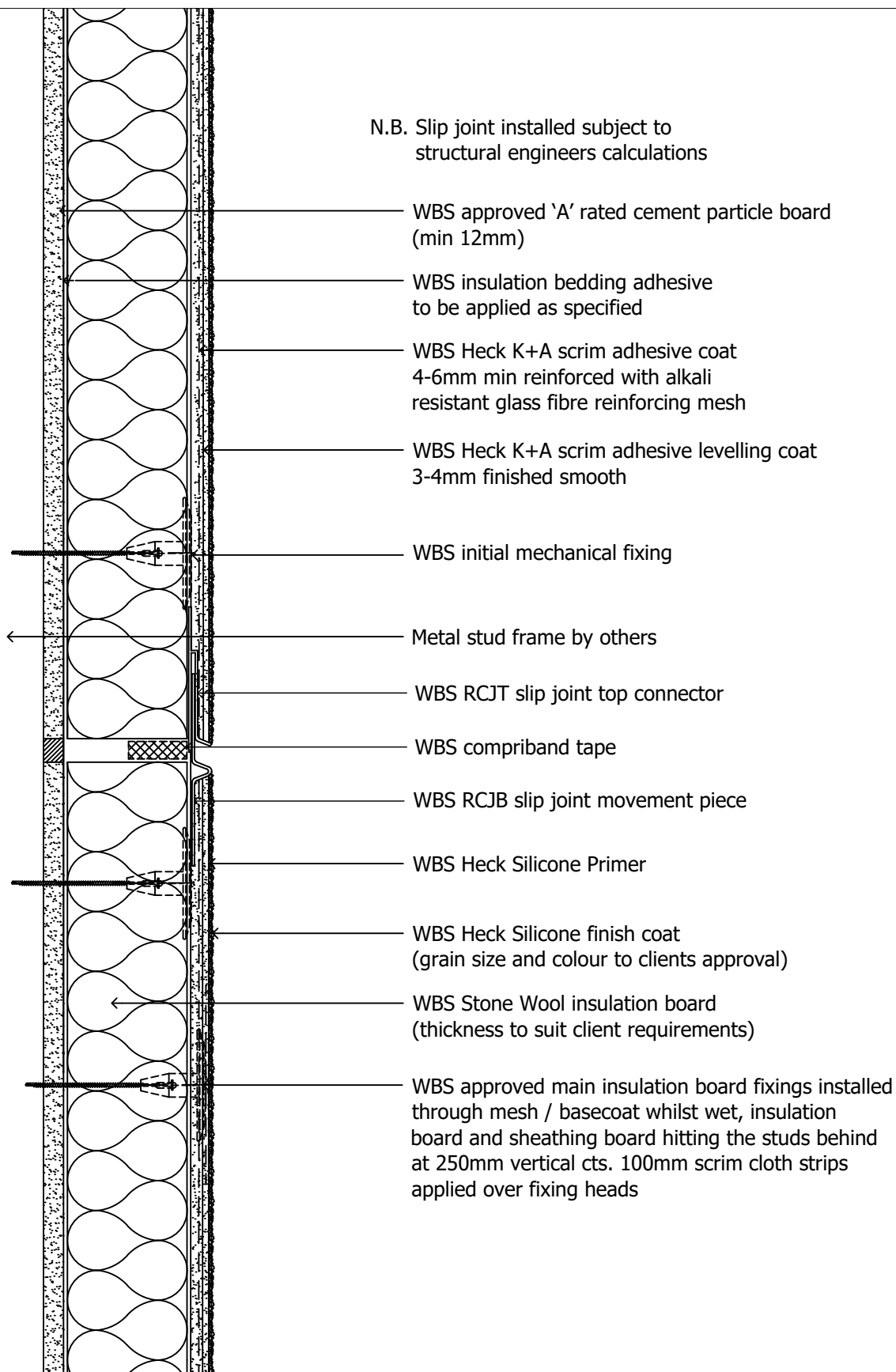
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drawing description.
Horizontal movement joint detail

drawing no.
SFS-SW-SILICONE-08B

project name.
Generic Detail Drawings

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checked by. LS

revision. -

scale. nts

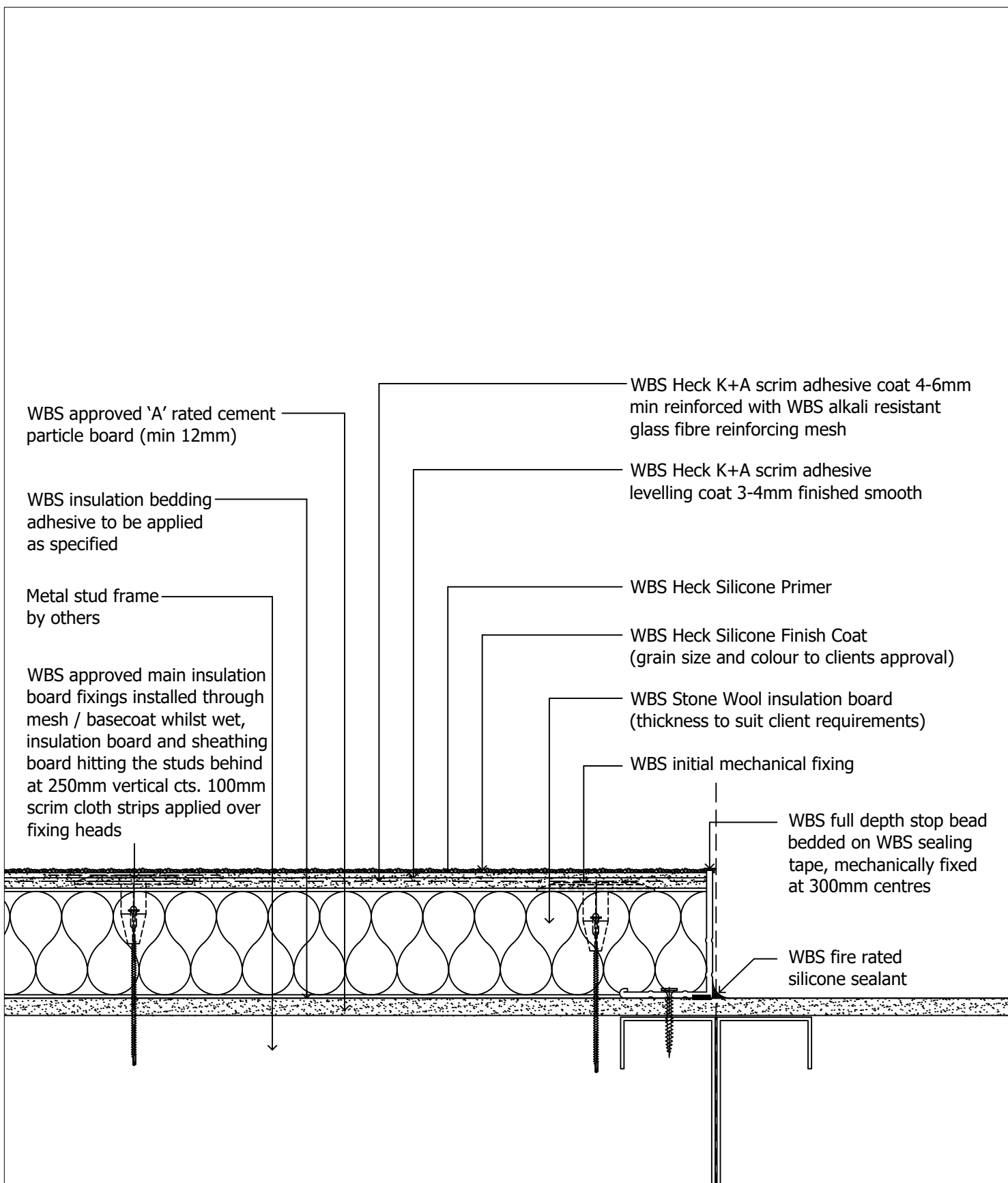
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drawing description.

System termination detail

drawing no.

SFS-SW-SILICONE-12

project name.

Generic Detail Drawings

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scale. nts

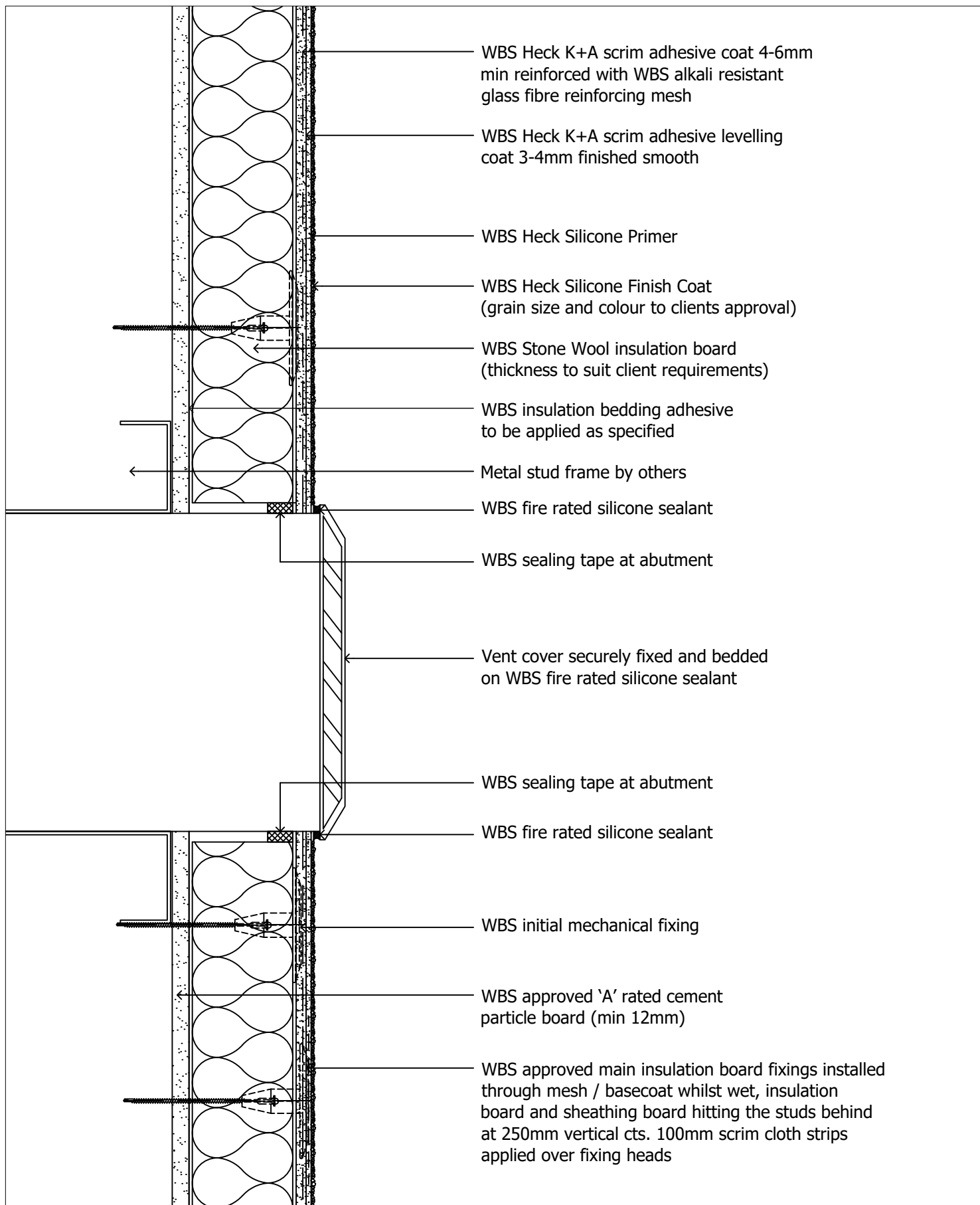
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drawing description.
Air vent detail

drawing no.
SFS-SW-SILICONE-13

project name.
Generic Detail Drawings

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checked by. LS

revision. -

scale. nts

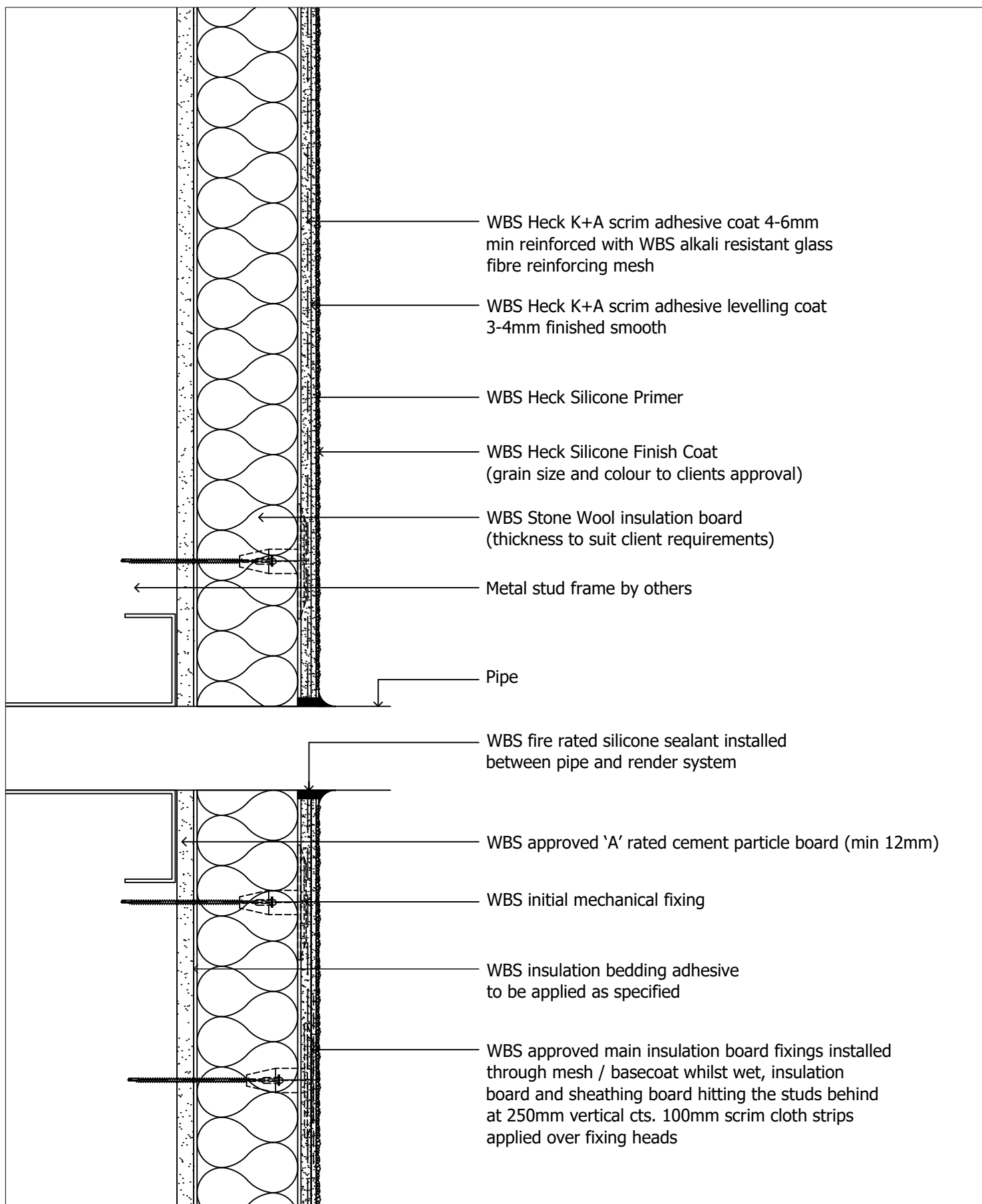
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drawing description.

Pipe detail

drawing no.

SFS-SW-SILICONE-18

project name.

Generic Detail Drawings

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checked by. LS

revision. -

scale. nts

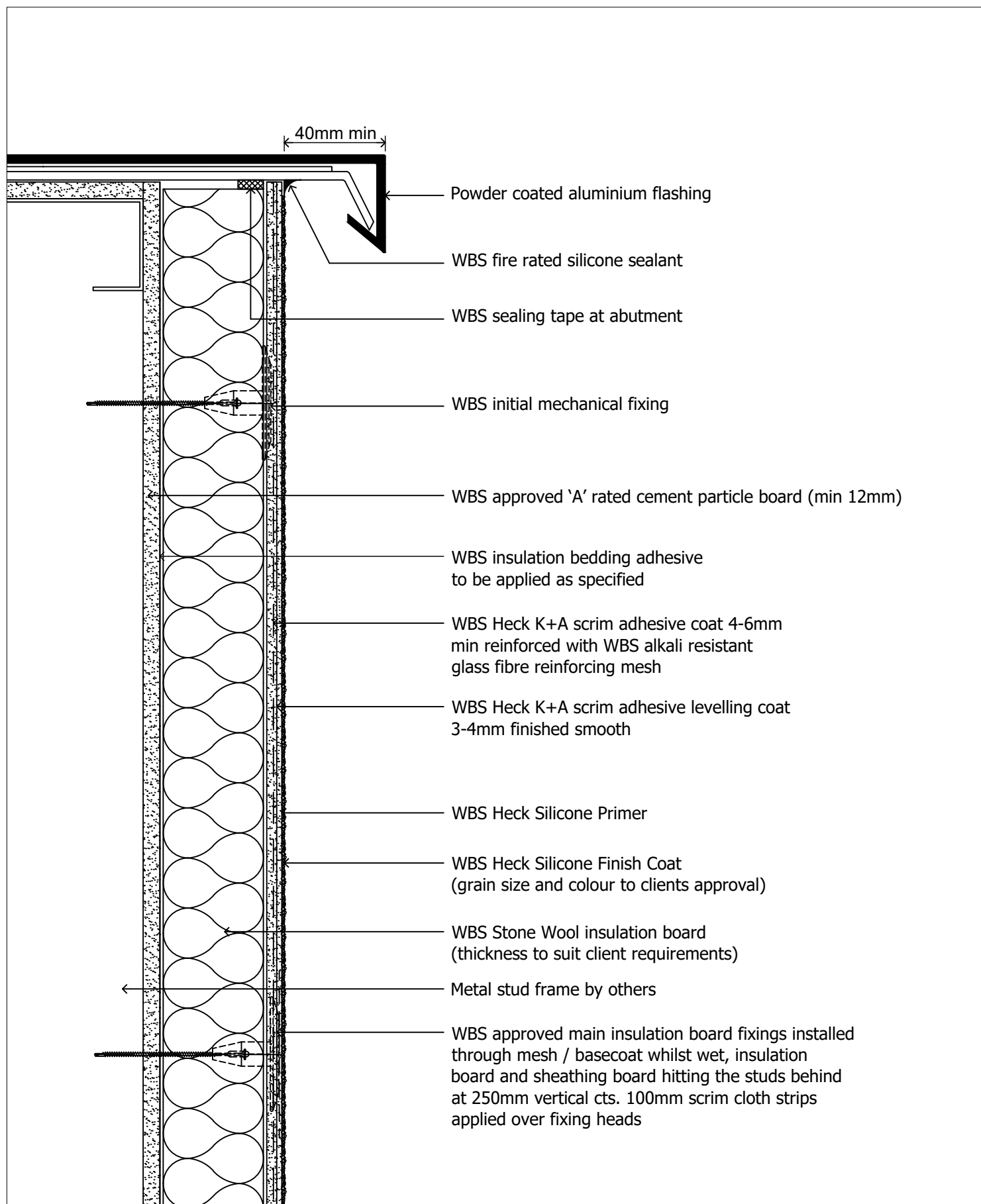
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dwg set. 65

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drawing description.
Parapet detail

drawing no.
SFS-SW-SILICONE-21

project name.
Generic Detail Drawings

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checked by. LS

revision. -

scale. nts

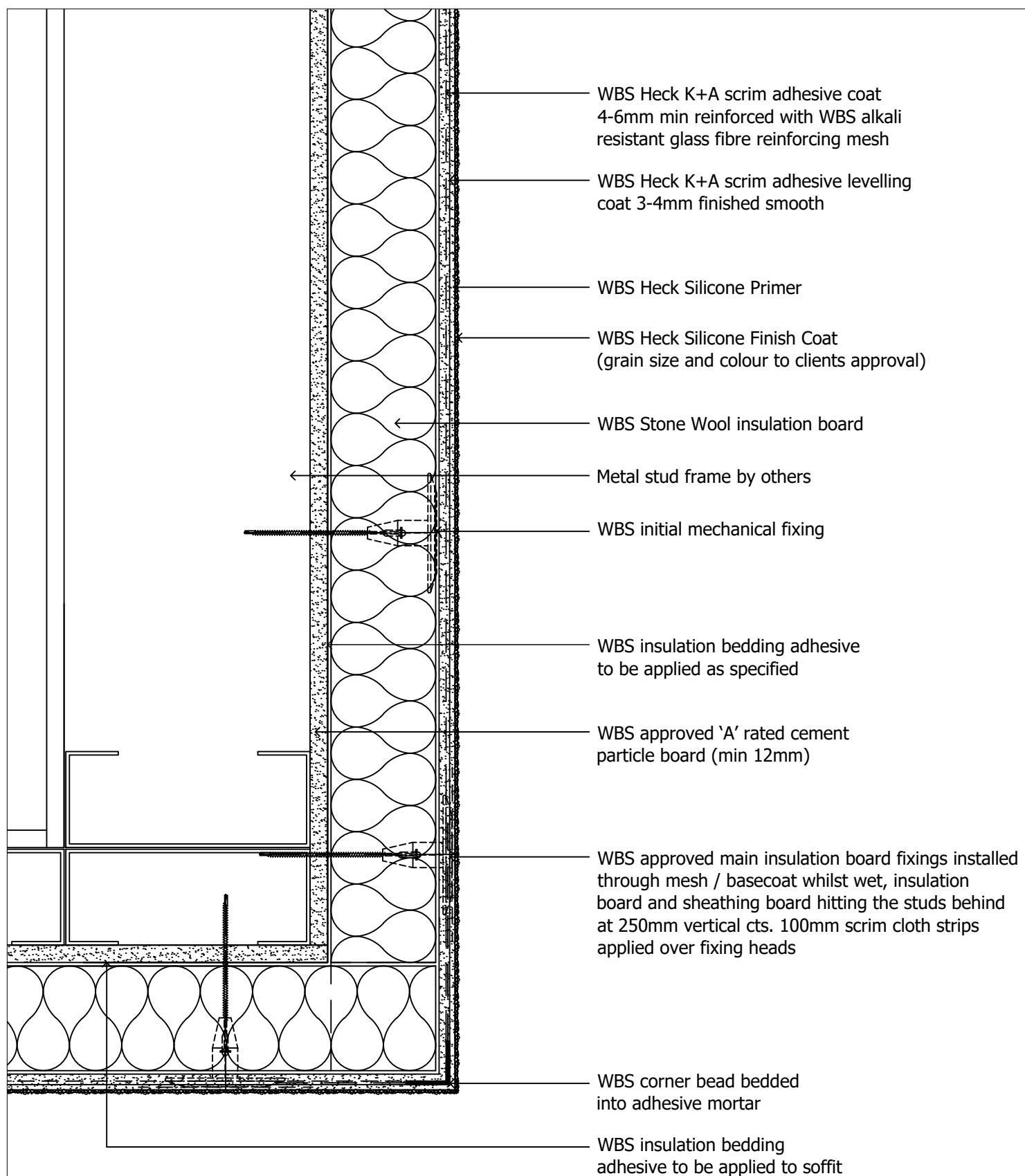
date. 24.11.2022

dwg set. 65

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drawing description.
Soffit detail

drawing no.
SFS-SW-SILICONE-22

project name.
Generic Detail Drawings

drawn by. BS

checked by. LS

revision. -

scale. nts

date. 24.11.2022

dwg set. 65

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SCOPE OF AGRÉMENT

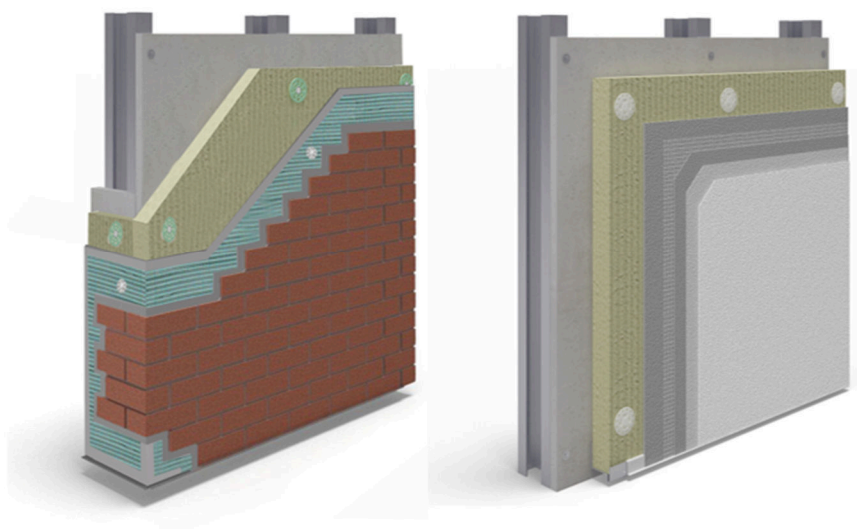
This BDA Agrément® (hereinafter 'Agrément') relates to the Wetherby Steel Frame Direct Fix EWI System (hereinafter the 'System'). The System is a mechanically fixed (with supplementary adhesive where required), mineral wool (hereinafter 'MW') insulated, external thermal insulation composite system (ETICS). The System is suitable for installation on existing and new dwellings and buildings other than dwellings, including buildings of modular off-site manufacture (hereinafter 'OSM'):

- above damp-proof course (hereinafter 'DPC') level on external sheathed light gauge steel frame (hereinafter 'LGSF') supporting walls (where LGSF includes exterior-grade cement-bonded particle board (hereinafter 'CBPB'), marine-grade plywood or exterior-grade oriented strand board (hereinafter 'OSB') with suitable strength and stiffness);
- above or below DPC level on buildings of modular OSM.

DESCRIPTION

The System consists of MW insulation which is mechanically fixed to the existing structure. An adhesive basecoat is applied with a reinforcement mesh, mechanically fixed back to the existing structure (additional adhesive fixing is necessary on a project-specific basis where a breather membrane is not required). Stress patches are applied over the fixings. Primer is applied before the application of a silicone finish. Brick slip adhesive is applied before the application of the brick slips. The brick slips are then pointed with mortar.

ILLUSTRATION



THIRD-PARTY ACCEPTANCE

None requested by the Agrément holder.

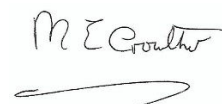
STATEMENT

It is the opinion of Kiwa Ltd. that the System is safe and fit for its intended use, provided it is specified, installed and used in accordance with this Agrément.

Chris Vurley, CEng
Operations Manager, Building Products



Mark Crowther, M.A. (Oxon)
Kiwa Ltd. Technical Director



SUMMARY OF AGRÉMENT

This document provides independent information to specifiers, specialists, engineers, building control personnel, contractors, installers and other construction industry professionals who are considering the safety and fitness for purpose of the System. This Agrément covers the following:

- Conditions of use;
- Production Control, Quality Management System and the Annual Verification Procedure;
- System components and ancillary items, points of attention for the Specifier and examples of details;
- Installation;
- Independently assessed System characteristics and other information;
- Compliance with national Building Regulations, other regulatory requirements and Third-Party Acceptance, as appropriate;
- Sources.

MAJOR POINTS OF ASSESSMENT

Moisture control - the System (see Section 2.2.9):

- can contribute to limiting the risk of interstitial and surface condensation;
- will provide a degree of protection against rainwater ingress.

Strength - the System has adequate strength and can be designed to adequately resist impact damage and wind loads normally encountered in the UK (see Section 2.2.10).

Fire performance - the System is classified as European Classification (see Section 2.2.11):

- A1, in accordance with BS EN 13501-1, when incorporating brick slip finish;
- A2-s1, d0 in accordance with BS EN 13501-1, when incorporating silicone finish.

Thermal performance - the System improves the thermal performance of external walls and can contribute to satisfying the requirements of the national Building Regulations (see Section 2.2.12).

Durability - the service life durability of the System will be dependent upon the environment (operating conditions) in which the System will be used (see Section 2.2.13).

UKCA and CE marking - the product manufacturers have responsibility for conformity marking, in accordance with all relevant British and European Product Standards (see Section 2.2.14).

CONTENTS

Section 1 - General considerations

- 1.1 - Conditions of use
- 1.2 - Production Control and Quality Management System
- 1.3 - Annual Verification Procedure - continuous surveillance

Section 2 - Technical assessment

- 2.1 - System components and ancillary items
- 2.2 - Points of attention to the Specifier
- 2.3 - Examples of typical details
- 2.4 - Installation
- 2.5 - Independently assessed System characteristics

Section 3 - CDM, national Building Regulations and Third-Party Acceptance

- 3.1 - The Construction (Design and Management) Regulations 2015 and The Construction (Design and Management) Regulations (Northern Ireland) 2016
- 3.2 - The national Building Regulations
- 3.3 - Third-Party Acceptance

Section 4 - Sources

Section 5 - Amendment history

Section 6 - Conditions of use

1 GENERAL CONSIDERATIONS

1.1 CONDITIONS OF USE

1.1.1 Design considerations

See Section 2.2.

1.1.2 Application

The assessment of the System relates to its use in accordance with this Agrément and the Agrément holder's requirements.

1.1.3 Assessment

Kiwa Ltd. has assessed the System in combination with relevant test reports, technical literature, the Agrément holder's quality plan, DoPs and site visit, as appropriate.

1.1.4 Installation supervision

The quality of installation and workmanship shall be controlled by a competent person who shall be an employee of an Approved Installer.

The System shall be installed strictly in accordance with the instructions of the Agrément holder and the requirements of this Agrément.

1.1.5 Geographical scope

The validity of this document is limited to England, Wales, Scotland and Northern Ireland, with due regard to Section 3 of this Agrément (CDM, national Building Regulations and Third-Party Acceptance).

1.1.6 Validity

The purpose of this Agrément is to provide well-founded confidence to apply the System within the scope described. The validity of this Agrément is as published on www.kiwa.co.uk/bda.

1.2 PRODUCTION CONTROL AND QUALITY MANAGEMENT SYSTEM

Kiwa Ltd. has determined that the Agrément holder fulfils all its obligations in relation to this Agrément in respect of the System.

The initial audit demonstrated that the Agrément holder has a satisfactory Quality Management System (QMS) and is committed to continuously improving its quality plan. Document control and record-keeping procedures were deemed satisfactory. A detailed Production Quality Specification (PQS) has been compiled to ensure traceability and compliance under the terms of this Agrément.

1.3 ANNUAL VERIFICATION PROCEDURE - CONTINUOUS SURVEILLANCE

To demonstrate that the System conforms with the requirements of the technical specification described in this Agrément, an Annual Verification Procedure has been agreed with the Agrément holder in respect of continuous surveillance and assessment, and auditing of the Agrément holder's QMS.

2 TECHNICAL ASSESSMENT

This Agrément does not constitute a design guide for the System. It is intended only as an assessment of safety and fitness for purpose.

2.1 SYSTEM COMPONENTS AND ANCILLARY ITEMS

2.1.1 Components included within the scope of this Agrément

The following components are integral to the use of the System:

Component		Description	Dimensions
base rail	Wetherby Base Rail	aluminium base rail	2.5 m long
	mechanical fixings for Wetherby Base Rail	Ejot LS case hardened, carbon steel, self-drilling screws	32 mm long by 5.5 mm diameter
bedding adhesive	WBS Insulation Bedding Adhesive	polymer modified, Portland cement binder system containing limestone aggregate and specially selected fillers	
MW insulation	Wetherby Stone Wool Insulation	average nominal density of 110 kg/m ³ in accordance with BS EN 13162, λ_D is 0.036 Wm ² /K	1.2 m by 0.6 m, minimum 50 mm thick
	mechanical fixings for MW insulation	Ejot TKR - case-hardened carbon steel self-tapping screws with Bravoll TIT washers	70 to 300 mm long by 4.8 mm diameter with 60 mm diameter washer
mesh	WBS Alkali Resistant Scrim Cloth	alkali-resistant glass fibre reinforcement mesh with a nominal weight of 160 g/m ²	50 m by 1 m or 1.1 mm by 0.52 mm thick rolls, 3.5 mm by 3.8 mm grid size
	primary mechanical fixings for mesh and MW insulation	Ejot TKR - case-hardened carbon steel self-tapping screws with Bravoll TIT washers	70 to 300 mm long by 4.8 mm diameter with 60 mm diameter washer
	secondary mechanical fixings for mesh and MW insulation	Ejot TKE - stainless steel self-tapping screws with stainless steel washers	70 to 200 mm long by 4.8 mm diameter
finish option 1: silicone finish	WBS Heck K&A Scrim Adhesive - Basecoat	mineral-based, bonding and reinforcing basecoat for acrylic and silicone renders	
	Wetherby Primer	a polymer-modified primer comprising pigments and quartz grits, to be used with silicone finish	
	Wetherby Silicone Textured Finish	silicone-modified render comprising mineral fillers, conforming to BS EN 998-1 with a 1.5 to 3 mm grain size	
finish option 2: brick slip finish	WBS Scrim Adhesive - Basecoat	cement-based, polymer-modified basecoat comprising limestone and sand, conforming to BS EN 13139, cement conforming to BS EN 197-1 and additives	
	WBS Brick Slip Adhesive	cementitious-based mortar conforming to BS EN 12004-1, cement conforming to BS EN 197-1 and additives	
	WBS Brick Slips	coarse ceramic brick slips/pistols/corners in accordance with BS EN 14411, manufactured in accordance with BS EN 771-1. Available in a range of colours.	215 mm by 65 mm by 9 mm to 25 mm thick
	WBS Pointing Mortar	polymer-modified sand/cement-based mortar, with class M6 in accordance with BS EN 998-2, manufactured in accordance with BS EN 13888	

2.1.2 Ancillary items falling outside the scope of this Agrément

The following ancillary items detailed in this section may be used in conjunction with the System, but fall outside the scope of this Agrément:

- external sheathed LGSF supporting wall;
- profiles - a range of standard profiles for end stop, corner reinforcement mesh and expansion joints, available in stainless steel, PVC-U or organic polyester powder-coated galvanized steel, provided to the specifier's requirements;
- under-and-over cills, cill extenders;
- roof verge extenders;
- expanding tape;
- Wetherby Sealing Tape;
- silicone sealant.

2.2 POINTS OF ATTENTION TO THE SPECIFIER

2.2.1 Design responsibility

A Specifier may not undertake a project-specific design; the Specifier shall co-operate closely with the Agrément holder to agree a project-specific design.

2.2.2 Applied building physics (heat, air, moisture)

A Specialist shall check the hygrothermal behaviour of a project-specific design incorporating the System and, if necessary, offer advice on improvements to achieve the final specification. The Specialist can be either a qualified employee of the Agrément holder or a suitably qualified consultant (in which case it is recommended that the Specialist co-operates closely with the Agrément holder).

2.2.3 General design considerations

A project-specific design is required. This shall be developed in close co-operation with the Agrément holder.

The System shall be installed above DPC level and a minimum of 150 mm above ground level on LGSF supporting walls, with the exception of modular OSM, which may be installed below DPC level.

Internal wet work (e.g. screed or plastering) shall be completed and allowed to dry prior to the application of the System.

Assessment of the structural performance of the System shall be carried out by a suitably qualified structural engineer to confirm that the System can:

- resist design impact, wind, dead and imposed loads;
- safely transfer loads to the building;
- accommodate all anticipated thermal movements without damage;
- limit deflection to prevent damage to the System.

Sheathing boards shall be:

- weather resistance category A or B and bending strength class 2 or 3, in accordance with BS EN 12467;
- classified as European Classification A1 or A2-s1, d0, in accordance with BS EN 13501-1, when the height of the project-specific design is more than:
 - 18 m in England, Wales and Northern Ireland;
 - 11 m in Scotland.

Supporting walls incorporating the System shall be:

- detailed to reduce the risk of damage due to movement in the LGSF supporting wall, taking into consideration differential movement in dissimilar materials;
- designed in accordance with the relevant Standards to limit mid-span deflections - see section 2.2.10;
- designed in accordance with BS EN 1993-1-1 and BS EN 1993-1-3. The steel structure shall be not less than 1.2 mm thick with a minimum of 50 mm flanges.

The System can be installed on supporting walls constructed from LGSF, where sheathing consists of CBPB, marine-grade plywood or OSB:

- CBPB shall be manufactured to BS EN 12467 or BS EN 634-2, with a minimum thickness of 10 mm;
- marine-grade plywood shall be manufactured to BS EN 313-1, with a minimum thickness of 12 mm;
- OSB shall be manufactured to BS EN 300, with a minimum thickness of 11 mm.

Buildings incorporating the System shall be designed and constructed to prevent moisture penetration and air infiltration, in accordance with the relevant Codes and Standards.

Care is needed for design detailing of joints around openings, penetrations and movement joints, which shall be in accordance with BS 6093.

The System shall be secured to the supporting wall with mechanical fixings through the reinforcement mesh and MW insulation.

Where required, properly constructed movement joints (designed to cater for the calculated degree of movement to control expansion, contraction and cracking without reducing the stability and weathertightness of the wall) shall be carried through the System using movement beads of PVC, powder-coated galvanised steel or stainless steel. Expansion joints shall be provided at 7.5 m intervals when the length of a wall exceeds 12 m (subject to the project-specific design).

Examples of relevant detailing for EWI systems used with LGSF can be found in SCI Publication P343.

2.2.4 Project-specific design considerations

The project-specific design shall:

- be determined by the Agrément holder;
- take into account the requirements of the relevant national Building Regulations (see Section 3.2);
- take into account the service life durability required (see Section 2.2.13).

A pre-installation survey is required to allow determination of the project-specific design (see Section 2.4.3).

The Agrément holder shall ensure that the following considerations are included in the development of a project-specific design:

- structural adequacy of the supporting wall;
- thermal transmittance (hereinafter 'U-value') requirements;
- thermal expansion effects of the supporting wall and the System;
- likely local impact resistance;
- pull-through of fixings;
- pull-out of fixings;
- effect of wind actions on the System.

Adhesive is only required where specified and is not required where the project-specific design incorporates a breather membrane.

The number of fixings required through the reinforcement mesh and MW insulation is a variable design value and shall be equal to or greater than that needed to achieve the required project-specific design wind load (see section 2.2.10).

Account shall be taken of Government Accredited Construction Details for Part L - Masonry external wall insulation illustrations, timber frame illustrations and steel frame illustrations for England and Wales and Accredited Construction Details for Scotland (hereinafter 'Government Accredited Construction Details').

During the assessment and survey, fixing pull-out strength (kN) tests shall be conducted on the supporting wall surface in accordance with EOTA TR 051 and EAD 330196-01-0604. The results of the assessment and survey shall assist the Agrément holder in determining the type, size and minimum number of fixings required per square metre. When using pull-out data for fixings, the material safety factor γ_m shall be considered.

For modular projects that incorporate the System below DPC level, the following specific conditions will apply:

1. the System shall not come into contact with the ground;
2. the section of the System below DPC level shall never become immersed in standing water;
3. a detailed site ground condition survey shall be undertaken for each case and suitable land drainage below the modular housing units shall be designed and implemented accordingly;
4. the land drainage solution provided in response to condition 2 and 3 above shall not rely on pipework that may become blocked or mechanical systems that could fail;

5. where the design below DPC level creates a 'bund', the land drainage solution provided in response to condition 2 and 3 above shall prevent the accumulation of rain or groundwater;
6. the section of the System installed below DPC level shall be separated from the remainder of the System at DPC level.

2.2.5 Permitted applications

Only applications designed according to the specifications given in this Agrément are permitted. In each case, the Specifier and Installer shall co-operate closely with the Agrément holder.

2.2.6 Installer competence level

The System shall be installed strictly in accordance with the instructions of the Agrément holder and the requirements of this Agrément.

Installation shall be by an Approved Installer, trained and approved by the Agrément holder.

2.2.7 Delivery, storage and site handling

The System components are delivered in suitable packaging bearing the production identification date or batch number and, where applicable, the BDA Agrément® logo incorporating the number of this Agrément.

Prior to installation, the System components shall be stored in accordance with the Agrément holder's requirements. Good housekeeping protocols shall be followed to avoid damage.

Store the System components in accordance with the Agrément holder's requirements. Particular care shall be taken to:

- avoid exposure to direct sunlight for extended periods of time;
- avoid exposure to high or low temperatures for extended periods of time;
- store in a well-ventilated covered area to protect from rain, frost and humidity;
- store away from possible ignition sources.

For storage of liquid and powder components, minimum and maximum temperatures shall be observed, including limitations of the shelf life, in accordance with the manufacturer's recommendations.

2.2.8 Maintenance and repair

Once installed, the System:

- is not susceptible to damage from environmental conditions normally encountered in the UK;
- requires regular maintenance. For 60-year durability, a bespoke extended repair and maintenance protocol will apply. For advice in respect of repair and maintenance, consult the Agrément holder.

The System finishes may become discoloured by algae and lichens in damp areas. Cleaning with fresh warm water and light brushing will mitigate this. A mild detergent or traffic-film remover can be applied and washed off. Any surface algae can be cleaned off using an algicide.

Lime bloom is likely to occur in renders with Portland cement and can be avoided by application during weather conditions recommended by the Agrément holder.

Any damage shall be repaired immediately in accordance with BS EN 13914-1 and the Agrément holder's Maintenance and Repair Manual.

Maintenance shall include the replacement and resealing of joints at window and door frames at regular intervals to prevent failure. Failed elements such as sealants, joint seals and corroded materials shall be replaced to ensure that water ingress does not occur.

Performance factors in relation to the Major Points of Assessment

2.2.9 Moisture control

Condensation risk

External walls incorporating the System can adequately limit the risk of surface and interstitial condensation when designed in accordance with BS 5250 and BRE Report 262.

A condensation risk analysis shall be completed at project-specific design stage for all elements of the construction, including at junctions, openings and penetrations, to minimise the risk of surface and interstitial condensation. When correctly installed on an occupied building, no condensation will form on the internal wall.

Resistance to precipitation including wind-driven rain

The project-specific design shall include detailing around openings, penetrations and movement joints to minimise the risk of wind-driven rainwater ingress, in accordance with BS 6093.

The System will provide a degree of protection against rainwater ingress. However, care shall be taken to ensure that supporting walls are adequately weathertight prior to installation of the System.

The guidance given in BRE Report 262 shall be followed in connection with the weathertightness of wall constructions. The Agrément holder shall select a construction appropriate to the local wind-driven rain index in accordance with BS 8104, paying due regard to the design detailing, workmanship and materials to be used.

At the tops of walls, the System shall be protected by an adequate coping, overhang or other project-specific detail.

The System has adequate resistance to artificial weathering and resistance to thermal shock, in accordance with EAD 040914-00-0404.

2.2.10 Strength

Structural loading

The supporting wall shall have sufficient strength to withstand all wind, dead and imposed loads applied to and from the System, including racking and any temporary loads that could be applied during installation. The strength of the supporting wall shall be verified by a suitably qualified engineer. The project-specific design shall ensure that the System attachment to the supporting wall has adequate fixing pull-out capacity for the calculated wind loads.

The System shall be designed to withstand wind action loads in accordance with BS EN 1991-1-4. Account shall be taken of the location, shape and size of the building. The average yearly wind action load data for the site location shall be collated and used to calculate the required design wind resistance (positive and negative) of a given support spacing and fixing pattern. Special consideration shall be given to locations with high wind-load pressure coefficients, as extra fixings may be required.

The supporting wall shall be designed in accordance with the relevant Standards to limit mid-span deflections to L/200 (mid-span) and L/150 (cantilever).

The System has adequate wind-load resistance and suitable mechanical strength, in accordance with ETAG 004. For the calculation of the wind-load resistance of the System, the characteristic pull-through values given in Table 1 shall be used.

Table 1 - Design wind load values - Wetherby mechanical fixings with 60 mm diameter head

Design wind load (kN/m ²)	Number of fixings per m ²	Design fixing pull-through resistance (kN)*
3.80	9	0.42
2.95	7	
2.55	6	

* partial factor of 2.5 has been applied

Where mechanical fixings through the MW insulation are aided by supplementary adhesive, the contribution of the adhesive is not considered when calculating the wind-load resistance of the System.

Positive wind load is transferred to the supporting wall directly via bearing and compression, through MW insulation and render system. Negative wind load is resisted by the bond between MW insulation and render system reinforced with Scrim cloth. The MW insulation is retained by mechanical anchors through the reinforcement mesh (and adhesive if used), which are fixed to the supporting wall.

Impact resistance

When tested for soft-and hard-body impact resistance, in accordance with EAD 040914-00-0404, the System is categorised as:

- use Category I: brick slip finish;
- use Category II: silicone finish.

The Use Categories in accordance with EAD 040914-00-0404 are as detailed below:

- I - a zone readily accessible at ground level to the public and vulnerable to hard-body impacts but not subjected to abnormally rough use;
- II - a zone liable to impacts from thrown or kicked objects, but in public locations where the height of the kit will limit the size of the impact; or at lower levels where access to the building is primarily to those with some incentive to exercise care;
- III - a zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects;
- IV - a zone out of reach from ground level.

2.2.11 Fire performance

The reaction to fire of the System is classified in accordance with BS EN 13501-1 as follows:

- European Classification A1, when incorporating brick slip finish;
- European Classification A2-s1, d0, when incorporating silicone finish.

MW insulation is classified as non-combustible in accordance with the relevant national Building Regulations.

The System can be used on buildings without any restrictions on building height or boundaries in accordance with the national Building Regulations.

The fire resistance of walls is based on the occupancy, size and use of a building and shall be a minimum of 30 minutes. It is then specified in 60-minute intervals thereafter.

Walls shall be designed and constructed:

- to adequately resist the passage and penetration of fire;
- so that the unseen spread of fire and smoke within concealed spaces in the wall is inhibited.

The System shall include a minimum of one stainless steel fixing per m² of MW insulation, fixed through the reinforcement mesh and the MW insulation, in addition to the other MW insulation fasteners normally specified.

For detailed conditions of use regarding requirements for supporting wall fire performance and fire barriers, fire stopping of service penetrations and combustibility limitations for other materials and components used in the overall wall construction, designers shall refer to the relevant national Building Regulations.

2.2.12 Thermal performance

Thermal insulation

The System can assist in reducing the U-value of external walls. It is essential that detailing is carried out to a high standard if the ingress of water into the MW insulation is to be avoided, and the full thermal benefit is to be obtained from the installation of the System. Any moisture penetration will affect thermal conductivity, but the thermal value will recover when the MW insulation dries out. The System is designed to minimise moisture penetration to the MW insulation.

The requirement for limiting heat loss through the building fabric, including the effect of thermal bridging, can be satisfied if the U-value of a wall incorporating the System does not exceed the maximum U-value requirement given in the national Building Regulations.

The U-value of a completed wall construction will depend on the MW insulation thickness, fixing method, type of mechanical fixing and insulating value of the supporting wall and its internal finish.

For the purposes of U-value calculations and to determine if the requirements of national Building Regulations are met, the thermal resistance and U-value of the walls incorporating the System shall be calculated according to BS EN ISO 10211 (taking into consideration BS EN ISO 6946, BS EN ISO 10456 and BRE Report 443), using the thermal conductivity (λ_0) of the MW insulation (refer to Section 2.5.4).

Thermal bridging at junctions and around openings

Care shall be taken in the overall design and construction of junctions with other elements and openings to minimise cold bridging and air infiltration. Due consideration shall be given to the Government Accredited Construction Details.

Guidance on linear thermal transmittance, heat flows and surface temperatures can be found in the documents supporting the national Building Regulations and in BS EN ISO 10211, BRE Information Paper 1/06, BRE Report 262, BRE Report 497 and PAS 2030.

2.2.13 Durability

The service life durability of the System will be dependent upon the environment (operating conditions) in which the System will be used. The expected service life durability will be in excess of 30 years.

2.2.14 UKCA and CE marking

There is no relevant Product standard for the System.

2.3 EXAMPLES OF TYPICAL DETAILS

Diagram 1 - typical mechanical fixing arrangement

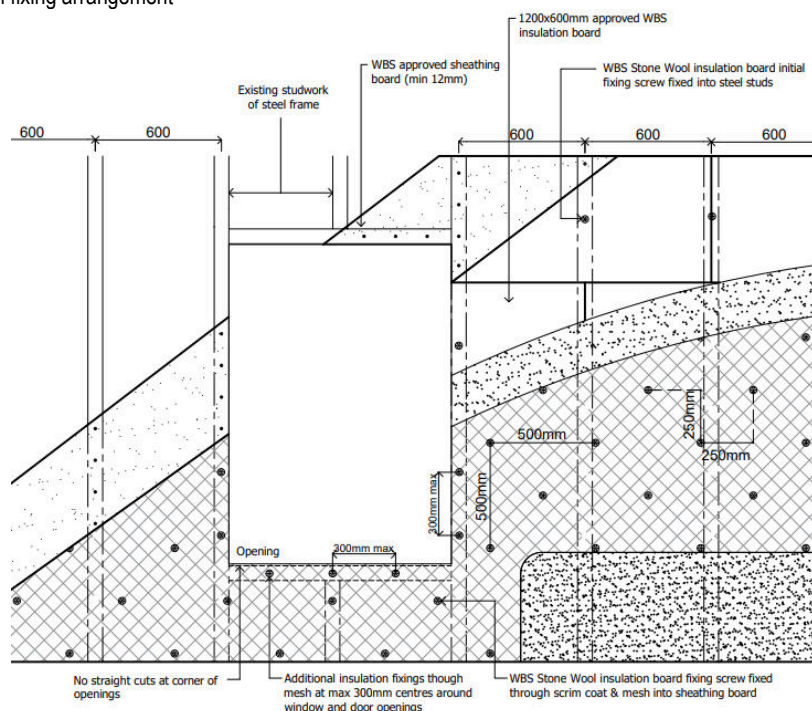


Diagram 2 - typical movement joint detail - brick slip finish

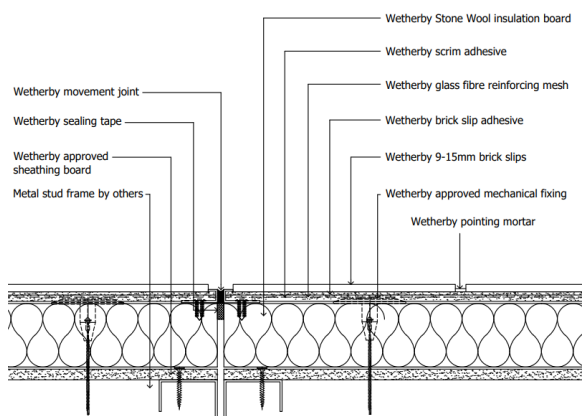


Diagram 3 - typical build up detail - brick slip finish

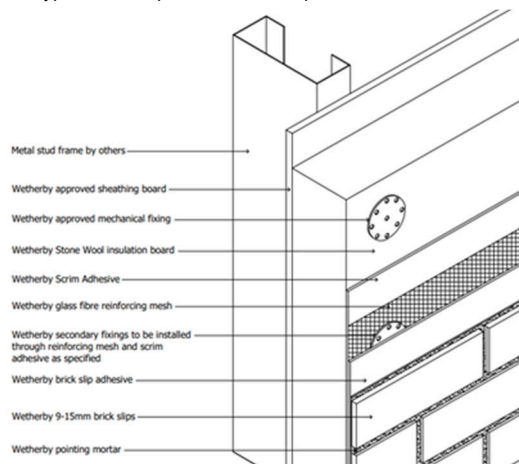


Diagram 4 - typical base detail - silicone finish

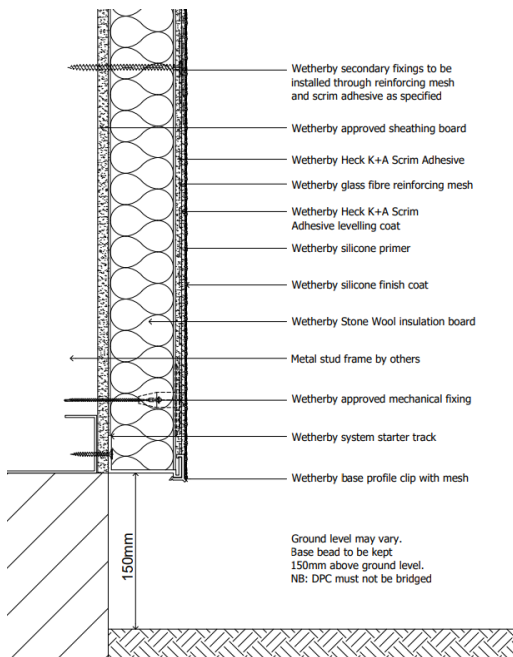


Diagram 5 - typical base detail (below DPC level for modular OSM projects) - silicone finish

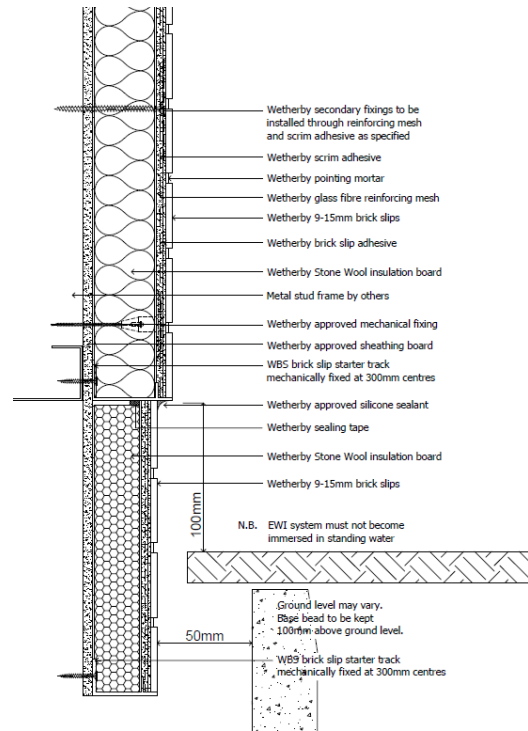


Diagram 6 - typical opening stress patches detail

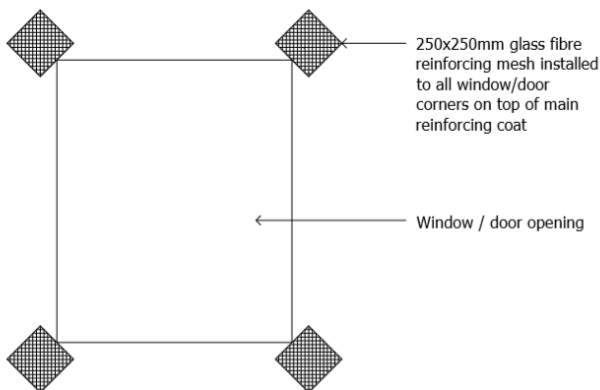


Diagram 7 - typical window/door jamb detail - silicone finish

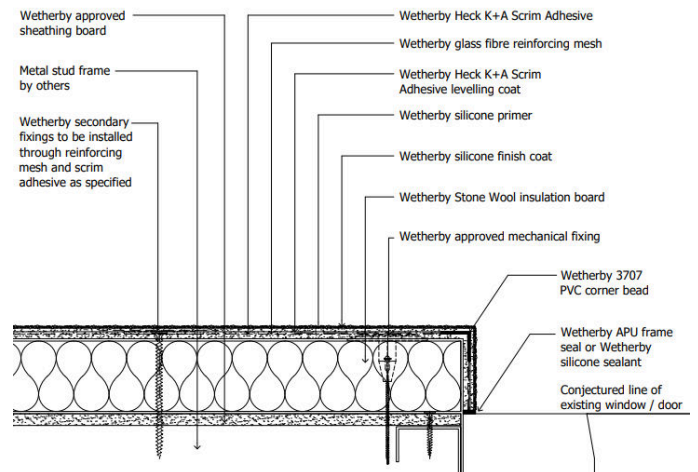


Diagram 8 - typical window cill detail - silicone finish

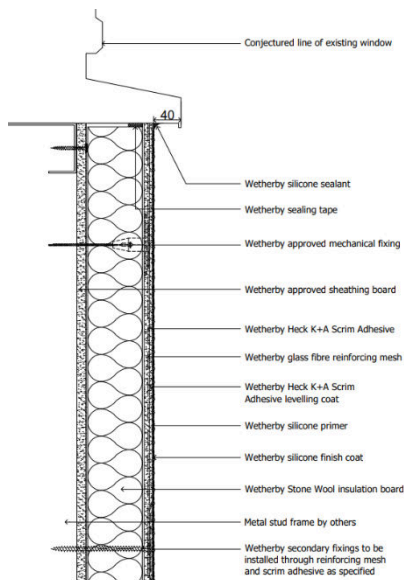
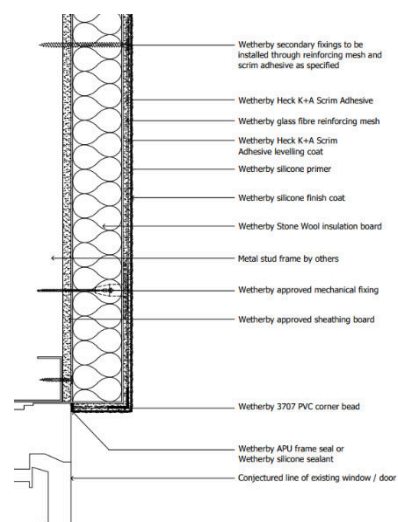


Diagram 9 - typical window/door head detail - silicone finish



The System shall be installed strictly in accordance with the instructions (hereinafter 'Installation Manual') of the Agrément holder, the requirements of this Agrément and the requirements of BS 8000-0.

2.4.1 Installer competence level

See Section 2.2.6.

2.4.2 Delivery, storage and site handling

See Section 2.2.7.

2.4.3 Project-specific installation considerations

The project-specific design shall be determined from a pre-installation survey.

A specification has been prepared for each elevation of the building, indicating, where appropriate:

- DPC level, position of base rail, water deflection beads/battens/channels, expansion joints and weather seals;
- detailing around windows, doors, etc;
- location of cavity fire barriers installed in line with compartment walls and floors;
- identification of:
 - services and any fittings requiring removal or alteration to facilitate installation of the System;
 - areas where silicone/flexible sealants shall be used.

This process includes fixing pull-out tests of the supporting wall according to the Construction Fixings Association Guidance note 'Procedure for site testing construction fixings', to determine pull-out strength values (see section 2.2.4). Pull-out test loads shall be 2.5 x design load. The pull-out resistance strengths of the supporting wall, spacer support battens/rails and board anchor fixings shall be checked by a competent person and shown to be adequate before installation of the System.

Subsequent project-specific design considerations include confirmation that:

- there is no existing rising damp and there are no signs of damp on the inner face of the supporting wall, other than those caused solely by condensation;
- existing walls are:
 - structurally sound, in a good state of repair and show no evidence of rain or frost damage;
 - watertight, clean, and meet the requirements of the relevant standards and national Building Regulations for airtightness.

2.4.4 Preparation

The following works shall be undertaken before the installation of the System:

- the supporting wall shall be finished and free from protrusions and uneven jointing;
- any necessary repairs or modifications shall be made (e.g. removal of fittings which can be relocated after the System is installed);
- if necessary, protection channel to safely sleeve cabling shall be installed;
- the roof shall be in place and window and door openings shall be sealed;
- surfaces shall be clean, dry and free from dirt, grease, oils, solvents and loose particles;
- flues, chimneys and combustion air ventilators shall be continuously sleeved through the wall. Reference shall be made to CIGA's Technician's guide to best practice: Flues, chimneys and combustion air ventilators;
- supports for services/fittings e.g. soil pipes, shall be fixed back to the supporting wall; no load is to be transferred to the System;
- external power cables covered over by cover plates shall be well labelled with warning signs;
- external soil stacks, wastewater pipes, overflows, ducts, vent pipes shall extend beyond the surface and securely re-fixed where required.

2.4.5 Outline installation procedure

Detailed installation procedures can be found in the Agrément holder's Installation Manual.

The outline installation procedure is as follows:

- fix Wetherby Base Rail horizontally to the wall above DPC level at base of the wall, or 150 mm above ground level;
- fix stop beads vertically, bedded on Wetherby Sealing Tape, and fully seal with silicone;
- fix angle verge trim, bedded on Wetherby Sealing Tape at the top of the System, and seal with silicone at the top of the verge;
- extend cills so that there will be a minimum 40 mm overhang from the drip edge of the cill to the front edge of the System. Similar overhangs shall also be achieved at the soffit; if there is no soffit or it is of insufficient depth, then a verge trim will be required;
- where required, apply bedding adhesive to the MW insulation using the 'ribbon and dab' or 'notch trowel' method, ensuring minimum 40 % coverage area;
- place the first course of MW insulation onto the Wetherby Base Rail and mechanically fix into the sheathed LGSF supporting wall. Continue with additional MW insulation, ensuring tight butt-joints and adhering to staggered bonding pattern; do not place joints within 200 mm of the corners of openings. MW insulation shall be staggered and overlapped at building corners;
- install initial WBS-approved mechanical fixings through MW insulation into the LGSF supporting wall;
- fix movement beads at agreed locations; structural movement joints shall be carried through the System;
- fix surface mounted beads directly to the MW insulation at required locations;
- apply a 4 to 6 mm thick coat of basecoat (WBS Heck Adhesive - Basecoat for silicone finish; WBS Scrim Adhesive - Basecoat for brick slip finish) to the entire surface of the MW insulation and bed mesh into top third of the wet adhesive, overlapping joints by minimum 75 mm;
- install:
 - additional pieces of mesh (minimum 250 mm by 250 mm) diagonally across corners of all wall openings;
 - secondary mechanical fixings through the mesh and MW insulation to the sheathed LGSF supporting wall in accordance with project-specific fixing pattern (subject to wind load calculations, with additional fixings at corners and openings).
- when the initial layer of basecoat has hardened, apply a second coat, 2 to 3 mm thick, and embed a second layer of reinforcement mesh, ensuring any visible mesh is covered;
- level the basecoat to achieve a uniform flat, even surface and allow to dry.

Silicone finish

- apply Wetherby Primer and allow to fully dry for a minimum of 12 hours;
- when fully dry, mix and apply Wetherby Silicone Textured Finish in accordance with the manufacturer's instructions;
- prior to setting, polish the Wetherby Silicone Textured Finish with a plastic float to remove trowel marks and to give an even texture;
- apply silicone sealant to areas where the System abuts other features, e.g. window frames, eaves, and fascias etc.

Brick slip finish

- create horizontal scratches on the surface of the adhesive in preparation for receiving the WBS Brick Slip Adhesive;
- apply WBS Brick Slip Adhesive with a trowel to achieve a minimum thickness of 5 mm;
- whilst the WBS Brick Slip Adhesive is still wet, apply WBS Brick Slips to the adhesive in a staggered pattern, leaving a consistent joint;
- once the Wetherby Brick Slips have set, point with WBS Pointing Mortar using a pointing gun;
- apply silicone sealant to areas where the System abuts other features, e.g. window frames, eaves, and fascias etc.

2.4.6 Finishing

The following finishing is required on completion of the installation:

- check all trunked air vents and flues (by an appropriate test if necessary) to verify they are clear and unobstructed;
- apply silicone sealant around windows, door frames etc, and where the installation abuts any other building or surface to ensure a watertight joint.

Post-installation inspection checks shall be carried out to ensure that the installation has been successfully completed and that no damage has occurred to the building. These shall be conducted as soon as possible after completion of the work or at a minimum of 7 days after completion of the work and before removing scaffolding; any defects shall be reported immediately.

2.5 INDEPENDENTLY ASSESSED SYSTEM CHARACTERISTICS

2.5.1 Moisture control

Test	Standard	System finish	Result
Hygrothermal and freeze-thaw conditioning	EAD 040914-00-0404	Brick slip finish	No defects
		Silicone finish	

2.5.2 Strength

Test	Standard	System finish	Result
Soft and hard-body impact resistance	EAD 040914-00-0404	Brick slip finish	Use Category I
		Silicone finish	Use Category II
Compressive stress at 10 % deformation	BS EN 826	MW insulation	10 kPa
Tensile strength	BS EN 1607		10 kPa

2.5.3 Fire performance

Test	Standard	System finish	Result
Reaction to fire	BS EN 13501-1	Brick slip finish	A1
		Silicone finish	A2-s1, d0

2.5.4 Thermal performance

Test	Standard	System component	Result
Thermal conductivity (λ_D)	BS EN 12667	MW insulation	0.036 W/mK

3.1 THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015 AND THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS (NORTHERN IRELAND) 2016

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

3.2 THE NATIONAL BUILDING REGULATIONS

In the opinion of Kiwa Ltd., the System, if installed and used in accordance with Section 2 of this Agrément, can satisfy or contribute to satisfying the relevant requirements of the following national Building Regulations.

This Agrément shall not be construed to confer the compliance of any project-specific design with the national Building Regulations.

3.2.1 England**The Building Regulations 2010 and subsequent amendments**

- A1(1)(2) Loading - the System can sustain and transmit combined dead, imposed and wind loads to the ground via the supporting structure
- B4(1) External fire spread - the System can adequately resist the spread of fire over walls and from one building to another
- C2(b) Resistance to moisture - the System can adequately protect a building from precipitation, including wind-driven spray
- C2(c) Resistance to moisture - the System can adequately protect a building from interstitial and surface condensation
- L1(a)(i) Conservation of fuel and power in new dwellings - the System can contribute to limiting heat gains and losses through walls
- L2(a)(i) Conservation of fuel and power in new buildings other than dwellings - the System can contribute to limiting heat gains and losses through walls
- Regulation 7(1) Materials and workmanship - the System is manufactured from suitably safe and durable materials for their application, and can be installed to give a satisfactory performance
- Regulation 7(2) Materials and workmanship - the System can contribute to satisfying this Requirement
- Regulation 23(1) Requirements relating to thermal elements - the System can contribute to walls complying with the requirements of L1(a)(i)
- Regulation 26 CO₂ emission rates for new buildings - the System can contribute to satisfying this Requirement
- Regulation 26A Fabric energy efficiency rates - the System can contribute to satisfying this Requirement

3.2.2 Wales**The Building Regulations 2010 and subsequent amendments**

- A1(1)(2) Loading - the System can sustain and transmit combined dead, imposed and wind loads to the ground via the supporting structure
- B4(1) External fire spread - the System can adequately resist the spread of fire over walls and from one building to another
- C2(b) Resistance to moisture - the System can adequately protect a building from precipitation, including wind-driven spray
- C2(c) Resistance to moisture - the System can adequately protect a building from interstitial and surface condensation
- L1(a)(i) Conservation of fuel and power in new dwellings - the System can contribute to limiting heat gains and losses through walls
- L2(a)(i) Conservation of fuel and power in new buildings other than dwellings - the System can contribute to limiting heat gains and losses through walls
- Regulation 7(1) Materials and workmanship - the System is manufactured from suitably safe and durable materials for their application, and can be installed to give a satisfactory performance
- Regulation 7(2) Materials and workmanship - the System can contribute to satisfying this Requirement
- Regulation 23(1) Requirements relating to thermal elements - the System can contribute to walls complying with the requirements of L1(a)(i)
- Regulation 26 CO₂ emission rates for new buildings - the System can contribute to satisfying this Requirement
- Regulation 26A Primary energy consumption rates for new buildings - the System can contribute to satisfying this Requirement
- Regulation 26B Fabric performance values for new dwellings - the System can contribute to satisfying this Requirement

3.2.3 Scotland**The Building (Scotland) Regulations 2004 and subsequent amendments****3.2.3.1 Regulations 8 (1)(2) Durability, workmanship and fitness of materials**

- The System is manufactured from acceptable materials and is adequately resistant to deterioration and wear under normal service conditions, provided it is installed in accordance with the requirements of this Agrément

3.2.3.2 Regulation 9 Building Standards - construction

- 1.1(a)(b) Structure - the System can sustain and transmit combined dead, imposed and wind loads to the ground via the supporting structure
- 2.6 Spread to neighbouring buildings - the System can inhibit the spread of fire to neighbouring buildings
- 2.7 Spread on external walls - the System can inhibit the spread of fire on external walls
- 2.8 Spread from neighbouring buildings - the System can inhibit the spread of fire to a building
- 3.10 Precipitation - the System can resist precipitation penetrating to the inner face of a building
- 3.15 Condensation - the System can be designed and constructed to inhibit surface or interstitial condensation
- 6.1(b) Carbon dioxide emissions - the System can contribute to satisfying this Requirement
- 6.2 Buildings insulation envelope - the System can contribute to satisfying this Requirement
- 7.1(a)(b) Statement of sustainability - the System can contribute to meeting the relevant Requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition, the System can contribute to a construction meeting a higher level of sustainability, as defined in this Standard

3.2.3.3 Regulation 12 Building standards - conversions

- All comments given under Regulation 9 also apply to this Regulation, with reference to Schedule 6 of The Building (Scotland) Regulations 2004 and subsequent amendments, clause 0.12 of the Technical Handbook (Domestic) and clause 0.12 of the Technical Handbook (Non-Domestic)

3.2.4 Northern Ireland

The Building Regulations (Northern Ireland) 2012 and subsequent amendments

- 23(a)(i)(iii)(b) Fitness of materials and workmanship - the System is manufactured from materials which are suitably safe and acceptable as described in this Agrément
- 28(b) Resistance to moisture and weather - the System can be constructed to prevent the passage of moisture
- 29 Condensation - the System can be designed and constructed to prevent interstitial condensation
- 30(a)(b) Stability - the System can sustain and transmit combined dead, imposed and wind loads to the ground via the supporting structure
- 36(a) External fire spread - the System can adequately resist the spread of fire over walls and from one building to another
- 39(a)(i) Conservation measures - the System can contribute to limiting heat gains and losses through walls
- 40(2) Target CO₂ emission rate - a wall incorporating the System shall be designed and constructed so as not to exceed its target CO₂ emission rate
- 43 Renovation of thermal elements - renovation work shall be carried out to ensure a wall complies with requirement 39(a)(i)

3.3 THIRD-PARTY ACCEPTANCE

None requested by the Agrément holder.

4 SOURCES

- BS EN ISO 6946:2017 Building components and building elements. Thermal resistance and thermal transmittance. Calculation methods
- BS EN ISO 9001:2015 Quality management systems. Requirements
- BS EN ISO 10211:2017 Thermal bridges in building construction. Heat flows and surface temperatures. Detailed calculations
- BS EN ISO 10456:2007 Building materials and products. Hygrothermal properties. Tabulated design values and procedures for determining declared and design thermal values
- BS EN 197-1:2011 Cement. Composition, specifications and conformity criteria for common cements
- BS EN 300:2006 Oriented strand boards (OSB). Definitions, classification and specifications
- BS EN 313-1:1996 Plywood. Classification and terminology. Plywood. Classification and terminology. Classification
- BS EN 634-2:2007 Cement-bonded particleboards. Specifications. Requirements for OPC bonded particleboards for use in dry, humid and external conditions
- BS EN 771-1:2011+A1:2015 Specification for masonry units. Clay masonry units
- BS EN 826:2013 Thermal insulating products for building applications. Determination of compression behaviour
- BS EN 998-1:2016 Specification for mortar for masonry. Rendering and plastering mortar
- BS EN 998-2:2016 Specification for mortar for masonry. Masonry mortar
- BS EN 1607:2013 Thermal insulating products for building applications. Determination of tensile strength perpendicular to faces
- BS EN 1991-1-4:2005+A1:2010 Eurocode 1. Actions on structures. General actions
- NA to BS EN 1991-1-4:2005+A1:2010 UK National Annex to Eurocode 1. Actions on structures. General actions
- BS EN 1993-1-1:2005+A1:2014 Eurocode 3. Design of steel structures. General rules and rules for buildings
- NA+A1:2014 to BS EN 1993-1-1:2005+A1:2014 UK National Annex to Eurocode 3. Design of steel structures - General rules and rules for buildings
- BS EN 1993-1-3:2006 Eurocode 3. Design of steel structures. General rules. Supplementary rules for cold-formed members and sheeting
- NA to BS EN 1993-1-3:2006 UK National Annex to Eurocode 3. Design of steel structures. General rules. Supplementary rules for cold-formed members and sheeting
- BS EN 12004-1:2017 Adhesives for ceramic tiles. Requirements, assessment and verification of constancy of performance, classification and marking
- BS EN 12467:2012+A2:2018 Fibre-cement flat sheets. Product specification and test methods
- BS EN 12667:2001 Thermal performance of building materials and products. Determination of thermal resistance by means of guarded hot plate and heat flow meter methods. Products of high and medium thermal resistance
- BS EN 13162: 2012+A1:2015 Thermal insulation products for buildings. Factory made mineral wool (MW) products. Specification
- BS EN 13501-1:2018 Fire classification of construction products and building elements. Classification using test data from reaction to fire tests
- BS EN 13888:2009 Grout for tiles. Requirements, evaluation of conformity, classification and designation
- BS EN 13914-1:2016 Design, preparation and application of external rendering and internal plastering. External rendering
- BS EN 14411:2016 Ceramic tiles. Definition, classification, characteristics, assessment and verification of constancy of performance and marking
- BS 5250:2021 Management of moisture in buildings. Code of practice
- BS 6093:2006+A1:2013 Design of joints and jointing in building construction. Guide
- BS 8000-0:2014 Workmanship on construction sites. Introduction and general principles
- BS 8104:1992 Code of practice for assessing exposure of walls to wind-driven rain
- Accredited Construction Details, Scotland:2019
- BRE Information Paper 1/06:2006 Assessing the effects of thermal bridging at junctions and around openings
- BRE Report 262:2002 Thermal insulation: avoiding risks
- BRE Report 443:2006 Conventions for U-value calculations
- BRE Report 497:2016 Conventions for calculating linear thermal transmittance and temperature factors
- CIGA Technician's guide to best practice: Flues, chimneys and combustion air ventilators:2016
- EAD 040914-00-0404:2018 Venture kits. Prefabricated units for external wall insulation and their fixing devices
- EAD 330196-01-0604:2017 Plastic anchors made of virgin or non-virgin material for fixing of external thermal insulation composite systems with rendering
- EOTA TR 051:2018 Recommendations for job site tests of plastic anchors and screws
- ETAG 004:2013 Guideline for European Technical Approval of External Thermal Insulation Composite Systems (ETICS) with Rendering
- Government Accredited Construction Detail for Part L:2019
- PAS 2030:2019 Specification for the installation of energy efficiency measures in existing buildings
- SCI Publication P343:2006 Insulated Render Systems Used with Light Steel Framing

Remark - Apart from these sources, technical information and confidential reports have been assessed; any relevant documents are in the possession of Kiwa Ltd. and are kept in the Technical Assessment File of this Agrément. The Installation Manual for the System may be subject to change; contact the Agrément holder for the clarification of revisions.

5 AMENDMENT HISTORY

Revision	Amendment description	Author	Approver	Date
-	First Issue	C Devine	C Vurley	February 2022

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Where a National Annex exists in respect of a BS EN (or other) standard, its use is deemed mandatory wherever the original standard is referenced.

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MFPA Leipzig GmbH

Testing, monitoring and certification body for building materials,
building products and building systems

Division III - Structural Fire Protection

Dipl.-Ing. Michael Juknat

Working Group 3.1 - Fire behaviour of construction products

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Classification report no. KB 3.1/21-173-1

30 June 2021
1st copy

Client: HECK Wall Systems GmbH
Thölauer Straße 25
95615 Marktredwitz
Germany

Remit: Fire behaviour classification according to DIN EN 13501-1:2019-05

Subject: External thermal insulation composite system "HECK Holzbau A2"
according to DIN EN 16724:2017-05

Order date: 06 April 2021

Officer: Sören Laschke, M.Sc.

This document consists of 6 pages and 1 annex.

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1 Details of the classified construction product

1.1 General

The building product "HECKHolzbauA2" belongs to the product type of external thermal insulation composite systems (ETICS) according to DIN EN 16724:2017-05.

According to the client, this construction product is not subject to a harmonised European product standard.

1.2 Product description

The building product "HECKHolzbauA2" is described below:

According to the client, the construction product to be classified is a composite thermal insulation system (ETICS) with the designation "HECKHolzbauA2". The insulation material used for the composite thermal insulation system was the mineral fibre board lamella "Rockwool Coverrock" (manufacturer: Rockwool), which is fixed to the substrate by means of adhesives. The rendering system consists of the components listed in Annex 1.

Further information on the building product was not available to the inspection body.

2 Test reports and results as the basis for this classification

2.1 Reports

Name of the inspection body	Name of the client	No. of the report	Test method and date Rules for direct and extended scope and date
MFPA Leipzig GmbH	BASF Wall Systems GmbH & Co. KG	PB 3.1/11-294-2 of 17.02.2012	DIN EN ISO 1716:2010-11*
MFPA Leipzig GmbH	HECK Wall Systems GmbH	PB 3.1/18-035-1 of 28.03.2018	DIN EN ISO 1716:2010-11*
MFPA Leipzig GmbH	HECK Wall Systems GmbH	PB 3.1/18-182-1 of 09.05.2019	DIN EN ISO 1716:2010-11*
MFPA Leipzig GmbH	HECK Wall Systems GmbH	PB 3.1/19-071-1 of 07.06.2019	DIN EN ISO 1716:2010-11*
MFPA Leipzig GmbH	HECK Wall Systems GmbH	PB 3.1/19-124-1 of 03.07.2019	DIN EN ISO 1716:2010-11*
MPA Stuttgart	Deutsche Rockwool GmbH & Co. KG	51100-01.001 from 18/09/2019	DIN EN ISO 1716:2010-11*
MPA Stuttgart	Deutsche Rockwool GmbH & Co. KG	51100-01.001 from 16.03.2021	DIN EN ISO 1716:2010-11*
MFPA Leipzig GmbH	HECK Wall Systems GmbH	PB 3.1/18-182-1 of 09.05.2019	DIN EN 13823:2015-02*
MFPA Leipzig GmbH	HECK Wall Systems GmbH	PB 3.1/20-315-3 dated 23.02.2021	DIN EN ISO 1716:2010-11*

2.2 Results

			Results	
Test method and test number	Parameter	Number of tests	Continuous parameters Mean value (m)	Discrete parameters
	HECK K+A Qpcs [MJ/kg]	3	0.3	(-)
	HECK K+A A1 Qpcs [MJ/kg]	3	0.3	(-)
	HECK BK Flex A2 Qpcs [MJ/kg]	3	2.8	(-)
	HECK Coverrock 035 Qpcs [MJ/kg]	3	1.4	(-)
	HECK Coverrock II 035 Qpcs [MJ/kg]	3	1.4	(-)
	HECK Coverrock X-2 Qpcs [MJ/kg]	3	1.4	(-)
	HECK MW Lamelle 040 II Qpcs [MJ/kg]	3	2.0	(-)
	HECK AGG A1 Qpcs [MJ/m2]	3	1.0	(-)
DIN EN ISO 1716*	HECK UG Qpcs [MJ/itP]	3	1.5	(-)
	HECK EP KR JURA Qpcs [MJ/kg]	3	0.1	(-)
	HECK STR Qpcs [MJ/kg]	3	0.1	(-)
	HECK ED Qpcs [MJ/kg]	3	0.3	(-)
	HECK K+A PLUS Qpcs [MJ/kg]	3	0.5	(-)
	HECK SHP 4S Qpcs [MJ/kg]	3	2.3	(-)
	HECK SHP Qpcs [MJ/kg]	3	2.3	(-)
	HECK KHP Qpcs [MJ/kg]	3	2.3	(-)
	Product as a whole Qpcs [MJ/kg]	(-)	1.3*	(-)
	FIGRA0.2 mj [W/s]		53	(-)
	FIGRA0.4 mj [W/s]		53	(-)

	THR600s [MJ]		2.4	(-)
	SMOGRA [m2/s2]		1	(-)
	TSP600s [m2]		30	(-)
DIN EN 13823*	No lateral flame spread (LFS) to the edge of the sample	6	(-)	compliant
	No burning dripping/falling off		(-)	compliant
	No burning drip/drop, > 10 s		(-)	compliant

(-) not applicable

*Determination of the most critical system structure according to Table 1.

Table 1: Calculation of the Qpcs value for the WVDS "HECK Holzbau A2" according to DIN EN ISO 1716:2010-11* and DIN EN 16724:2017-05.

Component	Product	Mass per unit area [kg/m2]	QPCS [MJ/kg]	QPCSS [MJ/m2]	Decisive for calculation	
					Mass per unit area [kg/m2]	QPCSS [MJ/m2]
Adhesive	HECK K+A	4.1	0.3	1.2		
	HECK K+A A1	4.1	0.3	1.2		
	HECK BK Flex A2	1.5	2.8	3.5	1.5	4.2
Insulation	HECK Coverrock 035	25	1.4	35.0	25	35
	HECK Coverrock II 035	25	1.4	35.0		
	HECK Coverrock X-2	19	1.4	36.0		
	HECK MW Lamelle 040 II	16	2.0	32.0		
Flush-mounted	HECK K+A	4.1	0.3	1.1		
	HECK K+A A1	4.1	0.3	1.1	4.1	1.1
Reinforcement fabric	HECK AGG A1	0.16	6.2	1.0	0.16	1.0
Primer	HECK UG	0.3	4.9	1.5	0.3	1.5
Top coat	HECK EP KR JURA	20	0.1	2.0		
	HECK STR	4.5	0.1	0.5		
	HECK ED	4.2	0.3	1.3		
	HECK K+A PLUS	5.0	0.5	2.5		
	HECK SHP 4S	4.2	2.3	9.7		
	HECK SHP	4.2	2.3	9.7	4.2	9.7
	HECK KHP	4.2	2.3	9.7		
Overall system		-	1.5	-	35.3	52.5

3 Classification and scope of application

3.1 Classification reference

This classification was carried out in accordance with DIN EN 13501-1:2019-05.

3.2 Classification

The building product "HECKHolzbauA2" is classified

with regard to its fire behaviour as follows: A2

The additional classification in relation to smoke emission is: s1

The additional classification in relation to burning dripping/falling off is: d0

The format of reaction to fire classification for construction products other than floor coverings and pipe insulation is:

Fire behaviour		Smoke development			Burning dripping/falling off	
A2	-	s	1	,	d	0

i.e. A2-s1, d0

Fire behaviour classification: A2-s1, d0

3.3 Scope of application

This classification is valid for the following product parameters:

- The construction of the building product to be classified described in section 1.2 must be used accordingly according to these specifications. Further building code requirements for the constructional design must be observed.
- The components listed in Annex 1 may be used for the production of the thermal insulation composite system.

The classification is valid for the following end uses:

- The construction product may be used on substrates of Euroclasses A1 and A2-s1, d0 with a thickness of at least 12.0 mm and a density of at least 525 kg/m³ and on substrates of metal with a thickness of at least 0.8 mm, a density of at least 2025 kg/m³ and a melting point of at least 500 °C.
- The construction product may be fixed to the substrate either mechanically or with the adhesives listed in Annex 1.

4 Restrictions

- (1) In combination with other building products, in particular insulation materials with different gross density ranges than specified in section 3.3, the reaction to fire performance may be so unfavourably influenced that the classification in section 3.2 no longer applies. The reaction to fire performance in combination with other building products or with other gross density ranges or thickness ranges must be verified separately.
- (2) The classification document does not constitute a type approval or certification of the product and does not replace any proof that may be required according to German building law (state building regulations).
- (3) This classification report is valid as long as the product composition or the product structure, the raw materials or the production process and the building regulations or assessment basis do not change.

This document does not replace a certificate of conformity or usability in the sense of the building regulations (national/European).

Leipzig, 30 June 2021

Dipl -Ing M Juknat

Division Manager

M. Claus

Deputy Head of Laboratory

Annex 1 Products covered by this classification

Table A. 1: Adhesives covered by the classification.

Component	Binder	Application rate (dry) [kg/m²]
HECK K+A	mineral/cement, white hydrated lime	4.1
HECK K+A A1	mineral/cement, white hydrated lime	4.1
HECK BK FLEX A2	organic/polymer dispersion	1.5

Table A. 2: Insulation materials covered by the classification.

Component	Harmonised technical specification	Fire behaviour class according to DIN EN 13501-1	Density [kg/m³]	Organic portion
HECK Coverrock 035	DIN EN 13162	A1	95 - 125	< 4.49 kg/m ³
HECK Coverrock II 035	DIN EN 13162	A1	95 - 125	< 4.22 kg/m ³
HECK Coverrock X-2	DIN EN 13162	A1	95	3.5 %
HECK MW Lamella 040 II	DIN EN 13162	A1	70 - 80	< 3.11 kg/m ³

Table A. 3: Plaster bases covered by the classification.

Component	Consumption [kg/(m²*mm)]	Dry film thickness [mm]
HECK K+A	1.25	4 - 8
HECK K+A A1	1.25	4 - 8

Table A. 4: Reinforcing fabrics covered by the classification.

Component	Basis weight [g/m²]
HECK AGG A1	160

Table A. 5: Top renders covered by the classification.

Component	Binder	Consumption [kg/m²]	Layer thickness [mm]
HECK EP KR JURA	mineral/white hydrated lime, white cement	16 - 20	2 - 12

HECK STR	mineral/white hydrated lime, white cement	3.0 - 4.5	2 - 12
HECK ED	mineral/white hydrated lime, white cement	2.3 - 4.2	2 - 12
HECK K+A PLUS	mineral/cement, white hydrated lime	2 - 5	2 - 5
HECK SHP 4S	organic/polymer dispersion	1.6 - 4.2	1.5 - 3
HECK SHP	organic/polymer dispersion	1.6 - 4.2	1.5 - 3
HECK KHP	organic/polymer dispersion	1.6 - 4.2	1.5 - 4