



SPECIFICATION OF WORKS

Wallington Country Grammar School
Croydon Road
Wallington
Surrey
SM6 7PH

Heat Decarbonisation Scheme – English Block

Prepared on behalf of
Folio Education Trust
30 Melville Avenue
South Croydon
CR2 7HY

Job No: 35087

Date: 19 October 2023

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Authorised for Issue:

Anil Chandra

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For and on behalf of Baily Garner LLP

Oct 19, 2023

Revision	Issue Date	Reason for Issue
/	13/9/2023	For comment and review
/	16/10/2023	For comment and Review
	19/10/2023	Tender Issue

35087 – Wallington Country Grammar School English Block

Main Contents

Section 1: Preliminaries

Section 2: Materials and Workmanship

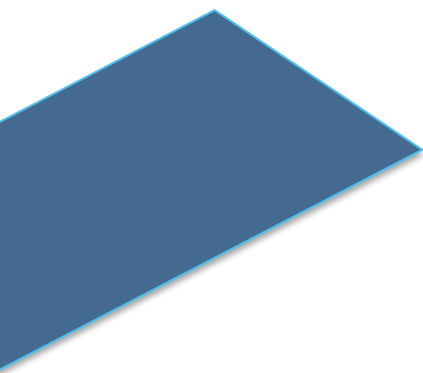
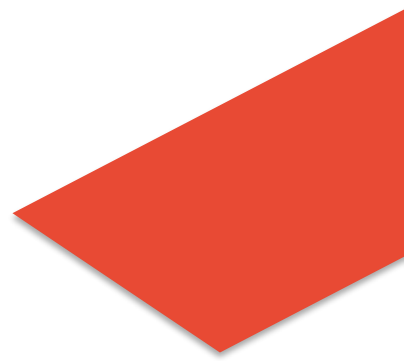
Section 3: General Conditions

Section 4: Building Fabric Improvements

Section 5: Mechanical

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SECTION 1



Baily Garner

Wallington County Grammar School - English Block - Heat Decarbonisation Scheme

Section 1 - Preliminaries

24-08-2023

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PM_10 Project information

Project management

PM_10_10_60/10 Project description

1. Project reference: 35087
2. Project title: Wallington County Grammar School - English Block - Heat Decarbonisation Scheme

PM_10_10_60/20 Drawings and other documents

1. Details: Specification of Works
2. Reference: 35087
3. Format: Electronic.
4. Provision: Provided.
5. Contract drawings
 - 5.1. Generally: The same as the tender drawings.
 - 5.2. CAD data: In accordance with [BS EN ISO 19650-1](#).
6. Cross references
 - 6.1. Accuracy: Check remainder of the annotation or item description against the terminology used in the cited section or clause.
 - 6.2. Related terminology: Where a numerical cross-reference is not given the relevant sections and clauses of the specification will apply.
 - 6.3. Relevant clauses: Clauses in the cited specification section dealing with general matters, ancillary products and execution also apply.
 - 6.4. Discrepancy or ambiguity: Give immediate notice in writing setting out the nature and assessed impact of the conflict. Do not proceed until instructions are received.
 - 6.5. Document precedence: Specification takes precedence over referenced documents.
7. Dimensions: Use numbered dimensions only. Do not scale direct from drawings.
8. Additional copies: Issued on request subject to an administration charge.

PM_10_10_60/30 Project locations

1. Details: Wallington County Grammar School - English Block
2. Address
 - 2.1. Number/ Street: Croydon Road,
 - 2.2. Town/ City: Wallington
 - 2.3. Postcode: SM6 7PH

PM_10_10_60/40 Existing buildings on, or adjacent to the site

1. Details: The existing sites comprise entirely of education buildings and ancillary spaces.

PM_10_10_60/50 Surrounding land and building uses

1. Details: Adjacent buildings to the school consist of educational and residential properties

PM_10_10_60/60 Access

1. Details: Vehicular access is available from the front of the school on Stanhope Road.
2. Limitations: Access routes may be restricted with regards to width, therefore may not be suitable for heavy goods vehicles. It is the contractors responsibility to review all potential hazards of this

nature, prior to the commencement of works on site. There may be limitations for deliveries during peak drop-off and collection times, please see Section 3 for further information on site access and deliveries.

PM_10_10_60/80 The works/ services

1. **Details:** Installation of increased roof insulation, installation of external wall insulation, upgrade of the existing electrical supply, installation of heat emitters and pipework and installation of a new Air Source heat Pump Installation.
2. **Related works:** Provide trades with necessary details of related types of work. Before starting each new type or section of work, ensure that previous related work is complete, in accordance with the project documents, to a suitable standard, and in a suitable condition to receive new work.

PM_10_10_60/140 Products provided by, or on behalf of, employer/ client/ purchaser

1. **General:** Details of products to be fixed as part of the contract work are given in the systems Use for no other purpose than the works.
2. **Handling:** Accept delivery, check against receipts and take into appropriate storage.
3. **Surplus products:** Keep safe and obtain instructions.

PM_10_10_60/160 Work undertaken by 'listed' domestic subcontractor

1. **General:** The following work and/ or services will be carried out by persons selected from a list.
2. **Additional persons:** If fewer than three persons named in the list are able and willing to carry out the relevant work and/ or services, give notice, submit proposals, together with evidence of suitability, and obtain instructions before proceeding.
3. **Agreement:** Before the start of the work to which the list relates, enter into a binding subcontract agreement and submit evidence.

Ω End of Section

PM_30

Site, ground and environmental information

Project management - No Amendments

Ground investigation and survey reports - No Amendments

Environmental information - No Amendments

Hazardous substances information - No Amendments

Ω End of Section

PM_35 Project performance requirements

Project management

PM_35_10_25 Durability performance requirements

1. External finishes
 - 1.1. Item: Roof
 - 1.2. Rating: Critical.
 - 1.3. Required lifespan: 30 years

PM_35_20_76 Snow and ice load performance requirements

1. Standard: To [BS EN 1991-1-3](#).

PM_35_30_28/10 Fire resistance – UK National classification

1. Assessment authority: [UKAS](#)-accredited (or European equivalent).
2. Loadbearing elements
 - 2.1. Standard: To BS 476-21
 - 2.2. Roof – up to 10 degrees
 - 2.2.1. Period of resistance (minimum) – insulation: 30 minutes
 - 2.2.2. Period of resistance (minimum) – integrity: 30 minutes
 - 2.2.3. Period of resistance (minimum) – loadbearing capacity: 30 minutes
 - 2.3. Roof – external fire exposure rating: Roof system to have a minimum classification of Ext.F.BA
 - 2.4. Rooflights – external fire exposure: Roof lights to have a minimum classification of Ext.F.BA

PM_35_30_70 Reaction to fire performance requirements

1. Requirements: To BS EN 13501-1

Ω End of Section

PM_40 Design and approvals information

Project management

PM_40_60_05 Activities terminology

1. Advise: See 'Communicate'.
2. Agree: See 'Communicate'.
3. Approve: Record conformance of work to specified criteria by giving formal or official sanction.
4. Communicate: Includes advise, inform, agree, confirm, notify, seek, provide or obtain information, consent or instructions, or make arrangements.
5. Confirm: See 'Communicate'.
6. Ease: Adjust moving parts of designated products, systems or work to achieve free movement and good fit in open and closed positions.
7. Fix: Receive, unload, handle, store, protect, place and fasten in position; dispose of waste and surplus packaging; to include labour, materials and site equipment for that purpose.
8. Give notice: Communicate in writing to the person administering the contract at the address listed.
9. Inform: See 'Communicate'.
10. Keep for recycling: As 'Keep for reuse', but relates to a naturally occurring material rather than a manufactured product.
11. Keep for reuse: Do not damage designated products, systems or work. Clean off bedding and jointing materials. Stack neatly, adequately protect and store until required by the employer or purchaser, or for use in the works as instructed.
12. Make good: Execute local remedial work to designated work. Make secure, sound and neat.
13. Match existing: Provide products and work of the same appearance and features as the original, excluding ageing and weathering. Make joints between existing and new work as inconspicuous as possible.
14. Notify: See 'Communicate'.
15. Quote: Use 'Estimate'.
16. Recycle: Collect, sort, process and convert discarded or recovered components into raw materials for use in the creation of new products.
17. Refix: Fix previously removed products.
18. Remove: Disconnect, dismantle as necessary and take out the designated products or work, together with associated accessories, fixings, supports, linings and bedding materials. Dispose of unwanted materials.

Removal of an item excludes removal and disposing of associated pipework, wiring, ductwork or other services.

Removal of a system includes this work.

19. Remediate: Take action or measures to lessen, clean up, remove or mitigate the existence of hazardous materials existing on a property; in accordance with standards, specifications or requirements as may be required by statutes, rules, regulations or specification.
20. Repair: Execute remedial work to restore something to its original working state. Make secure, sound and neat.

Excludes redecoration and replacement.

21. Replace: Supply and fix new products matching those removed. Execute work to match the original new state of that removed.

22. **Reuse:** Recover complete items to be fixed or used in the project or elsewhere without the requirement for recycling.
23. **Submit:** Deliver in a specified format to a specified person within a specified timeframe.
24. **Submit proposals:** Submit information in response to specified requirements.
25. **Supply and fix:** Supply of products, components or systems to be fixed, together with everything necessary for their fixing.

PM_40_60_22 Data security policy

1. **Records:** Retain, make available for inspection and supply on request information reasonably required to allow response to requests made under the provisions of the [Freedom of Information Act](#).
2. **Received requests:** Obtain instruction before proceeding.

Do not supply information to those who are not project participants without express written permission.

3. **Confidentiality:** Maintain at all times.

PM_40_60_23 Description terminology

1. **Attendance:** Includes:

The provision of temporary roads, pavings and paths, standing scaffolding, standing power-operated hoisting plant;

The provision of temporary lighting of an equivalent brightness to the finished lighting brightness;

The provision of water;

The clearing away of rubbish and paying all charges in connection with its disposal, the provision of secure hard standing space for the sub-contractor's own offices, plant and material storage;

The use of standing mess rooms, sanitary accommodation and welfare facilities; and

The provision of all health and safety facilities and all fire safety precautions, services, equipment, signage, facilities, marshals and the like necessary to comply with the relevant parts of the [Joint Fire Code](#).

Additional requirements should be described as 'Special Attendance'.

2. **Building Manual:** A document containing information of use to subsequent building owners, occupiers and users about the requirements and procedures for effective operation, maintenance, decommissioning and demolition of the building.
3. **Construction Work:** Permanent work together with temporary work.
4. **Contractor :** The party who undertakes to perform the services, supply goods or carry out work defined in a contract. Includes main contractor, prime contractor, supplier, service provider, builder, subcontractor, etc. as the context dictates, which may be defined terms in certain standard contract forms.
5. **Contractor's choice:** Selection delegated to the contractor, but liability to remain with the specifier.
6. **Contractor's design:** Design to be carried out or completed by the contractor, supported by appropriate contractual arrangements, to correspond with specified requirements.
7. **Cost:** The amount paid or given by one party to another in exchange for goods, work, supplies or services.
8. **Designer:** A person or organization carrying out design on a project.
9. **Deviation:** Difference between a specified dimension or position and the actual dimension or position.

10. Drawings: Definitions as [BSRIA Building Applications Guide: Design framework for building services. 5th edition.](#)
11. **Employer:** The party to the contract for whom the goods, work, supplies or services are provided. Includes client (in consultancy contracts and CDM Regulations), the employer, building owner or purchaser (in construction contracts), the developer (in development agreements and funding agreements), or the 'Main' contractor in contractor/ subcontractor agreements – which may be defined terms in certain standard contract forms.
12. **Estimate:** An approximate evaluation of quantity, number, extent, time or cost of part or the whole of a project.
13. **Execute:** To complete a task fully and put into effect. To fix, apply, install or lay products securely, accurately, plumb and in alignment.
14. **Existing:** Items retained in place to receive new work.
15. **Fastener:** Device for mechanically attaching something to something else.
16. **Manufacturer and Product reference:** Manufacturer – the person or legal entity under whose name or trademark the particular product, component or system is marketed.

Product reference – the proprietary brand name and/ or identifier by which the particular product, component or system is described.

References are as specified in the manufacturer's technical literature current on the date specified.

17. **Manufacturer's standard:** Where used in conjunction with a specified proprietary product, accessories to be those recommended by the product manufacturer.
18. **Permanent Work:** Work to be constructed and completed in accordance with the contract.
19. **Price:** An indication of the amount required to be paid by one party to another in exchange for goods, work, supplies or services.
20. **Product:** Material, both manufactured and naturally occurring, goods and accessories for permanent incorporation into the works.
21. **Requirements:** A description in outline or detailed form of the development, or a part of it, which one party wants another to undertake, design and/ or construct.
22. **Schedule of rates:** The subdivision of product and execution prices by a predetermined unit basis.
23. **Schedule of Work/ Work Schedule:** The subdivision of work items by a predetermined classification. Can form the basis of a pricing document where bills of quantities are not used.
24. **Schematic:** A drawing of a system showing components, products, systems and their interconnections.
25. **Site equipment:** The contractor's apparatus, appliances, machinery, vehicles or things of whatsoever nature required in or about the construction for the execution and completion of the works and the remedying of defects.

Includes appliances, vehicles, consumables, tools, temporary work, scaffolding, cabins and other site facilities.

Excludes: temporary work, employer's products and equipment or anything intended to form or forming part of the permanent works.

26. **Specification:** Written description of requirements.
27. **System:** Products, components, equipment, accessories, controls, supports and ancillary items, including installation, necessary for that section of the work to function.
28. **Temporary work:** Incidental work to undertaken during construction but not intended to form part of the completed work.

Ω End of Section

PM_50

Financial and commercial information

Project management

PM_50_50_15 Tender invitation

1. Number of tenders to be invited (maximum): 5

PM_50_50_15/10 The invitation to tender

1. Form: Covering letter accompanying the tender documentation. The tender will be issued electronically, with tender returns also to be returned electronically via Sharefile. A link will be provided with the tender documentation.
2. Tender documents location: Separate Sharefile link to be provided to each tendering contractor containing the tender documents.

PM_50_50_30 Tender acceptance criteria

1. Tender acceptance period: Tenders must remain open for acceptance, unless previously withdrawn, for a minimum of 13 weeks from the date for return of tender.
2. Assurance: Nothing contained in this document or its application should be inferred to guarantee that a tender will be recommended for acceptance or be accepted, or that reasons for non-acceptance will be given.

PM_50_50_35 Tender documents

1. Tender documents: As described in the relevant section.

PM_50_50_45 Tender clarification report

1. Notification requirements: Give notice in writing to the Contract Administrator of any queries or discrepancies to the documents as soon as possible and not less than ten working days before the date for return of Tenders.

PM_50_50_50 Tender instruction

1. Qualifications: Do not amend or alter documents without written instruction.
2. Confidentiality: Do not reveal details of parts of the tender or supporting documents (except for the necessary purposes of preparing that tender) without express written permission.

PM_50_50_50/10 Compliance with tender rules

1. Compliance: Failure to comply may result in tenders being rejected at the sole discretion of the employer.
2. Costs: No liability is accepted for costs incurred in the preparation of a tender.

PM_50_50_50/20 Pricing

1. Pricing: Price and extend each item individually as instructed. Do not group items together.
2. Currency: Pounds sterling.

PM_50_50_55 Tender site visit strategy

1. Nature of the site: Ascertain before tendering, including access thereto and local conditions and restrictions likely to affect the execution of the work.
2. Arrangements for visit: Please contact Claire Cooper (Baily Garner) - Claire.Cooper@bailygarner.co.uk

PM_50_50_60 Tender return

1. Tender submission
 - 1.1. Destination: Electronically via Sharefile
 - 1.2. Time and date: Monday 26th September 2023 @ 12:00pm
 - 1.3. Format: Electronically via Sharefile. The tender documentation is to be provided in PDF Format only. The documentation will not be issued in any other format, such as Word or Excel.
 - 1.4. Special procedures: The Contractor will be provided with a Sharefile link with the tender documents, in which they are to upload their submission before the date/time identified above.
2. Documents to be included: The contractor is to return a fully priced copy of the tender documentation and a compliant Form of Tender, no later than the date identified above.
3. Inability to tender: Advise immediately if the work as defined in the tender documents cannot be tendered.

Define those parts, stating reasons for the inability to tender.

PM_50_50_65 Tender assessment report

1. Tender assessment
 - 1.1. Number to be assessed in detail: One.
 - 1.2. Assessment criteria: Best Price.
2. Alternative Tenders
 - 2.1. Submission: Permitted in conjunction with compliant tender
 - 2.2. Basis : Time based alternatives

PM_50_50_75/10 Error resolution

1. Arithmetical errors: Tender price will prevail. An opportunity will be given to confirm the tender or withdraw.
2. Technical errors: The tender is deemed to meet or exceed the requirements of the tender documents. Amendment of the tender to reflect this will not constitute a variation, and no claim for additional costs will be accepted.
3. Corrections: An endorsement will be added to the priced documents indicating that rates or prices (excluding preliminaries, contingencies, prime cost and provisional sums) inserted therein will be adjusted in the same proportion as the corrected total differs from that stated incorrectly.

PM_50_50_85 Post-tender negotiation

1. Negotiations: May be required.

PM_50_50_90 Tender notification

1. Notification method: By way of formal letter, to be issued via email

Ω End of Section

PM_55 Contract information

Clauses

JCT Intermediate Building Contract (IC)

- The Contract: JCT Intermediate Building Contract 2016 Edition.
- Requirement: Allow for the obligations, liabilities and services described

THE RECITALS

First The Works

- The Works comprise: Installation of increased roof insulation, installation of external wall insulation, upgrade of the existing electrical supply, installation of heat emitters and pipework and installation of a new Air Source heat Pump Installation.
- Location of the works: Wallington County Grammar School, Croydon road, Wallington SM6 7PH

Second Contract drawings

- The Contract Drawings: See Appendix A

Fourth A Pricing by the Contractor

- Pricing by the Contractor: Option A will apply and Option B will be deleted.
- Priced document: Specification.
- Priced Activity Schedule: The words 'and has provided the Employer with a priced schedule of activities annexed to this Contract (the Activity Schedule)' will be deleted.

Sixth Information release schedule

- The Sixth Recital: Will be deleted.

Eighth Division of the works into sections

- The Eighth Recital: Will be deleted.

ARTICLES

3 Architect/ Contract Administrator

- Architect/ Contract Administrator: Baily Garner LLP- Sam French

4 Quantity Surveyor

- Quantity surveyor : Baily Garner LLP - Sam French

5 Principal Designer

- Principal Designer: Baily Garner LLP - Sam French

6 Principal Contractor

- Principal Contractor: TBC

CONTRACT PARTICULARS

Fifth Recital and Clause 4.6 Construction industry scheme (CIS)

- Employer at the Base Date: Is not a 'contractor' for the purposes of the CIS.

Seventh Recital CDM Regulations

- The project: Is notifiable.

Ninth Recital Framework Agreement

- Framework agreement: Does not apply.

Tenth Recital and Schedule 5 Supplemental provisions

- Collaborative working: Supplemental Provision 1 applies.
- Health and safety: Supplemental Provision 2 applies.
- Cost savings and value improvements: Supplemental Provision 3 applies.
- Sustainable development and environmental considerations: Supplemental Provision 4 applies.
- Performance indicators and monitoring: Supplemental Provision 5 applies.
- Notification and negotiation of disputes: Supplemental Provision 6 applies.
- Where Supplemental Provision 6 applies
 - Employer's nominee (Or such replacement as may be notified): Oliver Blackburn
 - Contractor's nominee (Or such replacement as may be notified): TBC

Article 8 Arbitration

- Article 8 and clauses 9.3 to 9.8 (arbitration): Apply.

Clause 1.1 Base Date

- Base date: 10 days before the date for return of tenders.

Clause 1.1 BIM Protocol

- Protocol: Not Applicable

Clause 1.1 Date for Completion of the Works

- Date for completion of the Works (where completion by sections does not apply): TBC

Clause 1.7 Addresses for service of notices

- Employer
 - Address: Wallington County Grammar School, Croydon Road, Wallington, SM6 7PH
- Contractor
 - Address: TBC

Clause 2.4 Date of possession of the site

- Date of Possession of the site: TBC

Clause 2.5 Deferment of possession of the site

- Clause 2.5: Does not apply.

Clause 2.23.2 Liquidated Damages

- Damages
 - Rate: £1,816.64
 - Period: per week or part thereof

Clause 2.30 Rectification period

- Period following date of practical completion: 12 months.

Clause 4.3 and 4.9 Fluctuations Provision

- Fluctuations Provision: No fluctuations provision applies.

Clause 4.7 Advance payment and advance payment bond

- Clause 4.7: Does not apply.
- Advance Payment Bond: Is not required.

Clause 4.8 Interim payments – Interim Valuation Dates

- The first Interim Valuation Date: 1 month after the Date of Possession
- Subsequent dates: The same date each month or the nearest business day in that month.

Clause 4.9.1 Interim payments - percentage of value

- Where the Works, or those works in a section, have not achieved practical completion, the percentage of total value in respect of the works that have not achieved practical completion is: 95 per cent.
- Where the Works, or those works in a section, have achieved practical completion, the percentage in respect of the completed works is: 97½ per cent.

Clause 4.10.4 Listed items - uniquely identified

- Listed items: The contract particulars entry for clause 4.10.4 will be deleted

Clause 4.10.5 Listed items – not uniquely identified

- Listed items: The contract particulars entry for clause 4.10.5 will be deleted.

Clause 6.4.1 Contractor's Public Liability Insurance: Injury to persons or property

- Insurance cover (for any one occurrence or series of occurrences arising out of one event): £10,000.00

Clause 6.5.1 Insurance - liability of Employer

- Insurance: £5,000.00

Clause 6.7 and Schedule 1 Works insurance - insurance options

- Schedule 1: Insurance option C applies
- Percentage to cover professional fees: 15%.
- Where Insurance option C applies, paragraph C.1: Applies.

Clause 6.10 and Schedule 1 Terrorism cover

- Details of cover: Pool Re Cover is required

Clause 6.15 Joint Fire Code

- The Joint Fire Code: Does not apply

Clause 7.2.1 Performance bond or guarantee

- Performance bond or guarantee from bank or other approved surety: Is not required.

Clause 7.2.2 Guarantee from contractor's parent company

- Guarantee: Is not required.

Clause 8.9.2 Period of suspension (termination by Contractor)

- Period of suspension: Two months.

Clauses 8.11.1.1 to 8.11.1.5 Period of suspension (termination by either Party)

- Period of suspension: Two months.

Clause 9.2.1 Adjudication

- The Adjudicator is: The Chairman/ Vice Chairman
- Nominating body - where no Adjudicator is named or where the named Adjudicator is unwilling or unable to act (whenever that is established): The Royal Institution of Chartered Surveyors.

Clause 9.4.1 Arbitration

- Appointor of Arbitrator (and of any replacement): President or a Vice President of the Royal Institution of Chartered Surveyors.

CONDITIONS - No Amendments

Section 1: Definitions and Interpretation - No Amendments

Section 2: Carrying out the Works - No Amendments

Section 3: Control of the Works - No Amendments

Section 4: Payment - No Amendments

Section 5: Variations - No Amendments

Section 6: Injury, Damage and Insurance - No Amendments

Section 7: Assignment and Collateral Warranties - No Amendments

Section 8: Termination - No Amendments

Section 9: Settlement of Disputes - No Amendments

EXECUTION

EXECUTION

- The Contract: Will be executed as a deed.

Ω End of Section

PM_60 Construction management information

Project management

PM_60_10_50 Site access information

1. Details: Access is via public roadways
2. Limitations: The Contractor is to carefully review the site at tender stage to ascertain limitations associated.
3. Access for inspections: Provide access at reasonable times for both on-site and off-site work.

PM_60_10_65/10 Health and safety information

1. Content: Describe the proposed organization and resources to safeguard the health and safety of operatives, including those of subcontractors, and of any person whom the works may affect.
2. Include
 - 2.1. Policy document: A copy of the contractor's health and safety policy documents, including risk assessment procedures.
 - 2.2. Records: Accident and sickness records for the past five years and of any previous Health and Safety Executive enforcement action.
 - 2.3. Training: Records of training and training policy.
 - 2.4. Personnel : The proposed number and type of staff responsible for health and safety on this project with details of their qualifications and duties.
3. Submittal date: Within one week of request.

PM_60_10_75/10 Use of the site

1. General: Do not use the site for any purpose other than carrying out the contract work.
2. Limitations: The Contractor is to carefully review the site at tender stage to ascertain limitations associated.

PM_60_10_75/20 Traffic and vehicles

1. Limitations: The contractor is to carefully review the site at tender stage to ascertain limitations associated.

PM_60_10_75/30 Storage, accommodation, mechanical plant, temporary works and services

1. Position: Submit proposed details of intended siting.
2. Maintenance: Alter, adapt and move as necessary. Remove when no longer required and make good.

PM_60_10_75/40 Management and staff – contract minimum and additional requirement

1. Details: Allow for compliance with contract obligations.
2. Cost-significant items: A full time Site Manager and partially allocated Contracts Manager must be provided

PM_60_10_75/50 Control and protection – contract minimum and additional requirement

1. Details: Allow for compliance with contract obligations.

PM_60_10_75/80 Thermometers

1. **General:** Provide on site and maintain in accurate condition a maximum and minimum thermometer. Measure atmospheric shade temperature in an approved location.

PM_60_10_75/100 Personal protective equipment

1. **General:** Provide the following for the sole use of other members of the project team, in sizes to be specified:
2. Safety helmets
 - 2.1. Standard: To [BS EN 397](#), neither damaged nor time expired.
 - 2.2. Number required: 3
3. High-visibility waistcoats
 - 3.1. Standard: To [BS EN ISO 20471](#), Class 2.
 - 3.2. Number required: 3
4. Safety boots
 - 4.1. Standard: To [BS EN ISO 20345](#), with steel insole and toecap.
5. Disposable respirators
 - 5.1. Standard: To [BS EN 149](#), FFP1S.
6. Eye protection
 - 6.1. Standard: To [BS EN ISO 16321-1](#) and [BS EN ISO 16321-3](#), as appropriate.
7. Ear protection
 - 7.1. Standard: Muffs to [BS EN 352-1](#), plugs to [BS EN 352-2](#).
8. Hand protection
 - 8.1. Standard: To [BS EN 388](#), [BS EN 407](#), [BS EN ISO 21420](#) or [BS EN 511](#) as appropriate.

PM_60_10_77/10 Security – contract minimum and additional requirements

1. **Details:** Allow for compliance with contract obligations.
2. **Cost-significant items:** Ensure security of the site at all times throughout the works.

PM_60_10_77/20 Safety and environmental protection – contract minimum and additional requirements

1. **Details:** Allow for compliance with contract obligations.

PM_60_10_83 Temporary services information

1. **Details:** Allow for compliance with contract obligations.

PM_60_10_83/10 Water

1. **Supply:** The existing mains may be used for the works as follows:
2. **Metering:** Metered by the contractor and charged to the contractor.
3. **Source:** TBC
4. **Point of supply:** TBC
5. **Continuity:** No liability will be accepted for the consequences of failure or restriction in supply.

PM_60_10_83/30 Water restrictions

1. **Emergency legislation:** If the water supply is or is likely to be restricted, inform without delay and ascertain the availability of water from alternative sources.

2. **Suitability:** Check pH value of water from a proposed new source and ensure that it is suitable for the plants, soil and turf being watered.
3. **Cost:** To be borne by the Contractor

PM_60_10_83/40 Gas

1. **Supply:** The existing mains may be used for the works as follows:
2. **Metering:** Metered by the contractor and charged to the contractor.
3. **Source:** TBC
4. **Point of supply:** TBC
5. **Continuity:** No liability will be accepted for the consequences of failure or restriction in supply.

PM_60_10_83/50 Lighting and power

1. **Supply:** Electric power from the existing mains may be used for the works as follows:.
2. **Particular requirements**
 - 2.1. **Metering:** Metered by the contractor and charged to the contractor.
 - 2.2. **Point of supply:** TBC
 - 2.3. **Available capacity:** TBC
 - 2.4. **Frequency:** 50 Hz, Alternating
 - 2.5. **Phase:** TBC
 - 2.6. **Continuity:** No liability will be accepted for the consequences of failure or restriction in supply.

PM_60_10_83/60 On-site communications

1. **Communications**
 - 1.1. **General:** Provide and maintain for the sole use of the other members of the project team and their representatives
 - 1.2. **Telephones**
 - 1.2.1. **Temporary on-site telephone:** Upon appointment, the successful Contractor
2. **Costs:** Pay fees and charges associated with connection, rental subscriptions and the like.

PM_60_10_83/70 Fax installation

1. **General:** As soon as practicable after the start on site, provide a suitable on-site fax installation with a separate dedicated telephone line, for use by the contractor, subcontractors and other members of the project team.
2. **Employer's call charges:** Allow for the cost of a reasonable number of transmissions made by other members of the project team.

PM_60_10_83/80 Email and internet facility

1. **General:** As soon as practicable after the start on site provide a suitable email facility on site, with a separate dedicated connection, for the use of the contractor, subcontractors and other members of the project team.
2. **Use on behalf of Employer:** Allow for the cost of a reasonable number of transmissions made by other members of the project team.

PM_60_10_83/90 Photocopier

1. **General:** Provide reasonable access to and limited free use of an on-site photocopier, which may be located in the contractor's own site offices.

PM_60_10_83/100 Use of permanent heating system

1. **Permanent heating system** : May be used for drying out the works and/ or services, and for controlling temperature and humidity levels.
2. **Requirements**: Take responsibility for operation, maintenance and remedial work. Arrange supervision by and indemnification of the appropriate subcontractors. Pay fuel and associated costs.

PM_60_10_83/110 Beneficial use of installed systems

1. **Permanent systems that may be used for the Works**
 - 1.1. **Permanent systems**: Do not use for any purpose other than running in, testing and commissioning.
2. **Condition of use**
 - 2.1. **Other uses**: If permission is given for any other use of a system before the Works are accepted as complete, enter into a separate written agreement recording details of the terms and conditions of use.

PM_60_10_85/10 Temporary accommodation made available

1. **Accommodation made available by the Employer**: In accordance with tender drawings, exact location to be agreed alongside the Client prior to the commencement of works.

PM_60_10_85/10 Parking

1. **Requirement**: Provide and maintain exclusively for use by employer/ purchaser and their representatives and consultants.
2. **Details**: The contractor may have limited access to parking provisions whilst on site. This will be confirmed to the successful tendering contractor during the Pre-Start Meeting.

PM_60_10_85/20 Roads

1. **Permitted uses**: Associated with completing the works
2. **Restrictions on use**: To be used in connection with undertaking works where required.
3. **Protective or remedial measures**: The Contractor is responsible for protection of all access roads and surfaces utilised through the works. Any damage to be made good upon completion of the work, all costs to be borne by the Contractor.

PM_60_20_60/10 Pre-construction information

1. **Scope**: Integral with the project specification, including but not restricted to the following:

Description of project.

Client's consideration and management requirements.

Environmental restrictions and on-site risks.

Significant design and construction hazards.

The health and safety file.

PM_60_20_79/10 Setting out

1. **General**: Submit details of methods and equipment to be used in setting out the works.
2. **Levels and dimensions**: Check and record the results on a copy of drawings. Give notification of discrepancies and obtain instructions before proceeding.

3. Completion of setting out: Give notice before commencing construction.

PM_60_20_79/20 Setting out records

1. Record drawings: Include details of grid lines, setting-out stations, benchmarks and profiles. Retain on site throughout the contract, and hand over on completion.

PM_60_30_13/20 Commissioning programme

1. Submittal date: No later than 2 weeks before the date of Practical Completion
2. Format: Electronic format

PM_60_30_13/30 Performance testing programme

1. Submittal date: No later than 2 weeks before the date of Practical Completion
2. Format: Electronic Format

PM_60_30_19/40 Method statements

1. Method statements: Prepare describing how and when the following procedures are to be carried out.
2. Procedures: The works as described in PM_10_10_60/10
3. Submittal date: Within one week of request

PM_60_30_19/90 Alternative time proposals

1. General: In addition to and at the same time as undertaking to complete the contract work by the date for completion or period specified in the contract, an alternative proposal based upon a different date or period may be submitted.
2. Date for Completion: If any such proposal is accepted, the date for completion or period inserted in the contract will be the date stated in or determined from the alternative proposal.

PM_60_30_20/10 Programme

1. Master programme: When requested, and before starting work on site, submit a master programme for the works in an approved form.
2. Include
 - 2.1. Information: Design, production information and proposals provided by the contractor, subcontractors or suppliers, including inspection and checking.
 - 2.2. Planning: Planning and mobilization by the contractor.
 - 2.3. Dates: Earliest start and finish dates for each activity and identification of critical activities.
 - 2.4. Engineering services: Running in, adjustment, commissioning and testing of engineering services and installations.
 - 2.5. Instructions: Work resulting from instructions issued in regard to the expenditure of provisional sums.
 - 2.6. Concurrent work: Work by others and concurrent with the contract. The nature and scope of which, the relationship with preceding and following work and relevant limitations are suitably defined in the contract documents.
3. Exclusions: Where work is not well defined and the programme implications are impossible to assess, exclude these activities from the programme. Confirm the nature and extent of any exclusions when submitting the programme.
4. Number of copies: Electronic copy to be distributed to all members of the Project Team
5. Submittal date: No later than 2 weeks before commencement of work on site

PM_60_30_45/20 Adjoining property

1. **Permission:** Obtain as necessary from other owners if required to erect scaffolding on, or otherwise use, adjoining property.

PM_60_30_45/40 Adjoining property restrictions

1. **Precautions:** Prevent trespass of workpeople and take precautions to prevent damage to adjoining property. Pay charges. Remove temporary protection and make good on completion or when directed.
2. **Damage:** Bear cost of repairing damage arising from execution of the works.

PM_60_30_45/50 Existing structures

1. **Duty:** Check proposed methods of work for effects on adjacent structures inside and outside the site boundary.
2. **Supports**
 - 2.1. **Standards:** In accordance with [BS 5975](#) and [BS EN 12812](#).
 - 2.2. **Requirements:** Provide and maintain incidental shoring, strutting, needling and other supports as may be necessary to preserve stability of existing structures on the site or adjoining, which may be endangered or affected by the works.

Do not remove until new work is strong enough to support existing structure.

Prevent overstressing of completed work when removing supports.

3. **Adjacent structures:** Monitor and immediately report excessive movement.

PM_60_30_45/70 Materials for recycling or reuse

1. **Duty:** Sort and prevent damage to stated products or materials, clean off bedding and jointing materials and other contaminants.
2. **Storage:** Stack neatly and protect until required by the employer or for use in the works as instructed.

PM_60_30_45/90 Scaffolding

1. **Scaffolding:** Make available to subcontractors and others at all times.

PM_60_30_66/30 Progress report

1. **Submittal date:** No later than 5 business days before each formal Progress Meeting
2. **Requirement:** Notwithstanding any obligations under the contract the report must include the following.
3. **Content:** Content: As a minimum, the contractor is to provide the following by means of a Contractor's Progress Report:
 - Progress Update
 - Programme / Possible Delays
 - Instructions Required
 - RFI Log/Queries
 - Health & Safety Update
4. **Progress statement:** Detailing matters materially affecting the regular progress of the works with reference to the master programme.
5. **Progress reports:** Subcontractors and suppliers.
 - 5.1. **Information:** Requirements for further drawings or details or instructions to fulfil obligations under the conditions of contract.

PM_60_40_40/20 Domestic subcontracts

1. **Details:** Provide details of proposed subcontractors and the work for which they will be responsible.

PM_60_40_40/100 Ownership of products

1. **Ownership:** At the time of each valuation, supply details of those products not incorporated into the works which are subject to reservation of title inconsistent with passing of property as required by the conditions of contract, together with their respective values.
2. **Evidence:** When requested, provide evidence of freedom of reservation of title.

PM_60_40_40/150 Listed products stored off site

1. **Evidence of title:** Submit reasonable proof that the property in 'listed items' is vested in the contractor
2. **Supplier:** For products purchased from a supplier include a copy of the contract of sale and a written statement from the supplier that conditions of the sale relating to the passing of property have been fulfilled and the products are not subject to encumbrance or charge.
3. **Subcontractor:** For products purchased from a supplier by a subcontractor or manufactured or assembled by a subcontractor, copies of the subcontract with the subcontractor and a written statement from the subcontractor confirming that conditions relating to the passing property have been fulfilled and the products are not subject to encumbrance or charge.

PM_60_40_40/200 Labour and equipment returns

1. **Records:** Provide for verification at the beginning of each week in respect of each of the previous seven days.
2. **Include**
 - 2.1. **Labour:** The number and description of craftsmen, labourers and other persons directly or indirectly employed on or in connection with the works or services, including those employed by subcontractors.
 - 2.2. **Equipment:** The number, type and capacity of mechanical, electrical and power operated equipment employed in connection with the works or service.

PM_60_40_40/210 Overtime working schedule

1. **Requirement:** Prior to overtime being worked, submit notice of times, types and locations of work to be done.
2. **Concealed work:** If executed during overtime for which notice has not been submitted, it may be required to be opened up for inspection and reinstatement at the contractor's expense.

PM_60_40_60/10 Monitoring

1. **Progress**
 - 1.1. **Records:** Record on a copy of the programme kept on site.
 - 1.2. **Delays:** Minimize. Take appropriate action to recover lost time.
 - 1.3. **Corrective action:** Where progress falls below target, submit proposals.
 - 1.4. **Submittal date:** As soon as possible.
 - 1.5. **Completion forecast:** Submit on the last working day of each week.
2. **Key Performance Indicators**
 - 2.1. **Performance:** Record performance against each KPI.
 - 2.2. **Corrective action:** Where performance falls below target, submit proposals.
 - 2.3. **Submittal date:** As soon as possible.

PM_60_40_60/20 Progress meetings

1. **General:** Meetings will be held to review progress and other matters arising from administration of the contract.
2. **Frequency:** Every month.
3. **Venue:** It is the intention that all project related meetings are to be held on site. It is the contractors responsibility to provide suitable meeting space. It may be required for meetings to be held virtually, which will be hosted on Microsoft Teams or Zoom. The Contractor is to ensure relevant individuals are present for such
4. **Accommodation:** Ensure availability at the time of such meetings.
5. **Attendees:** The Client, Contract administrator, Principal contractor, Principal designer. The contractor is to attend meetings and inform subcontractors and suppliers when their presence is required
6. **Chairperson**
 - 6.1. **Name:** As Ro_30_10_19Contract administrator
 - 6.2. **Duties:** The Chairperson will send invitations, receive apologies, distribute agendas, take and distribute minutes.

PM_60_40_60/30 Contractor's progress meetings

1. **General:** Hold meetings with appropriate subcontractors and suppliers shortly before main site meetings to facilitate accurate reporting of progress.

PM_60_50_12 Cash flow forecast

1. **Submission:** Before starting work on site, submit a forecast showing the gross valuation of the works at the date of each interim certificate throughout the contract period and based on the programme for the works.

PM_60_50_23/30 Proposed instructions

1. **Estimates:** If a proposed instruction requests an estimate of cost, submit without delay and in any case within seven days.
2. **Include**
 - 2.1. **Cost breakdown:** A detailed breakdown of cost, including allowance for direct loss and expense.
 - 2.2. **Resources:** Details of additional resources required.
 - 2.3. **Programme:** Details of adjustments to be made to the programme for the works.
 - 2.4. **Other:** Other information as is reasonably necessary to fully assess the implications of issuing such an instruction.
3. **Inability to comply:** Inform immediately if it is not possible to comply with any of the above requirements.

PM_60_50_27/10 Measured quantities

1. **Measured quantities:** When ordering products and constructing the works, the accuracy and sufficiency of the measured quantities is not guaranteed.
2. **Precedence:** The specification and drawings shall override the measured quantities.

PM_60_60_26/10 Temporary protection to existing trees and vegetation

1. **Trees and vegetation**
 - 1.1. **Requirement:** Protect before starting work.
 - 1.2. **Positions:** To all works areas and Contractor compound including access routes
 - 1.3. **Standard:** Relevant measures to [BS 5837](#).

2. Areas of structural landscaping to be protected from construction operations
 - 2.1. Requirement: Protect from effects of construction operations.
 - 2.2. Positions: To all works areas and Contractor compound including access routes
3. Integrity of protection: Maintain for the duration of the works.
4. Completion: Remove on completion of the works and make good disturbed areas.

PM_60_60_26/30 Noise – consent by local authority

1. Consent: Granted by the local authority under Part III of the [Control of Pollution Act](#) relating to the works providing the following are met.
2. Conditions: Comply with all relevant Local Authority Policies. Any permission/consent required is to be obtained by the Contractor

PM_60_60_26/40 Noise and vibration

1. Noise control: In accordance with [BS 5228-1](#).
2. Measurement area: The site boundary except between the hours of 9.00 am to 5.00 pm.
3. Equipment: Fit compressors, percussion tools and vehicles with effective silencers of a type recommended by manufacturers of the compressors, tools or vehicles.
4. Restrictions: Obtain consent before using percussion tools and other noisy appliances.

Do not use radios or other audio equipment or permit employees to use in ways or at times that may cause nuisance.

PM_60_60_26/60 Pollution

1. Prevention: Protect the site, the works and the general environment including the atmosphere, land and water courses against pollution.
2. Contamination: If pollution occurs inform immediately, including to the appropriate authorities and provide relevant information.

PM_60_60_26/90 Pesticides

1. Use: Not permitted.

PM_60_60_26/120 Nuisance

1. Duty: Prevent nuisance from smoke, noise, dust, rubbish, vermin and other causes.
2. Surface water: Prevent hazardous build-up on site, in excavations and to surrounding areas and roads.

PM_60_60_26/130 Asbestos-containing materials

1. Requirement: Report immediately suspected materials discovered during execution of the works. Do not disturb and agree methods for safe removal or encapsulation.

PM_60_60_26/150 Antiquities

1. Requirement: Report immediately fossils, antiquities and other objects of interest or value discovered during execution of the works.
2. Preservation: Keep objects in the exact position and condition in which they were found.

PM_60_60_26/160 Moisture

1. Wetness or dampness: Prevent where this may cause damage to the works.
2. Drying out: Control humidity and the application of heat to prevent:

Blistering and failure of adhesion.

Damage due to trapped moisture.

Excessive movement.

PM_60_60_26/180 Infected timber and contaminated materials

1. **Removal:** Where instructed to remove material affected by fungal and/ or insect attack from the building, minimize the risk of infecting other parts of the building.
2. **Testing:** Carry out and keep records of appropriate tests to demonstrate that hazards presented by concentrations of airborne particles, toxins and other micro-organisms are within acceptable levels.

PM_60_60_26/190 Waste

1. **Waste:** Includes rubbish, debris, spoil, containers and packaging, and surplus material requiring disposal.
2. **Requirement:** Minimize production and prevent accumulation of waste. Keep the site and works clean and tidy. Clean out voids and cavities in the construction before closing.
3. **Disposal:** Collect and store in suitable containers. Remove from site and dispose of in a safe and competent manner, as approved and directed by the Waste Regulation Authority.
4. **Recyclable material:** Sort and dispose at a materials recycling facility approved by the Waste Regulation Authority.
5. **Documentation:** Retain on site.

PM_60_60_26/210 Invasive species

1. **General:** Prevent the introduction or spread of species (e.g. plants or animals) that may adversely affect the site and the works economically, environmentally or ecologically.
2. **Requirement:** Report immediately suspected invasive species discovered during execution of the works. Do not disturb and agree methods for safe eradication or encapsulation.

PM_60_60_26/220 Existing services

1. **Confirmation:** Notify service authorities, statutory undertakers and/ or adjacent owners of proposed work not less than one week before commencing site operations.
2. **Identification:** Before starting work, check and mark positions of mains and services. Where positions are not shown on drawings obtain relevant details from service authorities, statutory undertakers or other owners.
3. **Work adjacent to services:** Comply with service authority's or statutory undertaker's recommendations.

Adequately protect, and prevent damage to services.

Do not interfere with their operation without consent of service authorities, statutory undertakers or other owners.

4. **Identifying services**
 - 4.1. **Below ground:** Use signboards, giving type and depth.
 - 4.2. **Overhead:** Use headroom markers.
5. **Damage to services**
 - 5.1. **Action:** Immediately give notice and notify appropriate service authority or statutory undertaker.
 - 5.2. **Repair:** Make arrangements for making good without delay to the satisfaction of service authority, statutory undertaker or other owner as appropriate.

6. **Liability:** Measures taken to deal with an emergency will not affect the extent of the contractor's liability.
7. **Marker tapes or protective covers:** Replace, if disturbed during site operations, to service authority's or statutory undertakers recommendations.

PM_60_60_26/240 Roads and footpaths

1. **Duty:** Maintain roads and footpaths within and adjacent to the site and keep clear of mud and debris.
2. **Damage:** Make good if caused by site traffic, or otherwise consequent upon the works, to the satisfaction of the employer, local authority or other owner.

PM_60_60_26/270 Existing topsoil and subsoil

1. **Duty:** Prevent over compaction of existing topsoil and subsoil in those areas which may be damaged by construction traffic, parking of vehicles, temporary site accommodation or storage of materials and which will require reinstatement prior to completion of the works.
2. **Protection:** Submit proposals.
3. **Submittal date:** Before starting work.

PM_60_60_26/280 Retained trees, shrubs and grassed areas

1. **Protection:** Preserve and prevent damage.
2. **Replacement:** Mature trees and shrubs if uprooted, destroyed, or damaged beyond reasonable chance of survival in their original shape, as a consequence of the contractor's negligence, must be replaced with those of a similar type and age at the contractor's expense.

PM_60_60_26/300 Retained trees

1. **Protected area:** Unless agreed otherwise, do not dump spoil or rubbish, excavate or disturb topsoil, park vehicles or plant, store materials or place temporary accommodation within the root protection area.
2. **Roots:** Do not sever if exceeding 25mm in diameter. If unintentionally severed, give notice and seek advice.
3. **Ground levels:** Do not change within an area 3m beyond branch spread.

PM_60_60_40/10 Insurance

1. **Documentary evidence:** Before starting work on site submit details and/ or policies and receipts for the insurances required by the conditions of contract.

PM_60_60_40/110 Insurance claims

1. **Notice:** If an event occurs which may give rise to a claim or proceeding in respect of loss or damage to the works or injury or damage to persons or property arising out of the works, immediately give notice to the employer/ client, the person administering the contract on their behalf and the insurers.
2. **Failure to notify:** Indemnify the employer/ client against loss, which may be caused by failure to give such notice.

PM_60_60_60/10 Removal or replacement of existing work

1. **Extent and location:** Agree before commencement.
2. **Execution:** Carry out in ways that minimize the extent of work.

PM_60_60_60/20 Ownership of materials

1. **Alteration or clearance work:** Materials arising become the property of the contractor except where otherwise stated. Remove from site as work proceeds.

PM_60_60_60/30 Measurement

1. **Covered work:** Give notice before covering work required to be measured.

PM_60_60_60/40 Service runs

1. **General:** Provide adequate space and support for services, including unobstructed routes and fixings.
2. **Ducts, chases and holes:** Form during construction rather than cut in situ.
3. **Coordination with other works:** Submit details of locations, types and methods of fixing of services to fabric and identification of runs and fittings.

PM_60_60_60/50 Security

1. **Protection:** Safeguard the site, the works, products, materials, and existing buildings affected by the works from damage and theft.
2. **Access:** Take reasonable precautions to prevent unauthorized access to the site, the works and adjoining property.

PM_60_60_60/70 Stability

1. **Responsibility:** Maintain the stability and structural integrity of the works and adjacent structures during the contract.
2. **Design loads:** Obtain details, support as necessary and prevent overloading.

PM_60_60_60/80 Occupied premises

1. **Extent:** Existing buildings will be occupied and/ or used during the contract.
2. **Works:** Carry out without undue inconvenience and nuisance and without danger to occupants and users.
3. **Overtime:** If compliance with this clause requires certain operations to be carried out during overtime, and such overtime is not required for any other reason, the extra cost will be paid to the contractor, provided that such overtime is authorized in advance.

PM_60_60_60/90 Access control

1. **Controlled areas:** The buildings within the curtilage of the site
2. **Control type:** To be prescribed by the Client
3. **Authorized persons:** Submit a list of the names of persons requiring access together with other related information reasonably required.
4. **Return of equipment :** On request or on completion of the work to which it relates.

PM_60_60_60/100 Occupier's rules and regulations

1. **Occupier's rules and regulations:** Comply.

PM_60_60_60/130 Livery

1. **Requirements**
 - 1.1. **Operatives:** All operatives are to be provided with corporate High Visibility vests and name badges, to be worn on site at all times whilst on site.
The Contractor is to ensure all staff including sub-contractors attending site be provided with suitable PPE. This is to include any specialist PPE associated with Covid 19 (i.e. masks,

gloves, sanitiser stations) in compliance with the CLC Site Operating Procedures. The contractor is to also note the requirements set out within Section 3 for all operatives to hold enhanced DBS certificates.

PM_60_60_70/10 Climatic conditions – records

1. Climatic conditions: Record accurately and retain.
2. Information
 - 2.1. Air temperatures: Daily maximum and minimum, including overnight.
 - 2.2. Delay records: Due to adverse weather, include description of the weather, types of work affected and number of hours lost.

PM_60_60_75/20 Explosives

1. Use: Not permitted.

PM_60_60_75/50 Fire prevention

1. Requirement: Prevent personal injury or death, and damage to the works or other property from fire.
2. Standard: Comply with the [Joint Fire Code: Fire Prevention on Construction Sites](#).

PM_60_60_75/60 Smoking on site

1. Smoking on site: Not permitted.

PM_60_60_75/70 Burning on site

1. Burning on site: Not permitted.

PM_60_60_75/100 Electromagnetic interference

1. Duty: Prevent excessive electromagnetic disturbance to other susceptible apparatus.

PM_60_60_75/120 Laser equipment

1. Construction laser equipment: Install, use and store in accordance with [BS EN 60825-1](#) and the manufacturer's instructions.
2. Class 1 or Class 2 laser equipment: Ensure laser beam is not set at eye level and is terminated at the end of its useful path.
3. Class 3R and Class 3B laser equipment: Do not use without approval and subject to submission of a method statement on its safe use.

PM_60_60_75/140 Powder-actuated fixing systems

1. Use: Not permitted.

PM_60_60_75/150 Existing features

1. Protection: Prevent damage to existing buildings, fences, gates, walls, roads, paved areas and other site features which are to remain in position during execution of the works.

PM_60_60_75/160 Existing work

1. Protection: Prevent damage to existing work, structures or other property during the execution of the works.
2. Removal: Minimum amount necessary.
3. Replacement work: To match existing.

PM_60_60_75/170 Building interiors

1. **Protection:** Prevent damage from exposure to the environment, including weather, flora, fauna and other causes of material degradation during the execution of the works.

PM_60_60_75/180 Existing furniture, fittings and equipment

1. **Protection:** Prevent damage or move as necessary to enable the works to be executed. Reinstate in original positions.
2. **Removal by employer/ client**
 - 2.1. **Timing:** Before work starts in relevant areas.

PM_60_60_75/210 Especially valuable or vulnerable items

1. **Protection:** Ensure provision and maintenance of special protective measures to prevent damage.
2. **Method statement:** Submit within one week of request describing special protection to be provided.

PM_60_60_88/10 Meter readings

1. **Charges for service supplies:** Where to be apportioned ensure that:

Meter readings are taken by relevant authority at possession and/ or completion as appropriate.

Copies of readings are supplied to interested parties.

PM_60_60_88/20 Mechanical plant – contract minimum and additional requirement

1. **Details:** Allow for compliance with contract obligations

PM_60_70_17/10 Outline construction phase health and safety plan

1. **Content**
 - 1.1. **Risk assessment:** Method statements on how risk from hazards identified in the pre-construction information and other hazards identified by the contractor will be addressed. Procedures for carrying out risk assessment and for managing and controlling the risk.
 - 1.2. **Management system:** Details of the proposed management structure, responsibilities and arrangements for issuing health and safety directions. Include procedures for informing other contractors and employees of health and safety hazards.
 - 1.3. **Selection:** Proposed procedure for ensuring competency of other contractors, the self-employed and designers.
 - 1.4. **Communication:** Procedures for communications between the project team, other contractors and site operatives. Include arrangements for cooperation and coordination between contractors.
 - 1.5. **Emergency:** Procedures including those for fire prevention and escape.
 - 1.6. **Records:** Arrangements for ensuring that accidents, illness and dangerous occurrences are recorded.
 - 1.7. **Personnel :** Procedures for ensuring that persons on site have received relevant health and safety information and training. Include arrangements for consulting with and taking the views of people on site, for preparing site rules and drawing them to the attention of those affected and ensuring compliance.
 - 1.8. **Monitoring:** Monitoring procedures to ensure compliance with site rules, selection and management procedures, health and safety standards and statutory requirements. Review procedures to obtain feedback.
2. **Submittal date:** No later than 2 weeks before commencement of works on site

PM_60_70_17/20 Construction phase health and safety plan

1. **Delivery to the Client:** No later than 2 weeks before commencement of works on site
2. **Confirmation:** Do not start construction work until written confirmation is received that the construction phase health and safety plan includes the procedures and arrangements required by the [Construction \(Design and Management\) Regulations](#).
3. **Content:** Develop the plan from and draw on the outline construction phase health and safety plan and the pre-construction information.

PM_60_70_20/10 Execution hazards

1. **Common hazards:** Not listed. Control by good management and site practice.
2. **Significant hazards**
 - 2.1. **Specification reference:** See Designers Risk Assessment

PM_60_70_25/10 Health and safety hazards

1. **Limitations:** The nature and condition of the site and/ or buildings cannot be fully ascertained before they are opened up.
2. **Information:** The accuracy and sufficiency of this information is not guaranteed. Ascertain if additional information is required to ensure the safety of persons and the works.
3. **Training:** Ensure that all relevant personnel are aware of the hazards listed and have received appropriate training to deal with them.

PM_60_70_40/20 Health and safety information

1. **Content:** Describe the proposed organization and resources to safeguard the health and safety of operatives, including those of subcontractors, and of any person whom the works may affect.
2. **Include**
 - 2.1. **Policy document:** A copy of the contractor's health and safety policy documents, including risk assessment procedures.
 - 2.2. **Records:** Accident and sickness records for the past five years and of any previous Health and Safety Executive enforcement action.
 - 2.3. **Training:** Records of training and training policy.
 - 2.4. **Personnel :** The proposed number and type of staff responsible for health and safety on this project with details of their qualifications and duties.
3. **Submittal date:** No later than 2 weeks before date of Practical Completion

PM_60_70_40/60 Outline construction phase health and safety plan

1. **Content**
 - 1.1. **Risk assessment:** Method statements on how risk from hazards identified in the pre-construction information and other hazards identified by the contractor will be addressed. Procedures for carrying out risk assessment and for managing and controlling the risk.
 - 1.2. **Management system :** Details of the proposed management structure, responsibilities and arrangements for issuing health and safety directions. Include procedures for informing other contractors and employees of health and safety hazards.
 - 1.3. **Selection:** Proposed procedure for ensuring competency of other contractors, the self-employed and designers.
 - 1.4. **Communication:** Procedures for communications between the project team, other contractors and site operatives. Include arrangements for cooperation and coordination between contractors.
 - 1.5. **Emergency:** Procedures including those for fire prevention and escape.

- 1.6. **Records:** Arrangements for ensuring that accidents, illness and dangerous occurrences are recorded.
 - 1.7. **Personnel:** Procedures for ensuring that persons on site have received relevant health and safety information and training. Include arrangements for consulting with and taking the views of people on site, for preparing site rules and drawing them to the attention of those affected and ensuring compliance.
 - 1.8. **Monitoring:** Monitoring procedures to ensure compliance with site rules, selection and management procedures, health and safety standards and statutory requirements. Review procedures to obtain feedback.
2. **Submittal date:** Within one week of request.

PM_60_70_40/80 Health and safety file information

1. **Information:** Provide as required by principal designer.
2. **Details:** As instructed by the Principal Designer
3. **Specification reference:** 35085

PM_60_70_60/10 Product hazards

1. **Hazardous substances:** Site personnel levels must not exceed occupational exposure standards and maximum exposure limits stated in the current version of HSE document EH 40
2. **Common hazards:** Not listed. Control by good management and site practice.

PM_60_70_75/10 Supervision

1. **Requirement:** The whole of the contract work and any significant parts must be under the close control of competent trade supervisors to ensure maintenance of satisfactory quality, progress and coordination.
2. **Evidence:** Submit, including: details of the person proposed; their relevant skills, training and knowledge; practical experience; qualifications; membership or registration with professional bodies; employment history; work-related assessments; and management structure.
3. **Submittal date:** Within one week of request.
4. **Replacement of supervisory personnel:** Give maximum possible notice before changing supervisory personnel.

PM_60_70_75/20 Coordination of engineering services

1. **Suitability:** Site organization staff must include one or more persons with appropriate knowledge and experience of mechanical and electrical engineering services to ensure compatibility between engineering and the works generally.
2. **Evidence:** Submit on request, including: details of the person proposed; their relevant skills, training and knowledge; practical experience; qualifications; membership or registration with professional bodies; employment history; work-related assessments; and management structure.

PM_60_70_95 Welfare responsibility registration scheme

1. **Scheme registration:** Register and provide evidence of registration
2. **Details:** Constructing Better Health, B&CE Building, Manor Royal
Crawley, West Sussex
RH10 9QP
Tel: 0845 873 7726
Email: info@cbhscheme.co.uk
Website: www.cbhscheme.co.uk
3. **Submittal date:** No later than 2 weeks before commencement of works on site

PM_60_90_40/10 Safety provisions for site visits

1. **Access:** Provide at reasonable times.
2. **Inspections:** Agree dates and times several days in advance, to enable affected parties to be present.
3. **Safety:** Submit details in advance of safety provisions and procedures (including those relating to materials, which may be deleterious) which will require compliance when visiting the site.
4. **Protective clothing and/ or equipment:** Provide and maintain on site for visitors to the site.

PM_60_90_40/30 Inspections

1. **Standard:** Inspection, or other action, of products or executions must not be taken as approval, unless confirmed in writing and including: date of inspection; part of the work inspected; respects or characteristics which are approved; extent and purpose of the approval; and associated conditions.

PM_60_90_40/40 Defects in existing work report

1. **Undocumented defects:** When discovered, immediately give notice. Do not proceed with affected related work until response has been received.
2. **Documented remedial work:** Do not execute work which may hinder access to defective products or executions, or be rendered abortive by the remedial work.

PM_60_90_70 Quality control and management report

1. **Details:** If products of different manufacture to those specified are proposed, submit details with the tender, giving reasons for each proposed substitution. Unless notified at tender stage, proposals for substitutions may not be considered.
2. **Compliance:** Substitutions accepted will be subject to verification requirements detailed in the specification.

PM_60_90_70/20 Substitution of products

1. **Products:** If an alternative product to that specified is proposed, obtain approval before ordering the product.
2. **Reasons:** Submit reasons and relevant information for the proposed substitution.
3. **Information to be submitted:** Manufacturer and product reference.

Cost.

Availability.

Relevant standards.

Performance.

Function.

Compatibility of accessories.

Proposed revisions to drawings and specification.

Compatibility with adjacent work.

Appearance.

Copy of warranty or guarantee.

4. **Alterations to adjacent work:** If needed, provide details of scope, nature and cost.

5. **Manufacturers' guarantees:** If substitution is accepted, submit before ordering products.

PM_60_90_70/30 Equivalent products

1. **Inadvertent omission:** Wherever products are specified by proprietary name, the phrase 'or equivalent' is deemed to be included.

PM_60_90_70/40 Substitution of standards

1. **Specification:** To British Standard or European Standard.
2. **Substitution:** May be proposed, complying with a grade or category within a national standard of another Member State of the European Community, or an International Standard recognized in the UK.
3. **Ordering:** Submit notification of all such substitutions before ordering.
4. **Documentary evidence:** Submit for verification when requested. Submitted foreign language documents must be accompanied by certified translations into English.

PM_60_90_70/60 Currency of documents

1. **Currency:** References to published documents are to the editions, including amendments and revisions, current on the date of the invitation to tender.

PM_60_90_70/80 Incomplete documentation

1. **Products and executions:** Where and to the extent that products or executions are not fully documented, they are to be as follows.
2. **Requirements**
 - 2.1. **Standard:** Of a kind and quality appropriate to the nature and character of the part of the works where they will be used.
 - 2.2. **Suitability:** Suitable for the purposes stated or to be reasonably inferred from the project documents.
3. **Contract documents:** Omissions or errors in description and/ or quantity shall not vitiate the contract, nor discharge any obligations or liabilities under it.

PM_60_90_70/90 Workmanship skills

1. **Operatives:** Appropriately skilled and experienced for the type and quality of work.
2. **Registration:** With Construction Skills Certification Scheme.
3. **Evidence:** Operatives must produce evidence of skills and qualifications when requested.

PM_60_90_70/110 Quality of products

1. **Generally:** New.
2. **Supply:** Each product from the same source or manufacturer.
3. **Quantity:** Whole quantity of each product required to complete the works is to be of a consistent kind, size, quality and overall appearance.
4. **Tolerances:** Where critical, measure a sufficient quantity to determine compliance.
5. **Deterioration:** Prevent: order in suitable quantities to a programme and use in appropriate sequence.
6. **Recycling:** Proposals for recycled products may be considered.

PM_60_90_70/190 Quality of execution

1. **Generally:** Fix, apply, install or lay products securely, accurately, plumb, neatly and in alignment.
2. **Colour batching:** Do not use different colour batches where they can be seen together.
3. **Dimensions:** Check on site.

4. Finished work: Not defective, damaged, disfigured, dirty, faulty or out of tolerance.
5. Appearance: Adjust joints open to view so that they are even and regular.

PM_60_90_70/270 Samples

1. Products or executions: Comply with specification requirements and, in respect of the stated or implied characteristics, either to an express approval or to match a sample expressly approved as a standard for the purpose.

PM_60_90_70/280 Approval of products

1. Programme: Undertake or arrange submissions, samples, inspections and tests to suit the works programme.
2. Approval: Relates to a sample of the product and not to the product as used in the works. Do not confirm orders or use the product until approval of the sample has been obtained.
3. Complying sample: Retain on site in good, clean condition. Remove when no longer required.

PM_60_90_70/290 Approval of execution

1. Programme: Undertake or arrange submissions, samples, inspections and tests to suit the works programme.
2. Approval: Relates to the stated characteristics of the sample. (If approval of the finished work as a whole is required, this is specified separately.) Do not conceal or proceed with affected work until compliance with requirements is confirmed.
3. Complying sample: Retain on site in good, clean condition. Remove when no longer required.

PM_60_90_70/300 Accuracy of instruments

1. Measurement: Use instruments and methods described in [BS 5606](#), Appendix A.
2. Accuracy: Maintain

PM_60_90_70/330 Critical dimensions

1. Critical dimensions: Set out and construct the works in accordance with the critical dimensions and tolerances stated.

PM_60_90_70/350 Quality control

1. Procedures: Establish and maintain to ensure that the works, including the work of subcontractors, comply with specified requirements.
2. Records: Maintain full records, keep copies on site for inspection and submit copies on request.
3. Content of records
 - 3.1. Identification: Describe each element, item, batch or lot, including location in the works.
 - 3.2. Inspections, tests and approvals: Describe purpose and dates.
 - 3.3. Nonconforming work: Describe nature and extent of work found.
 - 3.4. Corrective action: Details of work carried out.

PM_60_90_70/370 Quality control resource statement

1. Resources: Describe the proposed organization and resources to control the quality of the works, including the work of subcontractors.
2. QA staff: Identify in the statement the number and type of staff responsible for quality control, with details of their qualifications and duties.
3. Submittal date: No later than 2 weeks before commencement of works on site

Ω End of Section

PM_70 Testing, commissioning and completion information

Project management

PM_70_80 Commissioning information

1. **General:** Submit relevant drawings and preliminary performance data to enable users to become familiar with the installation.
2. **Submittal date:** At commencement of commissioning.

PM_70_85_10/30 The building manual

1. **Purpose:** The building manual is to be a comprehensive information source and guide for owners and users of the completed works. It must provide an overview of the main design principles and describe key components and systems within the finished works to enable proper understanding, efficient and safe operation and maintenance.
2. **Scope**
 - 2.1. **Part 1: General.**
 - 2.2. **Part 2 : Fabric.**
 - 2.3. **Part 3 : Services.**
 - 2.4. **Part 4: The health and safety file**
 - 2.5. **Part 5: Building user guide.**
3. **Responsibility for production:** The Principal Contractor
4. **Date required:** Prior to Practical Completion being awarded
5. **Compilation:** Prepare all information for contractor designed or performance specified work including as-built drawings. Obtain or prepare all other information to be included in the manual.
6. **Reviewing the Manual:** Prepare and circulate a complete draft. Amend in the light of any comments and recirculate. Do not proceed with production of the final copies until authorized.
7. **Final copies of the Manual**
 - 7.1. **Number of copies:** 1 no. Electric copy to all parties, and 2 no. hard copies to the CA and Client
 - 7.2. **Latest date for submission:** Two weeks before the date for completion stated in the contract.
8. **As-built/ record drawings and schedules**
 - 8.1. **Number of copies:** 1 no. Electric copy to all parties, and 2 no. hard copies to the CA and Client

PM_70_85_10/80 Content of the building manual part 1: general

1. **Content:** Obtain and provide the following, including all relevant details not included in other parts of the manual.
2. **Index:** List the constituent parts of the manual, together with their location in the document.
3. **The Works:** Description of the buildings and facilities.

Ownership and tenancy, where relevant.

Health and safety information – other than that specifically required by the [Construction \(Design and Management\) Regulations](#).

4. **The Contract:** Names and addresses and contact details of all significant consultants, contractors, subcontractors, suppliers and manufacturers.

Overall design criteria.

Environmental performance requirements.

Relevant authorities, consents and approvals.

Third-party certification, such as those made by 'competent' persons in accordance with the Building Regulations.

5. **Operational requirements and constraints of a general nature:** Maintenance contracts and contractors.

Fire safety strategy for the buildings and the site. Include drawings showing emergency escape and fire appliance routes, fire resisting doors, location of emergency alarm and firefighting systems, services, shut off valves switches, etc.

Emergency procedures and contact details in case of emergency.

Other specific requirements.

6. **Timescale for completion:** Two weeks before the date for completion stated in the contract.

PM_70_85_10/90 Content of the building manual part 2: building fabric

1. **Content:** Obtain and provide the following, including all relevant details not included in other parts of the manual:

- 1.1. **Detailed design criteria:** Including:

Floor and roof loadings

Durability of individual components and elements

Loading restrictions

Insulation values

Fire ratings

Other relevant performance requirements

- 1.2. **Construction of the building:** A detailed description of methods and materials used.

As-built drawings recording the construction, together with an index.

Information and guidance concerning repair, renovation or demolition/ deconstruction.

- 1.3. **Periodic building maintenance guide chart:** Provide for all significant items of work

- 1.4. **Manufacturer's instructions index:** Include relevant COSHH data sheets and recommendations for cleaning, repair and maintenance of components.

- 1.5. **Guarantees, warranties and maintenance agreements:** Obtain from manufacturers, suppliers and subcontractors.

- 1.6. **Test certificates and reports required in the specification:** Obtain, including:

Air permeability.

Resistance to passage of sound.

Continuity of insulation.

Electricity and gas safety.

2. **Timescale for completion:** Two weeks before the date for completion stated in the contract.

PM_70_85_10/100 Content of the building manual part 3: building services

1. **Content:** Obtain and provide the following, including all relevant details not included in other parts of the manual:
 - 1.1. **Detailed design criteria and description of the systems, including:** Including:
 - Services capacity, loadings and restrictions.
 - Services instructions.
 - Services log sheets.
 - Manufacturers' instruction manuals and leaflets index.
 - Fixtures, fittings and component schedule index.
 - 1.2. **As-built/ record drawings:** For each system recording the construction, together with an index, including:
 - Diagrammatic drawings indicating principal items of plant, equipment and fittings.
 - Record drawings showing overall installation.
 - Schedules of plant, equipment, valves, etc. describing location, design performance and unique identification cross referenced to the record drawings.
 - Identification of services – a legend for colour coded services.
 - 1.3. **Product details:** Including for each item of plant and equipment:
 - Name, address and contact details of the manufacturer.
 - Catalogue number or reference.
 - Manufacturer's technical literature, including detailed operating and maintenance instructions.
 - Information and guidance concerning dismantling, repair, renovation or decommissioning.
 - 1.4. **Operation:** A description of the operation of each system, including:
 - Starting up, operation and shutting down.
 - Control sequences.
 - Procedures for seasonal changeover.
 - Procedures for diagnostics, troubleshooting and fault-finding.
 - 1.5. **Guarantees, warranties and maintenance agreements:** Obtain from manufacturers, suppliers and subcontractors.
 - 1.6. **Commissioning records and test certificates:** List for each item of plant, equipment, valves, etc. used in the installations, including:
 - Electrical circuit tests.
 - Corrosion tests.
 - Type tests.
 - Work tests.

Start and commissioning tests.

- 1.7. **Equipment settings:** Schedules of fixed and variable equipment settings established during commissioning.
 - 1.8. **Preventative maintenance:** Recommendations for frequency and procedures to be adopted to ensure efficient operation of the systems.
 - 1.9. **Lubrication:** Schedules of all lubricated items.
 - 1.10. **Consumables:** A list of all consumable items and their source.
 - 1.11. **Spares:** A list of recommended spares to be kept in stock, being those items subject to wear and tear or deterioration and which may involve an extended delivery time when replacements are required.
 - 1.12. **Emergency procedures :** For all systems, significant items of plant and equipment.
2. **Timescale for completion:** Two weeks before the date for completion stated in the contract

PM_70_85_10/110 Content of the building manual part 4: the health and safety file

1. **Content:** Obtain and provide the following, including all relevant details not included in other parts of the manual, including:

Residual hazards and how they have been dealt with.

Hazardous materials used.

Information regarding the removal or dismantling of installed plant and equipment.

Health and safety information about equipment provided for cleaning or maintaining the structure.

The nature, location and markings of significant services.

Information and as-built drawings of the structure, its plant and equipment.

2. **Timescale for completion:** Two weeks before the date for completion stated in the contract.
3. **Submit to:** The Principal Designer

PM_70_85_10/120 Content of the building manual part 5: the building user guide

1. **Content:** Obtain and provide the following:

Building services information.

Emergency information.

Energy and environmental strategy.

Water use.

Transport facilities.

Materials and waste policy.

Re-fit/ re-arrangement considerations.

Reporting provision.

Training.

Links and references.

2. Timescale for completion: Two weeks before the date for completion stated in contract.

PM_70_85_10/140 Presentation of building manual

1. Format: A4 size, plastics covered, loose leaf, four ring binders with hard covers, each indexed, divided and appropriately cover titled
2. Selected drawings : Where these are needed to illustrate or locate items mentioned in the manual: if larger than A4, to be folded and accommodated in the binders so that they may be unfolded without being detached from the rings.
3. As-built/ record drawings: The main sets may form annexes to the manual.

PM_70_85_20 Defects rectification report

1. Non-compliant items
 - 1.1. Opening up, inspection, testing, making good, adjustment of the Contract Sum, or removal and re-execution: Submit proposals
 - 1.2. Submittal date: As soon as possible after discovery of items which are, or appear to be, non-compliant.
2. Acceptability: Such proposals may be unacceptable, and contrary instructions may be issued.

PM_70_85_20/30 Measures to establish acceptability

1. General: Wherever inspection or testing shows that the work, materials or goods are not in accordance with the contract, and measures (e.g. testing, opening up, experimental making good) are taken to help in establishing whether or not the work is acceptable, such measures will be at the expense of the contractor, and will not be considered as grounds for revision of the completion date.

PM_70_85_20/40 Rectification and defects

1. Notice: Give reasonable notice for access to the various parts of the works.
2. Access arrangements: Via Ro_30_10_19 Contract administrator
3. Completion: Give notice when remedial works have been completed.

PM_70_85_30/10 Tests and inspection schedule

1. Timing: Agree and record dates and times of tests and inspections to enable affected parties to be represented.
2. Confirmation: Provide one working day prior to each test or inspection. If sample or test is not ready, agree a new date and time.
3. Records: Submit a copy of test certificates and retain copies on site.

PM_70_85_35/40 Partial possession by employer

1. General: If clauses 2.25–2.29 of the conditions of contract are applied, ensure that necessary access is provided, and that services and other associated facilities are also complete.

PM_70_85_35/60 Completion in sections or in parts

1. General: Where it is proposed to take possession of a section or part of the works and such section or part will, after its practical completion, depend for its adequate functioning on work located elsewhere on the site, complete that other work in time to permit such possession to take place.

2. **Remainder of the Works:** During execution, ensure that completed sections or parts of the works have continuous and adequate provision of services, fire precautions, means of escape and safe access.

PM_70_85_35/100 Work before completion

1. **General:** Make good damage consequent upon the works. Remove temporary markings, coverings and protective wrappings unless otherwise instructed.
2. **Cleaning:** Clean the works thoroughly inside and out, including accessible ducts and voids. Remove splashes, deposits, efflorescence, rubbish and surplus materials.
3. **Cleaning materials and methods:** As recommended by manufacturers of products being cleaned, and must not damage or disfigure other materials or construction.
4. **COSHH dated data sheets:** Obtain for materials used for cleaning and ensure they are used only as recommended by their manufacturers.
5. **Minor faults:** Touch up in newly painted work, carefully matching colour and brushing out edges. Repaint badly marked areas back to suitable breaks or junctions.
6. **Moving parts of new work:** Adjust, ease and lubricate as necessary to ensure easy and efficient operation, including doors, windows, drawers, ironmongery, appliances, valves and controls.
7. **Security at completion**
 - 7.1. **General:** Leave the works secure with accesses closed and locked, where appropriate.
 - 7.2. **Keys:** Account for and adequately label keys. Hand over to the duly authorized person with an itemized schedule. Retain a duplicate schedule signed by that person as a receipt.

PM_70_85_40/20 The health and safety file

1. **Responsibility for production:** The Principal Contractor
2. **Format:** Electronic and 1 no. Hard Copy
3. **Delivery to:** The Principal Designer
4. **Latest date for submission:** No later than 1 week before the date of Practical Completion

PM_70_85_45/10 Tools and consumables

1. **General:** Provide tools and portable indicating instruments for the operation and maintenance of all services plant and equipment (except any installed under named subcontracts) together with suitable means of identifying, storing and securing.
2. **Quantity:** Two complete sets.
3. **Consumables:** Supply a complete list of all consumables necessary for the operation.
4. **Submittal date:** At completion.

PM_70_85_45/20 Schedule for spare parts

1. **General:** Prepare a priced schedule of recommended spare parts that should be obtained and kept in stock for maintenance of the services installations.
2. **Content:** Include in the priced schedule for:
 - Manufacturers' current prices, including packaging and delivery to site.
 - Checking receipts, marking and numbering in accordance with the schedule of spare parts.
 - Referencing to the plant and equipment list in part 3 of the building manual.
 - Painting, greasing, etc. and packing to prevent deterioration during storage.
3. **Latest date for submission:** Two weeks before completion.

PM_70_85_52/10 Manufacturer's recommendations and instructions

1. **General:** Comply with manufacturer's printed recommendations and instructions current on the date of the invitation to tender.
2. **Exceptions:** Submit details of changes to recommendations or instructions.
3. **Execution:** Use ancillary products and accessories supplied or recommended by main product manufacturer.
4. **Products:** Comply with limitations, recommendations and requirements of relevant valid certificates.

PM_70_85_64/10 Highway and sewer adoption

1. **Standard:** To the satisfaction of the Relevant Authority before the certificate stating the Works are complete, is issued.
2. **Defects liability and rectification period:** 12 months
3. **Maintenance:** Undertake to the satisfaction of the relevant statutory authority, including:

Making good of damage due to reasonable wear and tear occurring during the period.

Clean at the end of the period.

PM_70_85_64/20 Mechanical and electrical services

1. **Final tests and commissioning:** Carry out so that services are in full working order at completion of the works.
2. **Confirmation:** Provide a Building Regulations notice, signed by a suitably qualified person, to Building Control, confirming that systems have been commissioned in accordance with approved procedures.
3. **Records:** Include in the building manual.

PM_70_85_64/40 Continuity of thermal insulation

1. **Record and report**
 - 1.1. **Conformity:** Confirm that work to new, renovated or upgraded thermal elements has been carried out to conform to the specification.
 - 1.2. **Content:** Address of premises, the contractor's name and address, the name, qualification and signature of a competent person responsible for checking compliance and the date on which the installation was checked.
2. **Submit:** Before completion of the works.
3. **Copy:** Include in the building manual.

PM_70_85_90/10 Training

1. **Objective:** Before completion, explain and demonstrate to designated maintenance staff the purpose, function and operation of the installations including items and procedures listed in the building manual.
2. **Level of training:** Allow for training of all equipment associated with the works, including controls and M&E plant/fittings
3. **Time allowance (minimum):** Two days.

PM_70_85_96 Works completion certificate

1. **Requirement:** Give notice of the anticipated dates of completion of the whole or parts of the works.
2. **Associated work:** Ensure necessary access, and that services and facilities are complete.
3. **Period of notice (minimum):** Two weeks.

PM_70_90/10 Record drawings and information

1. Record drawings
 - 1.1. Drawings scope: For all works as PM_10_10_60/10Project description
 - 1.2. Drawings format: Electronic
2. Record specification
 - 2.1. Specification format: For all works as PM_10_10_60/10Project description, in NBS format.
 - 2.2. Submittal date: At least two weeks before date for completion.

PM_70_90/20 Technical information

1. Availability: Retain on site for reference by supervisory personnel.
2. Information: Manufacturer's current information and relevant British Standards, relating to products to be used in the works.

Ω End of Section

PM_80

Asset management information

Project management

PM_80_10_50 Maintenance requirements

1. **Scope:** Provide a comprehensive maintenance service. Include all planned preventative maintenance, as set out within the maintenance schedule and replacement of all consumable items.
2. **Commencement:** Upon issue of Practical Completion
3. **Duration:** 12 months

PM_80_10_50/10 Maintenance instructions and guarantees

1. **Components and equipment:** Obtain or retain copies, register with manufacturer and hand over on or before completion of the works.
2. **Information location:** In 'Building Manual'.
3. **Emergency call-out services**
 - 3.1. **Telephone numbers:** Provide for use after completion.
 - 3.2. **Extent of cover:** 24 hours, weekdays only.

Ω End of Section

Ro Roles

Roles

Ro_10_20_14 Client (K)

1. Name: Folio Education Trust
2. Address: 30 Melville Ave, South Croydon CR2 7HY
3. Contact: Oliver Blackburn
4. Telephone: 07743 140186
5. Email address: oblackburn@foliotrust.uk

Ro_10_20_26 Employer

1. Name: Folio Education Trust
2. Address: 30 Melville Ave, South Croydon CR2 7HY
3. Contact: Oliver Blackburn
4. Telephone: 07743 140186
5. Email address: oblackburn@foliotrust.uk

Delivery team roles

Ro_30_10_19 Contract administrator

1. Name: Baily Garner LLP
2. Address: 146-148 Eltham Hill, London, SE9 5DY
3. Contact: Sam French
4. Telephone: 020 8294 1000
5. Email address: sam.french@bailygarner.co.uk

Official roles

Ro_30_30_67 Principal contractor

1. Name: TBC
2. Address: TBC
3. Contact: TBC
4. Telephone: TBC
5. Email address: TBC

Ro_30_30_68 Principal designer

1. Name: Baily Garner LLP
2. Address: 146-146 Eltham Hill, London, SE9 2DY
3. Contact: Colin Talbot
4. Telephone: 020 8294 1000
5. Email address: colin.talbot@bailygarner.co.uk

Design roles

Ro_50_20_30 Electrical services engineer (E)

1. Name: Baily Garner LLP
2. Address: 146-148 Eltham Hill, London, SE9 2DY
3. Contact: Oliwia Tyburska
4. Telephone: 0121 236 2236
5. Email address: oliwia.tyburska@bailygarner.co.uk

Ro_50_20_54 Mechanical services engineer (M)

1. Name: Baily Garner LLP
2. Address: 146 - 148 Eltham Hill, London, SE9 2DY
3. Contact: Satvir Bhamra
4. Telephone: 0121 236 2236
5. Email address: satvir.bhamra@bailygarner.co.uk

Ro_70_10_75 Quantity surveyor (Q)

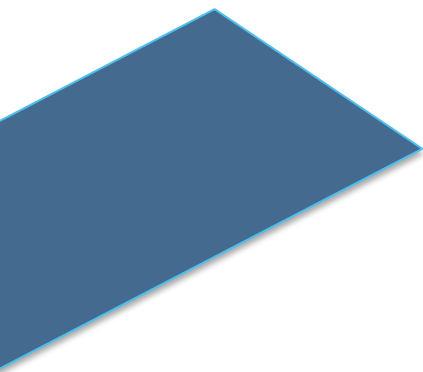
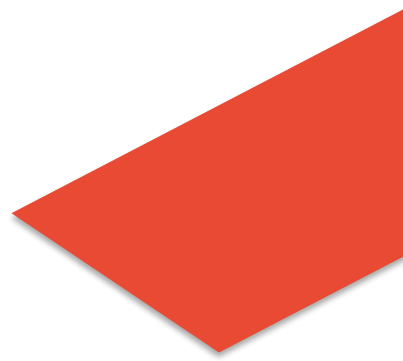
1. Name: As Ro_30_10_19
2. Address: As Ro_30_10_19
3. Contact: As Ro_30_10_19
4. Telephone: As Ro_30_10_19
5. Email address: As Ro_30_10_19

Ω End of Section



Specification created using NBS Chorus

SECTION 2



Baily Garner

Wallington County Grammar School - English Block - Heat Decarbonisation Scheme

Section 2 - Materials & Workmanship

07-09-2023

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Ss_25_60_05_35 Handrail systems

Systems

Ss_25_60_05_35 Handrail systems

1. Description: To Exposed Roof Edges
2. System manufacturer: Latchways plc
3. Handrails: [Pr_25_30_36_03 Aluminium handrails](#)
4. Site finish: Existing .
5. Execution: [Ss_25_60_05/605 Preliminary installation](#);
[Ss_25_60_05/610 Preconstruction survey](#);
[Ss_25_60_05/630 Fabrication of balustrade and handrail systems generally](#);
and [Ss_25_60_05/640 Installation of handrail, balustrade and guarding systems generally](#).
6. System completion: [Ss_25_60_05/810 Inspection of handrail, balustrade and guarding systems](#)
and [Ss_25_60_05/820 Documentation for handrail, balustrade and guarding systems](#).

Products

Pr_25_30_36_03 Aluminium handrails

1. Manufacturer: Latchways plc
2. Product reference: VersiRail® Freestanding
3. Centres: 2000 mm.
4. Protection sole: 22039-00.
5. Handrails and kneerails: VersiRail® Freestanding
 - 5.1. Type: 22013-00RAL.
 - 5.2. Kneerail centres, vertical: 500 mm.
 - 5.3. Connecting elements: 22065-00RAL.
6. Corner sections: 22061-00RAL.
7. End parts: 22063-00RAL.
8. Access gates: 22019-00RAL.
9. Kickboards: Not required.
10. RAL colour: Not applicable.

Execution

Ss_25_60_05/605 Preliminary installation

1. Required samples
 - 1.1. Types: Contractor's choice .
 - 1.2. Purpose: For use as an installation reference sample.
 - 1.3. Locations: Contractor's choice .
 - 1.4. Features to be included: 2 lm section to be installed
 - 1.5. Timing: Construct during preliminary installation. Obtain approval of appearance before proceeding.

Ss_25_60_05/610 Preconstruction survey

1. Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
2. Designated items: Contractor's choice .
3. Primary support structure: Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
4. Timing: Before fabrication.

Ss_25_60_05/630 Fabrication of balustrade and handrail systems generally

1. Design: Complete the detailed design and obtain approval before fabrication.
2. Frameworks: Assemble and brace, including temporary members required for installation.
3. Contact between dissimilar metals: Avoid.
4. Fixings: Fully bolt together. Tighten bolts.
5. Temporary support: Do not subject members to non-design loadings.

Ss_25_60_05/640 Installation of handrail, balustrade and guarding systems generally

1. Standard: In accordance with [BS 6180](#).

System completion

Ss_25_60_05/810 Inspection of handrail, balustrade and guarding systems

1. Timing: Two weeks prior to date when principal contractor expects work to be practically complete.
2. Period of notice (minimum): Three working days.

Ss_25_60_05/820 Documentation for handrail, balustrade and guarding systems

1. Contents: Copies of structural design calculations and test reports. General product information. Installation information. Inspection and maintenance reports.
2. Number of copies: 1 nr. Hard Copy and 1 nr. Electronic copy, to both the Client and Contract Administrator
3. Submission: Two weeks before date when principal contractor expects work to be practically complete.

Ω End of System

Ss_30_12_85_90

Timber floor, roof or balcony deck systems

Systems

Ss_30_12_85_90 Timber floor, roof or balcony deck systems

1. Description: For Repairs to Existing Timber Deck
2. Sheets and boards: [Pr_25_71_97_50 Marine plywoods](#).
3. Assembly fasteners: [Pr_20_29_56_11 Carbon steel nails](#).

Products

Ac_05_50_91/340 Timber sourcing

1. Timber source
 - 1.1. General requirements: Obtain from well managed forests and/ or plantations.

Pr_20_29_56_11 Carbon steel nails

1. Manufacturer: Contractor's choice .
2. Standard: [BS 1202-1](#)
3. Nail details
 - 3.1. Finish coating: Sherardized.
 - 3.2. Length: Manufacturer's standard .
 - 3.3. Diameter: Manufacturer's standard .
4. Execution: [Pr_20_29_56/615 Fixing with nails](#).

Pr_25_71_97_50 Marine plywoods

1. Description: Repair / New Plywood Deck
2. General requirements: [Ac_05_50_91/340 Timber sourcing](#) .
3. Manufacturer: Contractor's choice .
4. Standard: To [BS 1088-1](#) but excluding plywood made of gaboon veneers.
5. Class: Standard.
6. Reaction to fire classification: To [BS EN 13501-1](#), class C-s3, d2 or better.
7. Edges: Square.
8. Thickness: 18 mm.
9. Preservative treatment: Required.
10. Execution: [Pr_25_71_97/620 Installing wood-based panels](#).

Execution

Pr_20_29_56/615 Fixing with nails

1. Fastener spacing: 75 mm.
2. Finished level of nail heads
 - 2.1. Exposed: Recessed.
 - 2.2. Punched (holes filled or stopped): Sink minimum 2 mm below surface.

Pr_25_71_97/620 Installing wood-based panels

1. Number of layers: Single layer.
2. Setting out of long edges: Run across supports.
3. Gap between adjacent boards: 1–2 mm.
4. Fixing centres (maximum)
 - 4.1. General: Boards and sheets to be fixed securely to each support without distortion and true to line and level. Fixings to be evenly spaced in straight lines and, unless otherwise recommended by board manufacturer, in pairs across joints
 - 4.2. Around board edges: 150 mm.
 - 4.3. Along intermediate supports: 300 mm.
5. Fixing distance from edges (minimum): 10 mm.
6. Joints: Butted.

Ω End of System

Ss_30_40_30_72

Type A - Reinforced bitumen membrane warm roof covering systems

Systems

Ss_30_40_30_72 Type A - Reinforced bitumen membrane warm roof covering systems

1. Description: New Bauder Total Roof System including tapered insulation (See Appendix B)

NOTE: Applies to all roof areas.

2. System performance: [Ss_30_40_30/270 Durability](#); [Ss_30_40_30/260 Fire performance](#); [Ss_30_40_30/240 Thermal design](#)
3. System manufacturer: [Bauder Ltd](#)
4. Contact details
 - 4.1. Address: 70 Landseer Road
Ipswich
Suffolk
IP3 0DH
 - 4.2. Telephone: +44 (0)1473 257671
 - 4.3. Web: www.bauder.co.uk
 - 4.4. Email: info@bauder.co.uk
5. Product reference: [Bauder Total Warm Roof System - Torch Applied](#)
6. Finish: Mineral
7. Material: Elastomer modified bitumen membrane
8. WarrantyDescription: Guarantee options could include 'Product', 'Product and Workmanship' and 'Product, Workmanship and Design' Guarantees. All guarantees available for this system are subject to the works being carried out in accordance with the Bauder specification and being installed by a Bauder Approved installer. For full details and further information regarding guarantees and alternative systems please contact your local Bauder Representative or technical@bauder.co.uk
9. Execution: [Ss_30_40_30/600 Assessing suitability of substrate](#); [Ss_30_40_30/610 Cleaning existing gutters and outlets](#); [Ss_30_40_30/614 Removing existing coverings or chippings](#); [Ss_30_40_30/634 Treating cracks and gaps in substrate](#); [Ss_30_40_30/638 Working in adverse weather](#); [Ss_30_40_30/732 Laying reinforced bitumen membranes \(generally\)](#); [Ss_30_40_30/742 Torch-on bonding of reinforced bitumen membranes](#); [Ss_30_40_30/754 Forming skirtings and upstands](#); [Ss_30_40_30/756 Forming welted drips](#)
10. System completion: [Ss_30_40_30/810 Inspection of completed work](#); [Ss_30_40_30/850 Completion](#); [Ss_30_40_30/890 Verification of performance](#)

System performance

Ss_30_40_30/240 Thermal design

1. Requirement: Determine type and thickness of insulation to satisfy thermal performance.
2. Thermal transmittance (U-value) of roof (maximum): 0.18 W/m²·K.

Ss_30_40_30/260 Fire performance

1. External fire exposure
 - 1.1. Standard: To [BS 476-3](#). To [BS EN 13501-5](#).

- 1.2. Requirement: BROOF (t4).

Ss_30_40_30/270 Durability

1. System warranty: Minimum 25 years

Execution

Ss_30_40_30/600 Assessing suitability of substrate

1. Substrate
 - 1.1. Condition: Secure, clean, dry, smooth, free from frost, contaminants, voids, protrusions, organic growths, and compatible with the proposed waterproofing system.
 - 1.2. Grade: To correct falls.
 - 1.3. Moisture content at time of laying waterproof coverings: Must not impair integrity of roof or affect application of waterproofing.
2. Preliminary work
 - 2.1. Upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints: Correctly formed.
 - 2.2. Battens, fillets, trims and anchoring plugs or strips: Securely fixed.
 - 2.3. External angles: Chamfered where required to facilitate laying of membrane or to maintain full thickness of applied coating.
 - 2.4. Movement joints: Correctly formed and free of debris.
 - 2.5. Penetrations and outlets: Fixed and located at correct height relative to substrate and free of debris.
 - 2.6. Chases: Correctly sized and cut.
 - 2.7. Outlets: Fixed and located at correct height relative to substrate.

Ss_30_40_30/610 Cleaning existing gutters and outlets

1. Dirt and debris : Remove to restore free flow of water.
2. Build up of previous coverings and coatings: Remove where impeding water flow or to facilitate application of proposed waterproofing.
3. Damaged sections: Replace with new to match existing.

Ss_30_40_30/614 Removing existing coverings or chippings

1. Mechanical stripping: Permitted only in approved areas.
2. Areas to be removed: In accordance with the Bauder Ltd specification in Appendix B
3. Exposed substrate: Do not damage. Protect from associated work and weather.
4. Timing: Remove only substrates and coverings that will be renewed and made weathertight on same day.

Ss_30_40_30/634 Treating cracks and gaps in substrate

1. Preparation: Rake out, clean and ensure free of dust or contamination.
2. Reinstatement: Make good with sealants, mortar or repair systems. Ensure level with existing.
3. Surface condition at completion: Smooth.

Ss_30_40_30/638 Working in adverse weather

1. Wet conditions : Do not apply coatings unless permitted by coating manufacturer or unless an effective temporary cover over work areas is provided.

2. Temperature during application (minimum): See Bauder Ltd specification and guidance in Appendix B
3. Wind speed: See Bauder Ltd specification and guidance in Appendix B
4. Unfinished areas of roof: Keep dry.

Ss_30_40_30/732 Laying reinforced bitumen membranes (generally)

1. Direction of laying: Unroll up the slope. Lay so that water drains over and not into laps.
2. Side and end head laps: Offset.
3. Side laps dimension (minimum): See Bauder Ltd specification and guidance in Appendix B
4. End laps dimension (minimum): 75 mm.
5. Sealing laps
 - 5.1. Method: See Bauder Ltd specification and guidance in Appendix B
 - 5.2. Treatment: See Bauder Ltd specification and guidance in Appendix B
6. Underlayer and top layer or capsheet: Fully bond.
7. Successive layers: Apply without delay. Do not trap moisture.
8. Detail work: Strips of bitumen membrane cut from length of roll.
9. Completed coverings: Firmly attached, fully sealed, smooth, weatherproof and free draining.

Ss_30_40_30/742 Torch-on bonding of reinforced bitumen membranes

1. Bond: Full over whole surface, with no air pockets.
2. Excess compound at laps
 - 2.1. First and intermediate layers: Spread out.
 - 2.2. Top layer or Capsheet: Leave as continuous bead.

Ss_30_40_30/754 Forming skirtings and upstands

1. Angle fillets: Fix by bitumen bonding or nailing.
2. Independent upstands: Fix securely to roof deck.
3. First layer
 - 3.1. Partially bonded: Stop at angle fillet. Fully bond in bitumen for 300 mm strip around perimeters. Overlap onto upstand with strips of fully bonded (unvented) reinforced bitumen membrane.
 - 3.2. Fully bonded: Carry membrane up upstand or form with matching strips. Fully bond.
4. Subsequent layers: Carry in staggered formation up upstand. Fully bond each layer. Where practicable, carry top layer over top of upstand.
5. Upstands
 - 5.1. At end of rolls: Carry bitumen membrane up without using separate strip.
 - 5.2. At side of rolls: Form with separate matching strips of bitumen membrane. Maintain laps.
 - 5.3. Additional fixing of bitumen membranes: Nail at head laps at 75 mm centres in two rows, 50 mm apart.

Ss_30_40_30/756 Forming welted drips

1. Length: Form with maximum length strips.
2. Turndown (minimum): 75 mm.
3. Welt tail: Nail to face of drip batten. Fold neatly.
4. Welt: Fold back at least 100 mm and fully bond onto the roof surface. Overlap and fully bond the top layer/ capsheet.

System completion

Ss_30_40_30/810 Inspection of completed work

1. Waterproof coverings surfaces : When complete or cured, check for discontinuities.
2. Defective areas: Repair or apply additional coverings.
3. Interim and final roof inspections: Submit reports.
4. Completion certificate: Required.

Ss_30_40_30/850 Completion

1. Roof areas: Clean.
2. Outlets: Clear.
3. Flashings: Dress into place.
4. Work necessary to provide a weathertight finish: Complete.
5. Storage of materials on finished surface: Not permitted.
6. Completed waterproof covering : Do not damage. Protect from petroleum based solvents and other chemicals, traffic and adjacent or high level working.

Ss_30_40_30/890 Verification of performance

1. Requirement: Check completed system and provide assurance of compliance with specified performance.
2. Submittals
 - 2.1. Format: Description of inspections, remedial works carried out and certification of compliance.
 - 2.2. Timing: Prior to the date of Practical Completion

Ω End of System

Ss_40_90_60_95

Waterborne paint systems Type A **ADDED**

Systems

Ss_40_90_60_95 Waterborne paint systems Type A **ADDED**

1. Description: Decorations to cast iron rainwater goods
2. Preparation: As manufacturers recommendations
3. Undercoats: To manufacturers recommendations.
4. Finishing coats: [45-35-84/320 Water-borne matt or flat finishes Type A](#)
5. Execution: [Ss_40_90_60/620 Preparation for coating systems generally Type A](#);
[Ss_40_90_60/623 Fixtures and fittings removal before applying coating systems Type A](#);
[Ss_40_90_60/625 Application of coating systems around hardware Type A](#);

and [Pr_35_31_22/703 Applying coating Type A](#).

Products

45-35-84/320 Water-borne matt or flat finishes Type A **ADDED**

1. Manufacturer: Dulux Trade, brand of AkzoNobel
2. Product reference: Weathershield quick dry exterior satin
3. Colour: To match existing

Execution

Pr_35_31_22/703 Applying coating Type A **ADDED**

1. Initial coats
 - 1.1. Number of coats: One.
 - 1.2. Thinning: In accordance with manufacturer's instructions.
 - 1.3. Application: Brush and Roller.
2. Undercoats
 - 2.1. Number of coats: One.
 - 2.2. Application: Brush and Roller.
3. Finishing coats
 - 3.1. Number of coats: Two.
 - 3.2. Application: Brush and Roller.

Ss_40_90_60/620 Preparation for coating systems generally Type A **ADDED**

1. Standard: In accordance with [BS 6150](#).
2. Substrates: Sufficiently dry in depth to suit coating.
3. Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
4. Efflorescence salts: Remove.
5. Dirt, grease and oil: Remove.
6. Contamination of surfaces and substrates : Give notice.
7. Surface irregularities: Remove.

8. Joints, cracks, holes and other depressions: Fill flush with surface. Provide smooth finish.
9. Dust, particles and residues from preparation: Remove and dispose of safely.
10. Water-based stoppers and fillers: Apply before priming.
11. Oil-based stoppers and fillers: Apply after priming.
12. Doors, opening windows and other moving parts: Ease, if necessary, before coating.

Ss_40_90_60/623 Fixtures and fittings removal before applying coating systems Type A ADDED

1. Items to be removed: To be confirmed.
2. Replacement: Refurbish as necessary, refit when coating is dry.

Ss_40_90_60/625 Application of coating systems around hardware Type A ADDED

1. Hinges: Do not remove.
2. Other hardware: Remove from surfaces to be coated before painting.
3. Refurbishment: Remove old coating marks. Clean and polish.
4. Replacement: Refit when coating is dry.

Ω End of System

Ss_50_30_02_28

External gravity rainwater drainage systems

Systems

Ss_50_30_02_28 External gravity rainwater drainage systems

1. Description: To replace existing installations
2. Eaves gutters
 - 2.1. Gutters
 - 2.1.1. Gutter types: [Pr_65_50_35_92 Unplasticized polyvinyl chloride \(PVC-U\) eaves gutters](#)
 - 2.1.2. Jointing: As recommended by gutter manufacturer.
 - 2.1.3. Electrical continuity: Required.
 - 2.2. Supports
 - 2.2.1. Brackets: [Pr_20_85_09_26 Eaves gutter brackets](#).
3. Chutes
 - 3.1. Materials: [Pr_65_50_35_47 Lead rainwater chutes](#)
 - 3.2. Fixings: Not required. Built in.
4. External rainwater pipework
 - 4.1. Rainwater downpipes
 - 4.1.1. Downpipe types: [Pr_65_52_03_88 Unplasticized polyvinyl chloride \(PVC-U\) rainwater pipes and fittings](#).
 - 4.1.2. Jointing: As recommended by pipework manufacturer.
 - 4.2. Supports
 - 4.2.1. Brackets and clips: [Pr_20_85_09_01 Above-ground drainage pipe brackets](#).
5. Execution: [Ss_50_30_02/605 Removing rainwater drainage systems](#);
[Ss_50_30_02/610 Installation of rainwater drainage generally](#);
[Ss_50_30_02/612 Setting out eaves gutters](#);
[Ss_50_30_02/620 Fixing and jointing PVC-U eaves gutters](#);
and [Ss_50_30_02/644 Fixing and jointing plastics external gravity rainwater drainage pipework](#).
6. System completion: [Ss_50_30_02/810 Testing rainwater drainage generally](#) and
[Ss_50_30_02/818 Rainwater drainage gutter test](#).

Products

Pr_20_85_09_01 Above-ground drainage pipe brackets

1. Manufacturer: Marley Plumbing & Drainage
2. Pipe location: External.
3. Arrangement: Vertical.
4. Form: Pipe clips.
5. Material: Plastics.
6. Finish: To match pipelines.

Pr_20_85_09_26 Eaves gutter brackets

1. Manufacturer: As gutters.
2. Form: Fascia brackets.
3. Material: Plastics.

4. Finish: To match gutters.

Pr_65_50_35_47 Lead rainwater chutes

1. Manufacturer: Contractor's choice
2. Materials: Machine-cast lead sheet, BBA-certified.
3. Form: Lead rainwater chute. Fully supported, to discharge into hopper.
4. Dimensions
 - 4.1. Material thickness: 1.80 mm (code 4).
 - 4.2. Sizes: Manufactures standard
5. Integral accessories: Lead brackets.

Pr_65_50_35_92 Unplasticized polyvinyl chloride (PVC-U) eaves gutters

1. Manufacturer: Marley Plumbing & Drainage
2. Product reference: Deepflow150 semi-elliptical PVCu gutter
3. System colour: Black.
4. Gutter: Deepflow150 semi-elliptical; length 3000 mm, RGJ4.
5. Fittings: Manufacturers standard
 - 5.1. Union brackets: Ref RUJ1.
 - 5.2. Angles: None.
 - 5.3. Outlets: Running, ROJ1, 82 mm circular outlet and Stop end, REJ1, 68 mm circular spigot.
 - 5.4. Stop ends: Ref REJ1.
 - 5.5. Brackets and rafter arms: Fascia bracket, RKJ1.
6. Accessories: None.

Pr_65_52_03_88 Unplasticized polyvinyl chloride (PVC-U) rainwater pipes and fittings

1. Manufacturer: Marley Plumbing & Drainage
2. Product reference: 150 mm circular downpipe
3. System colour: Black.
4. Pipes: 150 mm circular downpipe, double spigot; length 3000 mm, RPH355.
5. Fittings: Manufacturers standard
 - 5.1. Pipe sockets: Loose, RL3.
 - 5.2. Bends and offsets: 87.5° Short radius bend, RB31.
 - 5.3. Branches: None.
 - 5.4. Access pipes: Ref RF3.
 - 5.5. Shoes: Plain, RS3.
 - 5.6. Hoppers: None.
 - 5.7. Pipe clips: One piece pipe clip, RC32.

Execution

Ss_50_30_02/605 Removing rainwater drainage systems

1. Scope: Entire system.

Ss_50_30_02/610 Installation of rainwater drainage generally

1. Collection and distribution of rainwater: Complete, and without leakage or noise nuisance.

2. Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
3. Plastics and galvanized steel pipes: Do not bend. Plumb and/ or true to line.
4. Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
5. Protection: Fit purpose-made temporary caps to prevent ingress of debris. Fit access covers, cleaning eyes and blanking plates as the work proceeds.

Ss_50_30_02/612 Setting out eaves gutters

1. Setting out: To fall with true line and even gradient. Prevent ponding and backfall. Position high points of gutters as close as practical to the roof. Position low points not more than 50 mm below the roof.
2. Outlets: Align with connections to below-ground drainage.

Ss_50_30_02/620 Fixing and jointing PVC-U eaves gutters

1. Fixing
 - 1.1. Supports
 - 1.1.1. Stability: Fix securely.
 - 1.1.2. Fixing centres (maximum): 600 mm.
 - 1.2. Additional supports: At joints in gutters and near angles and outlets.
2. Jointing
 - 2.1. Jointing: Clip jointed with integral gaskets.
 - 2.2. Method: Clip jointed with integral gaskets.
 - 2.3. Jointing differing gutter systems: Use adaptors intended for the purpose.
 - 2.4. Cut ends of gutters: Clean and square. Remove burrs and swarf.
 - 2.5. Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.

Ss_50_30_02/644 Fixing and jointing plastics external gravity rainwater drainage pipework

1. Fixing
 - 1.1. Supports
 - 1.1.1. Stability: Fix securely.
 - 1.1.2. Fixing centres (nominal): 1.8 m.
 - 1.2. Pipework
 - 1.2.1. Alignment: Plumb and/ or true to line.
 - 1.2.2. Externally socketed pipes and fittings: Fix with sockets facing upstream.
2. Jointing
 - 2.1. Method: Push fit.
 - 2.2. Jointing differing pipework systems: Use adaptors intended for the purpose.
 - 2.3. Cut ends of pipes: Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.
 - 2.4. Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.

System completion

Ss_50_30_02/810 Testing rainwater drainage generally

1. Dates for testing: Give notice.

2. Period of notice (minimum): One Week
3. Pipework: Complete, and fix securely. Make free from defects, obstruction and debris before testing.
4. Testing
 - 4.1. Clean water: Provide.
 - 4.2. Testing apparatus: Provide.
 - 4.3. Smoke testing: Do not use.

Ss_50_30_02/818 Rainwater drainage gutter test

1. Preparation: Temporarily block all outlets.
2. Testing: Fill gutters to overflow level and after 5 minutes closely inspect for leakage.
3. Records of tests: Submit.

Ω End of System

Ac_10_10_25/120 Demolition

Activities

Ac_10_10_25/120 Demolition

1. Description: Demolition / De-Construction Work Generally
2. Execution: [Ac_10_10_20/615 Demolition generally](#);
[Ac_10_10_20/635 Disconnection of services](#);
[Ac_10_10_20/645 Maintenance of existing services](#);
[Ac_10_10_20/660 Health hazards during demolition](#);
[Ac_10_10_20/670 Dust control](#);
and [Ac_10_10_20/680 Unforeseen hazards](#).
3. System completion: [Ac_10_10_25/820 Site condition following completion](#).

Execution

Ac_10_10_20/615 Demolition generally

1. Standard: To [BS 6187](#).

Ac_10_10_20/635 Disconnection of services

1. Disconnection of supplies and removal of fittings and equipment : Arrange with the appropriate authorities and responsible private organizations. Remove fittings and equipment where agreed.
2. Drains: Locate, disconnect and seal disused drain connections. Agree where drains are to be sealed.
3. Timing: Before demolition works starts.

Ac_10_10_20/645 Maintenance of existing services

1. Unrecorded features: Give notice if unrecorded pipes, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.
2. Requirement: Protect existing services, drains and watercourses, including all associated structures such as manholes, inspection chambers, gullies, vent pipes and fittings still in use. Keep them free from debris.
3. Existing watercourses: Divert or construct culvert or drain to ensure continued passage of water all in accordance with the requirements of the local authority and environmental protection agency.

Ac_10_10_20/660 Health hazards during demolition

1. Precautions: Protect site operatives and general public from hazards associated with vibration, dangerous fumes and dust arising during the course of the Works.
2. Dangerous openings: Illuminate and protect. Keep safe outside working hours.
3. Unauthorized persons: Prevent access.

Ac_10_10_20/670 Dust control

1. Requirement: Minimize airborne dust. Keep public roadways and footpaths clear of mud and debris.

Ac_10_10_20/680 Unforeseen hazards

1. Unrecorded voids, tanks, chemicals, etc. discovered during demolition: Give notice immediately.

System completion

Ac_10_10_25/820 Site condition following completion

1. Condition of site: Clean, tidy and secure.
2. Security: Submit proposals .

Ω End of Activity

Ac_15_40/120 Hazardous material surveying

Activities

Ac_15_40/120 Hazardous material surveying

1. Description: Refurbishment & Demolition (R&D) Surveys
2. System performance: [Ac_15_40/220 Parameters for deleterious materials surveys](#).
3. Risk assessment and method statement: Required.
4. Survey techniques: [Ac_15_40/710 Survey and testing for asbestos containing materials](#).
5. Submittals: [Ac_15_50_10/810 Survey report](#).
6. Supplementary requirements: Access requirements.
7. Execution: [Ac_15_50_10/605 Special access considerations](#) and [Ac_15_50_10/740 Unforeseen hazards during survey](#).

System performance

Ac_15_40/220 Parameters for deleterious materials surveys

1. Survey purpose: Identify ACMs that need to be removed before commencement of scheduled refurbishment or demolition works.
2. Survey scope: Building fabric;
Building finishes;
and Building structure.
3. Limitations to survey: The survey will be limited to the areas within the scope of works within.
4. Access considerations: Contractor's choice .

Execution

Ac_15_40/710 Survey and testing for asbestos containing materials

1. Qualifications and experience of surveyors: Member of Asbestos Removal Contractors Association (ARCA)
2. Extent of survey: Roof Areas including roofline goods and all building fabric affected by the works. The contractor is to seek guidance from a UKAS Accredited Surveyor.
3. Survey type: Refurbishment and Demolition survey.
4. Permissible survey techniques: Documentary research;
Sampling;
and Visual inspection.
5. Reporting
 - 5.1. Testing or assessment reports: Submit evidence of testing by a UKAS accredited laboratory.
 - 5.2. Supplementary requirements: Report the survey in a format that can be used to prepare an asbestos register and building plan. Inform the client that his responsibility in managing asbestos is ongoing and that the preparation of the survey does not discharge these responsibilities.

Ac_15_50_10/605 Special access considerations

1. Restricted areas: None.
2. Requirements
 - 2.1. Special training for access: Submit evidence.
 - 2.2. Lone working: Prohibited

Ac_15_50_10/740 Unforeseen hazards during survey

1. Requirement: Give notice when unrecorded hazards or hazardous materials are found. Do not disturb.

System completion

Ac_15_50_10/810 Survey report

1. Description: R&D Survey Report
2. General requirements: [Ac_15_50_10/830 Survey documentation - paper](#) and [Ac_15_50_10/820 Survey documentation - electronic](#).
3. General format: Electronic and Paper.
4. Scope for report: Description of investigation methods;
Laboratory results identifying defective areas;
Photographic record of extent of defective areas;
and Plan and section drawings or annotated photographs, defining extent of defective areas.
5. Report content
 - 5.1. Sections to be included: Executive summary;
Introduction;
Main report;
Observations;
Discussion;
Conclusions and recommendations;
and Appendices.
 - 5.2. Charts, diagrams and tabulated data: Required.
 - 5.3. Photographs: Required.
 - 5.4. Drawings: Required.
 - 5.5. Test results: Required.
6. Additional requirements: Give notice of location of suspected deleterious materials or safety hazards.
7. Proposals for remedial actions: Required.
8. Qualifications and caveats: Identify areas where a full survey could not be carried out and Identify problematic site conditions and restrictions, including the presence of bats, barn owls, other protected species or breeding birds.

Ac_15_50_10/820 Survey documentation - electronic

1. Description: R&S Survey Report
2. Data transfer
 - 2.1. Medium: By email.
 - 2.2. Data compression: Zip if file compression is necessary.
3. Data type
 - 3.1. Text : Adobe portable document format (.pdf).
 - 3.2. Charts: Adobe portable document format (.pdf).
 - 3.3. Diagrams: Adobe portable document format (.pdf).
 - 3.4. Tabulated data: Adobe portable document format (.pdf).
 - 3.5. Images
 - 3.5.1. Data: Adobe portable document format (.pdf).
 - 3.5.2. Resolution: Camera output 12 million pixels (minimum), ISO 100 (maximum).

Ac_15_50_10/830 Survey documentation - paper

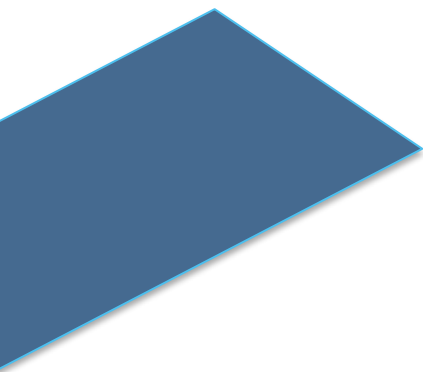
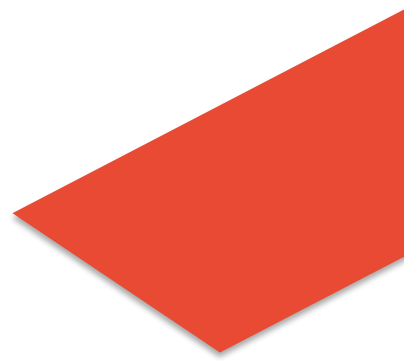
1. Description: R&D Survey Report
2. General format: Comb bound, size A4, clear cover sheet.
3. Charts and diagrams and tabulated data: In appendices.
4. Photographs
 - 4.1. Format: Prints in appendix in clear pockets, fully labelled.
 - 4.2. Size: A4.
 - 4.3. Post camera modifications: Not permitted.
5. Copies: Three.

Ω End of Activity



Specification created using NBS Chorus

SECTION 3



Wallington County Grammar School–English Block Heat Decarbonisation Project

Section 3: General Conditions & Access Provision

3.1 General

3.1.1 The works comprise the installation of external wall insulation, installation of loft insulation, upgrade of the existing electrical supply, installation of heat emitters and pipework and installation of a new Air Source heat Pump Installation.

3.1.2 The Contractor will be deemed to have included in his tender for making good to any work disturbed whether internally or externally.

3.2 Out of Hours Working

3.2.1 The Contractor may be required to complete elements of works out of typical school hours (8:30am – 3:30pm), including weekends and school holiday periods.

3.2.2 The contractor's price is to include for weekend and evening working where required, which is to be instructed at the discretion of the CA following consultation with the successful contractor & client.

3.2.3 No further cost is to be valued by the CA following the appointment of the successful contractor for time spent or disruption seen by the contractor associated with completion of works during such periods.

3.3 Method of Working / Programming

3.3.1 The Contractor shall provide the Contract Administrator with a project specific programme, detailing lead in times, site set up periods and site activities, throughout the contract period.

3.3.2 Where any work is required to be completed with the school in situ, the contractor will need to liaise with the school and Baily Garner to confirm the locations and priority for such work to enable the school to organise alternative locations for lessons etc preserving separation between the work and staff and pupils.

3.3.3 It shall be the Contractor's responsibility to submit and revise any such programme during the course of the works and provide a detailed update.

3.3.4 The Contractor is to note for programming that Roofs **1,2,3 and 4** are not to be progressed until instructed by the CA, likely to be in January as a result of a funding application the client is currently awaiting in relation to this building.

3.4 Removal of Waste

3.4.1 Provide all necessary skips and obtain necessary licences to remove all spoil associated with the works from site. Skips are to be located in the contractor's compound, the location of which is to be agreed with the school/CA prior to the commencement of works.

Wallington County Grammar School–English Block Heat Decarbonisation Project

3.5 **Enhanced DBS Checks**

3.5.1 Prior to the commencement of works on site, the contractor is to provide evidence of **Enhanced DBS Certificates** for all operatives to have a presence on site. This is applicable for all contractor staff and sub-contractors throughout the contract period.

3.5.2 Non-compliance with this condition will result in the non-admittance or removal of individuals from site. No claims for an Extension of Time or additional costs incurred as a result of the above or any consequential delays will be accepted. It is the contractors responsibility to ensure this does not impede the progress of the project, and appropriate certification is obtained in advance of the commencement of works on site.

3.5.3 All site personnel including sub-contractors may be issued with security passes/visitor badges, which must be worn at all times whilst working on site.

3.6 **Scaffolding / Access Provisions**

3.1.1 The contractor is to allow for sufficient access to the buildings in order to carry out the works in accordance with current health and safety legislation.

3.1.2 The contractor is to ensure safe means of access by whichever means deemed appropriate (demountable scaffold towers etc.). Should scaffold access be provided, the following clauses will apply.

3.1.3 The contractor must be aware that whilst most building users will not be on site during the holiday period, small numbers of pupils and staff will be using the site. Provision must therefore be made for the protection of others by the use of scaffold fans etc. above access points to the building in all works areas.

3.1.4 The Contractor is to note works required to the recovering of the existing roof to the Science Block. The contractor is deemed to have included for all access requirements for works to all areas. The contractor is required to attend site in the tender period to ascertain the varying building height and access requirements.

3.7 **Erection of Scaffold**

3.1.5 Provide and erect tubular scaffolding in accordance with BS EN 12811-1:2003 and TG20:21 to the full required height of the building as necessary to provide a satisfactory working platform for the full and proper execution of the works, and inspection by the Contract Administrator.

3.1.6 The scaffold must be designed and constructed without the use of raking props unless otherwise agreed by the Contract Administrator.

Wallington County Grammar School–English Block Heat Decarbonisation Project

- 3.1.7 The contractor should allow for tying the scaffold to the main structure with the use of HILTI, or other proprietary anchors to the approval of the Contract Administrator.
- 3.1.8 The contractor is to ensure all scaffold operatives wear harnesses when working above 2 metres whilst erecting and dismantling the scaffold.
- 3.1.9 The contractor is to allow to provide all necessary fans and other temporary protection to ensure the complete safety of the building occupiers and public at large during the works. He is also to include toe boards to the inner face of the scaffold over window openings as well as the external faces and weld mesh infill panels etc.
- 3.1.10 All poles at ground floor level are to be painted white or red and white sleeves to be provided and the contractor is to provide PIR sensor lighting whilst the site is not manned and is to ensure complete coverage of the building perimeter and external doors.
- 3.1.11 The scaffold is to be erected so as not to obstruct any door or window openings or inhibit the progress of the works and is to include for the provision, installation, adaptation, maintenance and removal of any necessary electric hoists, ladders, staging, tarpaulins, tools and other plant, mechanical or otherwise which may be considered necessary for the proper execution of the works.
- 3.1.12 The contractor shall take down and safely store at the conclusion of each days work, all ladders used in connection with the works and shall render scaffolding, plant etc. inaccessible to unauthorised persons during non working hours.
- 3.1.13 Contractor to ensure adequate protection is provided to ground floor to ensure no unauthorised access is gained to the scaffold, or below the scaffold, by pupils, visitors and staff.
- 3.1.14 The contractor is to allow to provide adequate sheeting to the scaffold to prevent the risk of dirt and debris falling to areas below.
- 3.1.15 Suitable debris netting is to be installed to the scaffolding in accordance with BS 8093, BS 7955 and TG20:21. Netting to be provided to all elevations, and Monoflex below each lift to prevent dirt and debris falling to areas below.
- 3.1.16 The contractor is to ensure that all scaffold poles are cut back neatly and safely and are kept behind the netting and contained within the boundary lines of the building.
- 3.1.17 A temporary CA, Contractor and Client sign is to be provided. A sample sign is to be issued for approval by all parties before erection.

Wallington County Grammar School–English Block Heat Decarbonisation Project

3.1.18 As part of the erection of scaffolding, the contractor is to allow in their price for adapting and relocating M&E items for the duration of works including CCTV cameras, aerials, antenna, flues, terminals and the like. Upon completion of the works, allow to reinstate all M&E items, and provide test and commissioning certification to the CA where applicable. All costs deemed included

3.8 Scaffold Alarms

3.1.19 Provide and install scaffold alarm to entire scaffold. Sensors are to be located on the scaffold to create a harmless volumetric beam detection zone, to ensure that any intruder entering the zone immediately sets off the alarm. Alarm to be taken back to a central monitoring station to alert a nominated key holder (Contractor).

3.1.20 Sensors to be operated by a mains powered console with sensors integrated to ensure that when the system is suspended during working hours, a tamper system is active which triggers the alarm if cables are cut, disconnected or the console interfered with.

3.1.21 Scaffold alarm to have its own back-up power supply. Scaffold alarm to be provided by Permanex Security (telephone: 0845 069 5555) or other equal and approved.

3.9 Striking of Scaffold

3.1.22 The contractor is to strike the scaffold upon completion as directed and clear away from site. All surfaces are to be made good upon completion of the works to match existing. All damaged bricks are to be repaired using full bricks to match the existing (coloured mortar repairs, masonry plugs or otherwise will not be acceptable).

3.1.23 Reinstate all paths, paving, planted areas, turfing, etc. affected by the erection of the scaffold upon completion of the works, to the same condition as prior to the commencement of works.

3.10 Protection

3.10.1 The contractor's attention is drawn to the fact that the school will remain occupied through the majority of the works period. All steps necessary are to be taken to ensure that the school users and the public are efficiently protected against injury or shock.

3.10.2 Heras fencing is to be provided to all scaffolds, cradles, towers and ladder access points throughout the duration of the works unless directed otherwise by the CA.

3.10.3 Ladders shall be padded to prevent damage to exterior and interior of the buildings and window cills. All damage caused as a result of completing the works shall be made good by the contractor at his own expense.

Wallington County Grammar School–English Block Heat Decarbonisation Project

3.10.4 Where materials or equipment are stored overnight they must be secured within the contractor's compound. Under no circumstances are materials to be left within the building, behind heras fencing around site or on roofs overnight.

3.10.5 No surplus or defective paint or other liquids shall be disposed of by pouring down gullies, WC's, sinks etc, but shall be carted away from site with any surplus materials.

3.11 Relocation of Furniture

3.11.1 Prior to the commencement of works, the contractor is to assist the client as far as practically possible with the relocation of furniture / fittings within the works areas.

3.11.2 The contractor is to include any items to be relocated as part of their Schedule of Condition and Photographic Schedule.

3.12 Quality Control - Roofing

3.12.1 The roofing system to be used is the Bauder Total Roof System Plus. The system may only be laid by certified operatives who have approved by Bauder Limited and hold the certificate of approval. All roofing laid will be in complete accordance/compliance with the direction of Bauder Limited.

3.12.2 All materials are to be stored securely and in accordance with the manufacturers requirements.

3.13 Quality Control - EWI

3.13.1 The EWI system to be used is the Weatherby System listed in Appendix C. The system may only be laid by certified operatives who have approved by Weatherby Systems and hold the certificate of approval. All roofing laid will be in complete accordance/compliance with the direction of Weatherby Systems.

3.13.2 All materials are to be stored securely and in accordance with the manufacturers requirements.

3.14 Quality Control - Generally

3.14.1 Contractor will be responsible for informing the Contract Administrator of work available for inspection giving at least 72 hours' notice.

3.15 Costs Deemed to be Included

3.15.1 The contractor is to include the following when pricing:

3.15.2 All means of access to facilitate all of work at height are deemed included.

3.15.3 Protect all areas and surfaces around the site and if necessary on completion of the works clean off any external surfaces affected as a result of the works.

Wallington County Grammar School–English Block Heat Decarbonisation Project

- 3.15.4 Contract deemed to include for sweeping and cleaning internal areas of the building of dirt and debris caused by the works.
- 3.15.5 No exterior or exposed painting shall be carried out under adverse weather conditions, such as extremes of temperatures or during rain, fog etc.
- 3.15.6 All costs in conjunction with materials, plant and labour will be deemed to have been included in the tender price.
- 3.15.7 All necessary access equipment in order to carry out the works in accordance with the Health and Safety at Work Act 1974 and The Work at Height Regulations 2005 Act.
- 3.15.8 Implementing a system of sign posting to warn occupiers and the public of dangerous operations and freshly applied materials.
- 3.15.9 All safety signs must conform to the Health and Safety (Safety Signs and Signals) Regulations 1996 which involves the use of pictograms in four distinctive colours and shapes. These include warning signs, which incorporate a pictogram in black on a yellow background inside a black-boarded triangle.
- 3.16 **Schedule of Works and Pricing**
- 3.16.1 This Works section (Section 4) is to be read in conjunction with the Preliminaries (Section 1) and Materials and Workmanship (Section 2) of this Specification of Works, including attached drawings and any appendices thereto. Any discrepancies shall be reported to the Contract Administrator as soon as possible after discovery.
- 3.16.2 The Contractor is to price works in occupation and assume that neighbouring buildings will also remain in occupation for the duration of the works, unless where specifically referred in in this section. Access to the building is to remain unhindered for the duration of works. Include for all necessary dustsheets, temporary protection, the moving and reinstatement of all services and fittings as necessary and for leaving all areas free of debris and functional at the end of each day.
- 3.16.3 The contractor is to check all dimensions prior to ordering any materials. All materials must be installed / fixed in accordance with manufacturer's instructions and BS Codes of Practice.
- 3.16.4 The amount entered against each item within the Specification of Work are to include for all labour, plant, materials, overheads and profit and not included elsewhere so that the sum of all figures recorded shall be the total fixed price for the tender taking into account all site conditions.

Wallington County Grammar School–English Block Heat Decarbonisation Project

- 3.16.5 Where items are identified as provisional sums, these may or may not be used. In the event of proceeding, they will be paid for at the rates entered against each item. Should these items be omitted the amount of items will be deducted from the contract sum and no allowance will be made for any consequential loss and expense or alteration to the Contract Preliminaries or Materials and Workmanship.
- 3.16.6 At such time as when the Contract Administrator is advised of any changes to the works, he/she shall notify the contractor accordingly and vary the contract by issue of contract instructions. However, the contractor shall be aware that no loss or expense claims brought to bear by the reduction in work shall be entertained by the Employer.
- 3.16.7 It is advised the contractor visit the site prior to submitting their price. This includes the verification of all dimensions etc. included in these documents
- 3.17 **Plans**
- 3.17.1 The specification, tender documentation and information provided should be read in conjunction with the drawings provided.
- 3.18 **Principal Contractor**
- 3.18.1 The Principal Contractor is responsible for the co-ordination, organisation, provision and deployment of all services and sub-contract labour. As Principal Contractor all costs shall be deemed included for liaison, coordinating and programming the works.
- 3.19 **Site Administration and Storage**
- 3.19.1 The site accommodation shall be set up and operational prior to the commencement of works, as identified within the Preliminaries (Section 1). Proposals to be submitted by the Contractor to the CA for approval.
- 3.19.2 The Contractor shall allow for all portable and temporary administration and storage facilities together with toilet requirements for welfare. These shall be located in consultation with the Contract Administrator. All approvals and costs related to those in accordance with the Local Authority and other statutory requirements shall be deemed included.
- 3.19.3 The Contractor shall be held responsible for the maintaining of any such facilities in a satisfactory condition, including their security.
- 3.19.4 The Contractor is to ensure that all stored materials and/or rubbish deriving from the work do not interfere with any entrances or exits. Under no circumstances will it be permitted to store any materials outside any pre agreed compound area without first obtaining permission from the School. The location of the compound area shall be agreed with the Contract Administrator and Site Manager in consideration with the Principle Designers comments.

Wallington County Grammar School–English Block Heat Decarbonisation Project

3.19.5 The Contractor must contain all working activities and storage of materials within designated working areas, as the remainder of the building will be in use throughout the duration of the contract.

3.19.6 Materials/equipment must not be left so as to cause trip hazards for staff, pupils or visitors and that they are out of sight to prevent weapons or missiles being used from any materials arising during the works.

3.20 Photographic Schedule of Condition

3.20.1 The Contractor shall carry out a full photographic schedule of condition of all areas of the property likely to be directly or indirectly affected by the works, including the delivery and storage of materials and the removal of waste from or access to work areas.

3.20.2 The photographic schedule is to include all welfare locations including hardstanding and landscaped areas.

3.21 Cleanliness

3.21.1 The nature of the project means that the Contractor will be working in an occupied school, therefore, works are to proceed with care and consideration for the building, the users and their belongings and personal effects.

3.21.2 At the end of each working day, the Contractor is to ensure that the building is left in the condition and layout found, with no health and safety issues present. Furniture and any fixtures and fittings shall be reinstated as found. The Contractor is to ensure that each area is left in a habitable and clean condition, for use by the school the next day.

3.21.3 The Contractor is to clear all rubbish, debris, building materials and tools together with plant at the end of each working day. Under no circumstances are any items to be left within the building.

3.22 Management of the Works

3.22.1 The Contractor shall devote very specific levels of personnel and supervisors in order to execute the project to the requirements and satisfaction of the Contract Administrator and Client and detailed within this schedule.

3.22.2 The Contractor is to allow for a **full time Site Manager**. The Site Manager may work on the project however, must be suitably experienced to discuss drawings, programme, variations, materials and labour. The Manager must also remain a constant point of contact throughout the project for all parties.

3.22.3 One Contract manager is to be provided for the duration of the project and be available full time to the project.

Wallington County Grammar School–English Block Heat Decarbonisation Project

- 3.22.4 The Contract Administrator reserves the right to request replacement of any member of the Contractor's Management Team, any individual or group of individuals from the site or management where due cause for their removal shall also be given. Any requests for claims for cost or time with regard to the above will not be entertained and all items and costs shall be deemed included.
- 3.22.5 The Contractor is to note that a high standard of workmanship will be expected. Therefore it will be the responsibility of the Contracts Manager/Site Manager to inspect all the works prior to the CA's inspection. Where necessary or directed by the CA, unsatisfactory work shall be reproduced at the Contractor's own expense.
- 3.22.6 Where applicable, the Site Manager must report to the Principal Contractor on a regular basis to inform and discuss issues and programming of the project generally, and relevant sub-contractors.
- 3.22.7 The contractor is to allow for maintained liaison with the school. This is to include liaising with the premises manager and staff generally regarding works to various areas of the school which require access during the course of the works.
- 3.23 Parking, Deliveries and Security**
- 3.23.1 The Contractor shall make all allowances for the safe storage of all materials and plant delivered to site for the execution of the works.
- 3.23.2 The Contractor is deemed to include for securing all goods and belongings and therefore any loss will not be the subject of any additional claims.
- 3.23.3 The Contractor is to make due allowance and be diligent in executing the works to maintain the security of the buildings and the security and safe well-being of others who may be visiting the site.
- 3.23.4 Parking may be permitted on site, however is at the discretion of the CA / Client.
- 3.23.5 Whilst the works are being carried out, all adjacent areas should be properly protected by providing all temporary protection e.g. the construction of temporary hoarding/screens/Heras fencing to segregate staff and/or pupils from the working areas.
- 3.23.6 At the beginning of each working day, the contractor is to monitor the condition and safety of such hoarding/fencing prior to the commencement of works.
- 3.24 Health & Safety Implications**
- 3.24.1 The Contractors attention is particularly drawn to the contents of the Pre-Construction Information for this project.

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3.24.2 The contractor is to provide a visitor's book and ensure all visitors to the site sign and date. This is to include representatives from the Employer, Contract Administrator, Building Control, Planning Department, Statutory Bodies and the like.

3.24.3 Provide an A4 size site diary, divided into one full page per day. Comments and/or observations from the client or Contract Administrator will be noted within the site diary and raised by the Contract Administrator at subsequent site meetings.

3.24.4 Provide all suitable safety and security signs for distribution around the site during the course of the works.

3.25 Covid-19 and Social Distancing Measures

3.25.1 The Contractor shall comply with all government guidance in respect to Covid-19 and the application of social distancing measures and sanitation facilities whilst on site. All RAMS are to be reviewed and updated to reflect the latest version of the 'CLC Site Operating Procedures', published as of the date of commencement of works on site. Any costs arising relating to the application of procedures, safety measures and social distancing measures on site shall be deemed included.

3.26 Communication and Identification

3.26.1 Ensure all workers, including any Sub-Contractors permanently display at all times whilst on site, a suitable numbered identification badge including their photograph in addition to all PPE.

3.27 Licenses

3.27.1 Where necessary, the Contractor shall be responsible for obtaining all necessary permissions from adjoining owners or the Local Authority where plant/materials, scaffolding or any other such items, shall be required to be located and stored or works undertaken.

3.28 Making Good

3.28.1 The contractor is to make good any damage caused to services, buildings, structures and services through undertaking the works at the request of the Contract Administrator. This relates to all the above items mentioned within the specification and includes items where they have been removed, replaced or reinstated.

3.29 Quality Check and Site Clearance

3.29.1 The contractor is to check the finished works to ensure the quality is to the desired standard. The contractor is to undertake a thorough snagging inspection of all works areas and installations, ensuring all unsatisfactory items are addressed prior to the CA being invited to site to carry out any further snagging inspections.

Wallington County Grammar School–English Block Heat Decarbonisation Project

3.29.2 The Contractor shall remove all rubbish or rubble at their expense and clear tools and equipment from the site so that it is clean, safe and tidy.

3.30 Practical Completion and Handover

3.30.1 Two weeks prior to the anticipated practical completion date, the Principal Contractor must provide the following documentation where applicable and hand to the Contract Administrator:

- Health and Safety File and O&M Manual in accordance with the relevant sections of this Specification. The contractor shall provide confirmation that all relevant information has been submitted to the Principle Designer for inclusion within the Health & Safety File, otherwise this will result in a delay to the certified date of Practical Completion.
- Building Regulations Completion certificate where necessary.
- All guarantees, warranties, commissioning and completion certificates in relation to products and systems installed.
- Where electrical items have had to be re-sited, or set aside and refitted as part of the Works, electrical installation certificates shall be provided. The Employer will require confirmation that the tests prescribed in the current IEE wiring regulations have been carried out and the results recorded.
- Where works to gas flues and / or gas appliances are carried out a new CP12 will be required
- Where works to lightning protection systems have been carried out test certificates will be required following their installation/reinstatement.

3.30.2 Practical Completion **will not be certified in the absence** any of the above mentioned items and **no** claims for loss of profit etc. will be considered in this respect.

Park Hill Junior School
Heat Decarbonisation Project

Section 3: General Conditions & Access Provision

Collection

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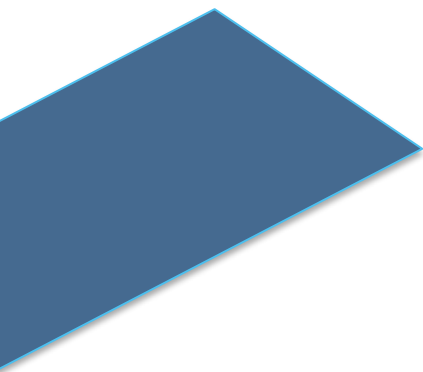
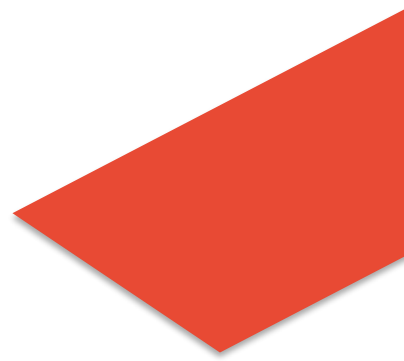
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SECTION 4



Wallington County Grammar School – English Block Heat Decarbonisation Project

Section 4 : Building Fabric Schedule of Works

4.1 Description of the Works

4.1.1 The proposed work consists of Heat Decarbonisation Works to Wallington County Grammar School. The works are to include external wall insulation, installation of loft insulation, upgrade of the existing electrical supply, installation of heat emitters and pipework and installation of a new Air Source heat Pump Installation.

4.1.2 Specialist specifications and literature can be found included within Appendix C.

4.1.3 In the event of questions concerning this specification of work or the system to be used the contractor should contact the following Contract Administrator (CA) representatives:

Anil Chandla (Tel: 0208 294 1000)

Sam French (Tel: 0208 294 1000)

4.1.4 The site plans show the location of the school and various building around the site. Further drawings including plans and elevation drawings can be found in Appendix A.

4.1.5 The works include:

- Installation of new external wall insulation (EWI)
- Installation of loft insulation.
- Replacement of existing flat roof surfaces with increased insulation levels.
- Associated works to facilitate EWI including alterations to rainwater goods and window cills/reveals.
- Strip out of the existing heating system (Section 5)
- Installation of new air source heat pumps (Section 5)
- Installation of new heating distribution and emitters (Section 5)
- Upgrade of the existing electrical supply (Section 6)

4.2 Drawings

4.2.1 References to contract drawings relate to drawings contained at Appendix A as follows

35087 – T 01 – Site Location Plan

35087 – T 02 – Existing Floor Plans

35087 – T 03 – Existing Elevation

Wallington County Grammar School – English Block Heat Decarbonisation Project

35087 – T 04 – EWI Plan

4.2.2	The Contractor is to note any measured areas listed are for pricing purposes only. It is the contractor's responsibility to attend site, undertake an accurate measurement and price accordingly prior to the submission of the tender.				
4.2.3	No claim for additional monies as a result of any discrepancy between the drawings and actual measurements obtained by the contractor will be assessed.				
4.3	Statutory Approvals				
4.3.1	The contractor will be responsible for obtaining Building Control approval for the works, with assistance from Baily Garner where requested.				
4.4	Contractor Access				
4.4.1	The contractor will agree in advance of the work the locations for compound, storage and welfare facilities with the CA and the school.				
4.4.2	The contractor will agree vehicular access and egress from site with the CA and the school prior to the commencement of works.				
4.4.3	It is the contractor's responsibility to design the safe removal of any asbestos containing materials to any areas affected by the works.				
4.4.4	On completion of the work, the contractor will be required to remove all protective measures compounds etc. and any damage to the buildings, access roads and pathways, grassed or planted areas will be required to be made good by the contractor at their own expense.				
4.5	Asbestos Testing & Removal				
4.5.1	Prior to the commencement of works, the contractor is to appoint a UKAS accredited Asbestos Surveying Contractor to complete a full Refurbishment & Demolition Survey to all works areas.				
4.5.2	In the event that any suspected asbestos materials are identified, the contractor will appoint a UKAS accredited asbestos removal contractor and consultant, to remove any asbestos from the work areas in accordance with the guidance of the asbestos consultant. The asbestos consultant is to be responsible for monitoring works on site and to ensure all relevant certification is provided as part of the Health & Safety File.				
4.5.3	Allow a provisional sum of £30,000.00 for potential asbestos removal necessary as a result of the proposed works.	Prov.	£	30,000	00

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4.6 Debris Removal

4.6.1 The contractor will be required to remove all items of rubbish, vegetation etc. before commencing any work and no additional costs for this item will be accepted once on site. The contractor is to take particular note of the courtyard area where but not limited to vegetation removal will be required to facilitate installation of the EWI system.

4.7 Mechanical and Electrical Elements of Work

4.7.1 The contractor will note the site contains various items of plant, electrical equipment, flues and cables that will need to be adapted, moved repositioned or temporarily disconnected and reinstated on completion of the roof works. The contractor will apply the provisions below wherever such equipment is encountered as part of the project. The costs submitted will be utilised and the works will be instructed utilising the residual pro-rata rate.

4.7.2 All electrical work will be carried out by NICEIC approved contractors in accordance with Part L of the Building Regulations and with the IEE Regulations 18th Edition. All installations are to be tested on completion of work and an Electrical Installation Certificate provided.

4.7.3 Works to gas flues etc. will be carried out by a suitably qualified Gas Safe contractor in compliance with the Gas Regulations.

4.7.4 Works to air conditioning units must be carried out by a specialist HVAC contractor, deemed included within the contractors cost.

4.7.5 The contractor will allow to protection and weathering to any penetrations of the roof membrane in accordance with the instructions within the specifications provided by Bauder, in Appendix B.

4.8 External Wall Insulation

4.8.1 The contractor is to supply and install new Wetherby Stone Wool Silicone External Wall Insulation System in accordance with the manufacturers literature and specification contained within Appendix C.

4.8.2 The Contractor will undertake a pre-installation assessment, which will identify but not be limited to the following:

4.8.3 The contractor will undertake a survey report of the existing walls to determine but not be limited to the following:

- 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.

Wallington County Grammar School – English Block Heat Decarbonisation Project

- A full schedule of services, fixtures and fittings to be removed by the contractor to facilitate installation of the system not explicitly listed in this specification or shown on drawing T04.
- Proposals for treatment of potential cold bridges e.g. reveals, concrete floor edges.
- Remove, extend beyond the surface of the proposed system and securely re-fix, to the satisfaction of the contact administrator, soil stacks, waste water pipes, overflows, vent pipes etc.
- Any other information considered relevant.
- Ventilation requirements (forming part of the general Ventilation Strategy for the property);
- Planning requirements, including any Conservation Area permissions required.

4.8.4 The contractor is to undertake pull out load testing of existing walls to confirm the suitability of surfaces to receive EWI. The Contractor is to implement recommendations from findings to determine and plan for fixings of EWI and costs are deemed to have been allowed for this.

4.8.5 The contractor is to undertake an assessment of the lay of the land to understand any deviations in ground level that may give rise to challenges achieving continuity of levels in placing the EWI starter track. All starter tracks to achieve level finish, steps and rises in the starter track to be marked out on plan and agreed with the Contract Administrator.

4.8.6 The contractor is to allow for moving and resiting all external taps, security lights, CCTV cameras, cabling, pipework, ducting, vents, flues, junction and intake boxes, aerials, satellite dishes, trellises, hanging features and hooks, and any other externally affixed building services insofar as they are affected by the retrofit works and in strict accordance with all relevant Building Regulations, British Standards, Approved Codes of Practice, Industry Specific Working Methods, with all works undertaken by suitably trained and qualified operatives accredited with the relevant professional body. Certification to be presented on request.

4.8.7 The contractor is to note the presence of the schools main electrical intake cables that run at roof level and up the wall of the English block, costs associated with removal and refixing of these to the EWI are deemed to be included.

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4.8.8	Note the above works shall not include works required to statutory services such as the disconnection and/or moving/ removal of gas meters and electricity intake feeds which shall remain the responsibility of the authorised statutory body and works in respect of which are addressed elsewhere in this document. For the avoidance of doubt, it remains the Contractor's responsibility to oversee and facilitate any outstanding required statutory undertaker works, discharges and consents.				
4.8.9	Allow a provisional sum of £15,000.00 for adaptations to the items mentioned above, only to be expended upon instruction from the CA.	Prov	£	15,000	00
4.8.10	The contractor is to note where the external staircases and outside food pod are installed there may be a requirement for a thinner profile of insulation to be installed. The contractor is to allow within their cost for the full system, along with any costs associated with liaising with the Wetherby team to agree and confirm the thickness of insulation where reduced. Once a resolution has been reached it is to be presented to the CA for approval.				
4.8.11	The contractor is to note a number of flues and extracts are present to the buildings. The contractor is to allow within their cost all required detailing and extending of flues in accordance with the Wetherby specification and drawings in Appendix C, detail references EWI-SILICONE-26.				
4.8.12	The contractor is to allow within the costs for the relocation of the existing 2no. canopies away from the face of the building, resecure them to match the existing fittings ready for the wall finishes to receive EWI installation. Where required this is to include breaking out any tarmac, pouring concrete footings in line with the manufacturers recommendations and making good to the tarmac surface.				
4.8.13	The contractor is to allow for timber pattress detailing and parapet detailing to the new EWI system with all flat roofs, including trims, abutments and verges accordance with the manufacturers detail drawings and specification included within Appendix C reference EWI-SILICONE-15 and EWI-SILICONE-21.				
4.8.14	Allow a Provisional Sum of £15,000.00 for Structural Adaptations as required to be expended only upon instruction from the Contract Administrator.	Prov	£	15,000	00
4.8.15	Provide a 25-year SWIGA guarantee for Materials and Workmanship for the completed works.				

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4.9 Air Conditioning

4.9.1 The contractor is to allow for temporary disconnection and safe relocation of the existing units while work proceeds. On completion of the roof works relocate to existing positions, reconnect and test. Leave in sound working order.

4.9.2 Upon reinstatement, the contractor is to allow to supply and install a new big foot system for the units to be roof mounted.

4.9.3 The contractor is to allow a **provisional quantity of 3no. air conditioning units**. Additions and omissions to be calculated on a pro rata basis.

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4.10 Lightning Protection Systems

4.10.1 The contractor is to price here the supply to commission a full lightning protection survey of the school site and obtain a full report along with recommendations for remedial works and where required the supply and installation of a new lightning protection system.

4.10.2 The survey and work is to be undertaken by an approved lightning conductor engineer ATLAS, and in compliance with BS 6651 & BS EN 62305.

4.10.3 The contractor is to allow for and provide to the CA, all testing, commissioning and certification.

4.10.4 The contractor is to provide a full report including drawings detailing the installed system, location of protection strips and location and quantity of earth points within the external ground of the building.

4.10.5 The Contractor is to allow a **provisional sum of £15,000.00** for a new lightning protection system.

Prov.

£

15,000 00

4.11 Windows and Doors

4.11.1 The contractor is to note the existing windows and doors are all to be retained. The contractor is to allow for protection of all units adjacent to work areas at the time of EWI installation.

4.11.2 The contractor is to allow to carefully breakout and remove all tiled protruding window cills from the elevations shown in the tender drawings and remove all waste and debris from site. Ensuring it is taken back below the external face of the window level with main external wall, in readiness to receive the EWI.

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4.11.3	The contractor is to then install timber pattress detail below the windows, reference EWI-SILICONE-11 in the Wetherby drawings found within Appendix C. This is to be mechanically fixed into the brickwork ready to receive new Wetherby aluminium cill detail found within Appendix C reference EWI-SILICONE-16 including all sealant and fixings. The cill detail trim is to match the colour of the existing windows.				
4.11.4	To the existing window cills, the contractor to supply and securely fix powder coated aluminium overcills and trims ready to receive new EWI treatment in accordance with the detail drawings in Appendix C. The overcills and trims are to match length of existing cills, all cills shall be site measured and supplied with end caps to suit the application. Cills to be weather sealed to the existing window cill by a continuous bead of WBS Silicone Sealant. The cill detail trim is to match the colour of the windows. The detail shall be in accordance with the Wetherby specification and detail drawing found within Appendix C reference EWI-SILICONE-15.				
4.11.5	To all windows and doors, the contractor is to allow for all detailing in accordance with the Wetherby Drawings in Appendix C, including Doors abc in The detail shall be in accordance with the Wetherby specification and detail drawing found within Appendix C reference EWI-SILICONE-05B and EWI-SILICONE-06B.				
4.12	Drainage				
4.12.1	The contractor is to allow for all externally affixed rainwater and soil pipes, including associated hopper heads, down pipes, junctions, T-pieces, returns, back inlets, gulleys, and the like, are to be brought out with the new external wall insulation and suitably fixed back to the structure using robust pattresses and approved galvanised steel fixings with sufficient embedment or suitably bedded to match existing. Detail to be approved by the Contractor Administrator and Wetherby.				
4.12.2	Upon reinstatement the contractor is to allow for the required adaptations from the rainwater and soil pipes to connect into the existing below ground drainage outlets, allowing for the required fixings and detailing to allow for the adjusted wall thickness.				
4.12.3	Upon completion of the drainage alterations and adaptations the contractor is to allow for to commission a CCTV survey of these to be undertaken. This is to include a report and recommendations for remedial repairs where necessary.				
4.12.4	The Contractor is allow a provisional sum of £30,000.00 for alterations and adaptations to the existing drainage system to only be expended upon instructions from the Contract Administrator.	Prov	£	30,000	00

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4.13 Refurbishment of Downpipe & Hoppers

4.13.1 Following their relocation and installation to facilitate EWI installed, the contractor is to allow to all previously decorated gas pipes, cast iron downpipes, pipework and hoppers, to fully rub down and prepare existing surface, make good and redecorate in accordance with item Ss_40_90_60_95 Type mainA. Colour is to be black, any gas pipes to be yellow.

4.13.2 The contractor is to give notice to the CA of any suspected lead coatings and submit risk assessment and method statements before undertaking any works.

4.13.3 The contractor is to state their price here to undertake the above works to the English Building.

4.13.4 In addition to the above the contractor is to allow a **provision quantity of 10lm** to supply and install new cast iron downpipes in accordance with Ss_50_30_02_28 (Type A) to match the profile of the existing downpipes, including for decorations to new cast iron downpipes. All additions or omissions are to be calculated on a pro rata basis.

4.13.5 In addition to the above the contractor is to allow a **provision quantity of 3no.** to supply and install new cast iron hoppers from Alumasc Heritage cast iron range, to match the profile of the existing hoppers, including for decorations to new cast iron hoppers, lead chutes and connections to downpipes. All additions or omissions are to be calculated on a pro rata basis.

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lm

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No

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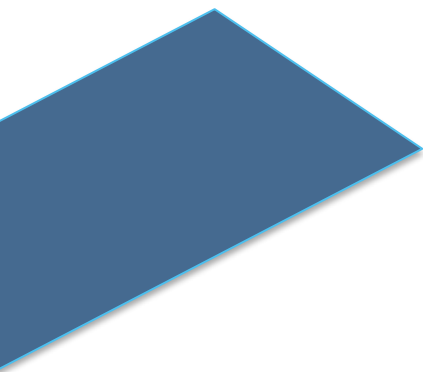
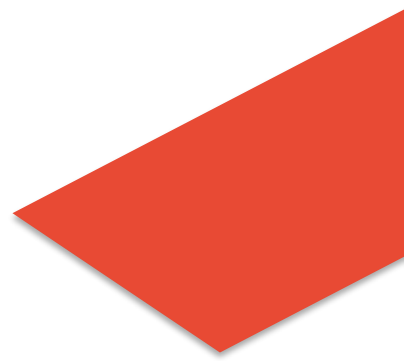
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SECTION 5



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Heating and ASHP Replacement.

**Section 5: Schedule of Works – Mechanical
Installations – English Block**

5.1 General

5.1.1 All references hereafter to Contractor shall be deemed as meaning the Mechanical Contractor.

5.1.2 Prior to submission of their Tender, the Contractor shall ensure that they have visited the site to familiarise themselves with the existing site layout, nature and extent of proposed works, supply of and conditions affecting labour, local conditions generally, site conditions, extent of existing services and the new services proposals.

5.1.3 It is recommended that the Contractor visits site during the tender period to familiarise themselves with the Mechanical and associated Electrical Services works requirements. Appointments to visit site should be made in advance of the visit via Baily Garner LLP.

5.1.4 The Tender Return submission shall be based on all site works being carried out to suit the project programme including any phasing of the works if required on the scheme.

5.1.5 Mechanical & Electrical tender queries for Baily Garner should be directed to their project design engineers.

5.1.6 The Contractor will, however, be fully responsible for managing any Statutory Authority works with regards to overall co-ordination of the Mechanical and associated Electrical installations, sequencing of their works (incl. existing services removals / strip outs), programming and related CDM matters, all in line with their phased installation Programme.

5.1.7 The existing building structure shall be protected during the progress of the works unless stated otherwise.

5.1.8 The works to be carried out under this Contract are generally indicated within this specification document and may be subject to drawings that may be issued during the progress of the works.

5.1.9 The Contractor shall be responsible for installing everything in such a way that access can be readily obtained for operation maintenance and replacement purposes. Where services run exposed to view, particular attention is required to the actual installation of the pipework to ensure an installation is achieved which will be pleasing to the eye. In some areas the space available is limited and it is most important that careful thought is given to this matter before manufacture or installation is commenced.

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5.1.10 The contractor shall be responsible for the procurement and installation of the equipment required in these works.

5.2 Introduction

5.2.1 The project comprises of the strip out and replacement of the existing equipment installation located within the plant room of the English Block, and the installation of an Air to Water air source heat pump system to serve the English Block. The plant equipment including cylinders, expansion vessels and heating units are to be replaced with a new air source heat pump installation.

5.2.2 For full details of the services to be installed please refer to the main part of the scope of works. Main contract as specification document produced by Baily Garner LLP, the contractor shall be responsible for the procurement and installation of all mechanical installations featured in the project.

5.2.3 The contractors tender shall fully comply with specification requirements, should the contractor wish to offer alternative products it shall be submitted along with the cost variation and full technical submittal, the submittal shall include full technical details, calculations etc. to enable a detailed comparison to be undertaken.

5.2.4 Copies of all test certificates and description of the operation of the modified control systems together with drawings of new pipework installation in its entirety shall be incorporated by the contractor into the O & M manuals at the completion of the project.

5.2.5 All materials supplied and work carried out shall be the best of their respective kind and to the approval of the client and of Baily Garner LLP who shall have the full liberty to order the removal and replacement any faulty materials or in inferior workmanship at no extra cost.

5.2.6 On completion of the installation of the new mechanical systems, the mechanical contractor shall employ the services of a water treatment specialist who shall chemically dose the system with a scale and corrosion inhibitor and take further water samples to confirm that the correct level of dosing has been achieved.

5.2.7 Copies of all analysis sheets shall be included in the O & M manuals by the mechanical contractor.

5.2.8 All references here after to the contractor shall be deemed as meaning the mechanical contractors.

5.3 Compliance with Regulations and standards

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5.3.1 The installation of the new mechanical services and associated works is to be in accordance with the requirements and recommendations of all current British and European Standards and Codes of Practice. The list below is not exhaustive, and it is the responsibility of the Contractor to identify and ensure compliance with all those applicable and any updated regulations and to obtain all necessary permissions and approvals and in particular:

- The Health and Safety at Work Act and all associated regulations and requirements of the Health and Safety Executive.
- The Building Regulations.
- The Clean Air Act.
- Relevant Building Bulletin guidance.
- EC Directives and associated Codes of Practices.
- Local Authority and other Byelaws applicable to the site area.
- Electricity at Work Regulations and the Electricity at Work Act.
- 18th Edition of the IEE Wiring Regulations BS7671:2018
- The COSHH Regulations.
- Water Supply (Water Fittings) Regulations 1999.
- The Noise at Work Regulations.
- The Fire Precautions Act.
- The Fire Precautions (Place of Work) Regulations.
- The CDM Regulations April 2015.
- CIBSE Guidelines
- Institute of Plumbing guidance
- Environment Agency Pollution Prevention Guidelines.
- National Joint Utilities Group - Guidelines on the positioning and colour coding of utilities' apparatus - April 2003.

5.3.2 Copies of all Certificates and approval documents shall be passed to the Client, as they are obtained, but not later than at practical completion. Copies shall be included within the record documentation.

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5.3.3 All materials shall comply with the relevant British Standards specification to which reference is made in the Code of Practice, or as referred to in this specification or the associated standard materials and workmanship specification.

5.3.4 All materials supplied and work carried out shall be the best of their respective kinds and to the approval of the Contract Administrator, who shall be at liberty to order the removal and replacement of any faulty materials or inferior workmanship at no extra cost.

5.3.5 The Contractor shall employ fully skilled specialist craftsmen on the works, under the control of a qualified foreman.

5.3.6 All materials shall be new, and care shall be exercised to ensure that materials shall be kept in that condition, proper storage facilities being used to fulfil this condition.

5.3.7 All materials or parts supplied, or work carried out, shall comply with the British Standards where available.

5.3.8 For details of materials to be used and standards of workmanship reference should be made to Baily Garner LLP Mechanical Standard Specification Materials and Workmanship Part of this document.

5.3.9 Copies of all Certificates and approval documents shall be retained by the Mechanical Contractor as they are obtained, for inclusion into the O&M's prior to the practical completion stage of the project.

5.4 Scope of Works Brief Summary

5.4.1 The works shall include but not be limited to the following;

- a. The Contractor shall allow for the strip out of the existing heating equipment installation.
- b. The contractor shall allow for the strip out of the secondary heating pipework, plant, valves, and ancillaries back to a pre agreed point within the plant room.
- c. The contractor shall supply and install 3No. Air to Water heat pump units as detailed in the manufacturers equipment selection documents.
- d. The contractor shall supply and install a new primary pipework system to connect the outdoor units to the plant room installation.
- e. The contractor shall supply and install a new secondary pipework system to source all new fan coil units, as detailed in tender drawings.

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- f. The contractor shall supply and install new Fan coil units as detailed in tender drawings.
- g. The contractor shall allow provision for new distribution pump sets.
- h. The contractor shall allow for the installation of a new Trend BMS control system to suit the new installations.
- i. The contractor shall allow provision for new valves and ancillaries associated to the new heating distribution system.
- j. The contractor shall allow for the upgrade of the existing electrical supply to the block, and LV distribution works within the school to provide power supplies to the mechanical equipment.
- k. Testing balancing, commissioning, and setting to work of the completed systems.
- l. All builders work in connection with these works.
- m. Provision operation and maintenance manuals for the installations plus record drawings.

Detailed Description of Works

5.5 Strip out works

5.5.1 Strip out of the existing heating equipment to allow for the installation of the heating plant for the English Block.

5.5.2 The contractor shall strip out any existing heating pipework, fan convectors and radiators which are being served from existing, to be stripped out, plant room equipment.

5.5.3 The contractor shall safely drain down, isolate, and strip out the existing water heater, primary and secondary pipework, valves, ancillaries, back to a pre agreed location within the plant room.

5.5.4 The contractor shall strip out the any gas or heating installation currently serving within the plant room. Gas pipework should be safely capped ensuring no leaks, this should be carried out by a gas safe certified engineer.

5.5.5 The contractor shall allow for the MCWS to be retained in the plant room to serve the new installation.

5.5.6 The contractor shall be responsible for ensuring all existing plant equipment that is to be retained is maintained and not damaged during the course of the installation works.

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5.5.7 The contractor shall organise with the client and the Contract Administrator prior to the shutting down of any mechanical services.

5.6 Heat Pump Installation

5.6.1 The contractor shall supply and install 3 no Ideal Ecomod 26kW Air Sourced Heat Pumps located on the roof of the English Block on anti-vibration mountings.

5.6.2 The heat pumps shall be set to operate on a duty / duty / standby basis with flow and return water temperatures in the primary circuit of 50°C flow and 45°C return.

5.6.3 The heat pumps shall be provided with an electrical supply of 415-volt 50 Hz A.C supply.

5.6.4 The complete heat pump system will be controlled from a new control panel supplied by the Control Specialist, as detailed elsewhere in this specification.

5.6.5 The complete heat pump installation shall be commissioned by the manufacturers' servicing department.

5.6.6 A heat pump log-book shall also be provided detailing the initial settings for use in future maintenance works.

5.6.7 The contractor shall be responsible for any builder's work in connection with the installation of the new heating system positions.

5.6.8 The heat pumps shall be fitted with integral high-lift pumps by the manufacturer.

5.7 Heating Pipework

5.7.1 The pipework material used for the heating system shall be medium grade steel used at both high and low level throughout. The same material shall be used throughout the whole heating system to prevent electrolysis within the system.

5.7.2 Prior to the application of thermal insulation the new installation shall be pressure tested and the relevant certificate issued as verification. This certificate should be included within the record documentation. On completion, the Contractor shall ensure that all heating circuits are regulated in accordance with flow rates indicated on the contractor's drawings and contained within equipment schedules.

5.7.3 The Contractor shall include within their tender for all the works in connection with the dismantling and removal of all existing pipework, fittings and insulation in its entirety connected to the current boiler installation and to provide all skips or transport as necessary to remove all redundant scrap materials from site.

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5.7.4 For the avoidance of hot works in the plant room the contractor shall supply and install Viega mega press fit pipework and fittings.

5.7.5 The contractor shall provide certification of successful completion of Viega training with use of the pressfit hand guns. The contractor shall also ensure Viega approved equipment is used when installing the pressfit pipework.

5.7.6 As a condition of this contract, the Contractor shall supply sufficient labour to be able to start work as required by the programme.

5.8 Fan convectors

5.8.1 The contractor shall supply and install Low Water Temperature CB Fan convectors from Biddle Air.

5.8.2 Connections onto the Fan convectors shall be 20 mm Dia. and upon completion of installation, fan convectors shall be set to the settings as detailed in heat emitter schedules for the building.

5.8.3 For floor mounted units the contractor shall use type F2 and for high level wall mounted units the contractor shall use FS21, as detailed in the CB Biddle Air Product Sheet.

5.8.4 The distribution pipework connecting to each fan convector shall be mounted on to the skirting board at low level in rooms indicated on tender drawings. The Contractors shall ensure all exposed and visible pipe work shall be adequately insulated and decorated.

5.8.5 The fan convectors shall be installed as indicated on tender drawings and schedules any variation or changes must be approved by Baily Garner LLP.

5.8.6 Locations and sizes shall be as indicated on the drawings and in schedules. Each fan convector shall be supplied with appropriate mounted brackets and fittings in accordance with the manufacturer's recommendations.

5.8.7 The Contractor shall be responsible for checking heights and dimensions of all fan convectors before ordering to ensure that all units fit in accordance with original room layouts. Any alterations necessary are to be notified to the consultant before ordering as no additional costs will be allowed for the expenses entailed.

5.8.8 The Contractor shall ensure all fan convectors indicated on the on tender drawings are installed to comply with but are not limited to the following British Standards:

- BS EN 442-1:2014 – Radiators and convectors.
- BS EN 442-2:2014 – Radiators and convectors. Test Methods and rating.
- BS EN 16430-1:2014 – Fan assisted radiators, convectors and trench convectors.

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- BS EN 16430-2:2014 – Fan assisted radiators, convectors and trench convectors. Test method and rating for thermal output.

The contractor shall consider the following additional control elements for the Fan convectors when supplying:

- 5.8.9
- Tamperproof remote thermostats
 - Pencil and finger proof grilles
 - Key lockable access panels

5.8.10 Refer to appendix section for fan convector schedule.

5.9 Cassette Unit and Outdoor Unit

5.9.1 The contractor shall supply and install 1No. SLZ-M25FA2.TH Indoor Cassette unit 2.72kW 650mmx650mm, 1No. 4 way compact Cassette Grille SLP-2FA, 1No. Standard wired remote control PAR-41MAA, coupled with, 1No. standard outdoor unit SUZ-M25VAR2.TH, by Mitsubishi respectively. The contractor shall fit the cassette unit as per the tender drawings. (Quotation No. QUO-0003-433608/0 / 0, Contact Alex Gardner)

5.9.2 The contractor shall install the outdoor unit mounted at high level using manufacture supplied wall mounting kit. The contractor shall note that 15m is the maximum length for refrigerant pipework.

5.9.3 The controls shall be set to the required heating for the room, with the contractor testing all equipment to ensure the proper function of the kit.

5.9.4 Locations and sizes shall be as indicated on the drawings and in schedules. For the cassette unit the mounted brackets and fittings are in accordance with the manufacturer's recommendations.

5.10 Insulation

5.10.1 All refrigerant pipework running within the plant room, roof spaces, ceiling voids, or generally hidden from view shall be insulated, all high-level pipework distribution shall be insulated.

5.10.2 Pipework shall be thermally insulated with foil faced Rockwool Rocklap stone wool insulation to BS EN 1366-3. The aged thermal conductivity of the insulant shall not exceed 0.04W/m² K, and it shall be installed to the correct thickness as detailed in this specification and the manufacturer's guidance. Insulated pipework supports shall be used throughout.

5.10.3 New pipework within the existing boiler room shall be finished in "isogenopack" pvc sheet covering, with all valves covered with a flexible insulating jacket.

5.10.4 New external pipework shall be insulated using hammerclad insulation.

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5.11 Heat Pump control Strategies

5.11.1 The heat pumps shall be controlled from the new BMS control panel to suit the new installations, the controls shall be provided by a specialist controls contractor.

5.12 Valves and Ancillaries

5.12.1 The contractor shall allow for an appropriate no of isolation, 2-port, commissioning, and balancing valves for the new heating system. All valves shall be approved for use by the manufacturer of the heat pumps.

5.12.2 Final locations and position for all valves shall be agreed on site prior to installation.

5.13 Chemical Dosing Pot

5.13.1 The Contractor shall provide and install for incorporation of the dosing chemicals 1No.3.5 litre Dosing Pot 17701 on the heating system. The unit shall be manufactured from Flamco.

5.13.2 The unit shall be rigidly plumbed into the system with the tundish vertical and uppermost. The drain shall be run to the nearest gully.

5.13.3 Provide a non-return valve between the top fill valve and tundish to prevent 'blow-back' when filling. The valves on the dosing pot shall be connected such that the bottom valve is the inlet, and the top side valve is the outlet for the fluid into which the chemicals will be injected. The inlet connection shall be made to the heating flow and the outlet to the heating return.

5.13.4 Provide a non-return valve between the top fill valve and tundish to prevent 'blow-back' when filling. The valves on the dosing pot shall be connected such that the bottom valve is the inlet, and the top side valve is the outlet for the fluid into which the chemicals will be injected. The inlet connection shall be made to the heating flow and the outlet to the heating return.

5.14 Dirt and Air Separator

5.14.1 The contractor shall supply and install 1No. Flamcovent clean smart (Product Code:30044), which will remove dirt from the heating system.

5.14.2 This equipment shall be Manufactured by Flamco and come complete with insulated jacket.

5.14.3 The Contractor shall manufacture and fabricate a steel frame for supporting the Dirt and Air separator, fitted with flat plates welded to each leg which shall be bolted to the floor of the plantroom. Alternatively, the Dirt and Air separator shall be supported by a wall mounted frame.

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5.14.4 This steel framework shall be constructed to take into account the insulated jacket that will be fitted to this vessel. This support frame shall be degreased and painted 2 coats red oxide and 2 coats of black gloss metal paint after installation.

5.15 LTHW Circulating Pumps

5.15.1 The Contractor shall provide and install within the boiler room 1No. new Grundfos MAGNA3 D twin head variable speed circulating pump set or equal and approved to serve the LTHW heating circuit. Pump models as detailed on the schematic drawing.

5.15.2 The pumps shall be installed within the system in complete compliance with the manufacturer's instructions.

5.15.3 During the commissioning stage of the project, the pumps shall be set to deliver the design flow rate in the secondary heating circuit using the pumps inverter.

5.15.4 These pumps shall then be set to run at variable speed, variable volume using the pumps inverter controls.

5.15.5 The pumps shall be installed with isolating valves on both suction and discharge sides (of the pumps).

5.15.6 The isolating valves shall be installed in such a manner that the pumps can be removed without the necessity for draining the whole system.

5.15.7 A new strainer shall be provided for and installed on the suction side of the pump to allow for the protection of said pump from debris and partials that may be retained within the LTHW system.

5.15.8 The Contractor shall ensure the pumps are adequately supported to avoid stressing the connections, with new wall mounting brackets installed.

5.15.9 The pump sets shall be as manufactured by Grundfos UK Ltd or equal and approved.

5.16 Fire Stopping Associated to the Heating Installations

5.16.1 The Contractor shall employ a fire stopping specialist to ensure adequate fire stopping is provided where any heating pipework passes through any walls, floors, or ceilings. The Contractor shall supply and install new and appropriate fire stopping to all areas, walls and services that are affected by the works.

5.16.2 Adequate certificate and proof of fire stopping shall be provided prior to practical completion. Please note practical completion will not be awarded until fire stopping in this area of works is complete and evidence is provided to the client.

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5.17 Heating Pressurisation unit

5.17.1 The contractor supply and install 1No. Mikrofill 3 Pressurisation unit in the plant room to serve the heating system.

5.17.2 The Contractor shall connect the pressurisation unit directly to the building's mains water supply.

5.17.3 The Contractor shall supply and install 1no. Mikrofill Mikropro EVZ290080 80L expansion vessel suitable for accommodating the volumetric change of water due to the expansion in the primary system when heated from 45°C to 50°C

5.17.4 This unit incorporates a Category 4 backflow prevention device.

5.17.5 A "quick fill" connection shall be supplied with a stop valve and double check valve.

5.17.6 The pressurisation unit and expansion vessel shall be supplied by Mikrofill or equal and approved.

5.17.7 The expansion vessels shall be suitable for the following:-

5.17.8 Maximum design operating temperature 50 °C

5.17.9 Expansion tank volume 80 L

5.17.10 Connection with Union LSV & DC 25mm

5.17.11 The system pressure shall be maintained by automatic pressure control of the mains water supply by the fill unit.

5.17.12 The device shall be wall mounted and connected to the incoming water main complete with a stopcock.

5.17.13 The complete assembly shall be provided with an illuminated double pole on/off switch, fuse, pressure gauge and hour-run meter.

5.17.14 The new sealed system working pressure shall match the original static head.

5.17.15 The pressurisation unit shall be fitted with a water meter on the water supply serving this unit.

5.18 Heat Pump Buffer Vessel

5.18.1 The contractor shall supply and install 1No. Ideal Ecomod 500L buffer tank, to increase the system water volume in the primary heating system.

5.18.2 The buffer vessel shall be complete with:

5.18.3 Drain valve

5.18.4 Automatic Air Vent

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Heating and ASHP Replacement.

5.18.5 BMS Temperature Sensor Pockets

5.18.6 The Buffer Vessel shall be installed on a 100mm high concrete plinth.

5.19 Controls

5.19.1 Allow for employing a specialist to undertake the supply, design, installation, setting to work and commissioning of a new Trend, or equal and approved, BMS system associated with the proposed mechanical installation. The works shall consist of but not limited to the following:

- a. The work of the automatic controls specialist shall commence at local isolators or fused spurs provided by the Contractor.
- b. Installation of a new Trend BMS control panel and software to include for the new heat pump installation & pump sets.
- c. Design and provision to alter all control software programmes to achieve the fully automatic controls and monitoring of the new Mechanical Plant and equipment in the plant room.
- d. Design and provision of graphics software for new Mechanical Services Installation.
- e. The control panel shall be complete with a touch screen controller, built onto the front face of the panel.
- f. Testing, commissioning, putting in operation, planning and demonstrating of the complete automatic controls and monitoring systems.
- g. Supply of a laptop for remote monitoring and controls.
- h. Staff Training.
- i. Operating & Maintenance Manuals

5.20 Testing and Commissioning

5.20.1 The Contractor shall inspect, test and commission the mechanical installation and systems prior to practical completion.

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5.20.2 The contractor shall contact the contractor administrator from Baily Garner LLP to arrange the time & date of the testing and commissioning to allow witnessing. An Engineer from Baily Garner LLP must be present during the testing and Commissioning. Failure to arrange witnessing from Baily Garner LLP will result in a repeat of the testing and commissioning at no additional cost.

5.20.3 The testing and commissioning shall include but not be limited to the following:

- a) Pressure test of each individual heating circuit
- b) Temperature test of flow and return pipework between heat pumps
- c) Commissioning of Heat Pumps

5.20.4 Copies of all testing and commissioning documentation shall be provided prior to practical completion.

5.20.5 The Contractor shall undertake seasonal commissioning during the 12 months defects period in order to fine tune the systems for optimum performance and energy consumption in accordance with BSRIA BG 44/2013.

5.20.6 All testing and commissioning shall be conducted in line with BSRIA BG 2/2010, BSRIA BG 44/2013 and CIBSE commissioning code.

5.20.7 The Contractor shall record the results of the commissioning and performance testing in line with BSRIA Building Applications Guide BG2/2010 and provide these as part of the operations and maintenance manual documentation.

5.21 Operation and Maintenance Manuals

Certificates

5.21.1 Upon completion of all tests and commissioning, two copies of detailed Certificates will be submitted to show that the equipment, materials, installations etc, have been tested and commissioned as detailed above. One copy of each, duly completed and signed, will be submitted to the Client's representative, (Baily Garner) within 14 days of the results being obtained. The second copy of the Certificates will be retained to be included with Operating and Maintenance manuals.

Operating and Maintenance Manuals / Record Drawings

5.21.2 The Contractor will provide comprehensive record documentation including 'as fitted' drawings.

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- 5.21.3 Maintenance manuals will contain full operating and maintenance instructions sufficient to enable the plant to be operated, maintained, dismantled, reassembled, and adjusted.
- 5.21.4 The document will include full risk assessments for the installations.
- 5.21.5 The Contractors documentation is only finally approved when Baily Garner LLP, the CDM Coordinator have given their written acceptance / approval notification.
- 5.21.6 Please note: Documentation issued for final use must also include AutoCAD Release 2008 version format record drawings and the written document loaded onto a CD Rom (all details saved in PDF / Acrobat Adobe).
- 5.21.7 The document covers will be substantial, of adequate size, distinctive and of sufficient strength to protect the contents for the life of the installation. The binding will give a permanent anchorage along the left-hand side whilst allowing the text to be flat without damage to the spine.
- 5.21.8 The front cover and where appropriate the spine, will have the name or logo type of the employer, the name of the building and details of the services included within in the manual clearly displayed in permanent lettering. Where the manual is contained in more than one volume, a volume number will be added.
- 5.21.9 The title page will identify the building, describe the services referred to in the manual and give the full name and address of the employer. It will also contain, date of completion and date of handover of the services to the employer. The issue date of the manual, with the name and address of the manual author and the author's reference number.
- 5.21.10 The preliminary pages will contain the full name, address and telephone number of Baily Garner LLP (the Contract Administrator), the Contractor and all other specialists employed by him. A description of how to use the manual with any limitations on its use will be included.
- 5.21.11 The preliminary pages will include a contents list, list of all supplementary documents and a record of amendments to the manual.

5.22 Builders Work In Connection

- 5.22.1 The mechanical contractor shall carry out builders work in connection with the above works which include but not be restricted to the following issues.

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5.22.2 Cutting through walls and surfaces to install pipework, the contractor must ensure all making good works are undertaken and adequate fire stopping is provided. All fire prevention shall be compliant with the relevant building standards and regulations.

5.22.3 The contractor shall ensure the new units specified are adequately fixed to surfaces safely and as per manufacturer's recommendations.

5.22.4 The mechanical contractor shall carry out all builders work in connection with these above works which shall include but not be restricted to the following items:

- Cutting and removing existing redundant installations where it passes through walls and floors, filling all gaps left by their removal and making good, and re-decorating locally, afterwards to match existing finishes.
- Diamond drilling walls, floors, and ceilings for new pipework systems to pass through which should be large enough to accept pipe sleeves as well.
- Fixing, taking down and re-fixing mechanical installation to suit phasing programme.

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**Section 5: Schedule of Works – Mechanical
Installations – English Block**

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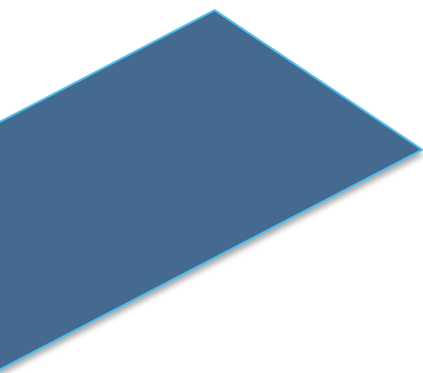
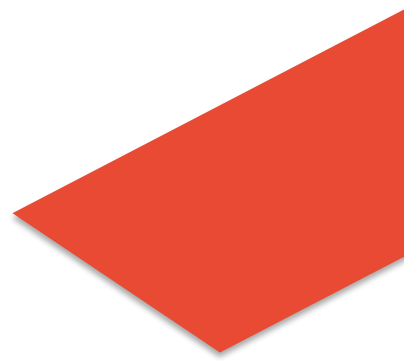
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SECTION 6



Wallington County Grammar School (WGS) - English Block LCSF Refurbishment Works

Section 6 – Schedule of Works: Electrical Supplies to Mechanical Plant.

6.1 Introduction

The following Electrical works form part of the contractor's design portion.

The Contractor shall note that the existing electrical incoming point shall be upgraded to 40kVA by UK Power Networks.

In order to install the 3No ASHP, it will be necessary to –

- Progress the application with UK Power Networks to install a new upgraded supply to cater for the new ASHP units.
- 6.1.1 • Provide power to the ASHP units in the form of 3No separate TP&N Supplies.
- Install 3No New 25A 3 Phase Switch Disconnectors for the new ASHP.
- Install 25No new units to serve the new fan convectors units throughout the English Block.
- Provide a new 13 Amps fused connection unit and protective devices to feed the new circulating heating pump set.

- 6.1.2 It is recommended that the Contractor visits site during the tender period to familiarise themselves with the site and Electrical works.

6.2 Scope of Works

- 6.2.1 The works shall include but not be limited to the following. The Contractor (referring to the Electrical Contractor) See Clause 6.6.2 will be responsible for the procurement, delivery, off-loading, installation, testing & commissioning and setting to work of the systems and equipment detailed below: -

- Install external wall insulation and loft insulation.
- Upgrade existing electrical supply.
- Power serving all the new Mechanical systems. Final connections to the Mechanical plant shall be carried out by the Mechanical contractor.
- Earthing and bonding of electrical and mechanical systems.

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- The testing, commissioning, and setting to work of the completed systems.

6.2.2 For full details of the services to be installed, please refer to the remainder of this particular specification section, the Main Specification document and the drawings produced by Baily Garner LLP.

6.3 Compliance with Regulations and Standards

6.3.1 The installation of the various services is to be in accordance with the requirements and recommendations of all current British and European Standards and Codes of Practice, but in particular the following:

- The Health and Safety at Work etc. Act 1974 and all associated regulations and requirements of the Health and Safety Executive.
- The Building Regulations.
- The Clean Air Act 1956.
- EC Directives and associated Codes of Practices.
- Local Authority and other Byelaws applicable to the site area.
- Electricity at Work Regulations 1989.
- 18th Edition of the IET Wiring Regulations BS7671:2018
- The COSHH Regulations 2002.
- Water Supply (Water Fittings) Regulations 1999.
- The Control of Noise at Work Regulations 2005.
- The Fire Precautions Act 1971.
- The CDM Regulations 2015
- CIBSE Guidelines.
- Environment Agency Pollution Prevention Guidelines.
- National Joint Utilities Group - Guidelines on the positioning and colour coding of utilities' apparatus - 2013.

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6.3.2 Copies of all Certificates and approval documents shall be passed to the Contract Administrator as they are obtained, but not later than at practical completion. Copies shall be included within the record documentation.

6.3.3 All materials shall be new and comply with the relevant British Standards specification to which reference is made in the Code of Practice, or as referred to in this specification or the associated standard materials and workmanship specification. Please Ensure That the Electrical Materials and Workmanship Specification is up to Date.

6.3.4 All materials and installation workmanship shall be to the approval of the Contract Administrator, shall be at liberty to order the removal and replacement of any faulty materials or inferior workmanship at no extra cost.

6.3.5 The Contractor shall employ fully skilled specialist craftsmen on the works, under the control of a qualified electrical foreman.

6.3.6 All materials shall be new and care shall be exercised to ensure that materials shall be kept in that condition, proper storage facilities being used to fulfil this condition.

6.3.7 All materials or parts supplied, or work carried out, shall comply with the British Standards where available.

6.3.8 For details of materials to be used and standards of workmanship reference should be made to Baily Garner LLP Standard Electrical Services Specification of Materials and Workmanship Part E of this document. Please Ensure That the Electrical Materials and Workmanship Specification is up to Date.

6.4 Existing Installation

6.4.1 The Contractor shall allow for stripping out the existing electrical services installations as necessary within the area of works prior to any building or installation works commencing.

6.4.2 The Contractor shall allow for stripping out the services back to the existing distribution boards or local distribution point as necessary.

6.4.3 The Contractor shall be responsible for ensuring that all the existing lighting, power, data/voice, fire alarm and security services, and equipment are maintained and not damaged during the course of the installation.

6.4.4 The Contractor shall replace any damaged existing lighting, power, data/voice, fire alarm and security services and equipment, as a result of the new installation.

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6.4.5 The Contractor shall organise and liaise with the School and Contracts Administrator prior to the shutting down of any existing electrical, fire alarm or security services. Shut down shall not last longer than 6 hours.

6.5 Sub Main & Distribution Equipment

6.5.1 The Sub-Main distribution board shall be lockable without need for modification or additional equipment. The Sub-Main distribution board shall be provided to permit 25% spare ways. All outgoing ways shall be fitted with MCB's/RCBO's.

6.5.2 The Sub-Main distribution board shall be provided with an updated circuit chart which shall include details of incoming and outgoing cable sizes, protective device ratings and type, final circuit descriptions etc.

6.5.3 The Sub-Main distribution boards shall be fitted with a label detailing inspection and test date and recommended date for the next inspection.

6.5.4 The Contractor shall organise and liaise with the School and Contract Administrator prior to shutdown of the power currently supplying the existing sub main distribution boards. Contract Administrator to advise of notice period required. Shut down shall not last longer than 6 hours.

6.6 Mechanical Small Power Installations

6.6.1 The Contractor shall supply, install and test the power installation for the ASHP units in accordance with the current British Standards BS7671:2018 and as indicated on tender drawings.

6.6.2 The Contractor See Clause 6.2.1 shall be responsible for providing all power provision only to isolating switches, control panels. Final connections from the isolation switches and control panels serving mechanical plant equipment shall be the responsibility of the mechanical contractor.

6.6.3 All control/interconnecting wiring serving mechanical plant shall be provided by the Mechanical Services Contractor.

6.6.4 Where possible the final connection to items of control equipment shall be by galvanised conduits, where this is not practical, flexible conduit shall be used. The length of flexible conduit used for final connection shall not be longer than 400 mm.

6.6.5 Where the item of control equipment is too small or is unsuitable for the connection by conduit, multi core heat resisting PVC flexible cable with a cross sectional area of conductor of 0.5 mm shall be used.

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6.6.6 Where flexible conduit is utilised, it shall contain a separate earth wire between the motor or control equipment terminal box and the adaptable box, isolator, trunking or conduit box, from which the flexible conduit emanates.

6.7 Earthing & Bonding

The new earthing installation shall be ~~carried out~~ in accordance with the current edition of the IET wiring Regulations BS7671:2018 incorporating current Amendments.

6.7.1 Should the contractor identify any issues with the existing earthing installation he shall notify the Contract Administrator and detail the rectification works required supported by a cost to carry the rectification works.

6.8 Testing & Commissioning

6.8.1 The Contractor shall inspect, test and commission the electrical installation and systems prior to practical completion, including the following:

- a) Associated with the new Air Source Heat Pump installation.
- b) New Earthing system.

6.8.2 Each system shall be tested by the Contractor in accordance with of BS 7671: 2018 incorporating current Amendments (18th Edition of IET Regulation/ Guidance Notes) and/ or the relevant British Standards for that particular system.

6.8.3 The emergency lighting installation should be tested and commissioned in accordance with the requirements of BS5266:2016 and supply and issue a logbook.

6.9 Builders Work Inconnection Works

6.9.1 The Contractor shall undertake all Builders' Work and making good in connection with the works as detailed within the specification. This shall include: -

1. Drilling of holes up to 50mm in diameter through block work, larger holes must be agreed prior to drilling with the Structural Engineer/Engineer.
2. Any damaged or broken ceiling tiles caused by the contractor shall be the contractor responsibility to replace the ceiling tiles at his own expense.
3. Chasing out walls for cable drops to power outlets and light switches etc.

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4. Where chasing has occurred in wall and making good has been carried out the whole wall shall be redecorated to a colour to be confirmed by the contract administrator.

6.10 Testing and Commissioning

6.10.1 Upon completion of all tests and commissioning, two copies of detailed Certificates will be submitted to show that the equipment, materials, installations etc., have been tested and commissioned as detailed above.

6.10.2 One copy of each, duly completed and signed, will be submitted to the Contract Administrator within 14 days of the results being obtained. The second copy of the Certificates will be retained to be included with Operating and Maintenance manuals.

6.11 Operating and Maintenance Manuals / Record Drawings

6.11.1 The Contractor will provide comprehensive record documentation including 'as fitted' drawings.

6.11.2 Maintenance manuals will contain full operating and maintenance instructions sufficient to enable the plant to be operated, maintained, dismantled, reassembled and adjusted.

6.11.3 The document will include full risk assessments for the installations.

6.11.4 The Contractors documentation is only finally approved when Baily Garner LLP and the CDM Coordinator have given their written acceptance / approval notification.

6.11.5 Please note: Documentation issued for final use must also include AutoCAD Release 2020 or later version format. Record drawings and the written documentation shall be digitally transmitted or issued to the client if the client has their own cloud based system. (all details/information shall be saved in DWG / PDF / Acrobat Adobe).

6.11.6 The document covers will be substantial, of adequate size, distinctive and of sufficient strength to protect the contents for the life of the installation. The binding will give a permanent anchorage along the left-hand side whilst allowing the text to be flat without damage to the spine.

6.11.7 The front cover and where appropriate the spine, will have the name or logo type of the employer, the name of the building and details of the services included within in the manual clearly displayed in permanent lettering. Where the manual is contained in more than one volume, a volume number will be added.

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6.11.8 The title page will identify the building, describe the services referred to in the manual and give the full name and address of the employer / client. It will also contain, date of completion and date of handover of the services to the employer client. The issue date of the manual, with the name and address of the manual author and the author's reference number.

6.11.9 The preliminary pages will contain the full name, address and telephone number of Baily Garner LLP (the Contract Administrator), the Contractor and all other specialists employed by him. A description of how to use the manual with any limitations on its use will be included.

6.11.10 The preliminary pages will include a contents list, list of all supplementary documents and a record of amendments to the manual.

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Section 1	Index
Section 2	Description of design intent (incl. full system descriptions)
Section 3	Description of the operation routine. The description will include full and specific instruction for start-up, operation and shut down of each system, procedures for emergency shut down, means of making safe potentially dangerous plant / equipment, precautions necessary to overcome known hazards when operating each system, bringing into operation standby equipment, instructions on fault finding and emergency in case of plant malfunction or equipment failure, control sequences for all systems installed. Health & Safety matters identified in the Health & Safety plan and relevant to the operation, maintenance and replacement of the installation will be described with precautions envisaged as necessary.
Section 4	Planned maintenance instructions. These will detail the methods and procedures appropriate to the maintenance tasks. Instructions will include dismantling and re-assembly, replacements, adjustment, calibration and testing, reference to parts, identification lists, special tools, test equipment and auxiliary services, hazards which may arise and precautions to be taken, fault finding routines.
Section 5	Maintenance Schedules. These will detail recommendations for the nature and frequency of inspections, examinations, tests and maintenance to keep the equipment in a safe and efficient working order. Guidance will be given on the nature of deterioration and defects to be looked for. Activities will be listed for daily, weekly, monthly, quarterly, annual and bi-annual routines.

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Section 6	Dismantling. Description of the methods and processes to be used including details of the safe disposal of the contents. Description of the methods envisaged for dismantling of systems to comply with Health and Safety requirements including schedules of hazardous substances and methods of disposal.
Section 7	Equipment Schedules and Parts Lists. Schedules will detail the design and actual operating conditions and detail replaceable assemblies. Sufficient information will be provided to identify each item, together with the source of supply, ratings, dimensions and appropriate standards. Equipment schedules will include the name and address of the manufacturer, reference number, name and address of supplier, order number and date of purchase. A separate parts list will be provided for each item detailed in the equipment schedule.
Section 8	<p>Emergency Measures. This will include details of the actions to be taken should a situation arise i.e., fire, gas leak, power failure, flooding, water leaks etc. The section will include telephone numbers of the Contractor's emergency staff and contact names, addresses and telephone numbers of all manufacturers.</p> <p>Details of the local statutory authority emergency contact names and telephone numbers should also be included.</p>
Section 9	Copies of test certificates and commissioning data for each service and item of plant and equipment. They will be final copies of the data produced as required by the inspection, Testing and Commissioning section of this specification. Where such data is not available for inclusion in the draft copy of the manual required by this clause, the draft will be forwarded without them. Inability to include these items will not be accepted as a reason for non-production of the remainder of the draft manual.

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	<p>At handover stage the Contractor will demonstrate the systems to selected end user representatives. The demonstration attendees' names will be recorded on a Contractor's 'Record of Training Certificate', which will be included within the O&M document.</p>
<p>Section 10</p>	<p>A set of Record Drawings.</p> <p>Record drawings will be submitted on a minimum of A1 size paper to a scale of 1:100 minimum, if clearly legible at that scale, alternatively scale 1:50 should be utilised. Plantroom areas will be detailed at scale 1:20 minimum.</p> <p>Record drawings will show the work as completed and will record the following: -</p> <ul style="list-style-type: none"> (i) The location, including levels if buried, of public service connections provided within the contract, whether installed as part of the contract or the appropriate authority, together with the points or origin and termination, size and materials of service. (ii) The layout, location and extent of all services showing sizes. (iii) Location, identification of all pipework/cable services and details. (iv) Fully indicate with accurate dimensions, the sizes and positions of all plant / equipment. Each service will be fully identified. (v) The location and identity of each room including spaces housing plant, machinery or apparatus. (vi) Sections, elevations, isometrics and schematics of the plant and ceiling void spaces. (vii) Pipework services valve charts and gas line diagrams.

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	<p>(viii) Control and wiring diagrams incorporating details of each instrument and equipment item with a written description of the sequence of operation of each system. Diagrams will include full details of internal panel wiring and connections to field mounted items.</p> <p>(ix) The comprehensive symbol key utilised for all record drawings will be indicated on a separate drawing. The symbols utilised for individual record drawings will be identified on the individual drawing to which they relate.</p>
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6.11.11 The record drawings, as described, will be CAD drafted in black ink onto best quality plot paper of the international A1 series sizes. All font will be in black ink with all titles, headings etc., not less than 5mm in height. All other lettering will be similarly detailed.

6.11.12 Each record drawing will indicate the name of the contract and where appropriate, the zone or floor designation. They will include a description of the drawing, drawing number and scale. The name and address of the Contractor and the Consulting Engineer will also be included.

6.11.13 Each drawing will include the words 'Record Drawing' in 18mm high upper-case font in the bottom right-hand corner adjacent to the title block.

6.11.14 It should be noted that a draft copy of the above documentation must be submitted to Baily Garner for approval, as a prerequisite to the issue of Practical Completion Certificates.

6.11.15 The production of Operating and Maintenance Manuals/Record Drawings is an essential part of the works, forming part of the on-site 'Health and Safety File'. The contract works are considered incomplete Until The Contract Administrator; Principle Designer/ Client have accepted copies of manuals and drawings as complete.

6.11.16 The industry generally experiences problems obtaining this documentation; therefore, a retention figure may be retained until fully approved documentation is received.

6.11.17 It should be noted that The Contract Administrator maximum allowance for the documentation reviews is 10 Working Days.

6.11.18 The Contractor must ensure that they are satisfied that any information submitted by them for review is of acceptable quality, wholly accurate and complete. If the documentation is not suitably complete, it should not be issued for review.

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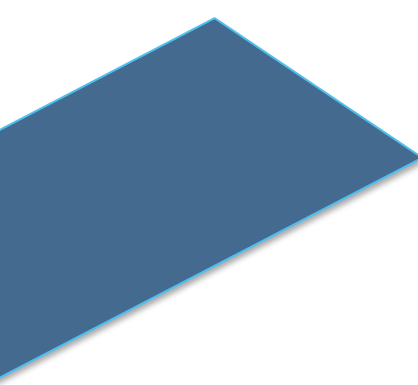
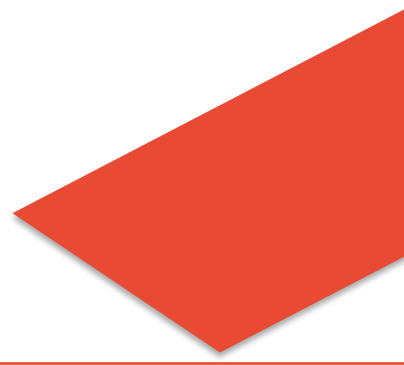
- 6.11.19 It will generally be possible for the Contractors first submission to be relatively complete, with only commissioning and testing data acknowledged as being the likely items to be outstanding at this stage.
- 6.11.20 The information will be reviewed at this first stage against these requirements and those detailed earlier
- 6.11.21 Following the first review the draft documentation will be returned to the Contractor involved with a covering letter detailing the amendments required.
- 6.11.22 The Contractor will be expected to carry out any necessary amendments and re-submit, what should be at this second stage, a Manual and Record Drawings worthy of final approval.
- 6.11.23 It should be noted that if additional reviews are required, the related costs might be contra-charged by the Client against the Contractors final account.
- 6.11.24 When utilising Baily Garner electronic drawings, the following conditions should be noted: -
- 6.11.25 The Contractor will be solely responsible for the modification of the information to provide the 'Record' / 'As Installed' drawings, as required by this specification.
- 6.11.26 The modified drawings will accurately reflect the equipment and installations provided by the Contractor, as if the drawings had been drawn without the benefit of the electronic data. They will also take account of the most recent architectural and structural information.
- 6.11.27 'As Installed' drawings prepared from data provided by Baily Garner will be issued with the installers / Contractor's title block replacing Baily Garner's.
- 6.11.28 Particular attention is drawn to the following conditions clause, which applies to the use of any electronic information provided by Baily Garner:

**Wallington County Grammar School (WGS) -
English Block LCSF Refurbishment Works**

- i) The charge for supplying data for this project is to be agreed with the Services Consultant and will be received prior to release of the data.
- ii) It is an express condition of the contract under which data is supplied that the Contractor is responsible for verifying its correctness and completeness.
- iii) Baily Garner accepts no liability or responsibility whatsoever for any loss or damaged suffered by the recipient, arising out of or in connection with the use or misuse of this data.
- iv) While all reasonable steps have been taken to ensure that the transfer medium and its contents are free from computer viruses, Baily Garner will not be held responsible for any damage or loss that might arise from their presence.
- v) The copyright of the original drawings, of which the data is an electronic copy, belongs to Baily Garner. The drawings and data have not been prepared for use by the Contractor and may not fully reflect his needs.
- vi) Measurements taken from information which is not dimensioned on the electronic copy are at the Contractor's own risk.

**To Collection
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MAIN SUMMARY



35087 – Wallington County Grammer School

English Block

Main Summary

- From Section 1: Preliminaries
- From Section 2: Materials and Workmanship
- From Section 3: General Conditions
- From Section 4: Building Fabric Improvements
- From Section 5: Mechanical
- From Section 6: Electrical

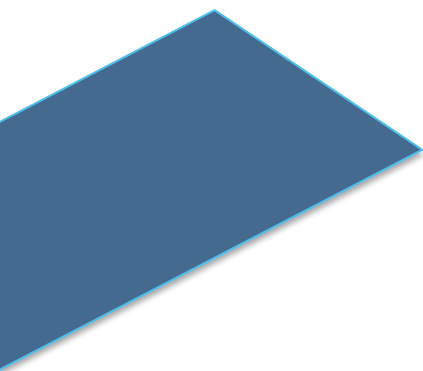
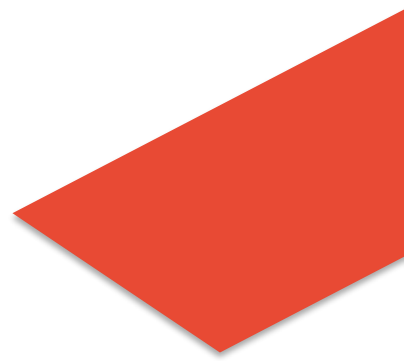
Signed: [Redacted Signature]

For & on behalf of: [Redacted Name]

Date: [Redacted Date]

Total Main Summary

APPENDIX A





**BAILY
GARNER**

Designer's Risk Assessment

For

Heat Decarbonisation Works
Wallington County Grammar School - Canteen and English Block
Croydon Road,
Wallington
SM6 7PH

Prepared on behalf of

FOLIO Education Trust
30 Melville Ave,
South Croydon
CR2 7HY

Job Ref: 35087
Date: 24 August 2023
Rev: -

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Purpose of Issue

Rev	Issue Date	Reason For Issue
-	Aug-23	Tender Issue

Prepared By: *Sam French BSc Hons*

Authorised for Issue:

Designer's Risk Assessment



Designer: Sam French BSc Hons	Job No.: 35087	Rev: -	Rev Date: -
Project: Heat Decarbonisation Works	Date: 24 August 2023	Principal Designer: Baily Garner LLP	

Ref No	Activity / Element	Potential Hazard	Population at Risk	Risk Rating			Action at Design Stage	Control Options	Residual Risk		
				L	S	R			L	S	R
1.0 Working At Height											
1.1	Working at height for high level repairs and external works	Falls from height. Materials and tools falling from height	Operatives, Staff, Visitors, Students	2	3	6	Use ladders, scaffold towers, hoist, and other forms of high level access. Feasibility of lifting and manoeuvring heavy materials/ equipment.	Site induction and familiarisation. Use of approved equipment only. Engage competent operatives. Appropriate signage. Developed logistics plan (CPHSP) for moving and installing heavy materials/ equipment.	1	2	2
1.2	Roof access strategy	Falls from height. Materials and tools falling from height	Operatives, Staff, Visitors, Students	2	3	6	Consider edge protection for maintenance/ cleaning of gutters and upkeep of proposed PV panels and MEP plant including safer positioning. Safe access to roof to be considered and worked into O&M strategy and Retrofit Design.	Site induction and familiarisation. Use of approved equipment only. Engage competent operatives. Appropriate signage. Developed logistics plan (CPHSP) for moving and installing heavy materials/ equipment including considerations to maintenance.	1	2	2
1.3	Plant room access strategy	Falls from height. Materials and tools falling from height	Operatives, Staff, Visitors, Students	2	3	6	Consider access for works and maintenance to MEP plant and equipment including safer positioning. Safe access for installation/ strip out be considered and worked into O&M strategy and Retrofit Design.	Site induction and familiarisation. Use of approved equipment only. Engage competent operatives. Appropriate signage. Developed logistics plan (CPHSP) for moving and installing heavy materials/ equipment including considerations to maintenance.	1	2	2
2.0 Slips, Trips and Falls											
2.1	All work activities	Slipping, tripping and falling	Operatives, Staff, Visitors	2	2	4	Ensure all floor and pathway finishes are level and allow to use appropriate	Site induction and walk around existing works areas to identify any steps and identify any slippery surfaces. Tool box talks. Improve lighting and signage around areas that pose the highest risk. Install barricades and fencing to the worst affected areas posing an immediate risk.	1	1	1
2.2	Containment of working areas	People accessing the works	Operatives, Staff, Visitors, Students	2	3	6	Ensure site enclosures are adequate to prevent access by the public and students and to contain operational works and arisings.		1	2	2
3.0 Collision / Entrapment / Collapse											
3.1	Vehicle and people collisions	Injury to persons or damage of property	Operatives, Staff, Visitors	2	3	6	Clearly identify vehicle permitted areas, ensure vehicle roads and pathways are highlighted.	Site induction and walk around existing works areas to identify any crossover or danger points. Warning signage, logistics/ CPHSP plan, and appropriate PPE.	1	2	2
3.2	Site works with various trades	Work trades working simultaneously	Operatives	2	1	2	Ensure the programme of work and construction phase plan is regularly updated and that the critical path takes into consideration interaction of trades.	Site induction and walk around, toolbox talks. Method statements and risk assessments to be regularly updated. Correct PPE.	1	1	1
3.3	Demolition and dismantling	Injury to persons and damage to property	Operatives, Staff, Visitors	1	3	6	Adequate method statements in place prior to working activity being undertaken. Logically programming work to prevent health and safety hazards.	Site induction and walk around, toolbox talks. Method statements and risk assessments to be regularly updated. Correct PPE.	1	2	2
4.0 Manual and Mechanical Handling											
4.1	Lifting objects and materials	Injury to persons and damage to property	Operatives	2	2	4	Allow to use mechanical equipment instead of manual labour. Consider site access restrictions in terms of moving around materials/ equipment.	Site induction. Tool box talk and provision of PPE. Ensure the amount of trips and deliveries are minimised. Engage competent operatives with the right qualifications. Well developed Construction Phase and Logistics Plan.	1	1	1
4.2	Maintenance access	Injury to persons and damage to property	Operatives, Staff, Visitors, Students	2	2	4	Allow to use mechanical equipment instead of manual labour. Consider site access restrictions in terms of maintaining proposed materials/ equipment.	Site induction and familiarisation. Use of approved equipment only. Engage competent operatives. Appropriate signage. Developed logistics plan (CPHSP) for moving and installing heavy materials/ equipment including considerations to maintenance.	1	1	1
5.0 Confined Spaces											
5.1	Working within confined spaces or dark areas	Injury to persons, and entrapment	Operatives	2	2	4	Allow for adequate lighting and inform supervisor of location of works. Particularly to plant rooms, communal spaces, internal areas.	Site induction. Tool box talk and provision of PPE. Ensure the amount of trips and deliveries are minimised. Engage competent operatives with the right qualifications. Permits to work.	1	1	1
6.0 Fire											
6.1	Alterations to existing services during refurbishment works	Working with and near services	Operatives, Staff, Visitors, Students	2	2	4	Ensure all services are fully disconnected prior to work activity. Ensure adequate signage is provided and all operatives are aware of the intended works.	Site induction and Toolbox Talks. Allow for adequate planning and programming for operatives to work on/ adjust mechanical/ electrical systems. Only use tested and approved equipment by competent operatives.	1	2	2
6.2	Stored materials fire risk	Injury to persons, and entrapment	Operatives, Staff, Visitors, Students	2	2	4	Ensure materials carefully, securely and safely loaded out and transported and stored within limits of height and loading, protected from direct sunlight and fuel sources.	Site induction and Toolbox Talks. RAMS. Allow for adequate planning and programming for operatives to understand stored areas and protocol.	1	2	2
6.3	Works impact on fire escape routes/ emergency fire access	Injury to persons, and entrapment	Operatives, Staff, Visitors, Students	2	3	6	Ensure existing FRA is obtained and included in pre-construction information pack. Understand any existing shortfalls and lines of communication between key stakeholders.	Site induction and Toolbox Talks. RAMS. Allow for adequate planning and programming for operatives to understand escape and action protocols and lines of communication.	1	2	2
7.0 Electrocutation											
7.1	Alteration to existing services	Working with and near services	Operatives	2	2	4	Ensure all services are fully disconnected prior to work activity. Ensure adequate signage is provided and all operatives are aware of the intended works.	Site induction and Toolbox Talks. Allow for adequate planning and programming for operatives to work on/ adjust mechanical/ electrical systems. Only use tested and approved equipment by competent operatives.	1	2	2

Designer's Risk Assessment



Designer: Sam French BSc Hons	Job No. 35087	Rev: -	Rev Date: -
Project: Heat Decarbonisation Works	Date: 24 August 2023	Principal Designer: Baily Garner LLP	

Ref No	Activity / Element	Potential Hazard	Population at Risk	Risk Rating			Action at Design Stage	Control Options	Residual Risk		
				L	S	R			L	S	R
7.2	Disconnection and reconnection of various items of electrical/mechanical equipment as work proceeds	Use of tool and plant equipment	Operatives, Staff	2	2	4	All work is to be carried out by suitably qualified operatives in accordance with IET regs 18th edition and Part P of the Building Regulations. All installations are to be completed with an Electrical Installation Certificate provided.	Method statements to be provided in relation to these tasks. Use competent and approved contractors. Only use tested and approved equipment.	1	2	2
8.0 Dust / Fumes											
8.1	General works	Dust and Fumes	Operatives, Staff, Visitors	2	2	4	Works planned to minimise impact.	Provision of PPE, Toolbox Talks and Site inductions. Dust protection, ventilation and extraction. Method statement for cutting of insulation boards (e.g. Aerogel).	1	2	2
8.2	Cutting masonry	Dust and Fumes	Operatives, Staff, Visitors	2	2	4	Works planned to minimise impact.	Provision of PPE, Toolbox Talks and Site inductions. Dust protection, ventilation and extraction.	1	2	2
8.3	Asbestos containing material (ACM)	Dust and Fumes	Operatives, Staff, Visitors, Students	2	3	6	Client to be clear on approach to ACMs to ensure compliance and safe working. Method statements and trained operatives only. All staff to be made aware of location of ACMs.	Strictly no working on or around suspected ACMs by untrained operatives. Clear approach to ACMs management to be clear from start of construction. Provision of PPE, Toolbox Talks and Site inductions. Dust protection, ventilation and extraction.	1	2	2
9.0 Noise / Vibration											
9.1	Excavation works.	Noise and vibration	Operatives, Staff	2	2	4	Works planned to minimise impact. Use of low impact machinery.	Provision of PPE, Toolbox Talks and Site inductions. Machinery only operated by competent and trained operatives.	1	2	2
9.1	Works in close proximity to occupied premises	Noise and vibration. Damage to hearing and unaware of surroundings	Operatives, Staff	2	2	4	Works planned to minimise impact. Use of low impact machinery. VIP list.	Site induction and walk around, toolbox talks. Method statements and risk assessments to be regularly updated. Correct PPE.	1	2	2
9.3	Breaking out of concrete during perimeter land drain works	Noise and vibration	Operatives, Staff	1	2	2	Works planned to minimise impact. Use of low impact machinery.	Site induction and walk around, toolbox talks. Method statements and risk assessments to be regularly updated. Correct PPE.	1	1	1
10.0 Site Location Hazards											
10.1	School Site	Works taking place on an occupied school site, risk of movement of deliveries, plant etc	Operatives, Staff, Visitors, Students	2	2	4	Access to the sites to be restricted by appropriate gates and fencing etc. with agreed protocols over delivery and access/egress to the site.	Detailed method statements confirming arrangements for movement around site. Adequate safety training and risk assessments and Toolbox Talks, etc.	1	2	2
10.2	Constrained access and egress	Works taking place on an occupied school site, risk of movement of deliveries, plant etc	Operatives, Staff, Visitors, Students	2	2	4	Consideration as to how the works will be undertaken logistically including narrow flank access and moving/ installing of heavy materials/ equipment. Appropriate barriers/fencing to be	Site Induction and Toolbox Talks. All operatives to be security cleared. Correct signage and liaison with school.	1	1	1
10.4	Compact units and narrow corridors	Works taking place on an occupied school, risk of movement of trades in and around the building etc	Operatives, Staff, Visitors, Students	3	2	6	Consideration as to how the works will be undertaken logistically including moving/ installing of heavy materials/ equipment in and around the building. Appropriate barriers to cordon off working areas including welfare facilities for the duration of the works to prevent unauthorised access.	Site Induction and Toolbox Talks. All operatives to be enhanced DBS checked. Correct signage and resident liaison.	2	1	2
11.0 Hazardous Materials											
11.1	Asbestos containing material (ACM)	ACMs within various materials	Operatives, Staff, Visitors	2	3	6	Asbestos survey information provided and known asbestos. Precautionary measures in place in case of discovery or disturbance. Only trained accredited personnel to work with asbestos, all to be made aware of presence. For opening up of windows and doors, trained personnel on hand to inspect proportion for ACM packers as per LB Camden asbestos policy.	Site Induction, PPE and Toolbox Talks. Ensure operatives have at least an awareness of asbestos. Only trained, approved operatives to work on asbestos as per CAR 2012 licensed, un-licensed, notifiable, and non-notifiable works. Adequate warning signs and notices. Emergency protocol understood by all site staff.	2	2	4
11.2	Lead paint	Lead paint to railings, window frames etc	Operatives, Staff, Visitors	2	2	4	Surveys undertaken where required. Suitable specification of works where relevant to encapsulate, provide safe working environment to avoid inhalation/ contact with harmful dust/ fumes.	Site Induction, PPE and Toolbox Talks. Ensure operatives have an awareness of asbestos. Adequate warning signs and notices.	1	2	2
12.0 Cuts and Abrasions											
12.1	Materials to be cut to size	Cuts and abrasions.	Operatives	1	2	2	Ensure design of elements are multiples of standard dimensions.	Engage competent operatives. Toolbox Talks and suitable PPE.	1	1	1
12.2	Materials arrive on site in packaging	Risk of cuts when	Operatives	1	1	1	None.	Engage competent operatives. Toolbox Talks	1	1	1
12.3	Fixing materials used on site	Use of nails, screws.	Operatives	1	1	1	None.	Engage competent operatives. Toolbox Talks	1	1	1
12.4	Cutting materials	Injury caused by manual tasks.	Operatives	1	1	1	None.	Engage competent operatives. Toolbox Talks and suitable PPE.	1	1	1

Legend	Severity		
	1 - Minor	2 - Moderate	3 - Severe
1 - Unlikely	1	2	3
2 - Fairly Likely	2	4	6
3 - Likely	3	6	9



**BAILY
GARNER**

Satvir Bhamra

35088 Wallington County Grammar School (WGS) - English Block LCSF Refurbishment Works

Designers Risk Assessment

For

Wallington County Grammar School (English Block)

Prepared on behalf of

Folio Education Trust

30 Melville Avenue
South Croydon
CR2 7HY

Injury from equipment falling and transporting

Job Ref: 35087
Date: 23 August 2023
Rev: A

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35087 Wallington County Grammer School (WGS) - English Block LCSF Refurbishment Works


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Purpose of Issue Injury from equipment falling and transporting

Rev	Issue Date	Reason For Issue
A	To Be Confirmed	Client Issue


Prepared By: Satvir Bhamra

Authorised for Issue:


Anil Chandra (041 85 202) 114 (04171)
For and on behalf of Baily Garner LLP
Oct 19, 2023

Designer's Risk Assessment			
Designer:	Satvir Bhamra	Job No.	35087
Project:	35087 Wallington County Grammar School (WGS) - English Block LCSF Refurbishment Works	Date:	23/08/2023
Principal Designer:		Rev Ref / Date:	A


Ref No	Activity / Element	Potential Hazard	Population at Risk	Risk Rating			Action at Design Stage	Control Options	Residual Risk		
				L	S	R			L	S	R
1.0	Working At Height										
1.1	Installation of high level equipment and services.	Persons, materials tools and objects falling whilst carrying out site installation work causing physical injury and damage to building and finishes.	Operatives	2	3	6	<ul style="list-style-type: none"> Statement provided in method of works Limit M&E equipment at high level Equipment can be specified at low level or at a safer height 	<ul style="list-style-type: none"> Carry out as much work as possible at ground level. Ensure that all equipment to be used for working at height is appropriate and in good condition e.g. ladders, mobile towers, mobile elevated working platforms, scaffolding etc. Ensure that the appointed contractors have the necessary skill, experience and knowledge to undertake working at height activities. Ensure that safety guards, railings barriers, ladders, mobile towers, mobile elevated working platforms, scaffolding etc. are used for working at height activities. Ensure the Contractors/Operators employ practical and safe working practices. Working at Height Regulations is enforced. Volume Control Dampers to be located as low as possible to reduce working at height requirements during commissioning. 	1	3	3
1.2	Installation of Mechanical and Electrical services e.g. Pipework, ductwork, luminaires, cable containment systems etc.	Persons, materials tools and objects falling whilst carrying out site installation work causing physical injury and damage to building and finishes.	Operatives, Staff, Visitors	3	3	9	<ul style="list-style-type: none"> Method statement to be provided. Limit high level M&E equipment. Items that can be lowered to safe height for maintenance are to be preferred during selection. Ceiling baffles under M&E plant to be fully removable to allow complete and safe access for a tower/work platform during maintenance. 	<ul style="list-style-type: none"> Carry out as much work as possible at ground level. Ensure that all equipment to be used for working at height is appropriate and in good condition e.g. ladders, mobile towers, mobile elevated working platforms, scaffolding etc. Ensure that the appointed contractors have the necessary skill, experience and knowledge to undertake working at height activities. Ensure that safety guards, railings barriers, ladders, mobile towers, mobile elevated working platforms, scaffolding etc. are used for working at height activities. Ensure the Contractors/Operators employ practical and safe working practices. Working at Height Regulations is enforced. 	1	3	3
1.3	There are no further significant risks relating to working at height associated with the M&E design outside the realms of a competent contractor.					0					0

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Project:	35087 Wallington County Grammer School (WGS) - English Block LCSF Refurbishment Works	Date:	23/08/2023
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Ref No	Activity / Element	Potential Hazard	Population at Risk	Risk Rating			Action at Design Stage	Control Options	Residual Risk		
				L	S	R			L	S	R
2.0 Slips, Trips and Falls											
2.1	External works for services, pipework, cabling, trenching etc.	Injury risk from slip, trip of falls.	Operatives	2	3	6	• Works cannot be avoided.	• Clean up at regular intervals, trained operatives to undertake works, - method statement to be provided by operatives undertaking the works.	1	3	3
2.2	Site slips, trips and falls caused by objects and materials not being safely stored/secure. To ensure working areas and routes are safe to work in and travel through. E.g. loose trailing site 110V cables are provided with protective covers and clearly visible warning identification provided.	Physical Injury	Operatives, Staff, Visitors	2	3	6	• Method statement to be provided. • Limit the design of high level to reduce falls. • Limit low level equipment / plant to reduce trips. • Place potential low level equipment on walls.	• Have a good site/housekeeping management system in place with regular inspections of the site work areas to identify any damaged floor areas or areas with water pooling/spillages etc. • PPE to be worn. • Method statement to be provided.	2	2	3
2.3	There are no further significant risks relating to slips, trips and falls associated with the M&E design outside the realms of a competent contractor.										


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				L	S	R			L	S	R
3.0 Collision / Entrapment / Collapse											
3.1	Installation of buffer tanks, ASHPs, AHUs	Injury to persons and damage to buildings	Operatives	3	3	9	• Work cannot be avoided.	<ul style="list-style-type: none"> Sectional water tanks to be specified. Trained operatives to undertake works relating to installation of AHUs and ASHPs. Sectional AHU to be installed. Method statements to be provided. 	1	3	3
3.2	Excavations may become unstable and collapse. Collapse of mobile towers, mobile elevated working platforms, scaffolding etc. Movement of site vehicles in close proximity to operatives.	Physical Injury and damage to materials and plant/ equipment.	Operatives, Staff, Visitors	3	3	9	<ul style="list-style-type: none"> Method statement to be provided. Reduce or design out any works required in trenches or pits. 	<ul style="list-style-type: none"> Ensure excavation supporting systems are in place. PPE to be worn. Working areas to be cordoned off. Designated pedestrian routes Have a good site/housekeeping management system in place with regular inspections Ensure that the appointed contractors have the necessary skill, experience and knowledge to undertake the work activities. Method statement to be provided. 	2	2	4
3.3	Use of vehicles/plant on site - Transportation over uneven ground	Physical Injury and damage to materials and plant/ equipment.	Operatives, Staff, Visitors	3	3	9	<ul style="list-style-type: none"> Method statement to be provided. Reduce or design out any works required in trenches or pits. 	<ul style="list-style-type: none"> Contractor to use fencing/signage, use suitable plant warning systems and temporary maintained roadways and suitably qualified personnel (supervision and driver, competent). Appropriate methods of working to limit hazard. Use of appropriate PPE. Know plant limits. Method statement to be provided. 	2	2	3
3.4	There are no further significant risks relating to Collision / Entrapment / Collapse associated with the M&E design outside the realms of a competent contractor.					0					0
4.0 Manual and Mechanical Handling											
4.1	Delivery & Installation of large and heavy equipment such as LV switch panels, ASHPs, AHUs, pumps, buffer tank, CW Booster Sets etc...	Injury from equipment falling and transporting	Operatives	3	3	9	<ul style="list-style-type: none"> Works cannot be avoided. Method statement to be provided. Ensure any equipment / plant design is easily manageable or can be broken down into manageable pieces. Large items to be lifted by appropriate machinery. 	<ul style="list-style-type: none"> Ensure equipment specified can be broken down in to smaller component parts and re- assembled on site. Assess the load to be lifted and decide the appropriate lifting method to be used e.g. use of lifting aid, mechanical lifting equipment etc. and ensure that a risk assessment has been carried out. Inspect the lifting equipment before use to ensure it is in good working order. Ensure the area and route where the load is to be lifted and move is free of obstructions. Consider the working environment. Ensure that there is sufficient lighting PPE to be worn. Ensure that the Manual Handling regulations are being followed and enforced. Ensure that the appointed contractors have the necessary skill, training, experience and knowledge to undertake the work activities. Method statement to be provided. Crainage and road closures. 	1	2	3
4.2	There are no further significant risks relating to Manual and Mechanical Handling associated with the M&E design outside the realms of a competent contractor.					0					0

Designer's Risk Assessment				
Designer:	Satvir Bhamra	Job No.	35087	
Project:	35087 Wallington County Grammer School (WGS) - English Block LCSF Refurbishment Works		Date:	23/08/2023
Principal Designer:			Rev Ref / Date:	A

Ref No	Activity / Element	Potential Hazard	Population at Risk	Risk Rating			Action at Design Stage	Control Options	Residual Risk		
				L	S	R			L	S	R
5.0 Confined Spaces											
5.1	Service cupboards	Difficult access and egress. Lack of ventilation.	Operatives, Staff, Visitors	2	2	6	<ul style="list-style-type: none"> Method statement to be provided. Locate equipment in spaces that are easily accessible with good ventilation 	<ul style="list-style-type: none"> Introduce permit to work for authorised personell only. Provide suitable ventilation and lighting. Ensure that all emergency escape equipment is in good working order, has been regularly maintained and is available on site e.g. rescue and resuscitation equipment. Ensure adequate supervision is provided and control measures remain valid for the duration of the works. Safe systems of work and training are provided Necessary PPE are provided. 	2	1	2
5.2	Roof Voids	Difficult access and egress. Lack of ventilation.	Operatives	2	2	4	<ul style="list-style-type: none"> Method statement to be provided. Locate equipment in spaces that are easily accessible with good ventilation 	<ul style="list-style-type: none"> Introduce permit to work for authorised personell only. Provide suitable ventilation and lighting. Ensure that all emergency escape equipment is in good working order, has been regularly maintained and is available on site e.g. rescue and resuscitation equipment. Ensure adequate supervision is provided and control measures remain valid for the duration of the works. Safe systems of work and training are provided Necessary PPE are provided. 	2	1	2
5.3	There are no further significant risks relating to Confined Spaces associated with the M&E design outside the realms of a competent contractor.					0					0
6.0 Fire											
6.1	Electrical installation, hot works related to pipework	Burns / fire risk	Operatives, Staff, Visitors, Residents	2	3	9	<ul style="list-style-type: none"> Works cannot be avoided. Press fit type fittings to be used on heating and Domestic water pipework where possible. 	<ul style="list-style-type: none"> Competent and registered electrician to undertake installation works which will be tested and commissioned in line with the recommendations of the IET wiring regulations and manufacturers guidance. Competent plumbers to undertake mechanical / plumbing works. "Hot works" permit to be issued prior to works taken place. Ensure that fire extinguishers/fire fighting equipment are provided and access at all times. All hot works to be stopped 90 minutes before end of shift. 	1	3	3
6.2	Ignition of materials and / or building fabric	Physical Injury, damage to building.	Operatives, Staff, Visitors, Residents	3	3	9	<ul style="list-style-type: none"> Method statement to be provided. Specify materials that do not require hot works for installation. 	<ul style="list-style-type: none"> PPE to be worn. Ensure that fire precautions are in place. "Hot works" permit to be issued prior to works taken place. Ensure that fire extinguishers/fire fighting equipment are provided and access at all times. Ensure that the appointed contractors have the necessary skill, training, experience and knowledge to undertake the work activities. Provide an early warning system to alert people quickly. Maintain good on site housekeeping and avoid build-up of rubbish, dust and grease. Ensure that exit and escape routes are unobstructed and clearly marked. Method statement to be provided. 	2	2	4
6.3	There are no further significant risks relating to Fire associated with the M&E design outside the realms of a competent contractor.					0					0

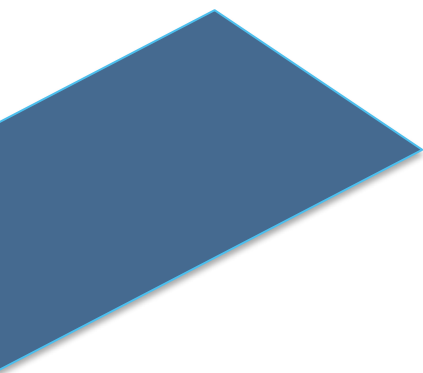
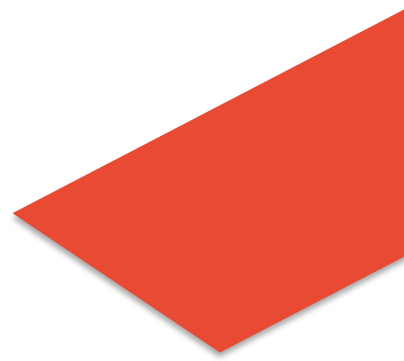
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				L	S	R			L	S	R
7.0 Electrocution											
7.1	Electrical installation. Exposure and contact to live parts.	Shock injury, Ignition and fire	Operatives	3	3	9	• Work cannot be avoided.	• Isolation of live services - operative to isolate and lock or ensures one operative remains at location where isolator(s) are located to ensure whilst works are carried out no person(s) can inadvertently re-energise. Registered and competent electrician to undertake installation works, testing and commissioning.	1	3	3
7.2	Finished electrical installation.	Shock injury	Operatives, Staff, Visitors	3	3	9	• Installation to be undertaken by competent and registered operatives.	• Overcurrent protective devices specified and installed operate within advised times. Mixture of AFDD and RCBO protective devices to be installed on small power circuits.	1	3	3
7.3	Installing / Maintaining lighting columns & lanterns.	Fall from height, Electric Shock, Injury to public / traffic Damaging underground services.	Operatives, Staff	2	3	6	• Works cannot be avoided.	•Use powered access platform or similar. •Area to be coned-off. Method Statement. •Identify services by CAT scan or similar. •Hinged columns used where no vehicle access provided. •High level light boxes and soffit lighting utilise LED lighting to lengthen maintenance intervals. •As a general rule: •1. Luminaire location <2m above 'ground' (Step ladder use) •2. Luminaire location >2m above 'ground' but less than 3m (Ladder use) •3. Luminaire location >3m above 'ground' (Cherry picker) (Platform, tower, harness)	1	3	3
7.4	Multiple Services in close proximity of each other in surrounding footpaths.	LV electrical cable / HV electrical cables. Electric shock. Gas main. Physical injury. Risk of losing liver services (site infrastructure).	Operatives, Staff, Visitors, Residents	2	3	6	• Works cannot be avoided.	•Contractor to provide Method Statement and Risk Assessments for all works within area. •Permit to work. •Liaison with local service providers. •Hand excavation at services depths to identify services. •Review record drawings •Provision of CAT Scan to identify main service routes.	1	3	3
7.5	Working with electrical control gear	Electric shock, Fire and burns. Operatives/Engineers suffering electric shock, burns or secondary injuries. Working In Vicinity Of Live Electrical Services, Including Utilities & Buried Services.	Operatives	2	3	6	• Works cannot be avoided.	•Due care and attention using appropriate equipment and restricting access to working areas. •Due care and attention using appropriate equipment and restricting access to working areas. •Provision of permit to work system. •Portable equipment must only be used when standing on a firm level base and PAT tested. •Safety in electrical installation work to be monitored by project supervision/foreman. •Isolation of live services. •Due care and attention using appropriate equipment and restricting access to working areas.	1	3	3
7.6	There are no further significant risks relating to electrocution associated with the M&E design outside the realms of a competent contractor.					0					0
8.0 Dust / Fumes											
8.1	Chasing services / provision of builders works openings.	Skin and eye injuries, Skin irritation, Inhalation of dust and fumes.	Operatives	3	2	6	• Works cannot be avoided. Method statement to be provided. • Provide builders work drawings to allow holes to be pre-cast into structure limiting the need of core drilling.	• Mask and goggles to be worn, ensure adequate ventilation is provided where possible. Large builders works to be provided by building contractor at the forming stage reducing requirement for on site core drilling. • PPE and RPE to be worn. • Ensure method statements are provided. • Ensure good ventilation • Ensure First aid kit is on site. • Details of Local Hospitals to be available.	1	2	2
8.2	There are no further significant risks relating to Dust / Fumes associated with the M&E design outside the realms of a competent contractor.					0					0

Designer's Risk Assessment			
Designer:	Satvir Bhamra	Job No.	35087
Project:	35087 Wallington County Grammer School (WGS) - English Block LCSF Refurbishment Works	Date:	23/08/2023
Principal Designer:		Rev Ref / Date:	A

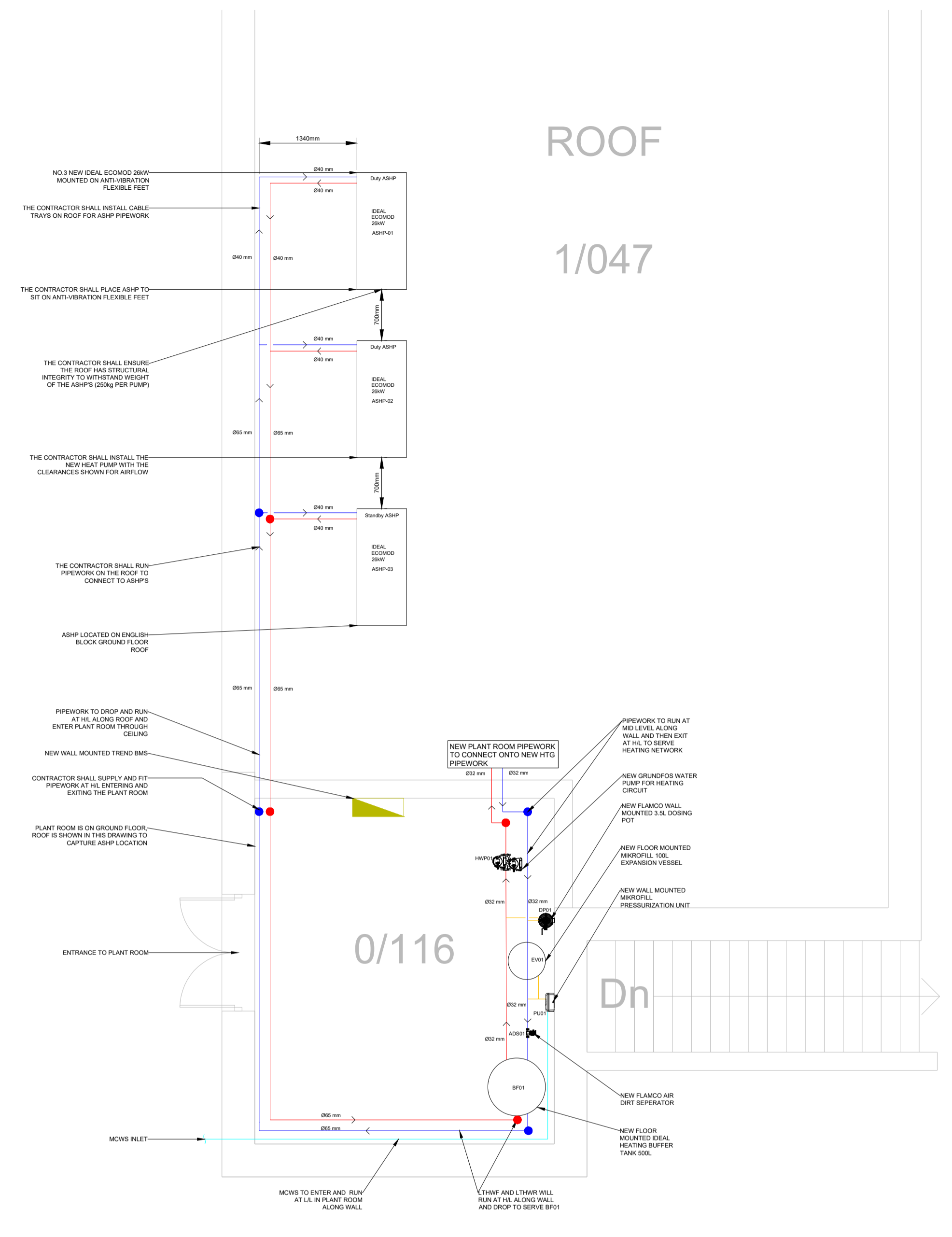
Ref No	Activity / Element	Potential Hazard	Population at Risk	Risk Rating			Action at Design Stage	Control Options	Residual Risk		
				L	S	R			L	S	R
9.0 Noise / Vibration											
9.1	General installation works	Excessive noise	Operatives, Staff, Visitors	3	2	6	• Works cannot be avoided.	<ul style="list-style-type: none"> • Provide training • Restrict hours of working in noisy/vibration environment. • Minimise the use of excessively noisy tools. • Employ screens, barriers, enclosures and or absorbent materials to attenuate/reduce noise • Appropriately provide signage to hearing protector areas in accordance with AS1319. • Wear appropriate PPE such as ear defenders. • Battery powered tools preferred to pneumatic ones. • Plan the works to minimise the exposure to excessive noise. • Take regular breaks. 	1	2	2
9.2	Vibration (Hand Arm Vib - HAV)	Hand-arm Vibration Syndrome	Operatives	3	3	9	• Works cannot be avoided.	<ul style="list-style-type: none"> • Restrict hours of working in noisy/vibration environment. • The on-site activities to be assessed and reference to be made to the Control of Vibration regulation. • Limit the time on the vibrating tools. • Ensure that the equipment is regularly maintained to avoid excessive vibration. • Take regular breaks. 	1	2	2
9.3	There are no further significant risks relating to working at noise/vibration with the M&E design outside the realms of a competent contractor.					0					0
10.0 Site Location Hazards											
10.1	Restrict site access and impose time periods for site deliveries to avoid sensitive periods.	Nuisance/disturbance and audible discomfort to local residents and areas.	Operatives, Staff, Visitors, Residents	3	2	6	• Method statement to be provided.	<ul style="list-style-type: none"> • Provide Management plan and coordinate site deliveries. • Provide suitable directional signage • Method statement to be provided. 	1	2	2
10.2	There are no further significant risks relating to Site Location Hazards associated with the M&E design outside the realms of a competent contractor.					0					0
11.0 Hazardous Materials											
11.2	Use of Refrigerant Gases in the Air Conditioning System	Inhalation of toxic gases, suffocation.	Operatives, Staff, Visitors	3	3	9	<ul style="list-style-type: none"> • Method statement to be provided. • Air Conditioning Units to be fitted with leak detectors to ensure shut down and alarm if refrigerant leak is detected 	<ul style="list-style-type: none"> • Installers must have relevant refrigerant handling qualifications. 	1	3	3
11.3	Insulation materials	Fiberglass and/or similar materials	Operatives, Staff, Visitors	2	3	6	• Works cannot be avoided.	• Site induction, Toolbox Talks, Suitable PPE, adequate signage and competent operatives.	2	1	2
11.4	Hazardous substances	Water treatment	Operatives, Staff, Visitors, Residents	3	3	9	<ul style="list-style-type: none"> • Method statement to be provided. • Chemicals used for cleaning and treating of systems to be specified to be non / reduce toxic 	<ul style="list-style-type: none"> • Hazard to be managed by use of suitable protective clothing to protect against skin contact with chemicals. • Undertake a site hazard assessment. • Hazardous Substances and Materials. To be located in a secure location with access to authorized personnel only who have the appropriate training to handle hazardous substances and materials • Ensure First aid kit is on site • Provide COSHH register. • Details of Local Hospitals to be available. • Method statement to be provided. 	2	1	2
11.5	There are no further significant risks relating to working at height associated with the M&E design outside the realms of a competent contractor.					0					0
12.0 Cuts and Abrasions											
12.1	Stripping cabling, containment / conduit / pipework cutting.	Cuts and injury	Operatives	3	3	9	• Works cannot be avoided.	<ul style="list-style-type: none"> • Trained and competent operatives to undertake works. • PPE to be worn at all times. • Ensure First aid kit is on site. • Details of Local Hospitals to be available. • Method statement to be provided. 	1	3	3
12.2	There are no significant risks relating to cuts and abrasions associated with the design outside the realms of a competent contractor.					0					0

Legend	Severity		
	1 - Minor	2 - Moderate	3 - Severe
1 - Unlikely	1	2	3
2 - Fairly Likely	2	4	6
3 - Likely	3	6	9

APPENDIX B



The contractor is responsible to ensure that no products are to be utilised that do not comply with relevant British and/or European Standards and/or Codes of Practice, COSHH Regulations, Construction Regulations, or which are known or suspected at the time of product selection and/or construction to be deleterious to health and safety or to the durability of the work or not in accordance with good building practices.
The contractor is responsible for checking dimensions, tolerances, levels and references. This drawing is to be read in conjunction with all relevant Other Project Team Members' or specialist drawings/modularity Federated Notes. Any discrepancy is to be notified to Baily Garner LLP and is to be rectified before proceeding with the works on site or shop drawings. Where an item is covered by drawings to different scales, the larger scale drawing is to be worked to.
Any rights (including copyright) in this drawing and any proprietary work contained therein belong to Baily Garner LLP and may only be used in accordance with the license granted to the Employer and with attribution to Baily Garner LLP.
This drawing is to be read in conjunction with Document Suitability Codes page or at www.bailygarner.co.uk/disclaimer



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NOTES:

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SCHEMATIC DRAWING, 35087-BGL-M3-00-DR-M-0001 WHICH DETAILS PIPE SIZING AND VALVE ARRANGEMENTS.
- ALL HEATING WORK SHALL BE MEDIUM GRADE STEEL, AND HOT WATER PIPE WORK SHALL BE COPPER UNLESS OTHERWISE STATED. (CONTRACTOR SHALL CONFIRM THE MATERIAL OF THE EXISTING SYSTEM).
- THE CONTRACTOR SHALL ALLOW FOR TEST POINTS WITHIN THE HEATING SYSTEM INSTALLED WITHIN THE PLANT ROOM.
- ALL PIPE WORK AND EQUIPMENT LOCATIONS AND ROUTING IS TO BE AGREED ON SITE.
- ALL EQUIPMENT SHALL BE AGREED BY BAILY GARNER LLP PRIOR TO PROCUREMENT AND INSTALLATION.
- ALL ROUTES AND DESIGNS SHOWN ARE BASED UPON INFORMATION OBTAINED DURING AN NON INTRUSIVE SURVEY. SOME ASSUMPTIONS HAVE BEEN MADE THEREFORE PRIOR TO WORKS CONTRACTORS ARE TO CONDUCT AN IN DEPTH SURVEY AND RAISE ANY QUERIES WITH BAILY GARNER LLP WITHIN NO LESS THAN 3 WEEKS OF WORKS COMMENCING.
- FOR FURTHER DETAIL EQUIPMENT INFORMATION PLEASE REFER TO THE SPECIFICATION OF WORKS AND EQUIPMENT SCHEDULES DRAWING PRODUCED BY BAILY GARNER LLP.
- ALL PIPE WORK SHALL BE INSULATED AS PER THE SPECIFICATION PRODUCED BY BAILY GARNER LLP.
- LOCATION FOR FINAL CONNECTION ON TO SECONDARY CIRCUITS TO BE CONFIRMED ON SITE BY A BAILY GARNER LLP ENGINEER.
- ALL PIPE WORK, VALVES, EQUIPMENT AND FITTINGS SHALL BE PROVIDED WITH IDENTIFICATION TAGS. THE CONTRACTOR SHALL PROVIDE A DETAILED VALVE CHART WITHIN THE PLANT ROOM.
- ALL EXISTING FLOW RATES MUST BE ANALYZED BY THE CONTRACTOR.
- ALL PIPEWORK IS TO BE MOUNTED CLOSE TO/OR ON WALL ALONG WITH PUMP SETS. CONTRACTOR SHALL ALLOW FOR SUFFICIENT PIPE LENGTH FOR VALVES, STRAINERS AND FITTINGS BETWEEN EQUIPMENT.

- LOW TEMPERATURE HOT WATER FLOW
- LOW TEMPERATURE HOT WATER RETURN
- MCWS

EQUIPMENT SCHEDULE			
PRODUCT	MODEL	MANUFACTURER	DESCRIPTION
BF01	ECOMOD HP 500 L	IDEAL HEATING	IDEAL HEATING BUFFER TANK 500 L
PU01	MIKROFILL 3	MIKROFILL	MIKROFILL PRESSURIZATION UNIT, 3 A
EV01	EVZ290080	MIKROFILL	80 L EXPANSION VESSEL
DP01	17701	FLAMCO	3.5 L FLAMCO DOSING POT
HWP01	98333840	GRUNDFOS	MAGNA 3D 32-40 F, 0.61 A
ADS01	30044	FLAMCO	FLAMCOVENT CLEAN SMART 1 1/2
ASHP01	ECOMOD 26kW	IDEAL HEATING	26kW AIR SOURCE HEAT PUMP, 415 V-3 PH-23.3 A
ASHP02	ECOMOD 26kW	IDEAL HEATING	26kW AIR SOURCE HEAT PUMP, 415 V-3 PH-23.3 A
ASHP03	ECOMOD 26kW	IDEAL HEATING	26kW AIR SOURCE HEAT PUMP, 415 V-3 PH-23.3 A

P01

SB BC

22/08/23

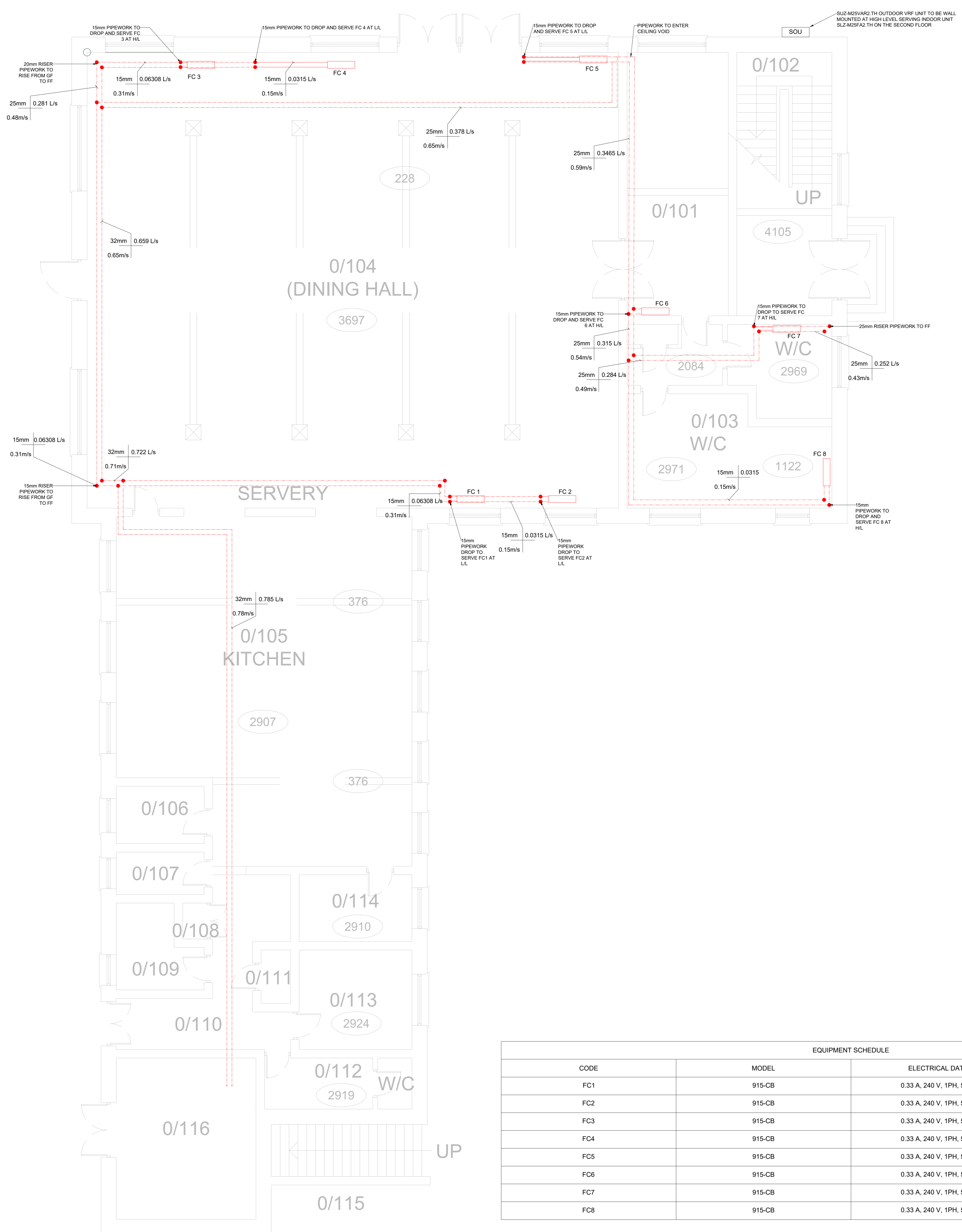
REVISION

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DATE

CLIENT NAME FOLIO EDUCATION TRUST		PROJECT WALLINGTON COUNTY SCHOOL ENGLISH BLOCK	
PROJECT ADDRESS CROYDON RD, WALLINGTON SM6 7PH		TITLE PROPOSED PLANT ROOM LAYOUT	
SCALE 1:50		DRWN SB	DATE 22/08/2023
NO	REV	DATE	BY
35087	BGL	M3	00
DR	M	0100	P 01

55 CHARLOTTE STREET
BIRMINGHAM B3 1PX
t 0121 236 2236
e. birmingham@bailygarner.co.uk



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- - - - - PIPEWORK WITHIN CEILING VOID
- PIPEWORK HIGH LEVEL BELOW CEILING
- PIPEWORK AT LOW LEVEL

EQUIPMENT SCHEDULE			
CODE	MODEL	ELECTRICAL DATA	MANUFACTURE
FC1	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC2	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC3	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC4	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC5	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC6	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC7	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC8	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR

Size	Flow Rate
mm	L/s
Velocity	
m/s	

Ground Floor Plan

Proposed Ground Floor Heating Layout

Wallington County Grammer School - English Block

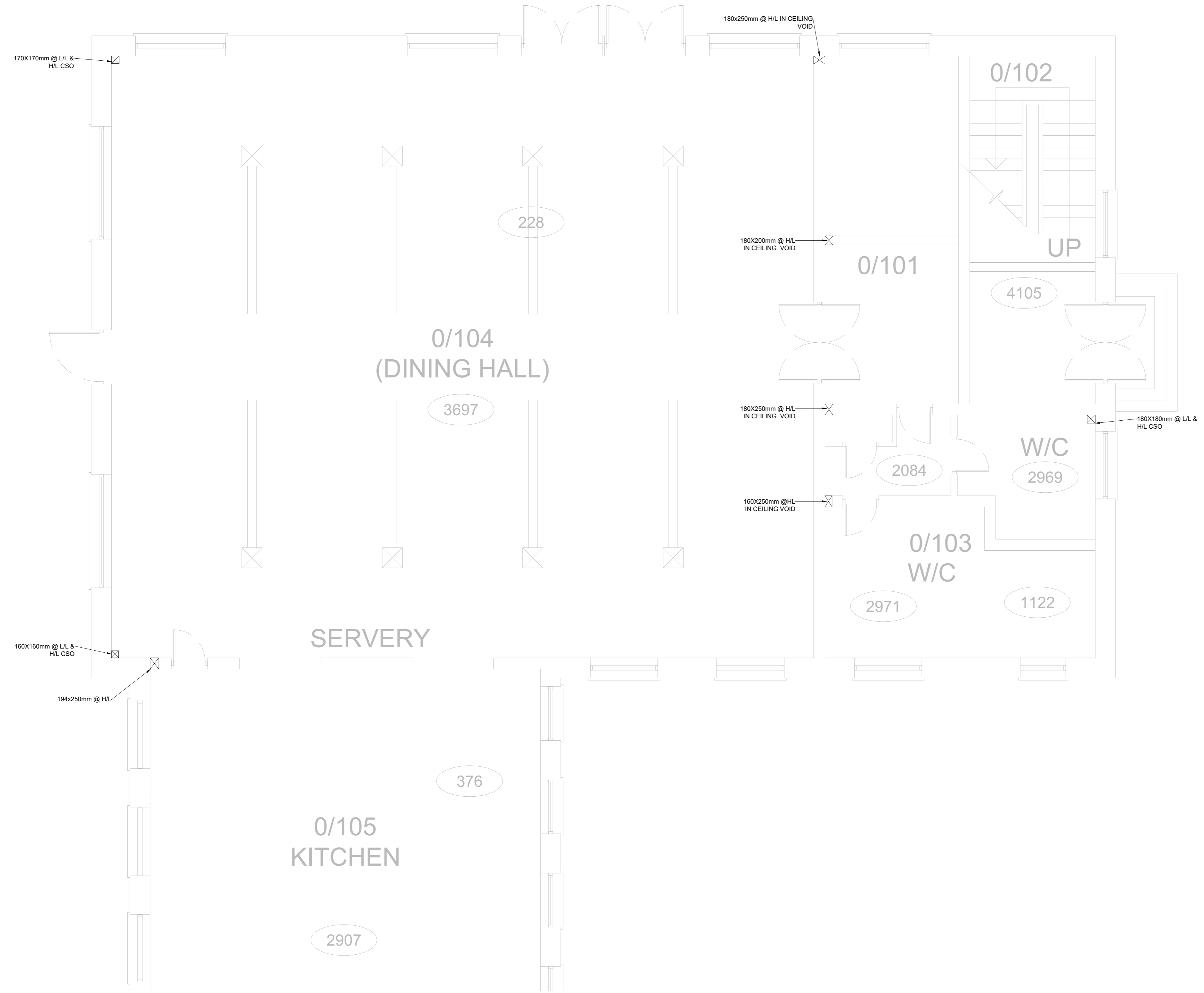
P01	SB	BC	22/08/23
REVISION	D	C	DATE

CLIENT NAME Folio Education Trust	PROJECT Wallington County Grammar School - English Block	
PROJECT ADDRESS Croydon Rd Wallington SM6 7PH	TITLE Proposed Ground Floor Heating Layout Sheet 1	
SCALE 1:50		SHEET NO. 0200
REF NO. 35087	DATE BGL M3 00	DATE DR M 0200

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CSO CEILING SLAB OPENING
 FSO FLOOR SLAB OPENING
 H/L HIGH LEVEL
 L/L LOW LEVEL



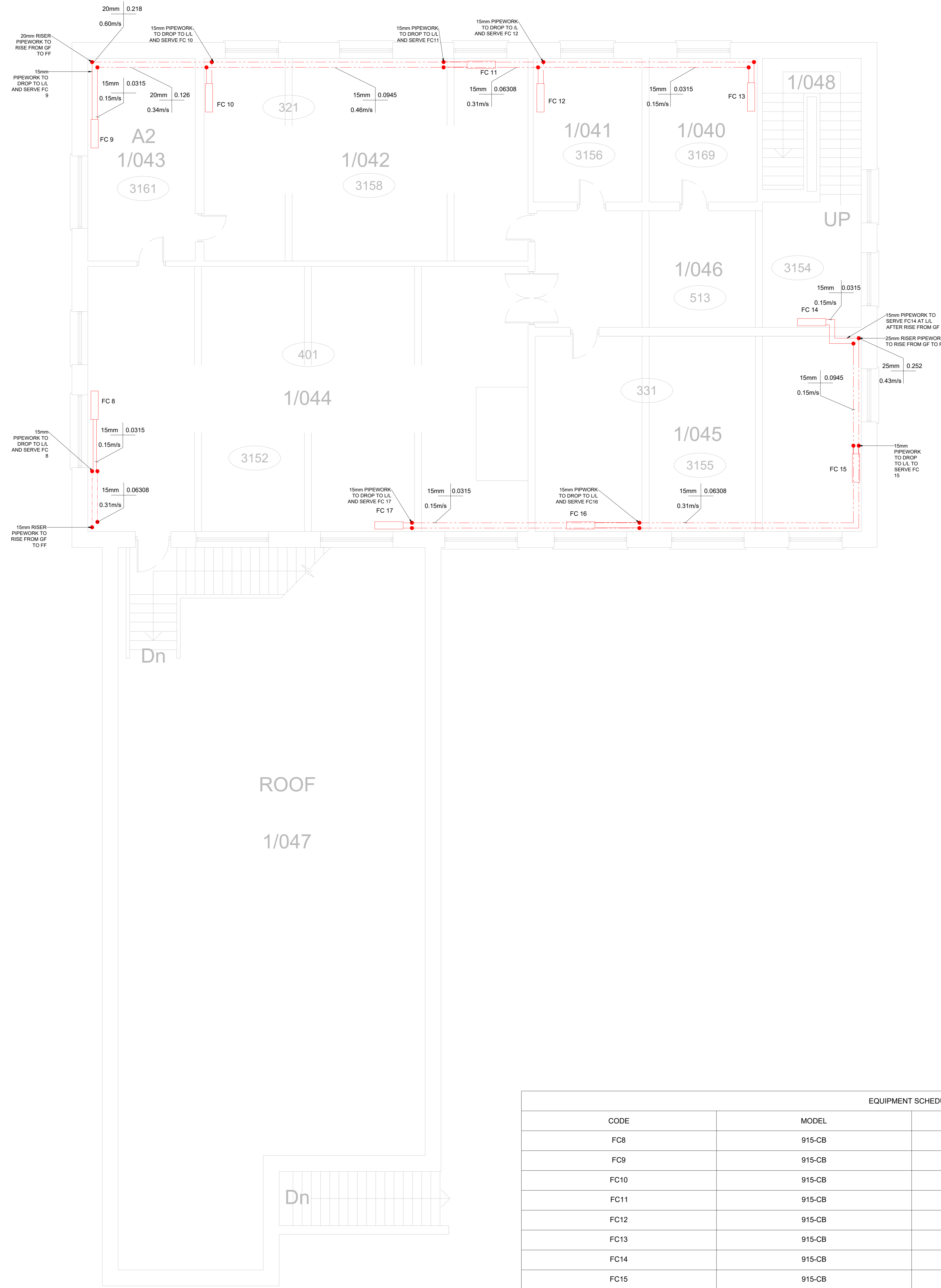
Proposed Ground Floor Builders Work in Connection Layout

Wallington County Grammer School - English Block

CLIENT NAME Folio Education Trust		PROJECT Wallington County Grammar School - English Block	
PROJECT ADDRESS Croydon Rd Wallington SM6 7PH		TITLE Proposed Ground Floor Builders Work in Connection	
		CLIENT CODE S4	
SCALE 1:50	DRAWN SB	CHECKED BC	DATE 22/08/23
REFNO 35087	ADOPTED BGL	ISSUE M3	DATE 03/00
REVNO 01	DATE 03/00	TYPE P	CODE 01

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 51 CHARLOTTE STREET
 BIRMINGHAM B15 2JG
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 E: bailygarner@bailygarner.co.uk

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First Floor Plan

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- PIPEWORK WITHIN CEILING VOID
- PIPEWORK HIGH LEVEL BELOW CEILING
- PIPEWORK AT LOW LEVEL

EQUIPMENT SCHEDULE			
CODE	MODEL	ELECTRICAL DATA	MANUFACTURE
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FC9	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC10	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC11	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC12	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC13	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC14	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC15	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC16	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC17	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR

Size mm	Flow Rate L/s
Velocity m/s	

Proposed First Floor Heating Layout

Wallington County Grammer School - English Block

CLIENT NAME Folio Education Trust	PROJECT Wallington County Grammar School - English Block											
PROJECT ADDRESS Croydon Rd Wallington SM6 7PH	TITLE Proposed First Floor Heating Layout Sheet 2											
SCALE 1:50	DATE 22/08/23	<table border="1"> <tr> <td>NO</td> <td>BY</td> <td>DATE</td> <td>APPROVED</td> <td>DATE</td> </tr> <tr> <td>35087</td> <td>BGL</td> <td>M3</td> <td>DR</td> <td>M</td> </tr> </table>	NO	BY	DATE	APPROVED	DATE	35087	BGL	M3	DR	M
NO	BY	DATE	APPROVED	DATE								
35087	BGL	M3	DR	M								

P01 SB BC 22/08/23

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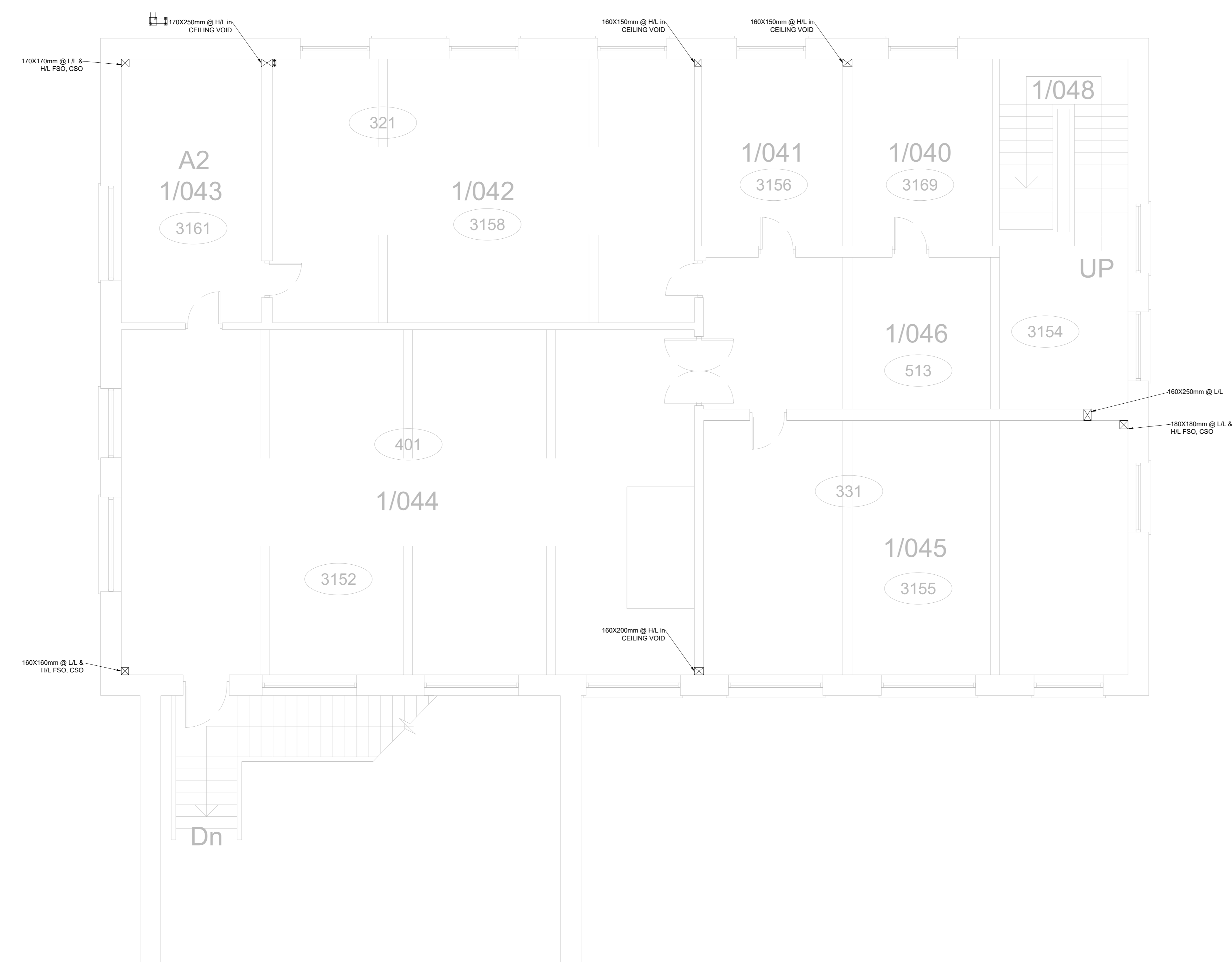
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- CSO CEILING SLAB OPENING
- FSO FLOOR SLAB OPENING
- H/L HIGH LEVEL
- L/L LOW LEVEL



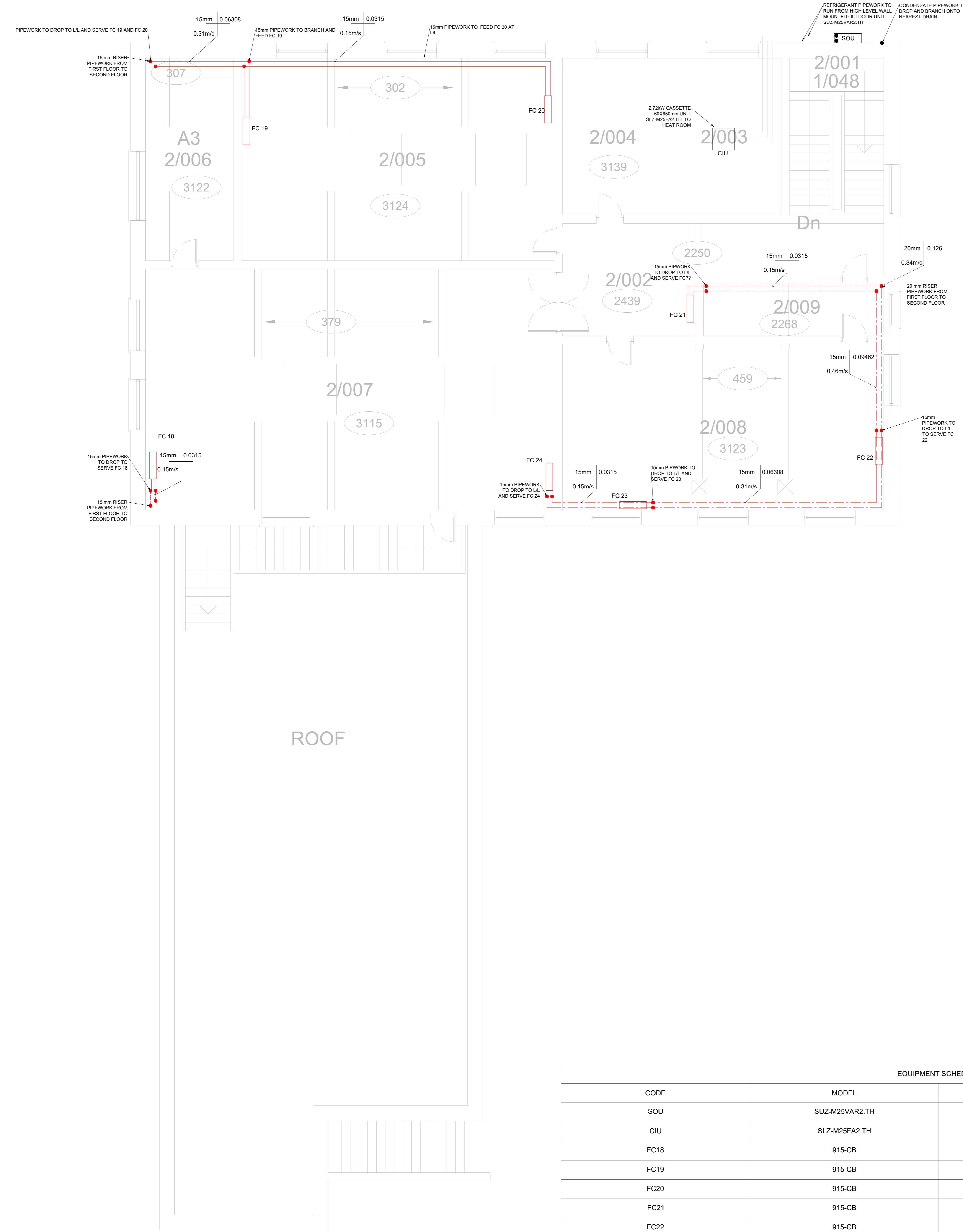
Proposed First Floor Builders Work in Connection Layout

Wallington County Grammer School - English Block

CLIENT NAME	Folio Education Trust	PROJECT	Wallington County Grammar School - English Block
PROJECT ADDRESS	Croydon Rd Wallington SM6 7PH	TITLE	Proposed First Floor Builders Work in Connection
SCALE	1:50	DATE	22/08/23
REVISED	NO	DATE	
NO	BY	DATE	
35087	BGL	M3	01
DR	M	0301	P 01

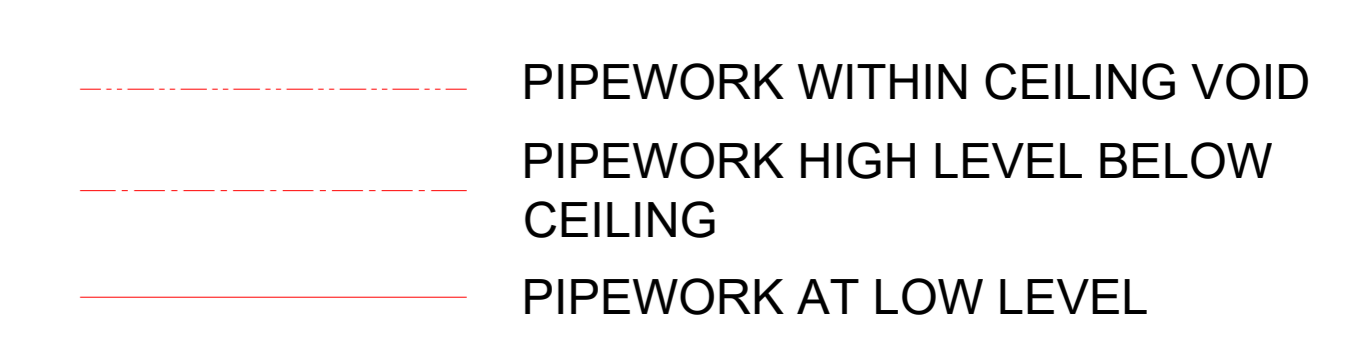


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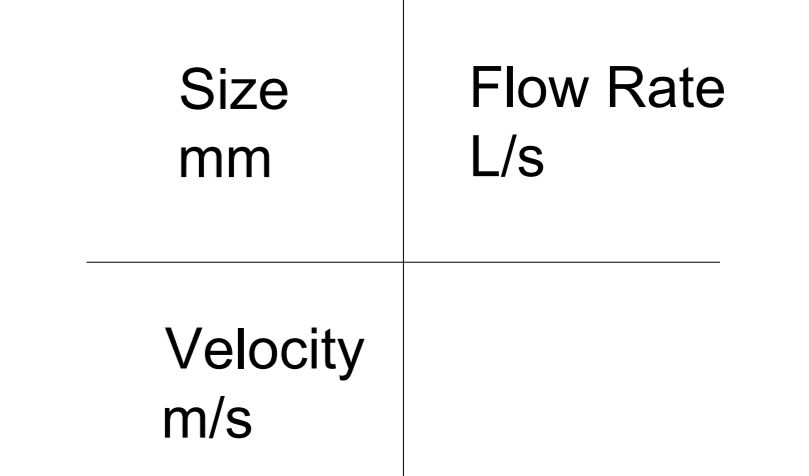


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- HEATING NOTES:**
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EQUIPMENT SCHEDULE			
CODE	MODEL	ELECTRICAL DATA	MANUFACTURE
SOU	SUZ-M25VAR2.TH	3.7 A, 240 V, 1PH	MITSUBISHI
CIU	SLZ-M25FA2.TH	FED BY OUTDOOR UNIT, FUSE RATING 6 A	MITSUBISHI
FC18	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC19	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC20	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC21	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC22	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC23	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR
FC24	915-CB	0.33 A, 240 V, 1PH, 50Hz	BIDDLE AIR



Second Floor Plan

Proposed Second Floor Heating Layout

Wallington County Grammer School - English Block

NO	DATE	BY	CHKD	APP'D	DATE
35087	BGL	M3	Q2	DR	M
0202	P	01			

CLIENT NAME: Folio Education Trust
PROJECT: Wallington County Grammer School - English Block
PROJECT ADDRESS: Croydon Rd Wallington SM6 7PH
TITLE: Proposed Second Floor Heating Layout Sheet 3
DATE: 02/02/2022

The contractor is responsible for ensuring that the information provided in this drawing is correct and complete. The contractor shall ensure that the information is correct and complete and shall be responsible for the accuracy of the work or not in accordance with the Building Regulations, or which are relevant to the project. The contractor shall ensure that the information is correct and complete and shall be responsible for the accuracy of the work or not in accordance with the Building Regulations, or which are relevant to the project. The contractor shall ensure that the information is correct and complete and shall be responsible for the accuracy of the work or not in accordance with the Building Regulations, or which are relevant to the project.

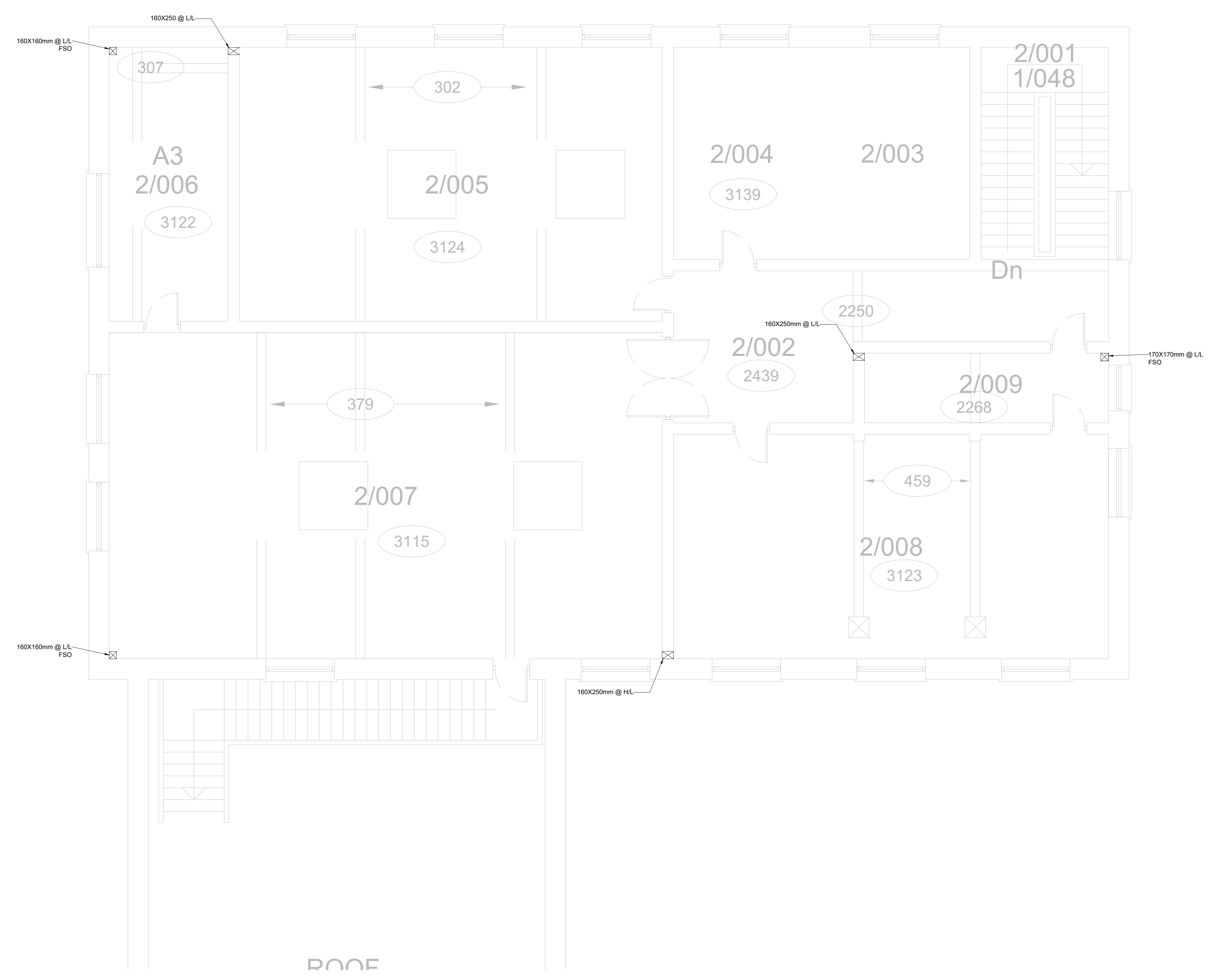
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- CSO CEILING SLAB OPENING
- FSD FLOOR SLAB OPENING
- H/L HIGH LEVEL
- L/L LOW LEVEL



Proposed Second Floor Builders Work in Connection Layout

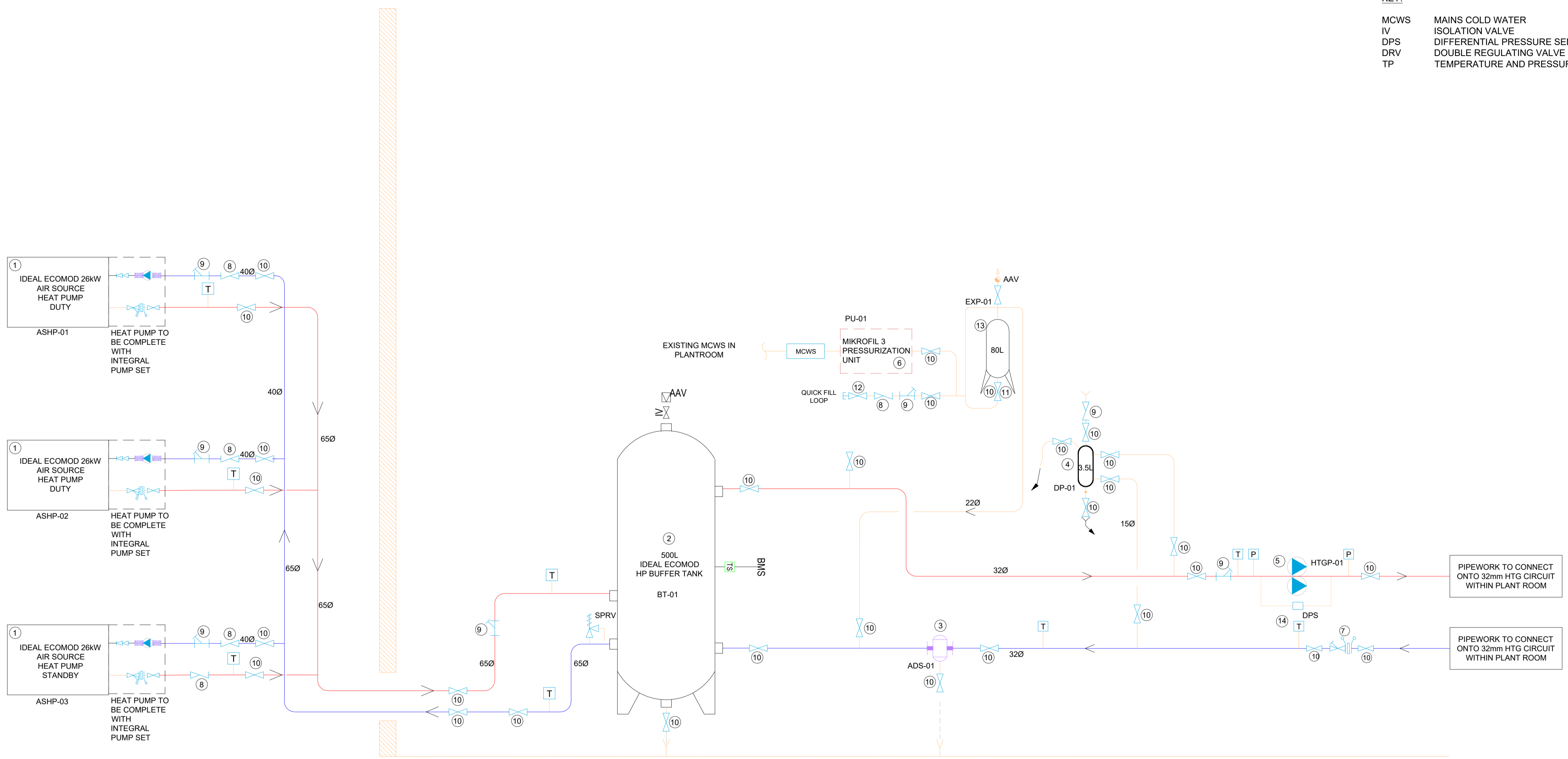
Wallington County Grammer School - English Block

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A1

KEY:
 MCWS MAINS COLD WATER
 IV ISOLATION VALVE
 DPS DIFFERENTIAL PRESSURE SENSOR
 DRV DOUBLE REGULATING VALVE
 TP TEMPERATURE AND PRESSURE SENSOR

- NOTES:**
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE PLANTROOM LAYOUT DRAWING, 35087-BGL-M3-00-DR-M-0100.
 - ALL HEATING PIPE WORK SHALL BE MEDIUM GRADE STEEL UNLESS OTHERWISE STATED. (CONTRACTOR SHALL CONFIRM THE MATERIAL OF THE EXISTING SYSTEM).
 - THE CONTRACTOR SHALL ALLOW FOR TEST POINTS WITHIN THE HEATING SYSTEM INSTALLED WITHIN THE BOILER ROOM.
 - ANY CHANGES IN PIPE SIZING, ROUTING, EQUIPMENT LOCATION SHALL BE AGREED PRIOR TO PROCUREMENT OR EXECUTION.
 - THE CONTRACTOR SHALL SUBMIT COMPLETE TECHNICAL SUBMITTAL OF EQUIPMENT FOR BAILY GARNER LLP APPROVAL PRIOR TO PROCUREMENT.
 - ALL ROUTES AND DESIGNS SHOWN ARE BASED UPON INFORMATION OBTAINED DURING AN NON INTRUSIVE SURVEY. SOME ASSUMPTIONS HAVE BEEN MADE THEREFORE PRIOR TO WORKS CONTRACTORS ARE TO CONDUCT AN IN DEPTH SURVEY AND RAISE ANY QUERIES WITH BAILY GARNER LLP WITHIN NO LESS THAN 3 WEEKS OF WORKS COMMENCING.
 - FOR FURTHER DETAIL EQUIPMENT INFORMATION PLEASE REFER TO THE SPECIFICATION OF WORKS AND THE EQUIPMENT SCHEDULES DRAWING, 35087-BGL-M3-00-DR-M-0100.
 - ALL PIPE WORK SHALL BE INSULATED AS PER THE SPECIFICATION PRODUCED BY BAILY GARNER LLP.
 - LOCATION FOR FINAL CONNECTION ON TO SECONDARY CIRCUITS TO BE CONFIRMED ON SITE BY A BAILY GARNER LLP ENGINEER.
 - ALL PIPE WORK, VALVES, EQUIPMENT AND FITTINGS SHALL BE PROVIDED WITH IDENTIFICATION TAGS. THE CONTRACTOR SHALL PROVIDE A DETAILED VALVE CHART WITHIN THE BOILER ROOM.



ASHP SCHEDULE

REFERENCE	FLOW RATE (l/s)	PUMP MODEL	PIPE DIA. (mm)	PRESSURE (kPa)	ELECTRICAL
ASHP-01,02,03	1.25	ECOMOD 26 kW	25	TBC	415V-3PH-23.3A

PUMP SCHEDULE

REFERENCE	FLOW RATE (l/s)	PUMP MODEL	PIPE DIA. (mm)	PRESSURE (kPa)	ELECTRICAL
HTGP-01	0.788	MAGNA 3D 32-40F TBC	32	TBC	0.61 A

P01 SB BC 25/08/2023

REVISION D C DATE

CLIENT NAME Folio Academy Trust	PROJECT Wallington County Grammar School - English Block
PROJECT ADDRESS Croydon Rd Wallington SM6 7PH	TITLE Proposed English Block Plant Room Schematic
SCALE NTS	DATE 25/08/2023
DRWN SB	APPROVED AC
PROJ NO 35087	REV NO 0001
AUTHOR BGL	REV DATE P
VOLUME M3	REV NO 01
LEVEL XX	
DOCP DR	
ROLE M	

55 CHARLOTTE STREET
 BIRMINGHAM B3 1PX
 t. 0121 236 2236
 e. birmingham@bailygarner.co.uk

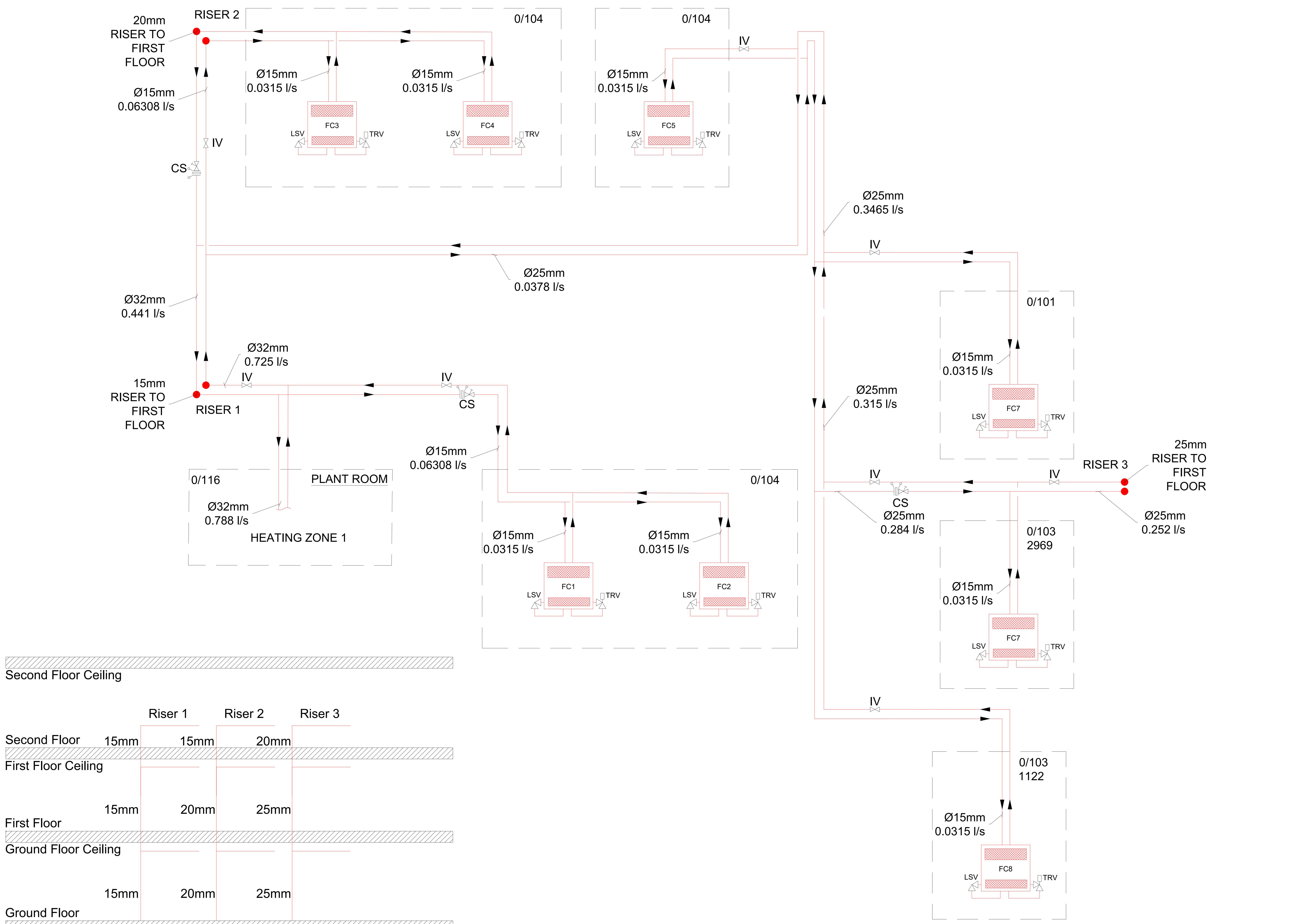
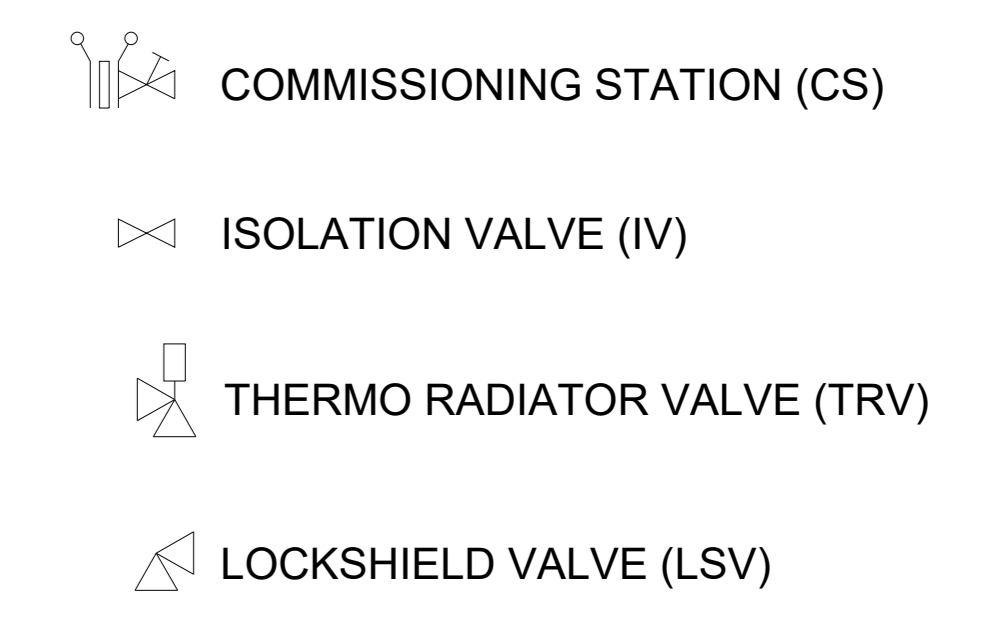
The contractor is responsible for ensuring that all equipment and materials are fully certified and comply with relevant British and/or European Standards and/or Codes of Practice. CO2/EN Regulations, Contractors Regulations, or which may be subject to inspection of the fire and/or electrical installation to be undertaken to health and safety or to the durability of the work or to its compliance with good building practice.
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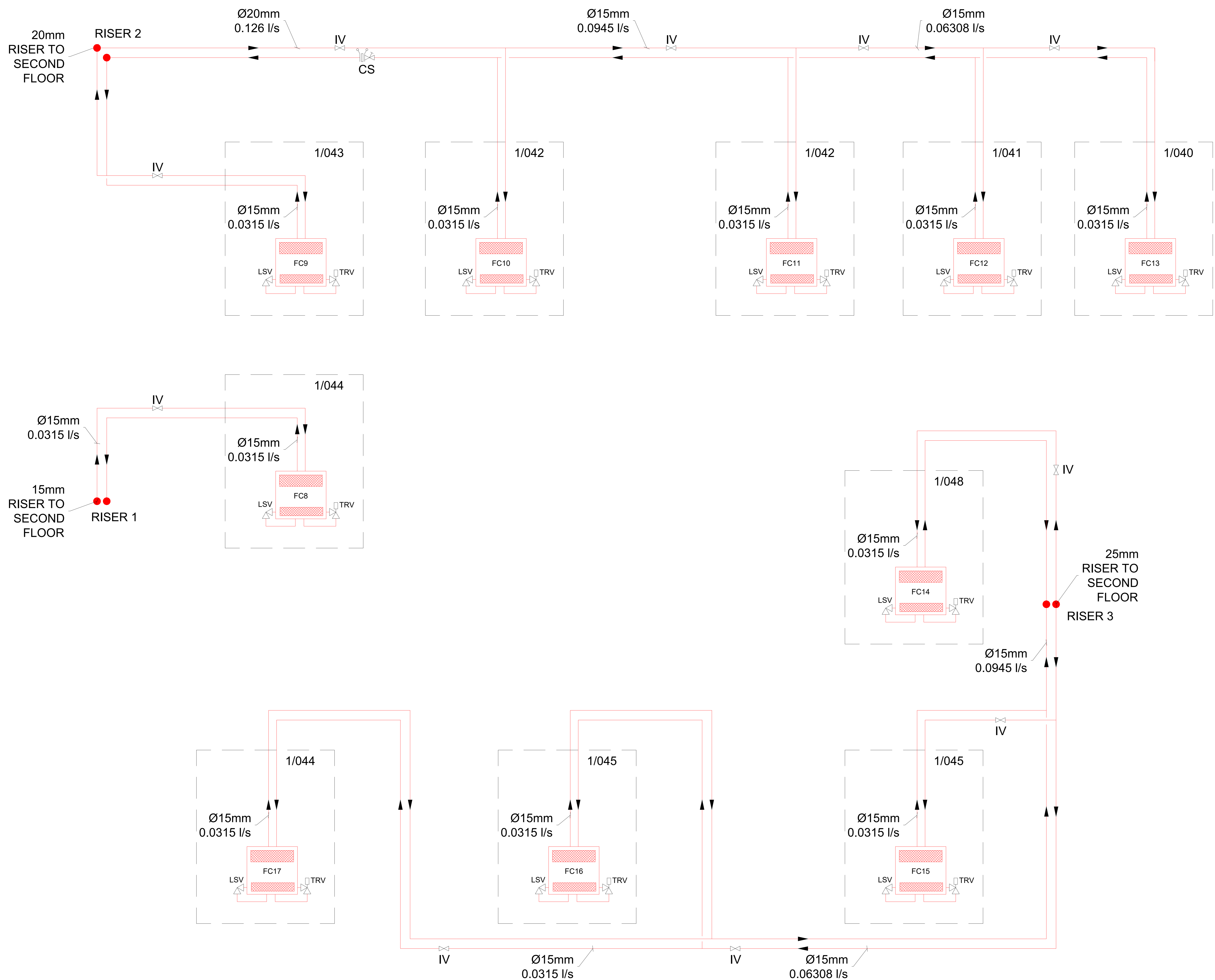
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Proposed Ground Floor Heating Schematic

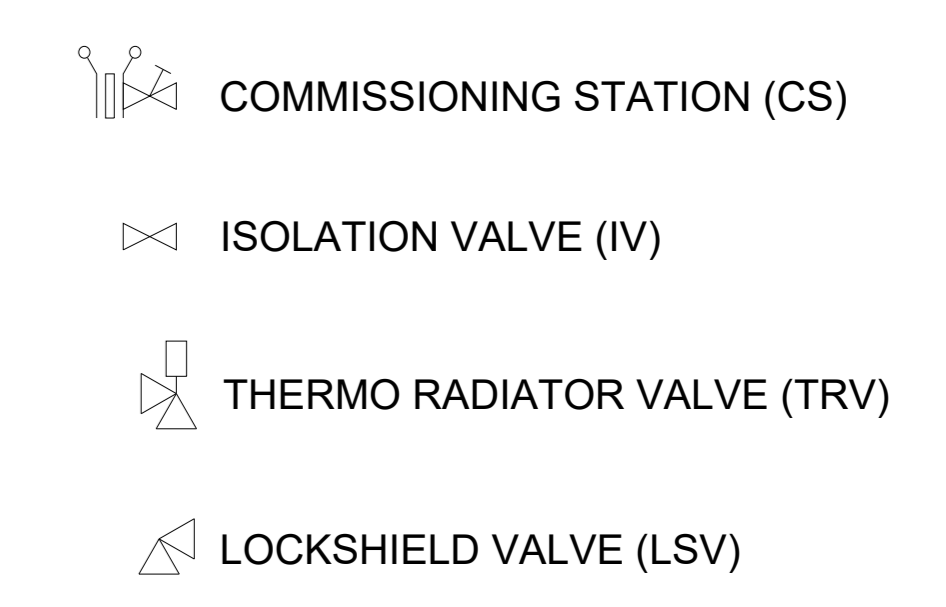
Wallington County Grammer School - English Block

CLIENT NAME Folio Education Trust	PROJECT Wallington County Grammer School - English Block													
PROJECT ADDRESS Croydon Rd Wallington SM6 7PH	TITLE Proposed Ground Floor Heating Schematic Sheet 1 S4													
SCALE N/A	DATE 23/08/2023	<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>CHKD</th> <th>APP'D</th> <th>REVISION</th> </tr> <tr> <td>1</td> <td>23/08/2023</td> <td>SB</td> <td>BC</td> <td></td> <td></td> </tr> </table>	NO.	DATE	BY	CHKD	APP'D	REVISION	1	23/08/2023	SB	BC		
NO.	DATE	BY	CHKD	APP'D	REVISION									
1	23/08/2023	SB	BC											
REVISION	DATE	<table border="1"> <tr> <td>35087</td> <td>BGL</td> <td>M3</td> <td>XX</td> <td>DR</td> <td>M</td> <td>0203</td> <td>P</td> <td>01</td> </tr> </table>	35087	BGL	M3	XX	DR	M	0203	P	01			
35087	BGL	M3	XX	DR	M	0203	P	01						



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Proposed First Floor Heating Schematic

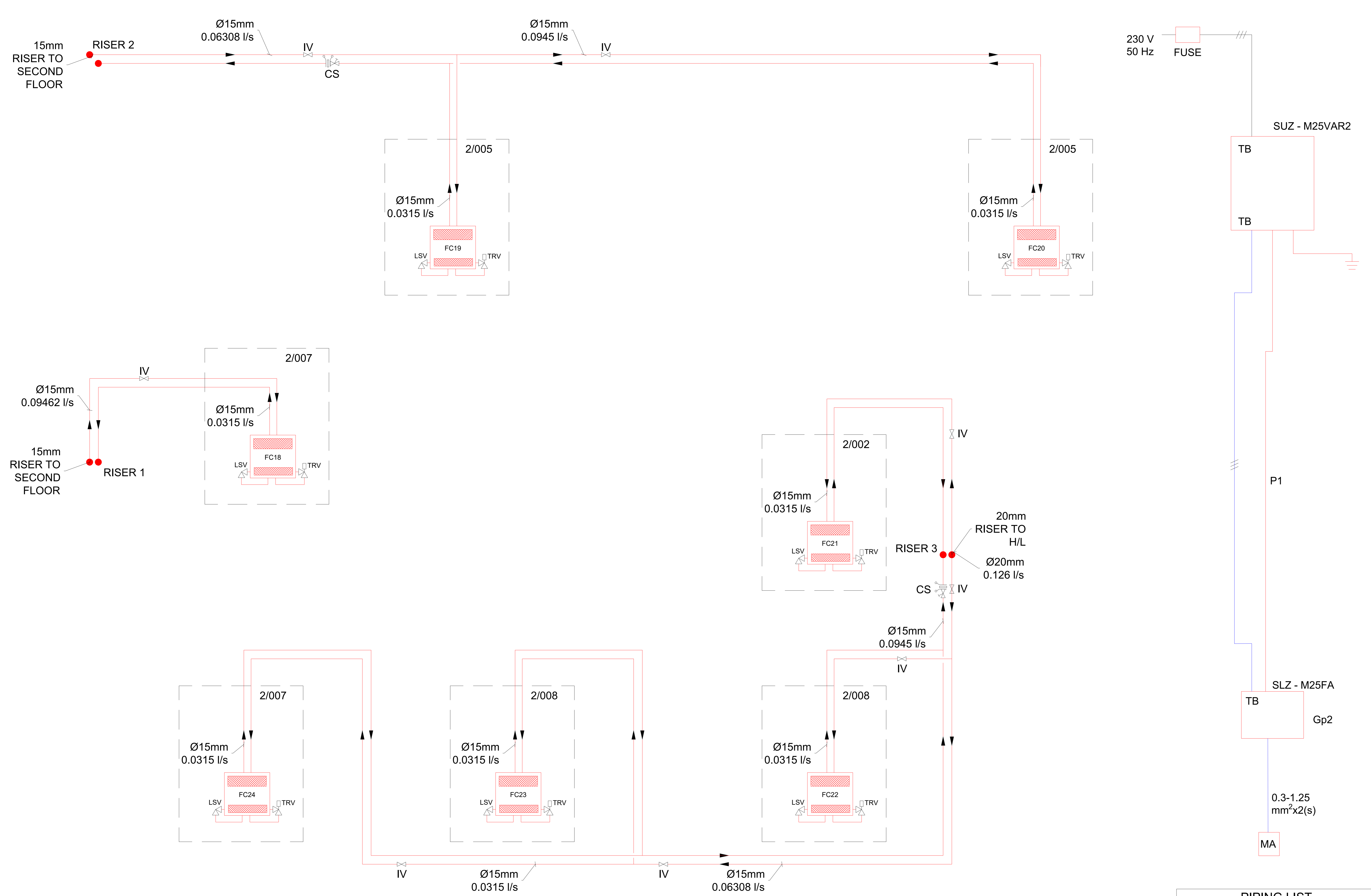
Wallington County Grammer School - English Block

CLIENT NAME Folio Education Trust		PROJECT Wallington County Grammer School - English Block	
PROJECT ADDRESS Croydon Rd Wallington SM6 7PH		TITLE Proposed First Floor Heating Schematic Sheet 2	
SCALE N/A		DATE 23/08/2023	
REV	DATE	BY	CHKD
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0204	P	01	



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- COMMISSIONING STATION (CS)
- ISOLATION VALVE (IV)
- THERMO RADIATOR VALVE (TRV)
- LOCKSHIELD VALVE (LSV)

<p>CLIENT: Folio Education Trust</p> <p>PROJECT: Wallington County Grammar School - English Block</p> <p>PROJECT ADDRESS: Croydon Rd Wallington SM6 7PH</p>	<p>PROJECT: Wallington County Grammar School - English Block</p> <p>TITLE: Proposed Second Floor Heating Schematic Sheet 3</p> <p>DATE: 23/08/2023</p>	<p>BAILY GARNER</p> <p>15 CHALLOTTE STREET, BIRMINGHAM B15 2JG</p> <p>0121 717 2000</p> <p>www.bailygarner.co.uk</p>
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Proposed Second Floor Heating Schematic

Wallington County Grammer School - English Block

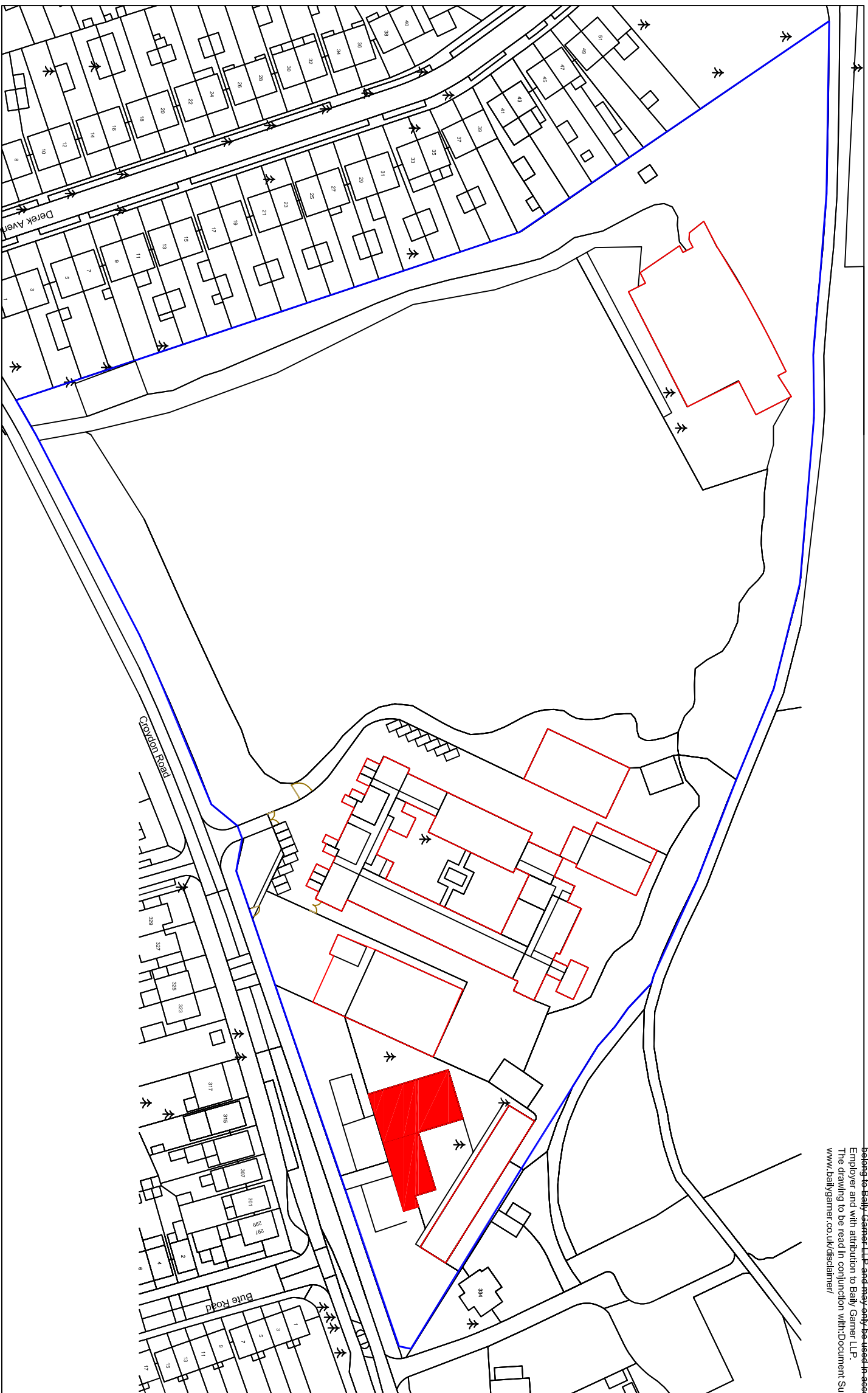
NO	REV	DATE	BY	CHK	APP	DATE
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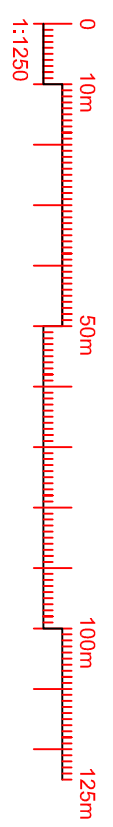
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Wallington County Grammar School

Site Plan



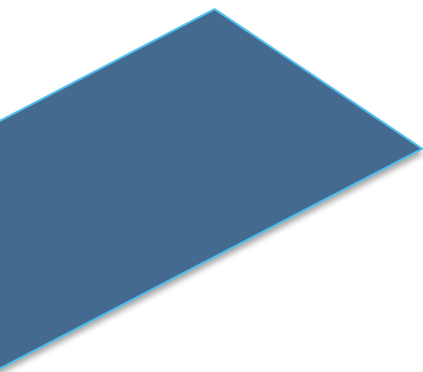
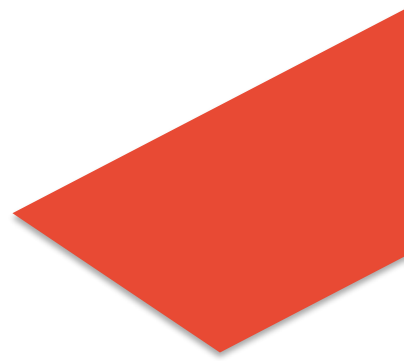
CLIENT NAME		PROJECT NAME	
Wallington County Grammar School Heat Decarbonisation Works		Wallington County Grammar School Heat Decarbonisation Works	
PROJECT ADDRESS		DRAWING TITLE	
Croydon Road Wallington SM6 7PH		Site Location Plan	
SUSTAINABILITY CODE		Tender	
SCALE	DRAWN	APPROVED	DATE
1:1250	RT	SF	24/08/2023
NO. OF	NO. OF	NO. OF	NO. OF
36085	BGL	A1	XX
DR	DR	A	001
SCALE	SCALE	SCALE	SCALE
			T 01



BAILY GARNER

LONDON HEAD OFFICE
146-148 ELTHAM HILL
LONDON SE9 5DY
T 020 8294 1000
e. general@bailygarner.co.uk

APPENDIX C



Biddle

FORCEFLOW

CB Fan Convectors (Low Water Temperatures)

The Forceflow CB fan convector range has been specially designed for use with new heating technologies, such as heat pumps.

Heat pumps are proven to be a much more sustainable method of heating water, however they normally provide water temperatures at lower levels.

To ensure that the CB provides the same efficient and reliable heating performance, the fan convector has been designed with an oversized coil to provide higher heating duties using lower water temperatures.

The Forceflow CB is suitable for mounting almost anywhere on the wall or ceiling – either as an exposed/cased or concealed/recessed unit – the range is available in 21 styles, with a range of accessories and control options.

This product is also available as a LST (low surface temperature) variant. Building on the proven and patented technology in the H2 LST unit, the CB LST convector is manufactured to guarantee surface temperatures do not exceed 43°C with water flow temperatures up to 60°C. This limit is advised by the Health And Safety Executive in Document Health Services Information Sheet No 6 and applicable for health and social care premises particularly where here may be people who are vulnerable to the risk of scalding or burns. The product is tested in accordance with BS EN 442 and manufactured under a BS EN ISO 9001:2015 quality system.

BENEFITS:

- High output with low water temperatures
- Available in 21 styles
- Quick heat up
- Good heat distribution
- Simple to install
- Various control options
- EU3 grade disposable panel filter simplifies maintenance
- Low noise levels

HOW IT WORKS

A purpose-designed coil/heater battery with a greater surface area than those used in traditional fan convectors optimises heat transfer. Thus, although air volumes are reduced by circa 8%, similar heating duties are achieved. Control is via on/off and speed change thermostats. If the temperature in the coil drops below the adjustable low water temperature cut-out thermostat setting, (typically because the boiler is turned off), the cut-out thermostats switches the fans off.

CONTROLS & ACCESSORIES

The Forceflow CB range have 3 fan speeds and are supplied as standard with:

- On/off thermostat (T1)
- Built-in on/off, fan speed and summer/winter rocker switches
- Medium/Low speed change thermostat (T2)
- Adjustable low water temperature cut-out thermostat (T4)
- White textured paint finish (RAL 9010)
- EU3 grade disposable panel filter
- A screw-fixed access panel
- Discharge and return air grilles
- Horizontal 3/4" BSP female pipe connections

OPTIONAL:

- Adjustable or tamperproof remote thermostats
- Pencil and finger proof grilles
- Group control and fan enable relays
- 100mm high plinth
- Key lockable access panel
- Metal framed EU2 grade nylon non-woven filter
- Special paint colour
- Pre-fitted radiator and lockshields valves

PERFORMANCE TABLE

Model	Fan speed	Air volume (l/s)	Heating duty (kW)	Noise level** (NR)	Water flow rate (l/s)	Water pressure drop (kPa)	Full load current (Amps)
915-CB	High	109	4.13	40	0.050	0.6	0.33
	Medium	80	3.11	35	0.038	0.4	0.28
	Low	54	2.26	27	0.027	0.2	0.21
930-CB	High	175	7.32	41	0.089	2.1	0.49
	Medium	162	6.88	35	0.084	1.8	0.48
	Low	96	4.08	25	0.049	0.7	0.43
935-CB	High	234	10.15	43	0.138	5.7	0.45
	Medium	186	8.10	35	0.109	3.7	0.42
	Low	125	5.30	24	0.073	1.8	0.38
940-CB	High	335	14.58	42	0.177	10.7	0.50
	Medium	267	11.60	35	0.142	7.1	0.43
	Low	172	7.49	30	0.092	3.2	0.39
975-CB	High	428	17.25	46	0.210	5.6	1.70
	Medium	375	15.41	37	0.188	4.6	0.91
	Low	230	9.38	29	0.115	1.9	0.74

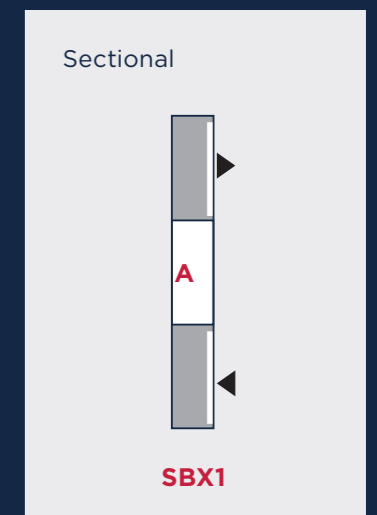
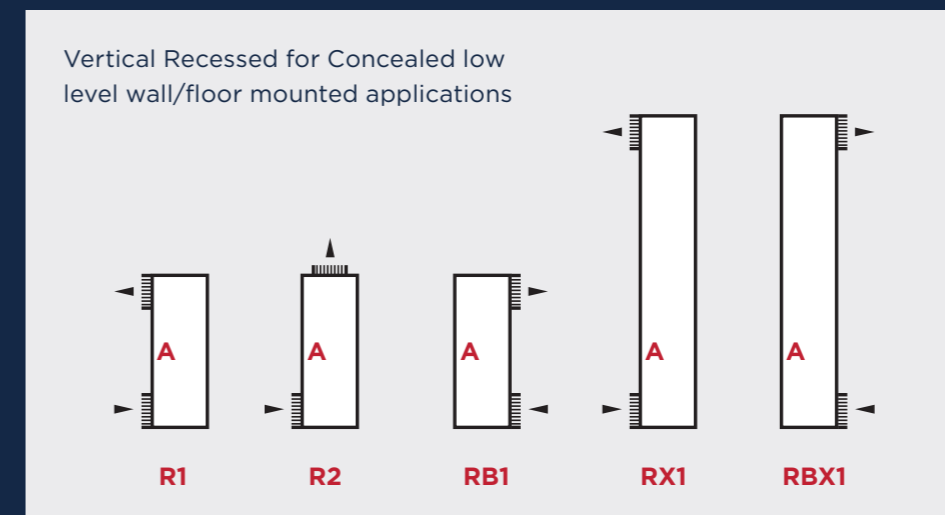
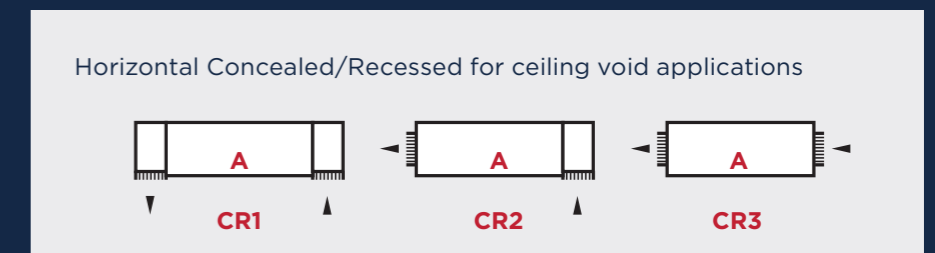
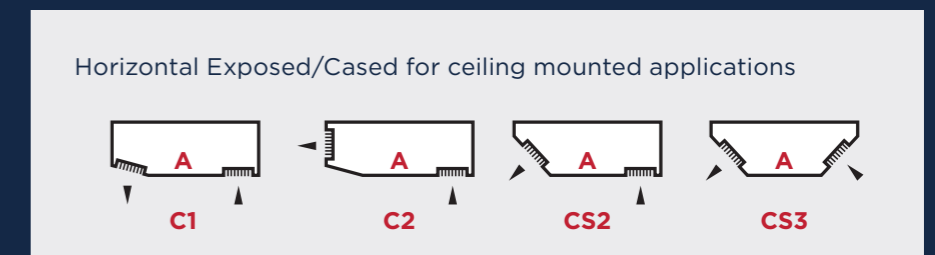
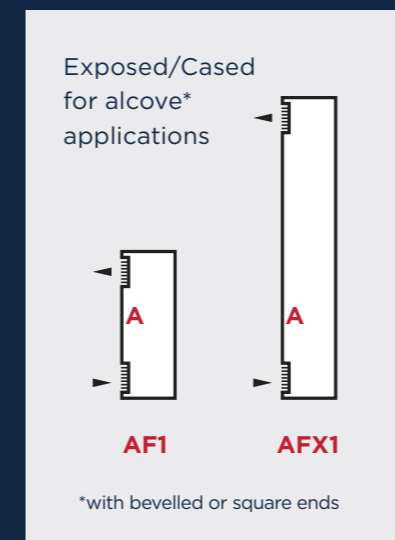
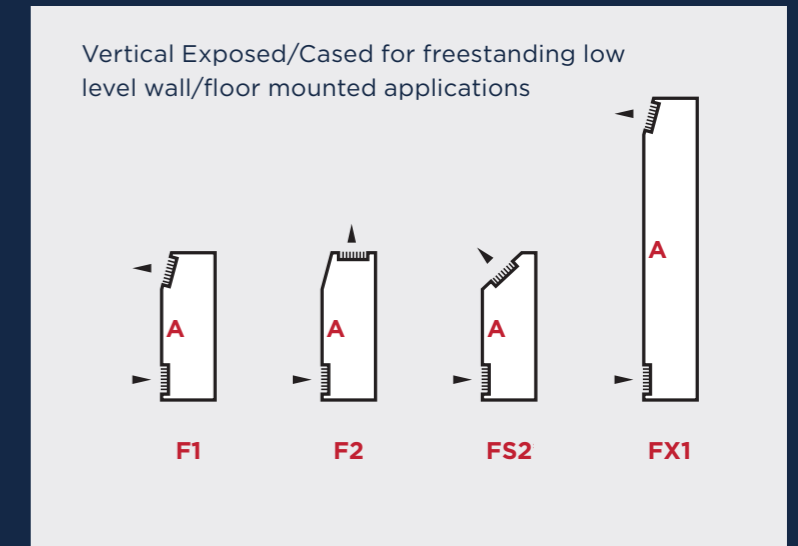
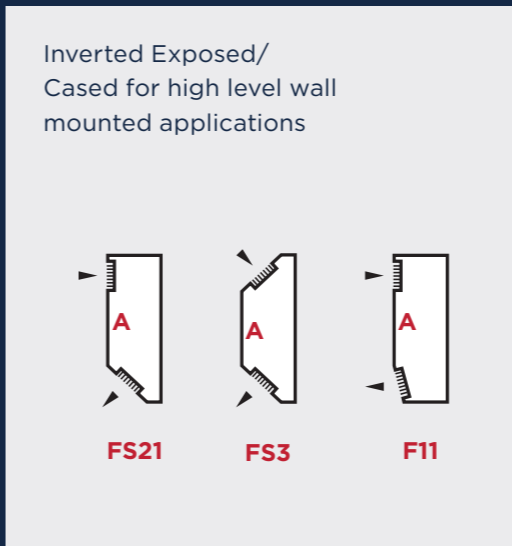
*Based on Entering Air Temperature of 20°C and Water Temperatures of 60°C Flow and 40°C Return. **Noise levels are for guidance only.

CB CORRECTION FACTORS

Water Flow Temp	Delta t (5°C)	Delta t (10°C)	Delta t (15°C)	Delta t (20°C)
60°C	-	1.05	1.02	1.00
55°C	0.97	0.95	0.92	0.88
50°C	0.83	0.81	0.79	0.75
45°C	0.68	0.67	0.64	0.60
40°C	0.55	0.52	-	-
35°C	0.41	-	-	-

HOW TO SPECIFY YOUR PRODUCT

Placing an order couldn't be easier, simply tell us the model size, followed by the range and the casing style. For example 915 (Model size) CB (Range) F1 (Casing style).

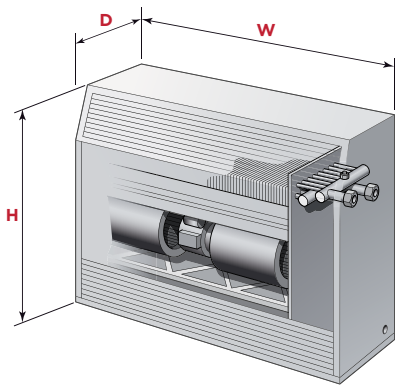


DIMENSIONS

VERTICAL STYLES

Model	'D'	'W'			
		All Vertical Styles	Exposed/Cased	Alcove (bevelled ends)	Alcove (square ends)
915	207	805	805	750	750
930	207	1055	1055	1000	1000
935	207	1305	1305	1250	1250
940	207	1555	1555	1500	1500
975	250	1805	1805	1750	1750

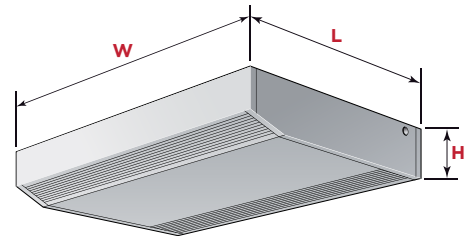
Style	'H'
F1, F2, FS2, AF1 (with bevelled ends), F11, FS21	660
AF1 (with square ends)	600
FS3	810
FX1, AFX1	1850
R1, R2, RB1	600
RX1, RBX1	1850



HORIZONTAL STYLES

Model	'H'		'W'	
	All Horizontal Styles (except CR1, CR2)	CR1 & CR2	Exposed/Cased	Concealed/Recessed
915	207	290	805	750
930	207	290	1055	1000
935	207	290	1305	1250
940	207	290	1555	1500
975	250	333	1805	1750

Style	'L'
C1, C2, CS2	660
CS3	810
CR3	600
CR2	743
CR1	886



UNIT WEIGHT

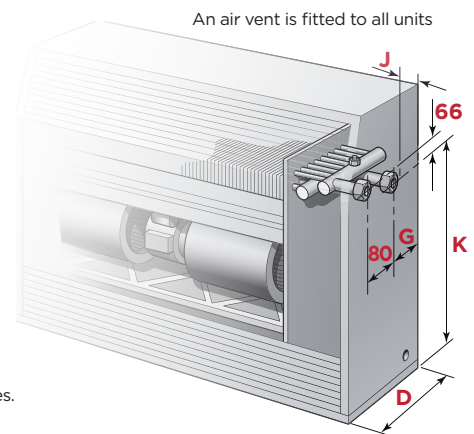
Unit	915	930	935	94	975
Approx. operating weight kg units 600 or 660mm high	29	39	45	52	66
Approx. operating weight kg units 1850mm high	49	65	75	88	109

PIPE CONNECTIONS

RC 3/4 (3/4" BSP EXTERNAL)

Model	D	G	J		K	
			Exposed/Cased	Concealed/Recessed	Exposed/Cased	Concealed/Recessed
915	207	64	158	130	405	392
930	207	64	158	130	405	392
935	207	64	158	130	405	392
940	207	64	158	130	405	392
975	250	86	158	130	405	392

Standard pipe entry is through the base, apart from CR1, CR2 and CR3 style units when pipe entry is through the side. If required, pipe entry through the top may be available on some styles. The flow header connection should be on the air leaving side of the coil.



For further detailed dimensional details for specific model types, please contact the Biddle Sales office

BIDDLE AIR SYSTEMS

St. Mary's Road, Nuneaton,
Warwickshire CV11 5AU
T +44 (0) 2476 384 233
E sales@biddle-air.co.uk
www.biddle-air.co.uk



FM 02234 EMS 512025 OHS 722093

Biddle

ideal
HEATING

COMMERCIAL

ECOMOD HEAT PUMP

26 & 32kW



ErP A++



Suitable for
commercial
properties



Quiet noise level
as low as 74dB(A)**



Low environmental
impact



Highly efficient:
COP up to 4.09***



idealheating.com |

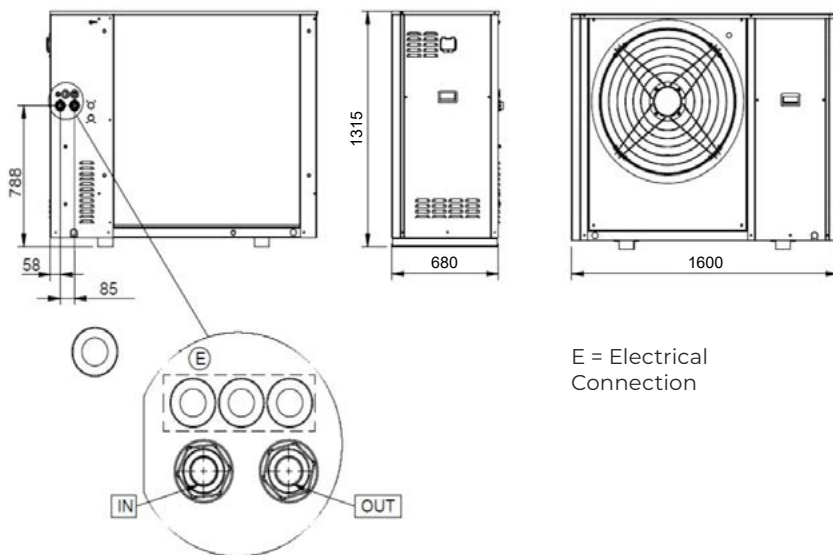
* 2 year warranty extended to 5 years if commissioned by Ideal Heating. ** 74dB(A) is the rated sound pressure level of the Ecomod 26kW, Ecomod 32kW is rated at 76dB(A), the sound levels refer to a fully loaded unit at standard nominal conditions in accordance with EU Regulation 813/2013. *** Efficiency Co-efficient of Performance (COP) rated at EN14825 test conditions Water 35°C, Air 7°C.

Features & specification

- Monobloc air source heat pump
- Single unit with the refrigeration cycle contained within the outdoor unit
- Inverter controlled compressor to accurately match the heat demand
- Low global warming potential due to the use of R32 refrigerant
- Highly efficient with co-efficiency of performance (COP) rating up to 4.09
- Light and compact unit for ease of installation and delivery
- Suited to larger installations - cascade systems to achieve higher output
- 2-year warranty (extended to 5 years if commissioned by Ideal Heating)
- Blue Fin anti-corrosion coating as standard
- Combine with Ideal industry leading boilers for a hybrid heating system



We are committed to delivering the highest level of customer service. With more than 100 years' experience in the heating industry, we know how important confidence and trust are to our customers.



Installation clearances:

FRONT	REAR	LEFT	RIGHT	TOP	BOTTOM
1500	400	400	700	500	50

Side clearance of 700mm when used in cascade.
The outdoor unit must be raised by at least 50 mm from the ground.

ECOMOD HEAT PUMP 26 & 32kW

TECHNICAL SPECIFICATIONS

GENERAL

		26kW	32kW
Heat Pump Space Heating [35°C]	ErP rating	A++	A++
	SCOP	4.55	4.81
Heat Pump Space Heating [55°C]	ErP rating	A+	A+
	SCOP	3.14	3.14
Heating (A7/W35)	Capacity (kW)	26	32.1
	Power Input (kW)	6.44	7.84
	COP***	4.04	4.09
Air Temperature Range	Min/Max (°C)	(-20 +40)	(-20 +40)
Sound Data Outdoor Unit	Power Level dB(A)**	74	76
Pipework Connection Sizes	Heating Flow (")	1	1 1/4
	Heating Return (")	1	1 1/4
Dimensions Outdoor Unit	Width (mm)	1600	1600
	Depth (mm)	680	680
	Height (mm)	1315	1315
Weight	kg	240	255
	Electrical Supply (v)	415	415
Electrical Data	Phase	Three	Three
	Max Running Current (Amp)	23.3	27.1
	Fuse Rating (Amp)	25	32
Refrigerant Charge	R32 (kg)	4.3	5.1

ACCESSORIES AND OPTIONS

	Required	Optional extras
Control unit (available for cascade and additional heating circuits, and are optional where no BMS is present)		✓
Flexible hoses		✓
Anti-vibration rubber feet		✓
Anti-corrosion coating (for installations close to the sea)		✓

Terms and conditions apply.

* 2 year warranty extended to 5 years if commissioned by Ideal Heating. ** 74dB(A) is the rated sound pressure level of the Ecomod 26kW, Ecomod 32kW is rated at 76dB(A). The sound levels refer to a fully loaded unit at standard nominal conditions in accordance with EU Regulation 813/2013. *** Efficiency Co-efficient of Performance (COP) rated at EN14825 test conditions Water 35°C, Air 7°C.

Every effort has been taken to ensure the details are accurate. Ideal Heating does not, however, guarantee the accuracy or completeness of any information nor does it accept liability for any errors or omissions in the information. Ideal Heating reserves the right to make changes and improvements which may necessitate alteration to product specification without prior notice.



Sales:

0844 543 6060

Technical Help:

01482 498376

Ideal Heating, PO Box 103, National Avenue,
Kingston upon Hull, East Yorkshire, HU5 4JN

E: commercial@idealheating.com

idealheating.com |     

Forceflow 900 Series Fan Convector

Biddle

Installation Operating & Maintenance

For specific unit mounting model, please refer to the brochure or contact Biddle (024 7638 4233)

UNPACKING

Remove protective cardboard outer packaging and any polystyrene padding.

You should have received your fan convector in perfect condition. Please advise us within 24 hours of receipt if it is damaged in any way whatsoever.

TOOLS REQUIRED

We suggest the following tools are used during installation :

- posi-drive screwdriver
- flat-head electrical screwdriver
- 7mm and 10mm nut-driver/socket and ratchet, with 75mm and 450mm extension pieces

INSTALLATION

- 1 Remove the access panel by unscrewing the 2 x retaining screws, or unlocking the 2 x key operated locks, within the front of the casing
- 2 Securely fix the unit to the wall or ceiling using the four fixing holes on the rear
- 3 Check whether the water connections are on the most appropriate side of the unit. If not, change the 'handing' following the instructions overleaf
- 4 Using proprietary fixings, connect the flow and return pipework to the coil (it is usual to have the water flow connection on the air leaving side of the coil), bringing the pipework in through the holes in the base of the unit - connections are all sized $\frac{3}{4}$ " Female BSP
- 5 Test and vent the coil to expel any air from the system
- 6 Feed the power supply cable, and any other necessary wires (eg remote switch box, remote thermostats etc), through the casing utilising the cable gland supplied, and use the plug supplied to blank off the hole on the opposite end of the unit
- 7 Remove the black/yellow electrics box by unscrewing the 2 x retaining M5 hex bolts
- 8 Locate the wiring diagram on the fan scroll



- 9 Carefully following the wiring diagram connect the power supply, and any other necessary items (eg remote switch box, remote thermostats), to the terminal block within the black/yellow electrics box
- 10 Check the electrical connections and supply power
- 11 Refix the electrics box
- 12 Set the neon on/off switch to the 'on' position
- 13 Set the speed control switch, typically, to the 'low' position
- 14 Set the summer/winter switch to the appropriate position (see note on back page)
- 15 Set the on/off thermostat to, typically, 20°C
- 16 Set the speed change thermostat to, typically, 16°C
- 17 Re-fix the access panel

MAINTENANCE

Before carrying out any maintenance work it is obviously important to isolate the unit from the power supply, and to ensure it cannot be accidentally restored by unauthorised personnel.

The standard cardboard frame panel filter is not designed to be cleaned, and should be replaced at appropriate intervals, which will vary from site to site.

The coil and fans should be cleaned by vacuuming, again at appropriate intervals.

SPARES

Biddle will supply spares for the Forceflow 900 Series fan convector for at least 5 years from the date of manufacture of the unit.

When ordering spares please state the model and serial number from the silver identification label inside the unit.

Forceflow[™]
FAN CONVECTOR RANGE

Biddle Air Systems

St. Mary's Road, Nuneaton
Warwickshire CV11 5AU

Tel: +44 (0)24 7638 4233
Fax: +44 (0)24 7637 3621
Email: sales@biddle-air.co.uk
http://www.biddle-air.com

Operation

Controls are either built in to the unit as part of the electrics box, and concealed behind the access panel, or supplied loose for remote fixing on site.

On/off (T1) thermostat – this is usually set to around 20°C. Once room temperature reaches this setting the fans automatically turn off.

Speed change (T2) thermostat – this is usually set to circa 16°C. If the speed control switch is in the 'low' position, the fans automatically run at medium speed when room temperature is below this setting and at low speed when room temperature is above this setting.

Low temperature cut out (T4) thermostat – clipped on to the return bends of the coil, this monitors the temperature of the water in the coil and automatically turns the fans off when it drops below circa 40°C.

On/off switch – the unit can be switched on or off using the neon rocker switch/remote slider.

Speed control switch - the unit can be set to run at one of three fan speeds. However it is usual to set the rocker switch to the 'low' position/remote slider to position 1.

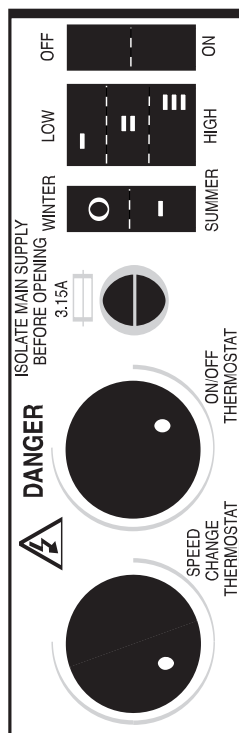
Summer/winter switch – when the rocker switch is set in the 'summer' position/remote slider to the (♣) position it over-rides the low limit cut out (T4) thermostat and the on/off (T1) thermostat. This allows the unit to continually re-circulate ambient air when heating is turned off.

When heating is required, the rocker switch should be set in the 'winter' position/remote slider to the (❄) position. However the fans will not operate until a water temperature of at least 40°C is detected by the low limit cut out (T4) thermostat.

Electrical Data

Model	Full Load Current (Amps)	Start Current (Amps)
915	0.33	0.47
930	0.49	0.68
935	0.45	0.67
940	0.50	0.68
975	1.70	3.55

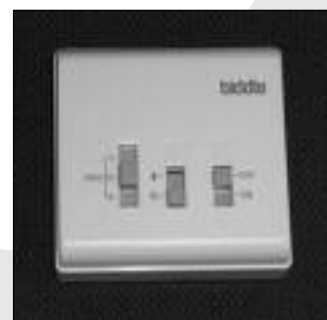
All units are suitable for 240 volt, 1 phase, 50Hz supply



Remote thermostat



Remote switch box

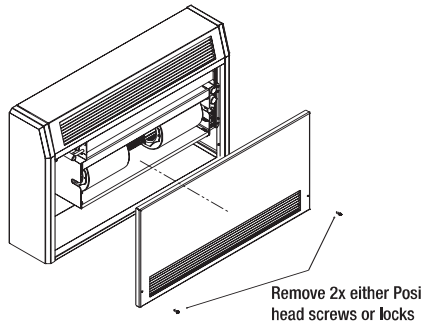


WARNING – if a remote on/off (T1) thermostat is installed with a remote switch box the on/off (T1) thermostat will remain live even when the on/off switch is in the 'off' position.

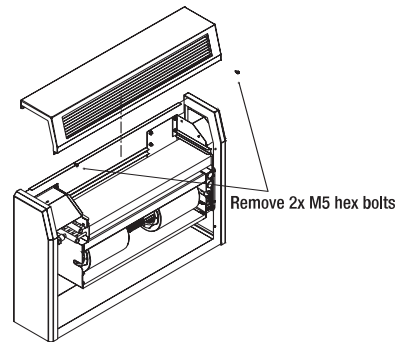
Changing the Unit Handing

Steps 1 - 9

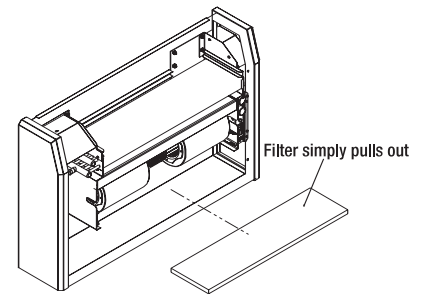
1 Removing Access Panel



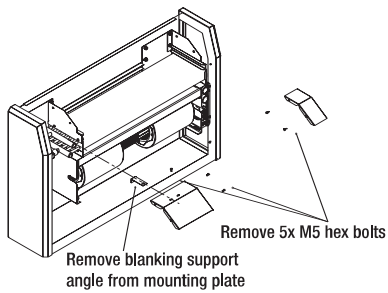
2 Removing Top Panel



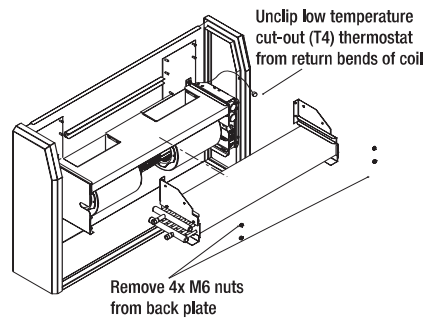
3 Removing Filter



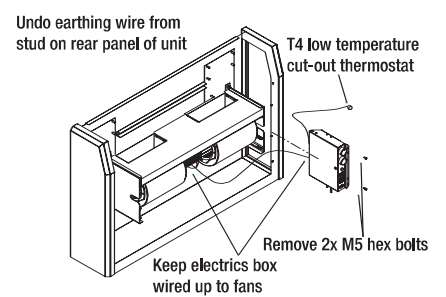
4 Removing Blanking Plates



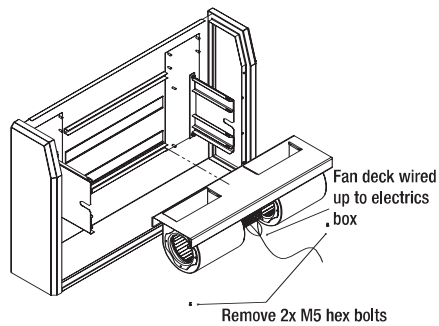
5 Removing Coil



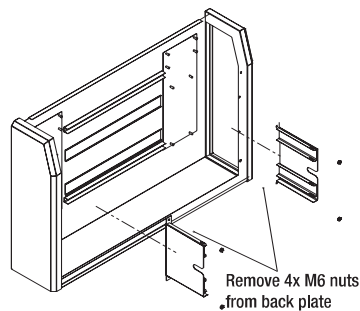
6 Removing Electrics Box



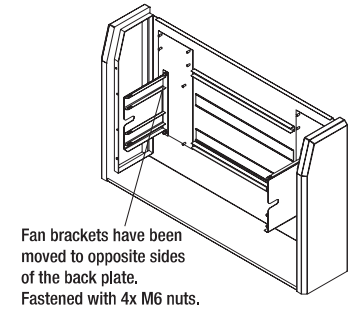
7 Removing Fan Deck



8 Removing Fan Brackets



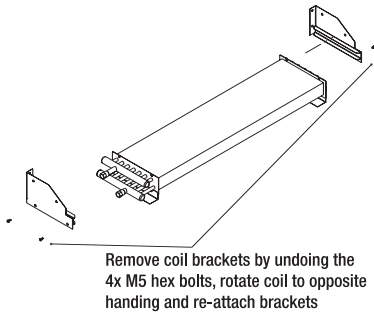
9 Moving Fan Brackets



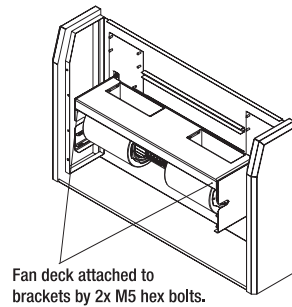
Changing the Unit Handing

Steps 10 - 18

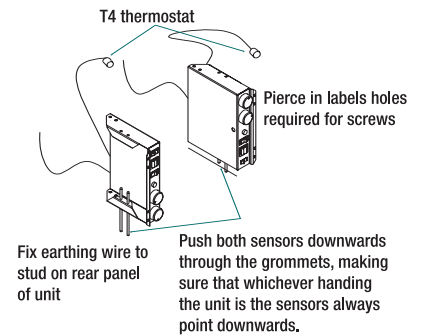
10 Changing Coil Handing



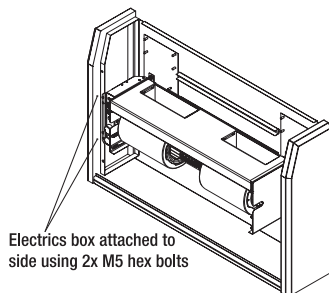
11 Re-attaching Fan Deck



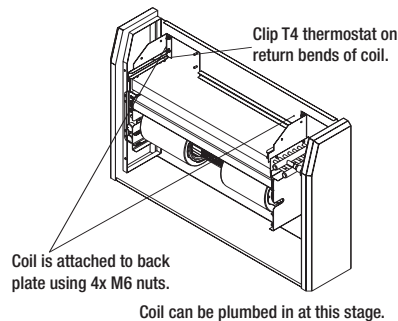
12 Changing Electrics Box Handing



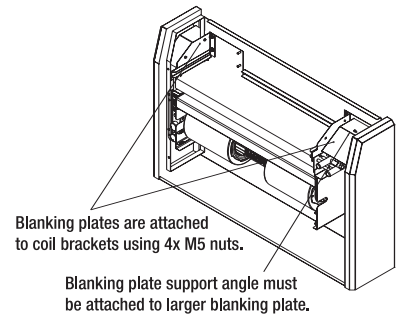
13 Re-attaching Electrics Box



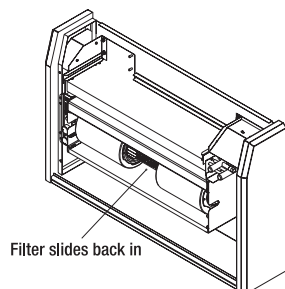
14 Re-attaching Coil



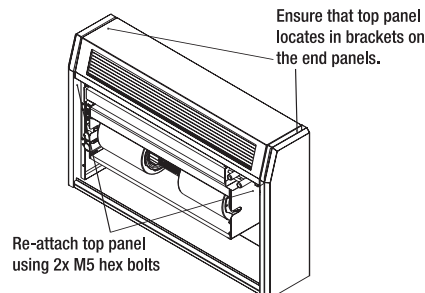
15 Re-attaching Blanking Plates



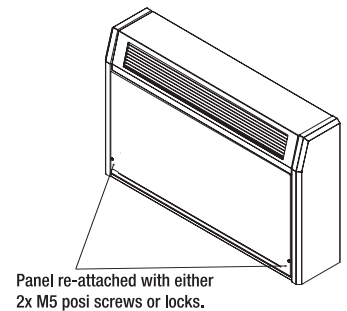
16 Re-attaching Filter



17 Re-attaching Top Panel



18 Re-attaching Access Panel



Existing substrate →

WBS bedding adhesive to be applied as specified →

WBS approved mechanical fixing →

WBS Mineral Fibre insulation board (thickness to suit client requirements) →

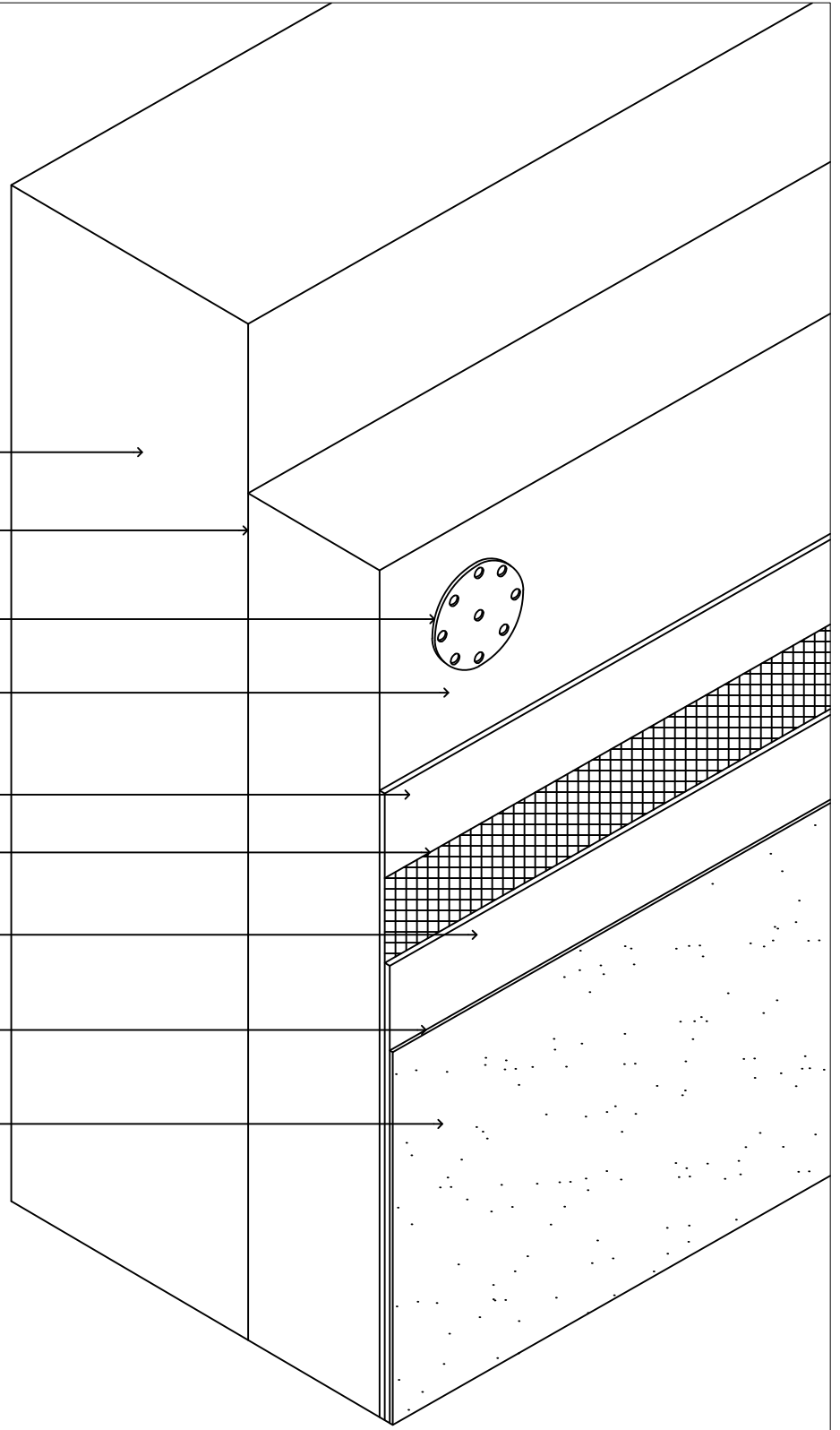
WBS scrim adhesive coat 4-6mm min →

WBS alkali resistant glass fibre reinforcing mesh →

WBS scrim adhesive levelling coat 2-3mm min finished smooth →

WBS silicone primer (colour to match silicone topcoat) →

WBS silicone finish coat (grain size and colour to clients approval) →



drawing. **Isometric - System build up**

date. April 2018

revision. -

drawn by. LS

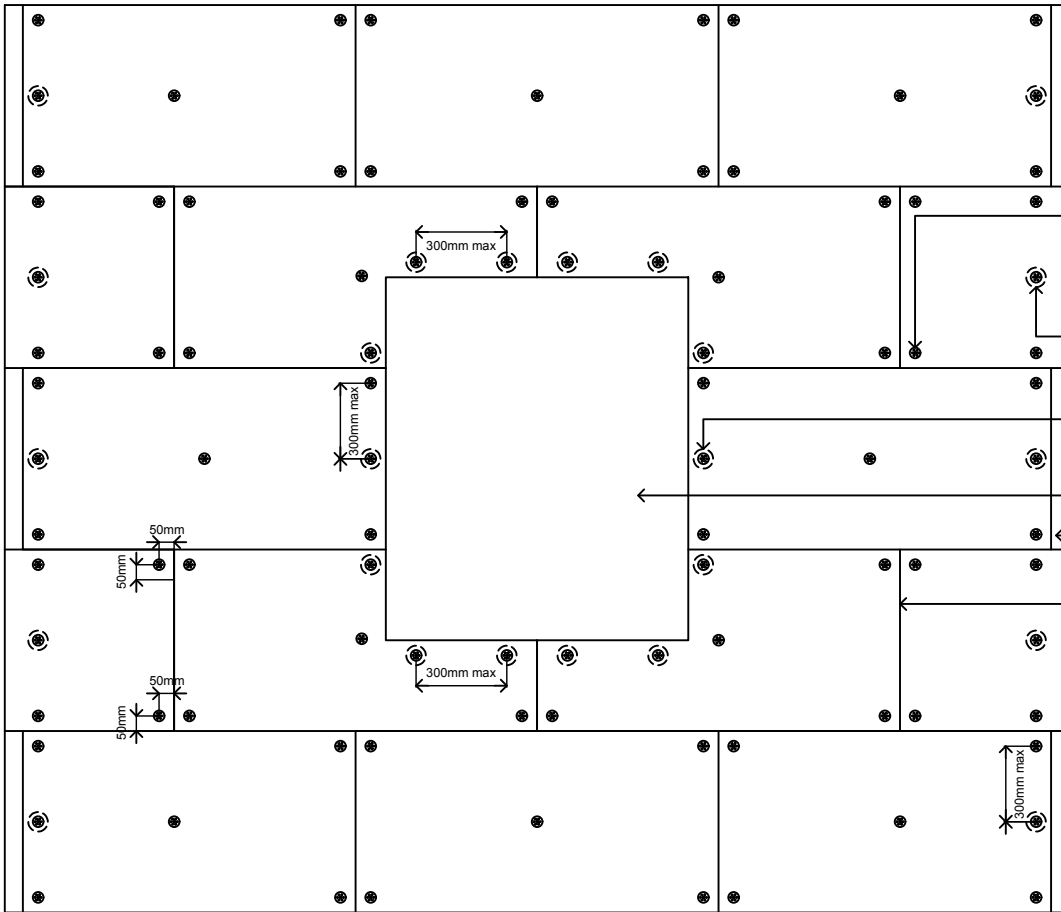
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-01**



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 approved insulation fixings
1 in each corner of the board set
in 50mm in each direction and 1
in the centre of each board

Fixings at a maximum of 300mm
centres at building corner

Fixings at a maximum of 300mm
centres around all openings

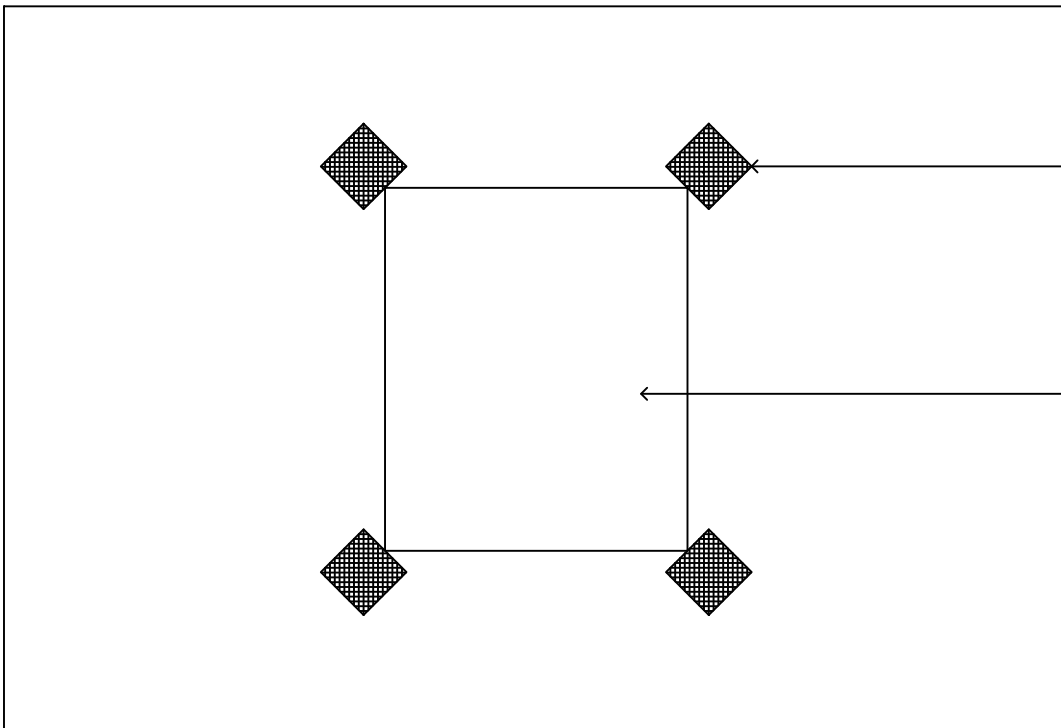
Window / door opening

Staggered insulation board
joints at building corner

1200x600mm WBS Mineral
Fibre insulation boards

N.B. 1 fixing per m² must be installed
through the glass fibre mesh where
mineral fibre is the chosen insulant.
100 x 100mm scrim patch to be
applied over fixing head

Stainless steel secondary fixings are
required on all buildings 3 storeys
and above



200x200mm glass fibre reinforcing
mesh scrim bedded in adhesive to
all window/door corners on top of
main reinforcing coat

Window / door opening

drawing. **Fixing arrangement**

date. April 2018

revision. -

drawn by. LS

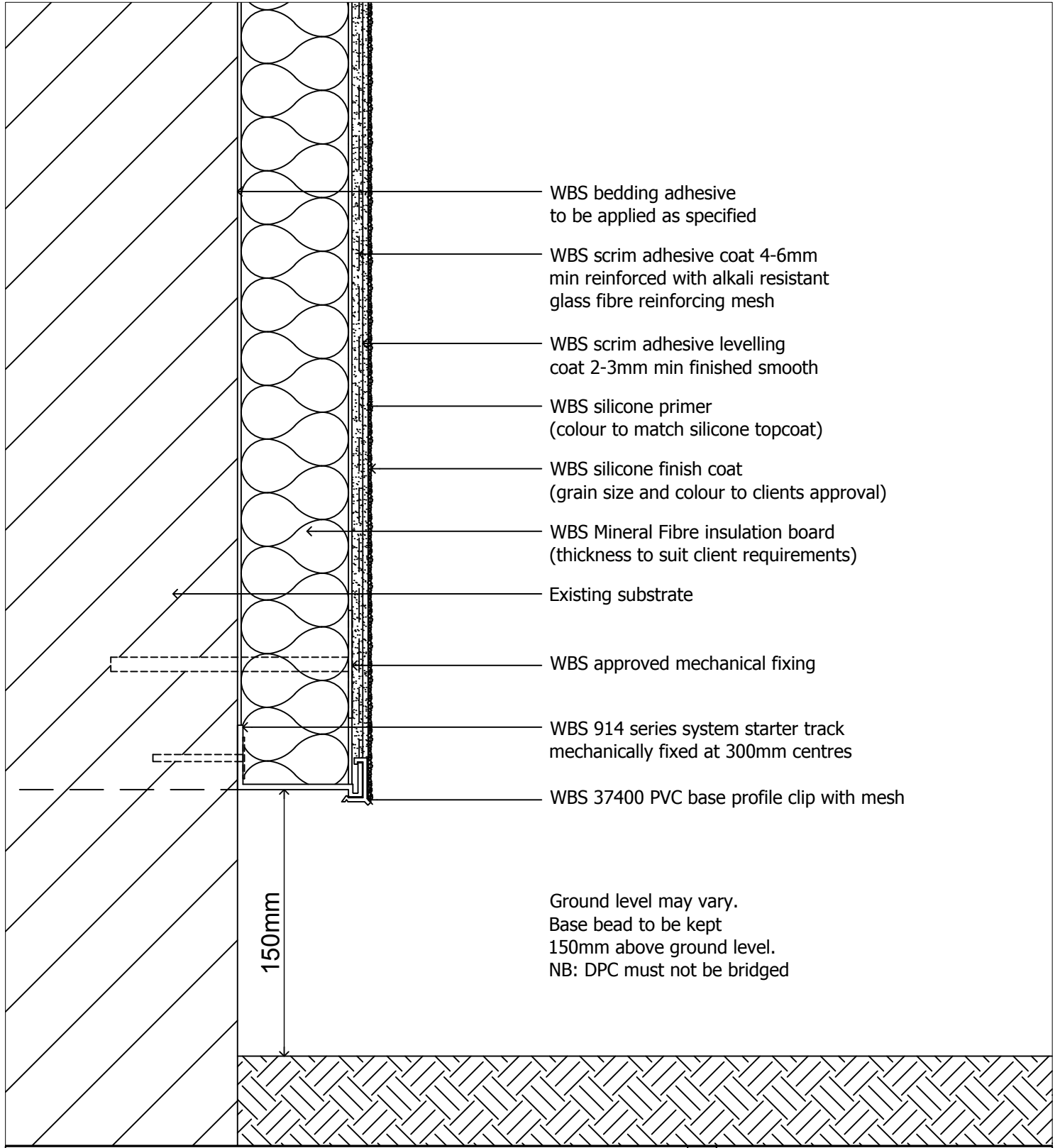
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-02**



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E-mail: technical@wbs-ltd.co.uk



drawing. **Base bead detail**

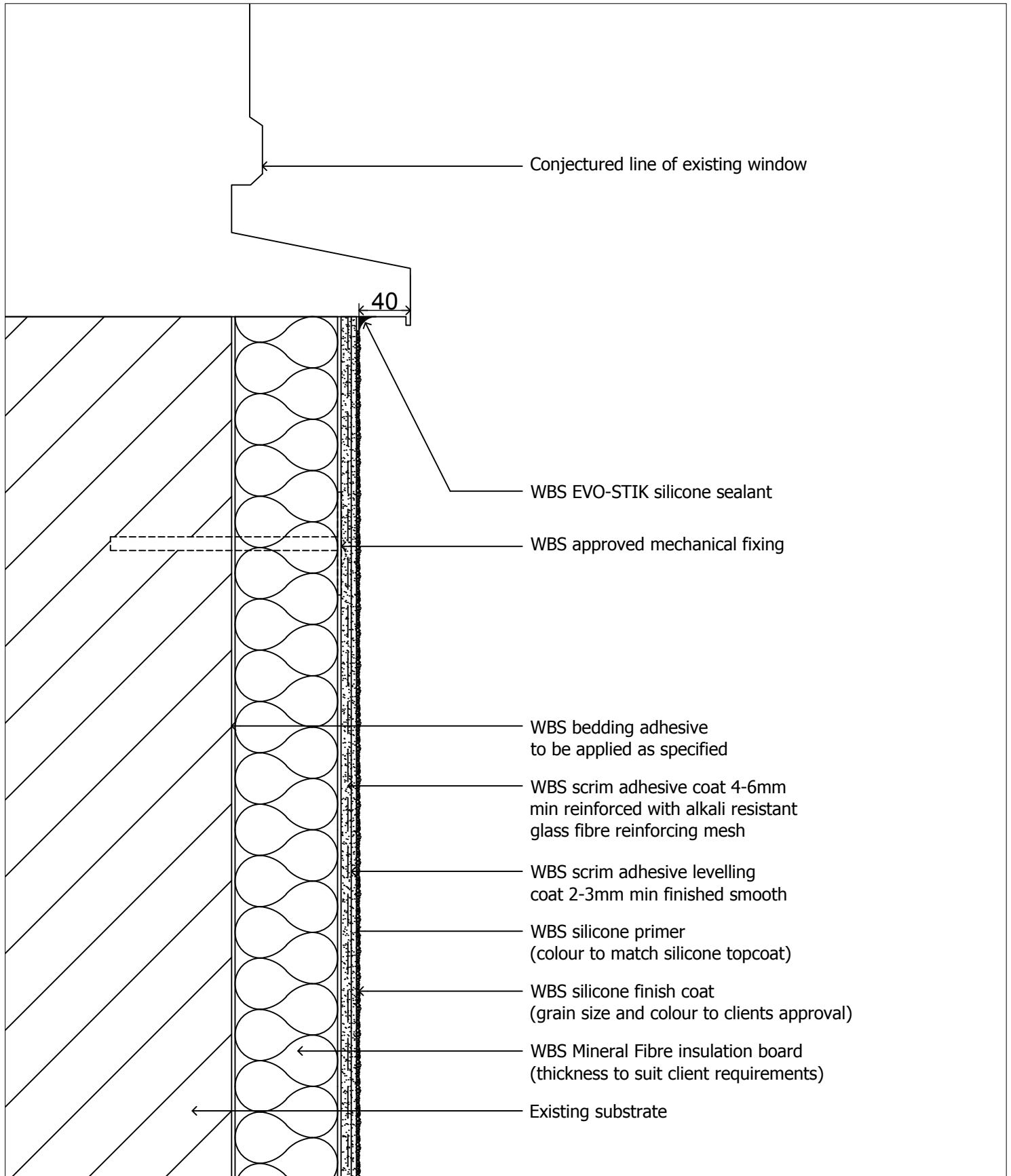
date. April 2018 revision. - drawn by. LS scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-03**



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 Web: www.wbs-ltd.co.uk
 E-mail: technical@wbs-ltd.co.uk



drawing. **Window cill detail**

date. April 2018

revision. -

drawn by. LS

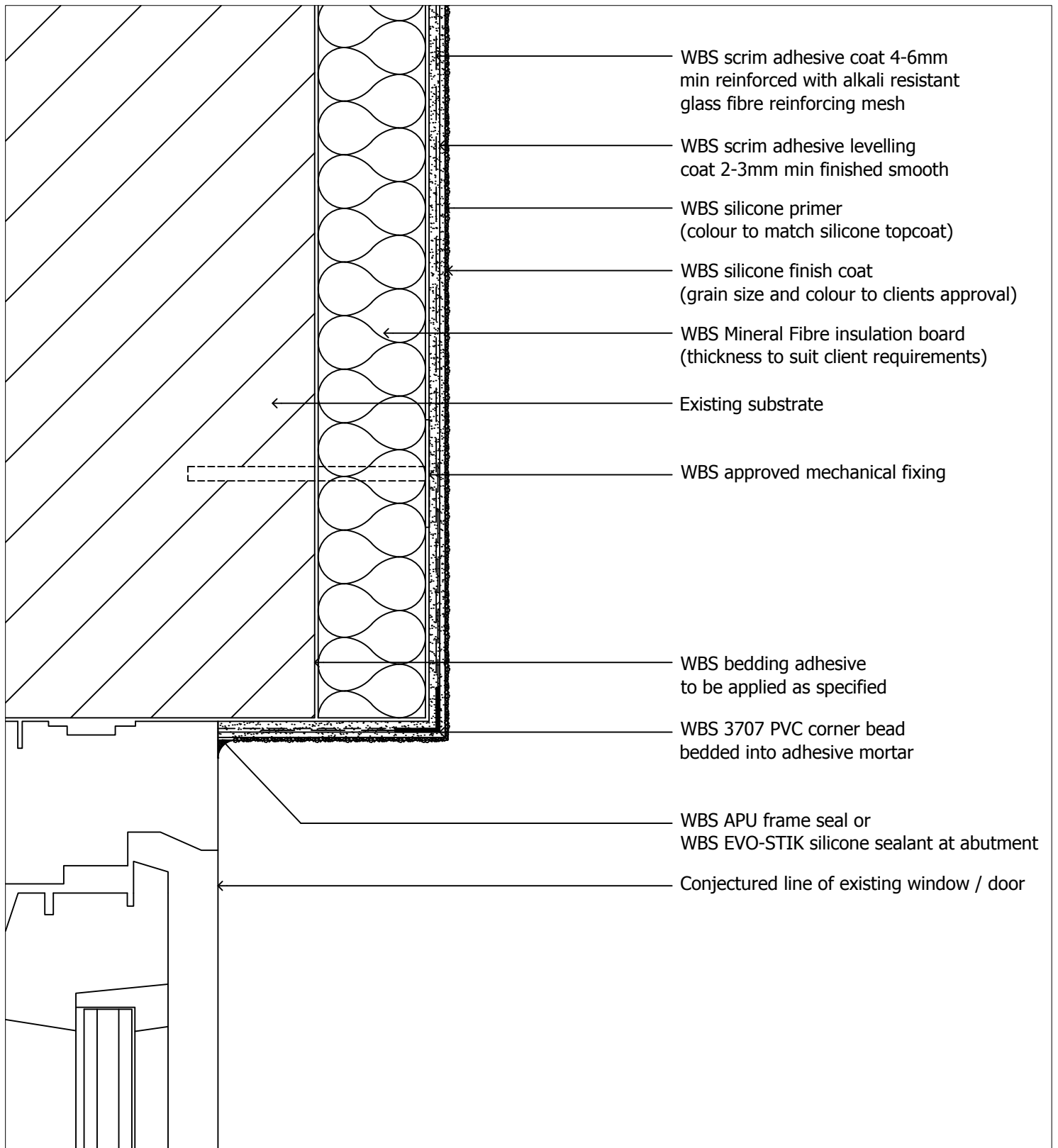
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-04**



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drawing. **Window / Door head detail 1 of 2**

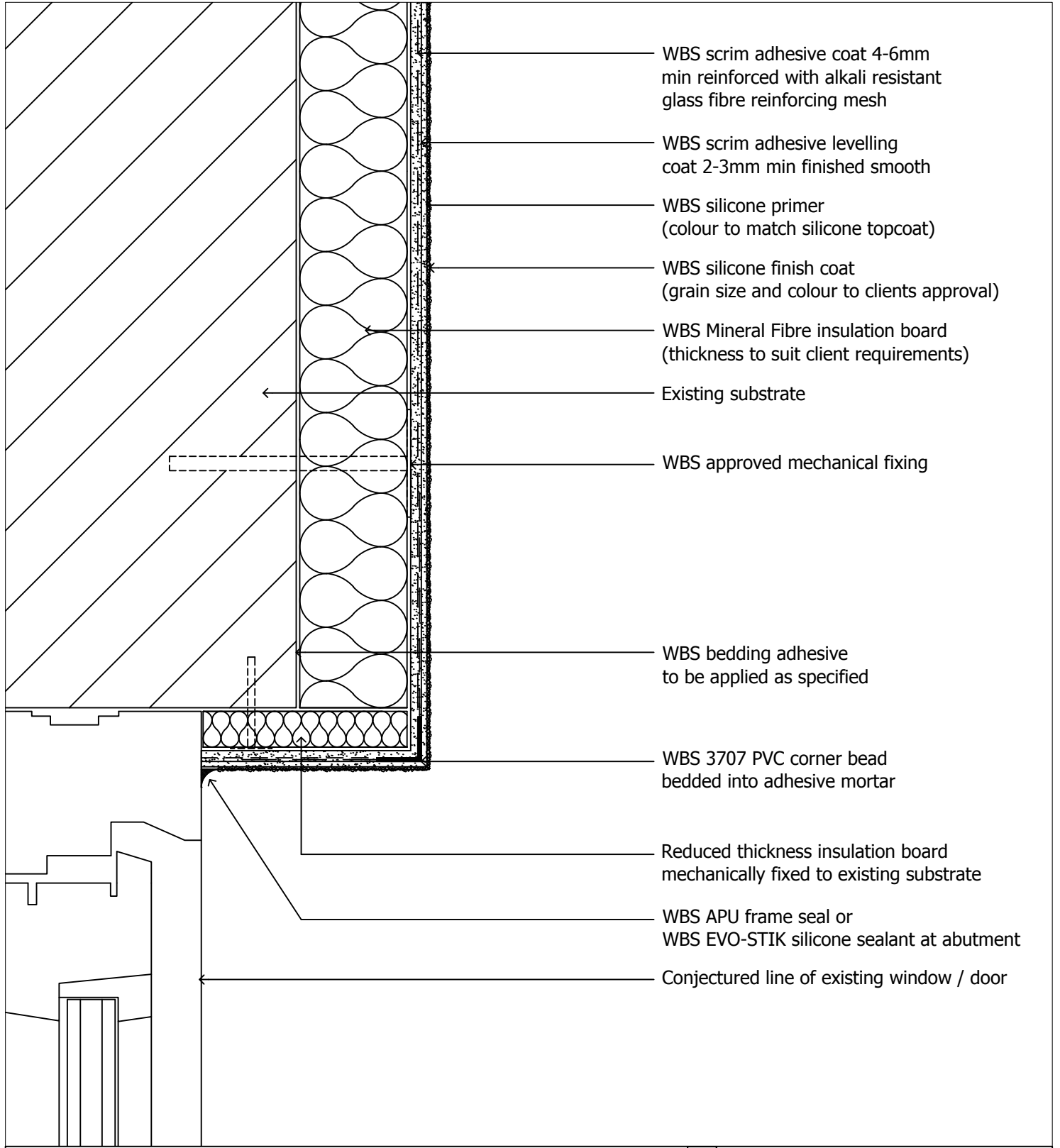
date. April 2018 revision. - drawn by. LS scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-05A**



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- WBS scrim adhesive coat 4-6mm min reinforced with alkali resistant glass fibre reinforcing mesh
- WBS scrim adhesive levelling coat 2-3mm min finished smooth
- WBS silicone primer (colour to match silicone topcoat)
- WBS silicone finish coat (grain size and colour to clients approval)
- WBS Mineral Fibre insulation board (thickness to suit client requirements)
- Existing substrate
- WBS approved mechanical fixing
- WBS bedding adhesive to be applied as specified
- WBS 3707 PVC corner bead bedded into adhesive mortar
- Reduced thickness insulation board mechanically fixed to existing substrate
- WBS APU frame seal or WBS EVO-STIK silicone sealant at abutment
- Conjectured line of existing window / door

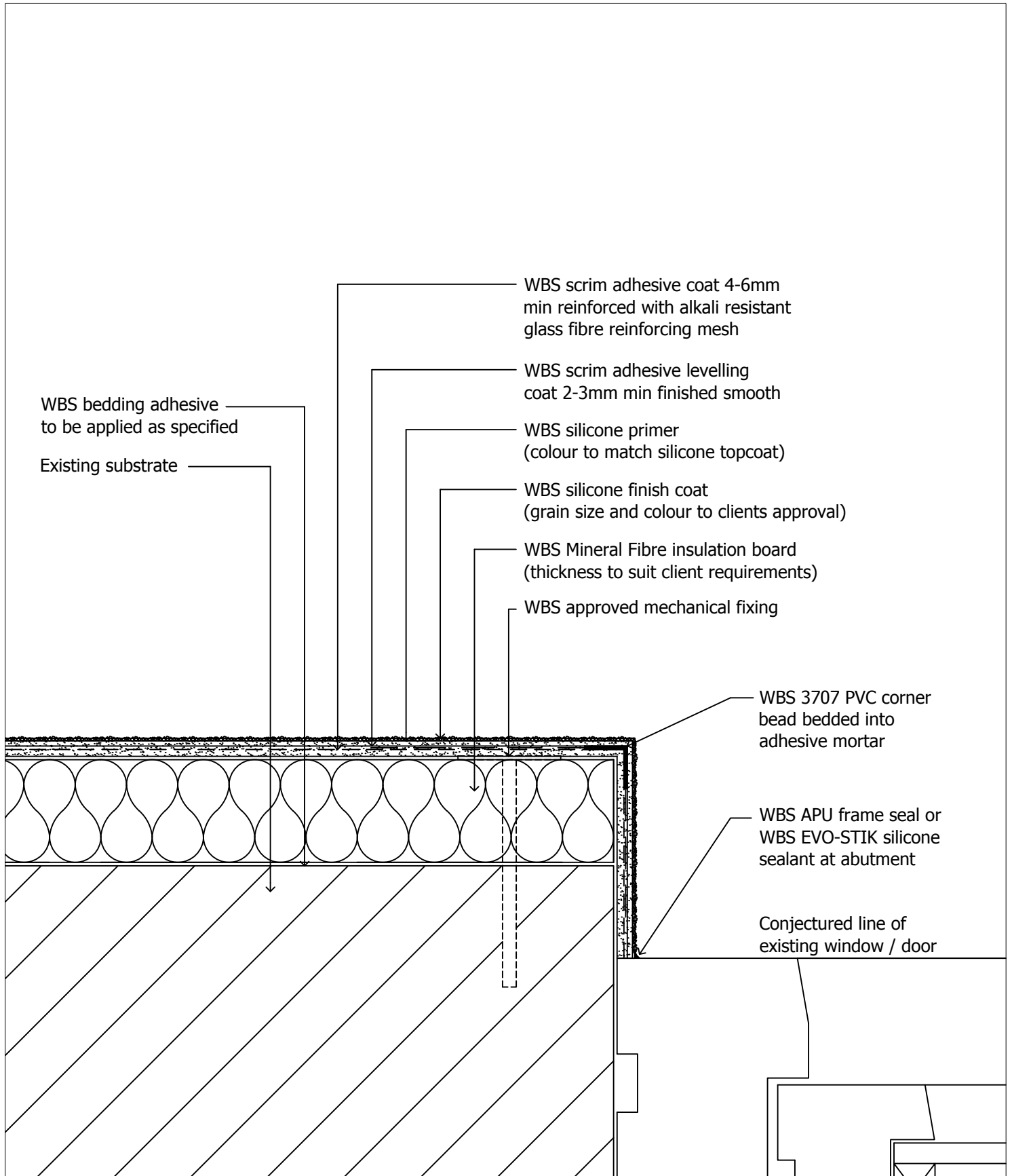
drawing. **Window / Door head detail 2 of 2**

date. April 2018 revision. - drawn by. LS scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-05B**

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 E-mail: technical@wbs-ltd.co.uk



drawing. **Window / Door jamb detail 1 of 2**

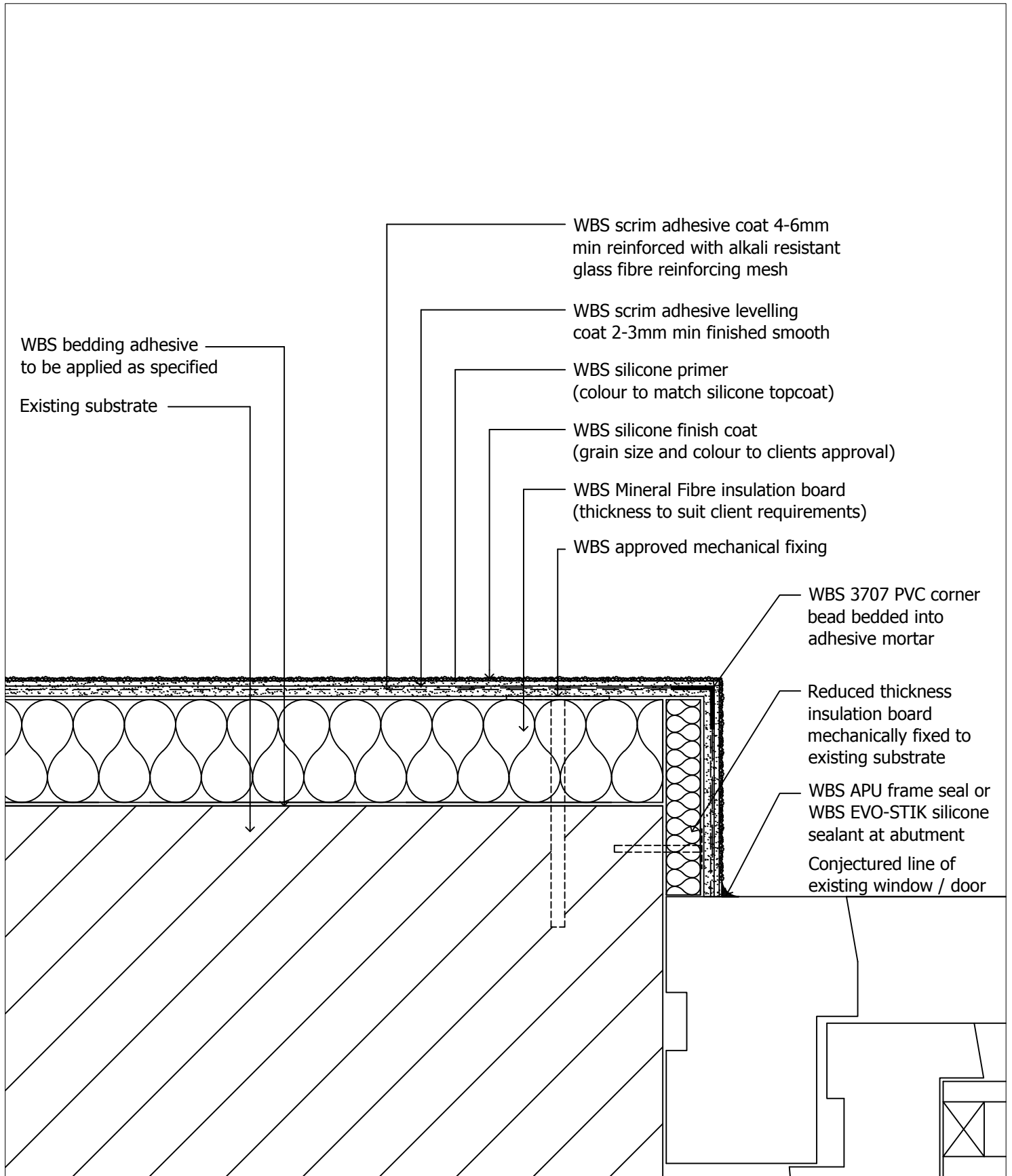
date. April 2018 revision. - drawn by. LS scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-06A**



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drawing. **Window / Door jamb detail 2 of 2**

date. April 2018

revision. -

drawn by. LS

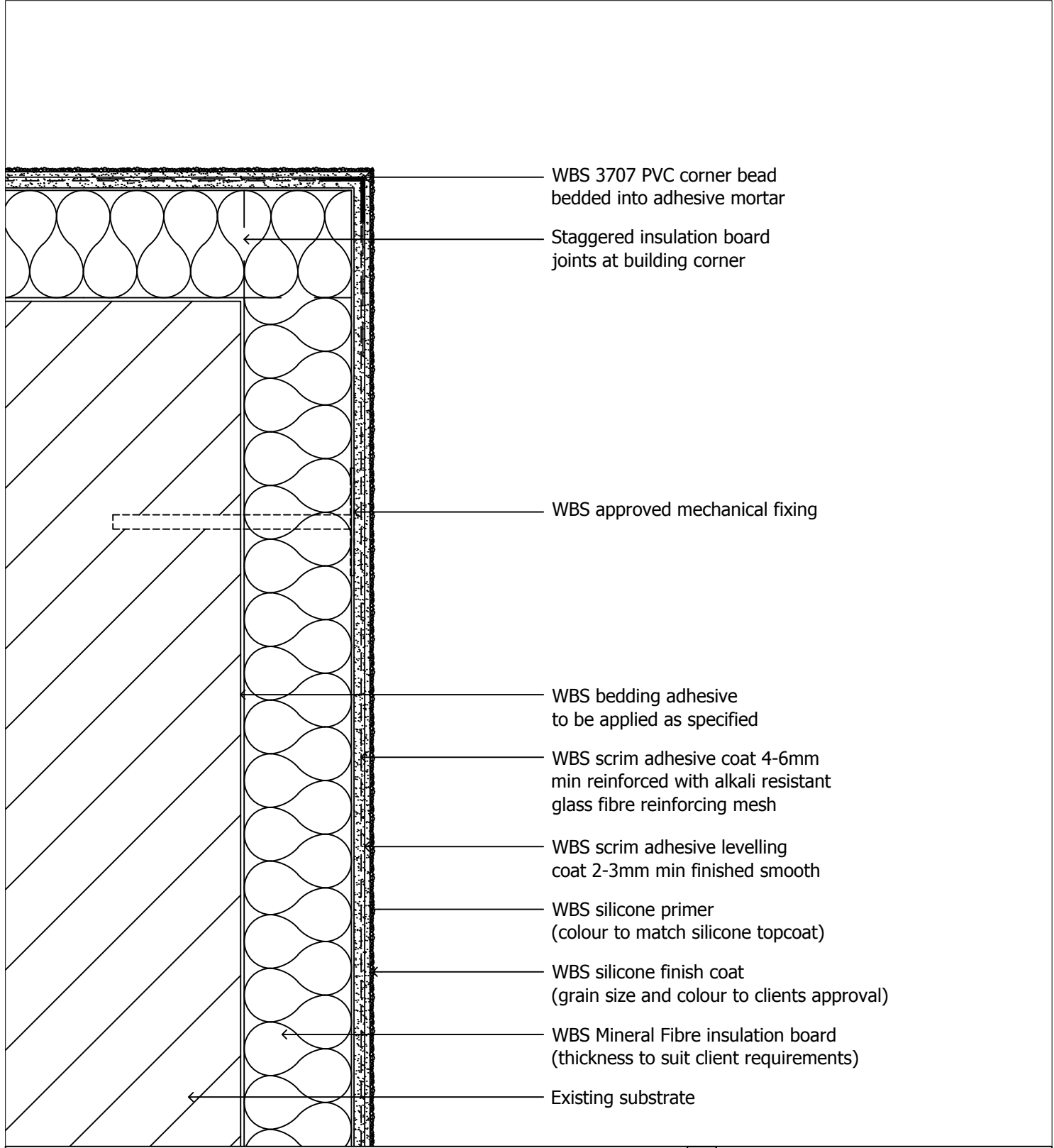
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-06B**



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drawing. **Building corner detail**

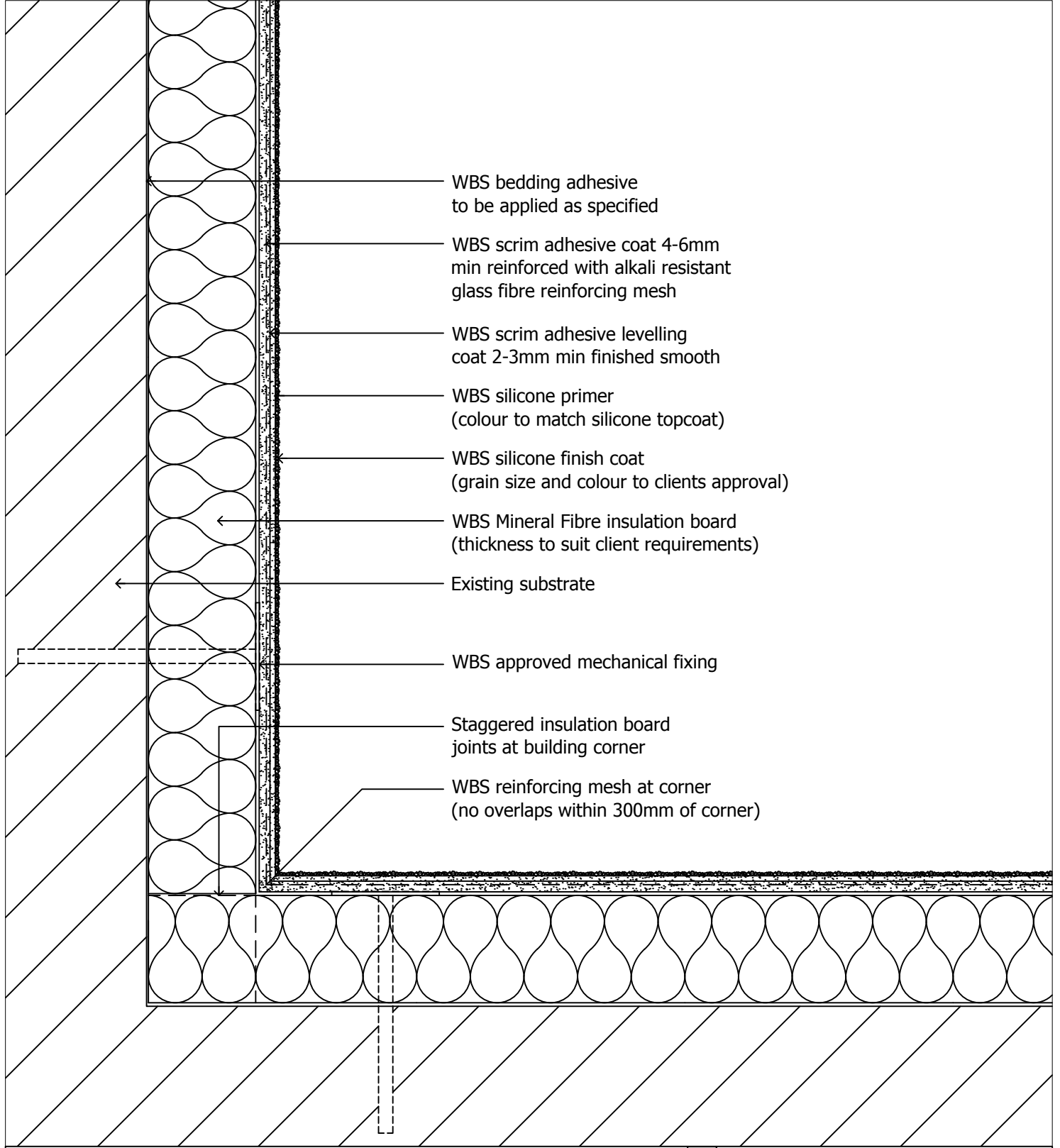
date. April 2018 revision. - drawn by. LS scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-07A**



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- WBS bedding adhesive to be applied as specified
- WBS scrim adhesive coat 4-6mm min reinforced with alkali resistant glass fibre reinforcing mesh
- WBS scrim adhesive levelling coat 2-3mm min finished smooth
- WBS silicone primer (colour to match silicone topcoat)
- WBS silicone finish coat (grain size and colour to clients approval)
- WBS Mineral Fibre insulation board (thickness to suit client requirements)
- Existing substrate
- WBS approved mechanical fixing
- Staggered insulation board joints at building corner
- WBS reinforcing mesh at corner (no overlaps within 300mm of corner)

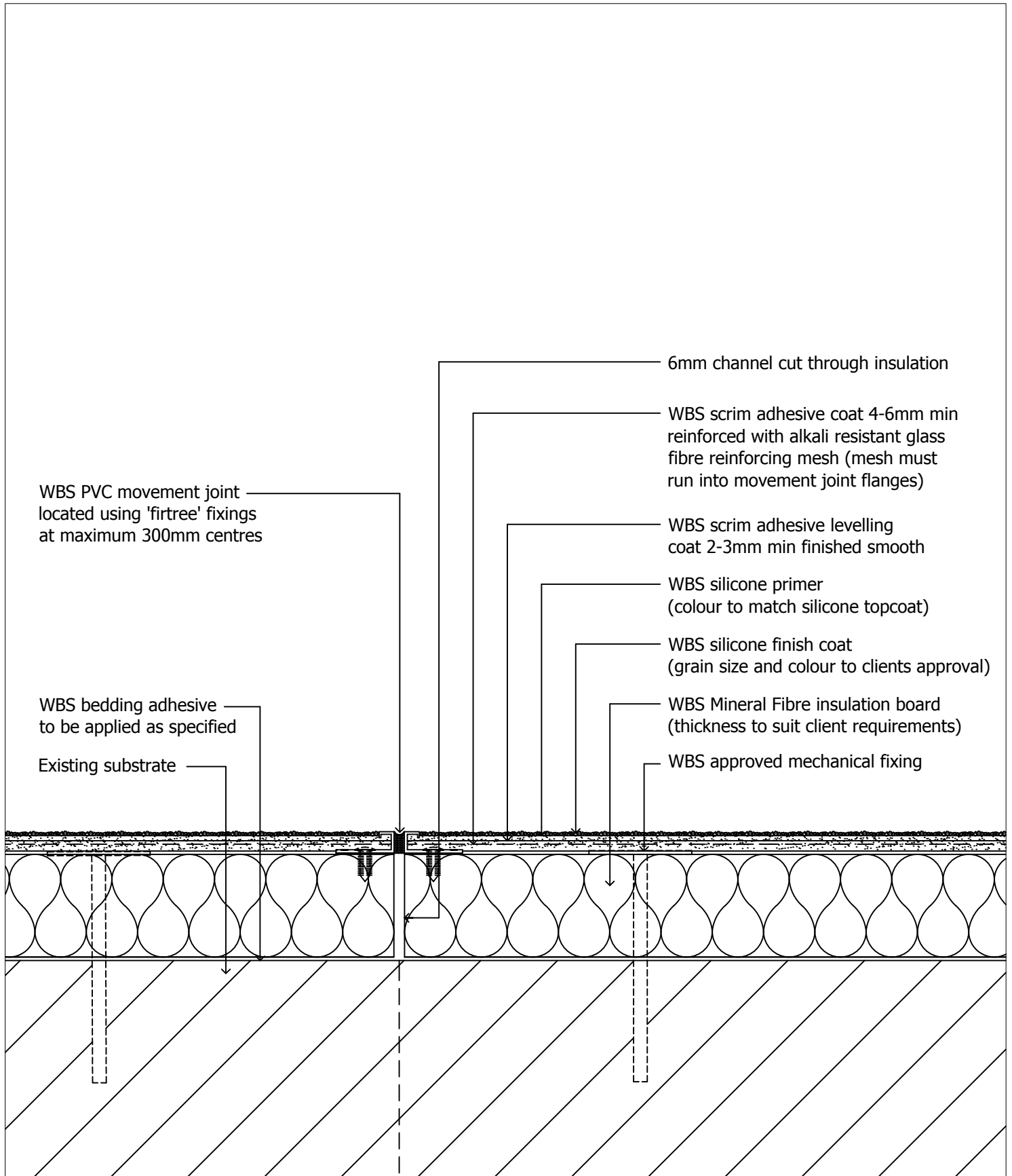
drawing. **Internal building corner detail**

date. April 2018 revision. - drawn by. LS scale. nts

project ref. **Mechanical & Adhesive Fix**
drawing no. **EWI-SILICONE-07B**



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drawing. **Movement joint detail**

date. April 2018

revision. -

drawn by. LS

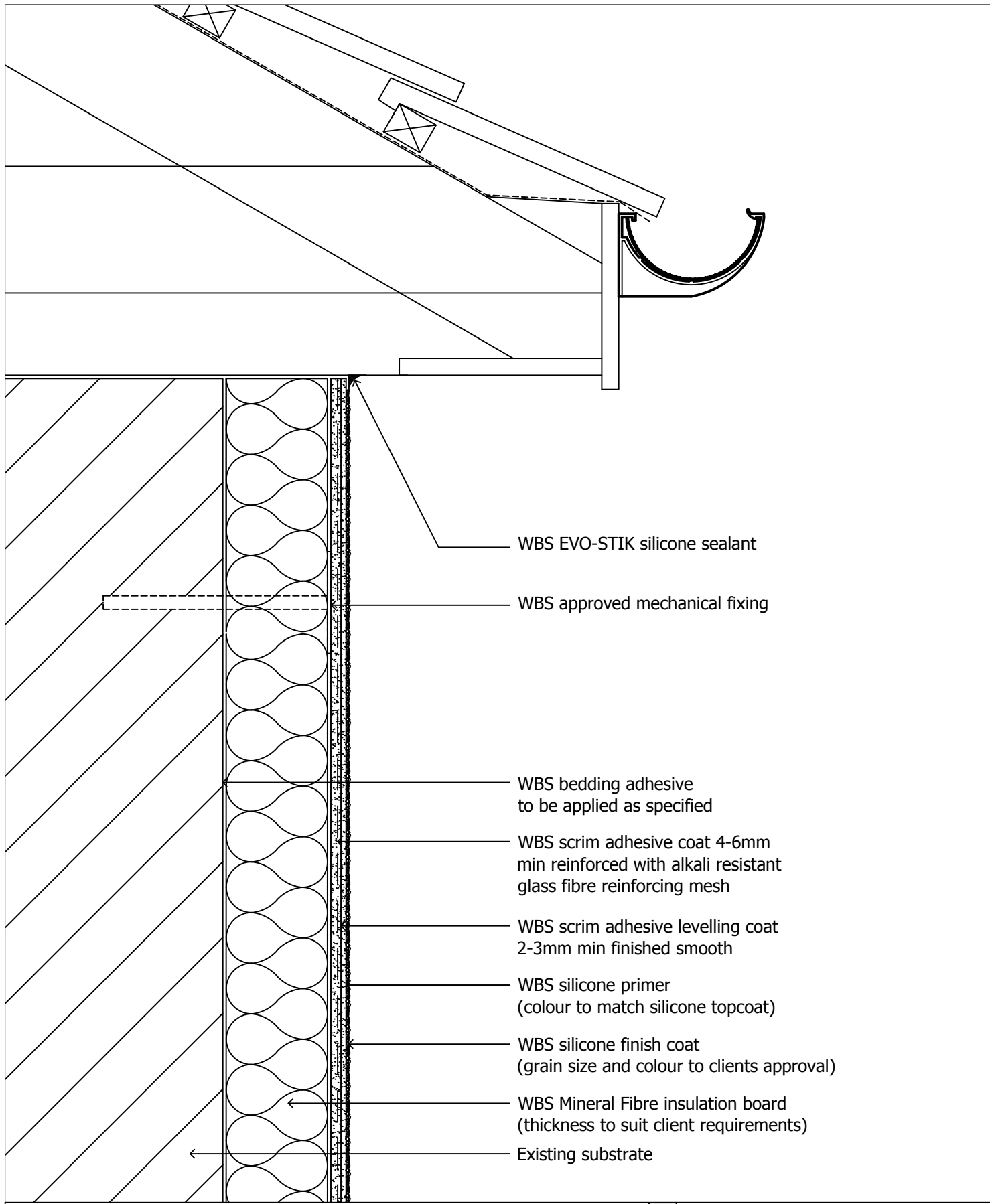
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-08**



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drawing. **Roof abutment detail**

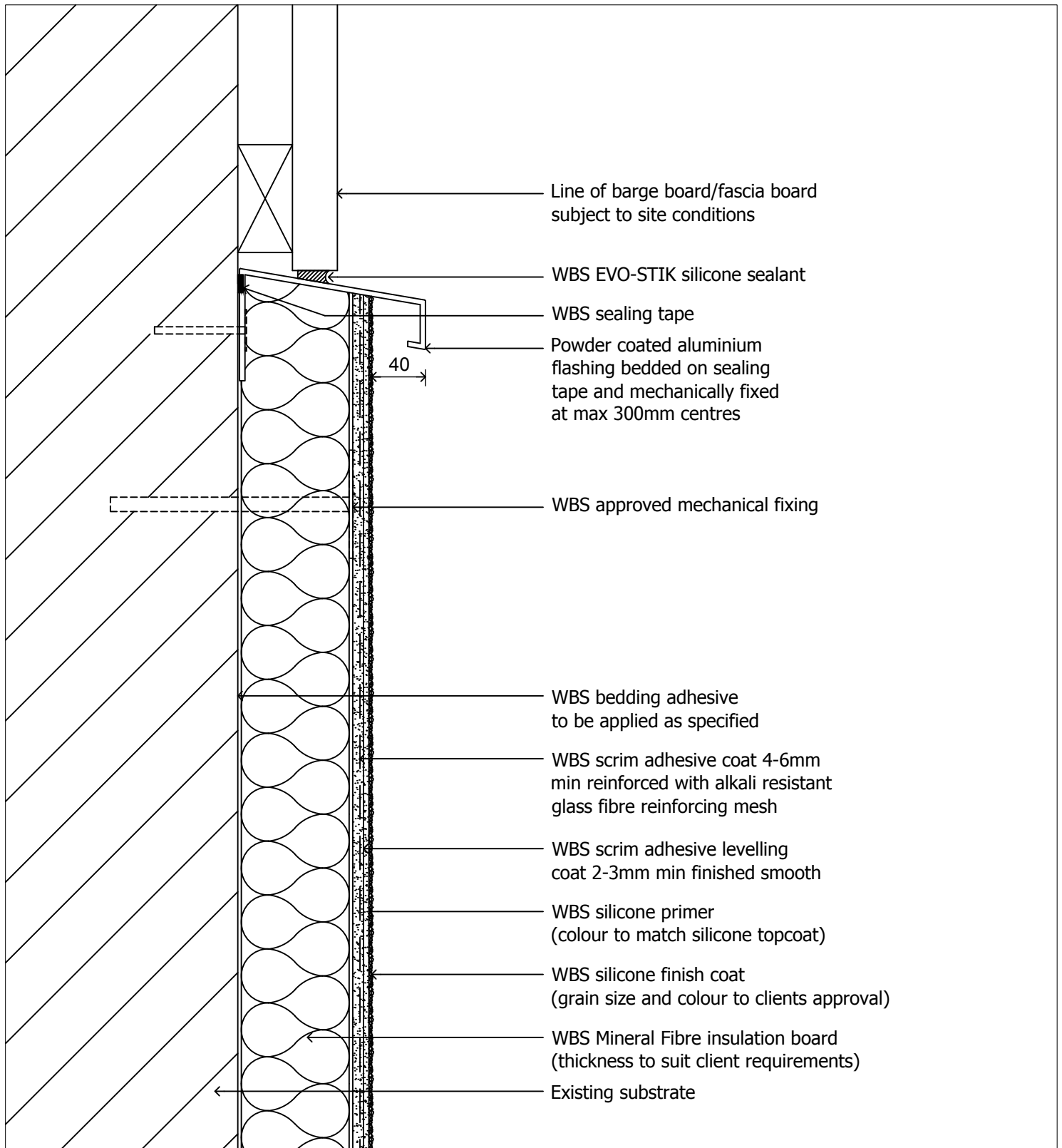
date. April 2018 revision. - drawn by. LS scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-09**



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drawing. **Verge trim detail 1 of 2**

date. April 2018

revision. -

drawn by. LS

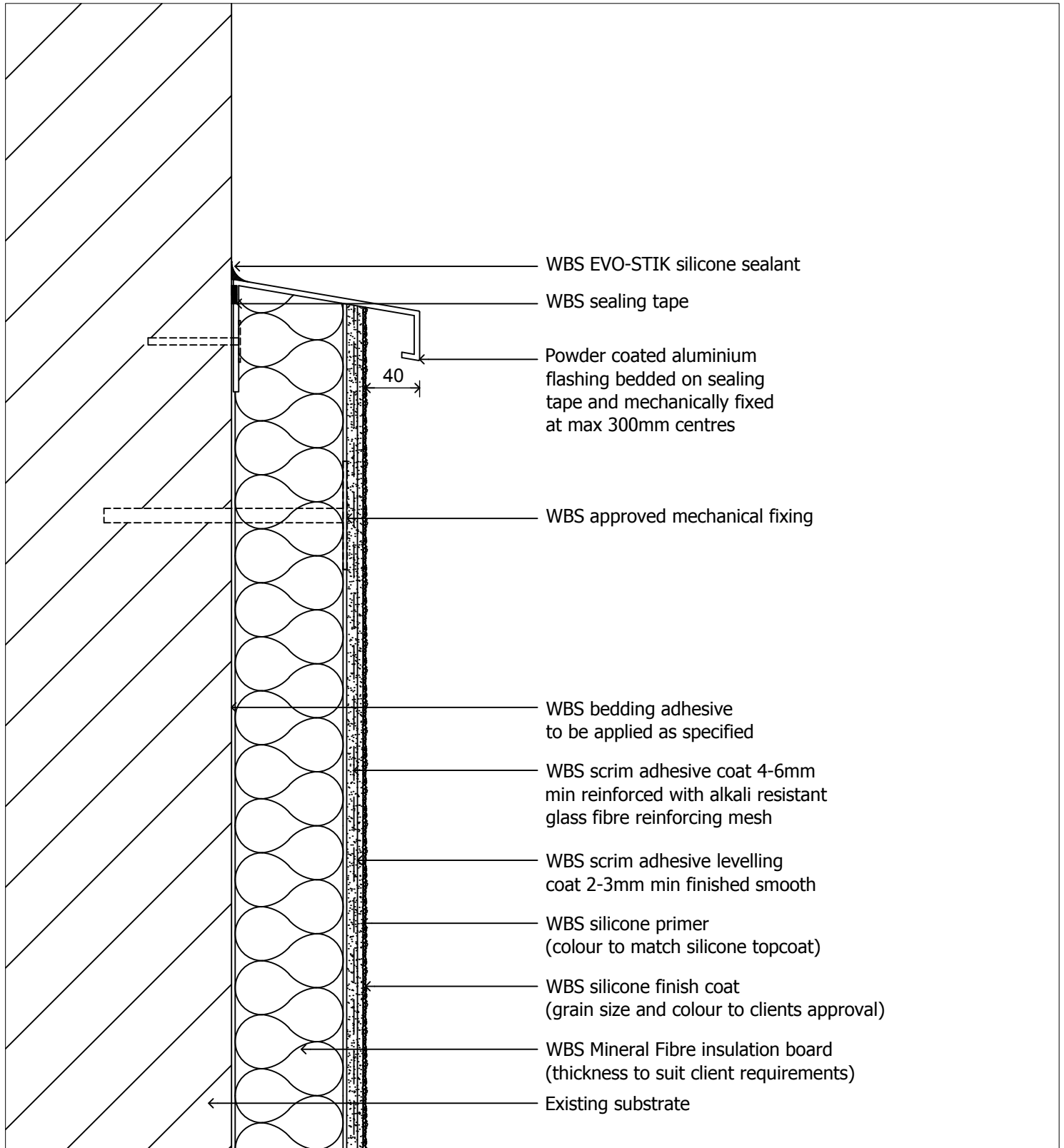
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-10A**



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drawing. **Verge trim detail 2 of 2**

date. April 2018

revision. -

drawn by. LS

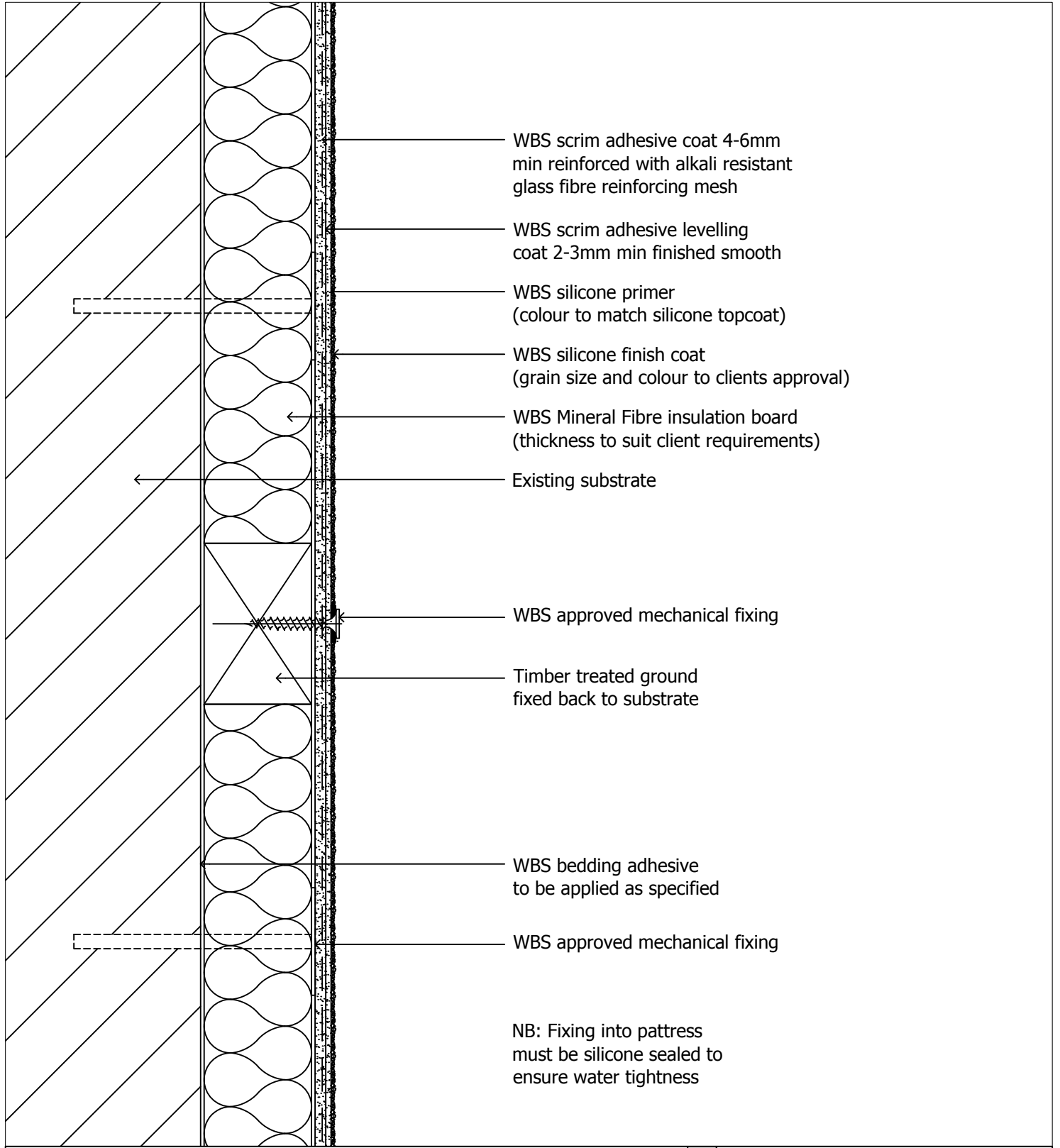
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project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-10B**



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drawing. **Timber pattice detail**

date. April 2018

revision. -

drawn by. LS

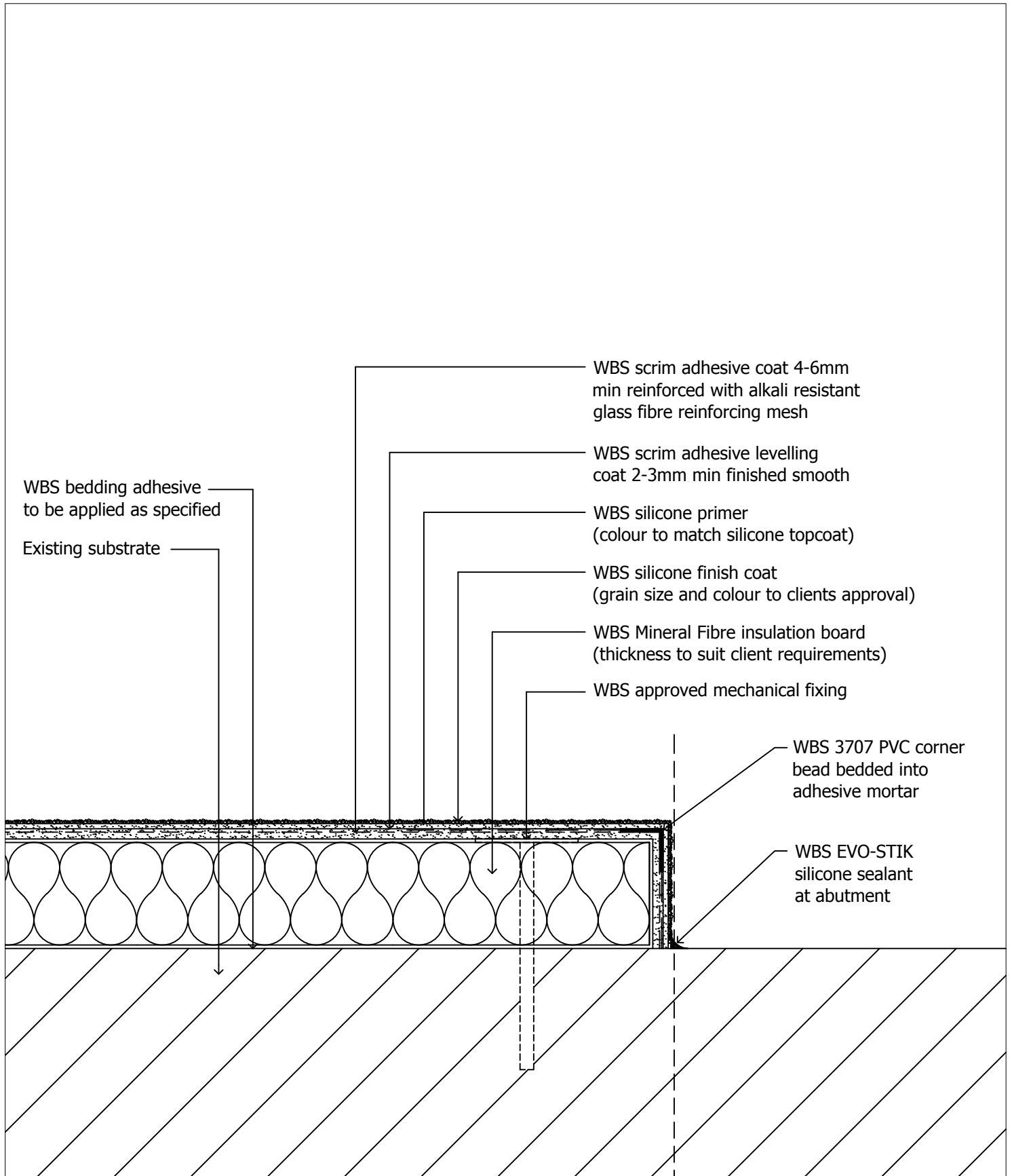
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-11**



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drawing. **Party wall detail 1 of 2**

date. April 2018

revision. -

drawn by. LS

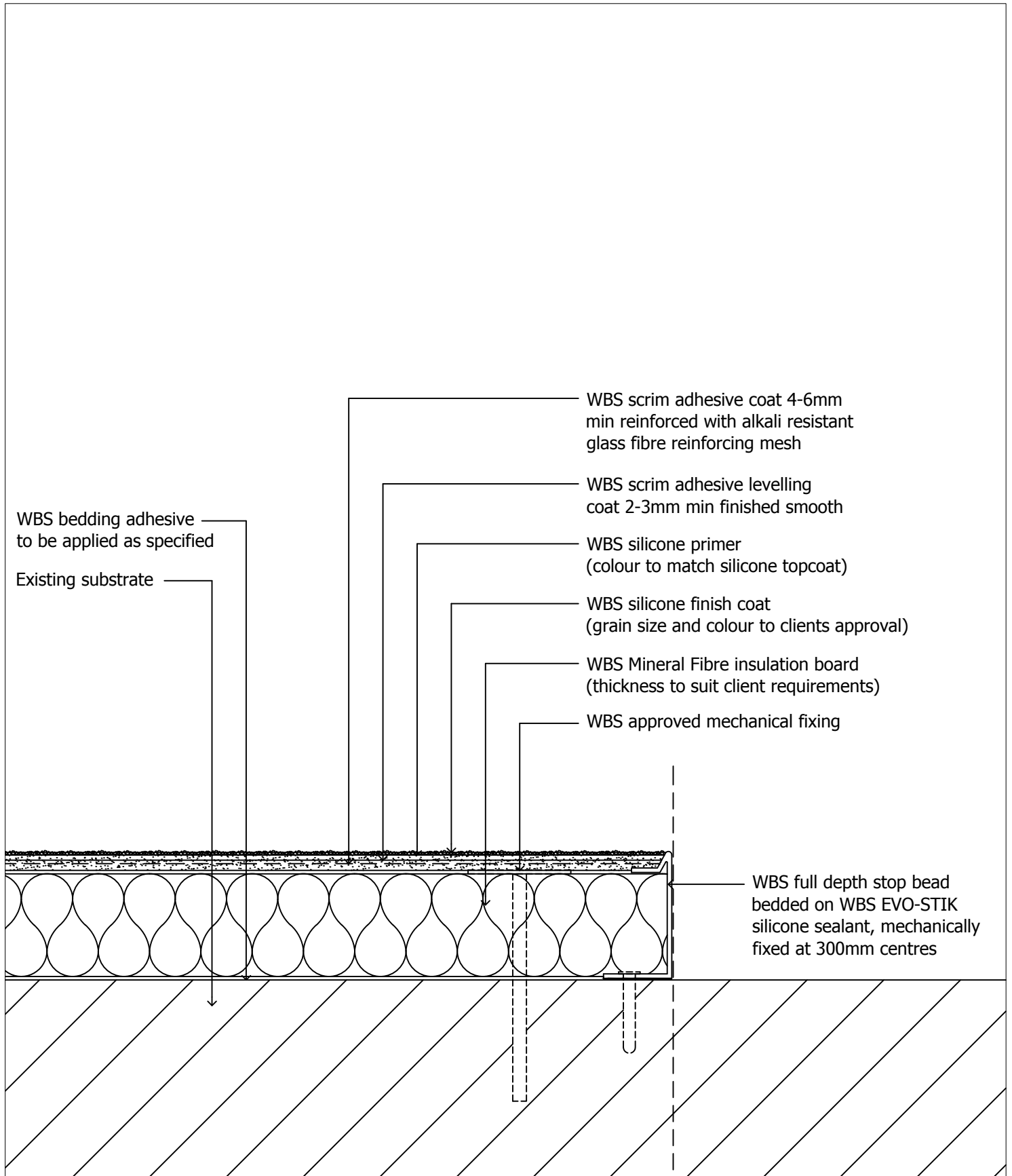
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-12A**



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drawing. **Party wall detail 2 of 2**

date. April 2018

revision. -

drawn by. LS

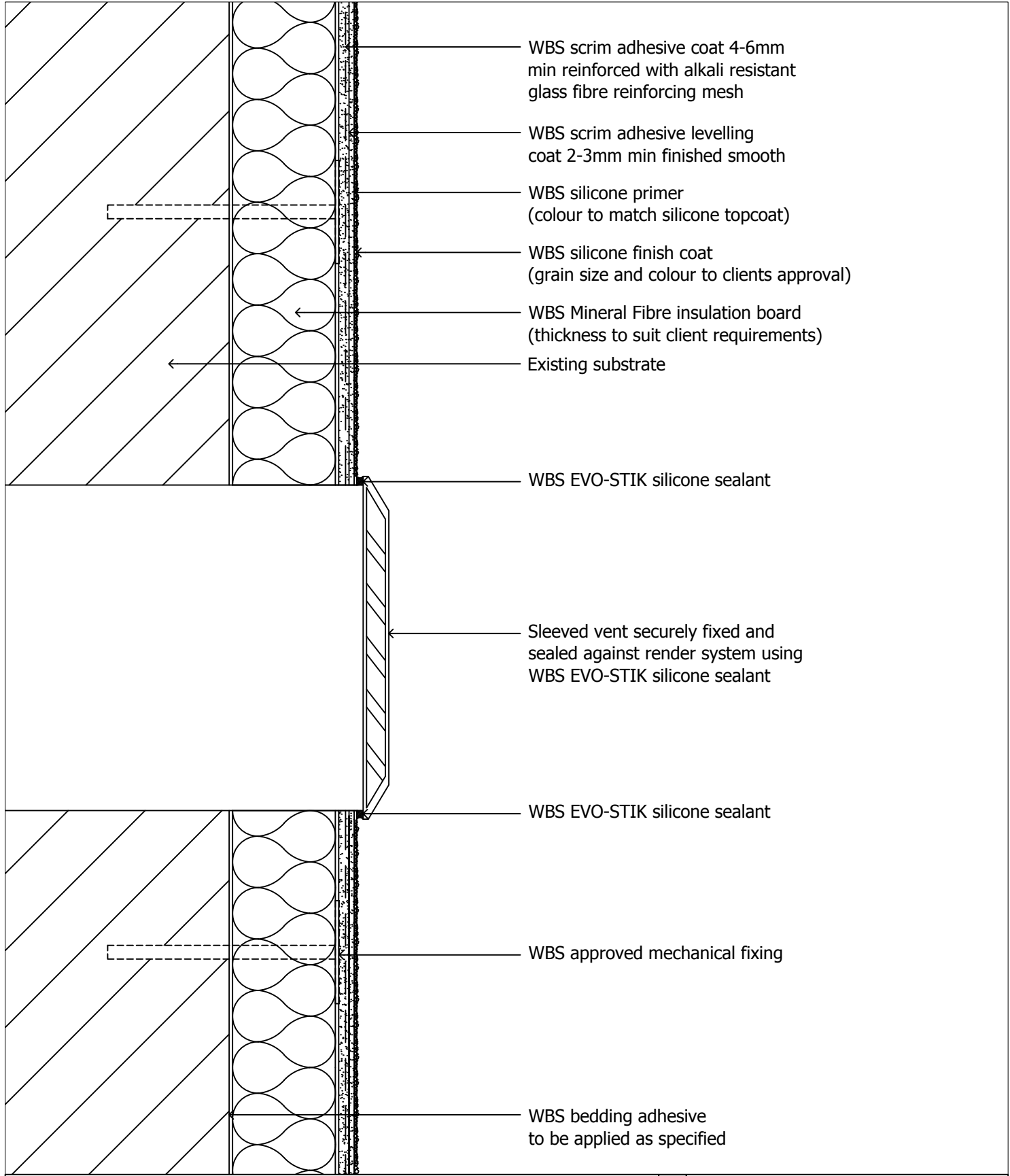
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-12B**



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drawing. **Air vent detail**

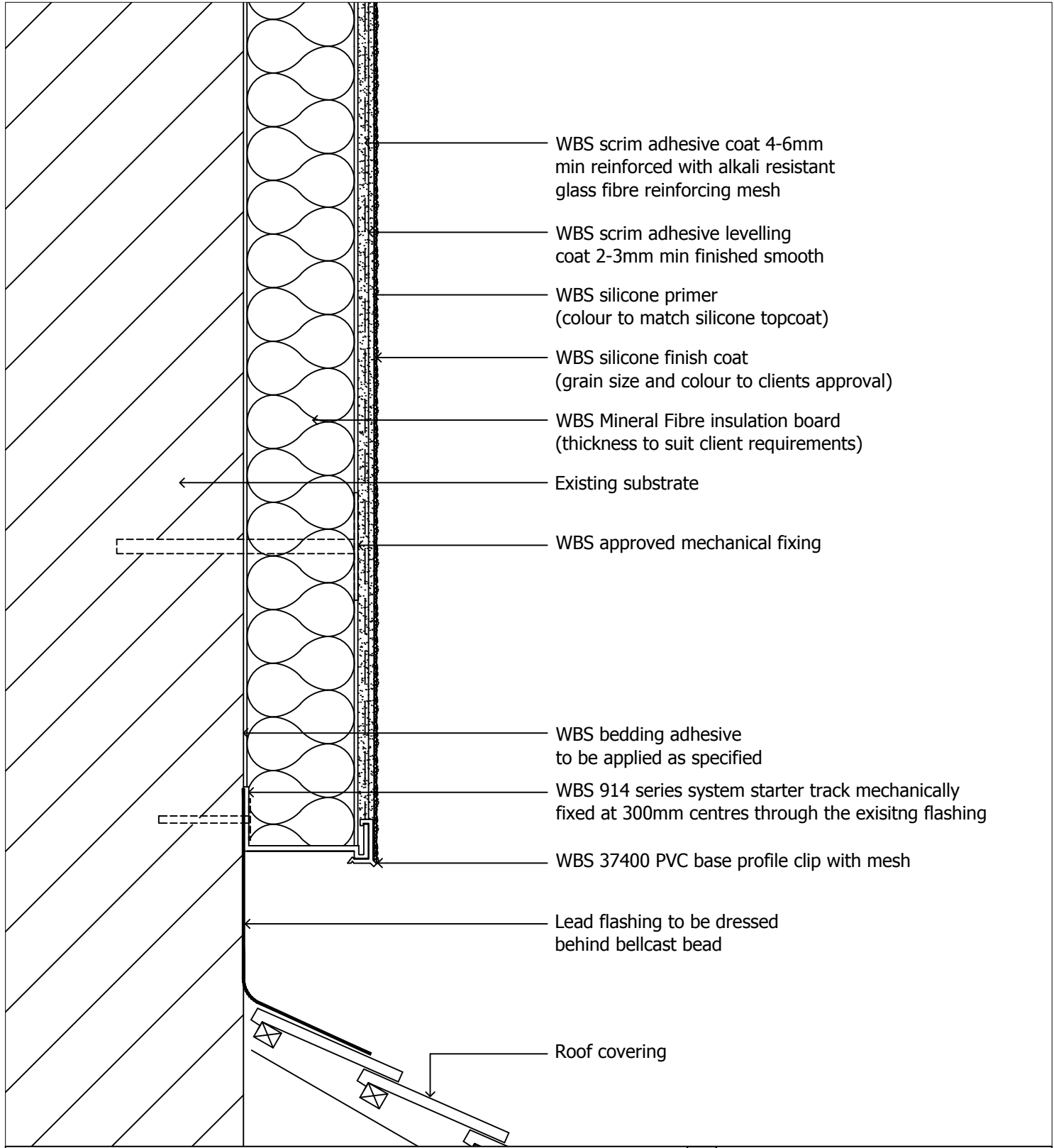
date. April 2018 revision. - drawn by. LS scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-13**



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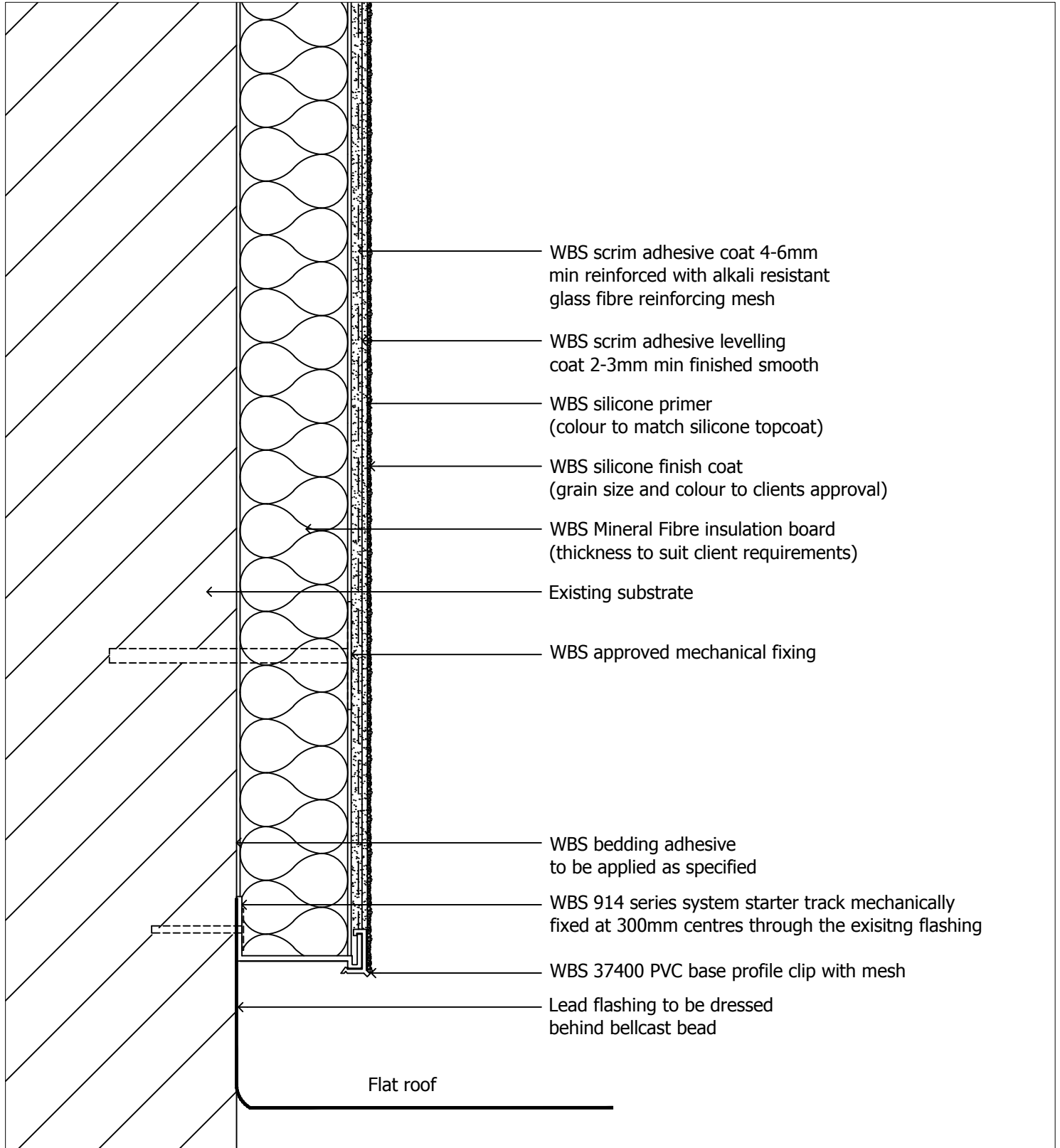
drawing. **Roof junction detail 1 of 2**

date. April 2018 revision. - drawn by. LS scale. nts

project ref. **Mechanical & Adhesive Fix**
drawing no. **EWI-SILICONE-14A**

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drawing. **Roof junction detail 2 of 2**

date. April 2018

revision. -

drawn by. LS

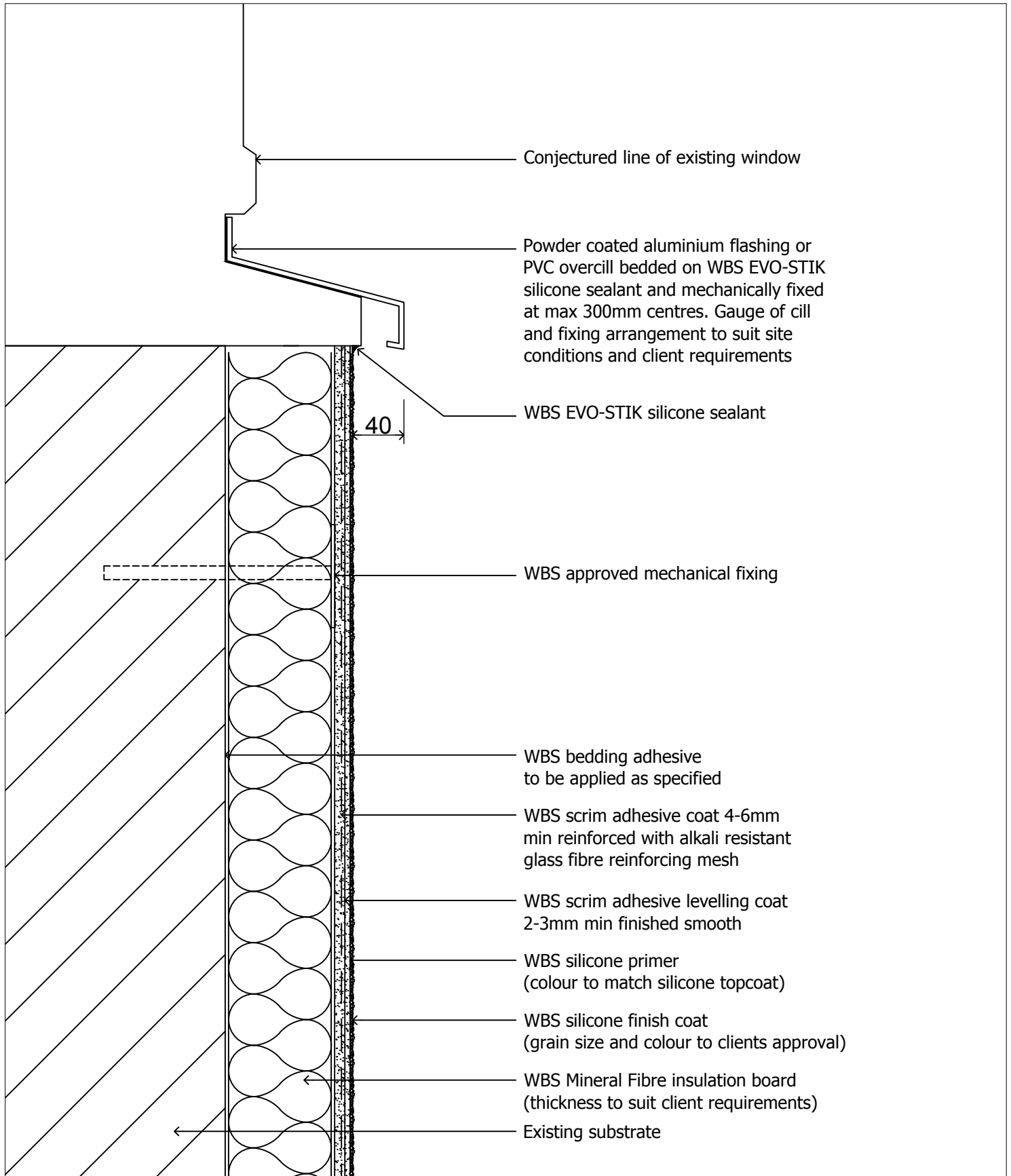
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-14B**



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drawing. **Overcill detail**

date. April 2018

revision. -

drawn by. LS

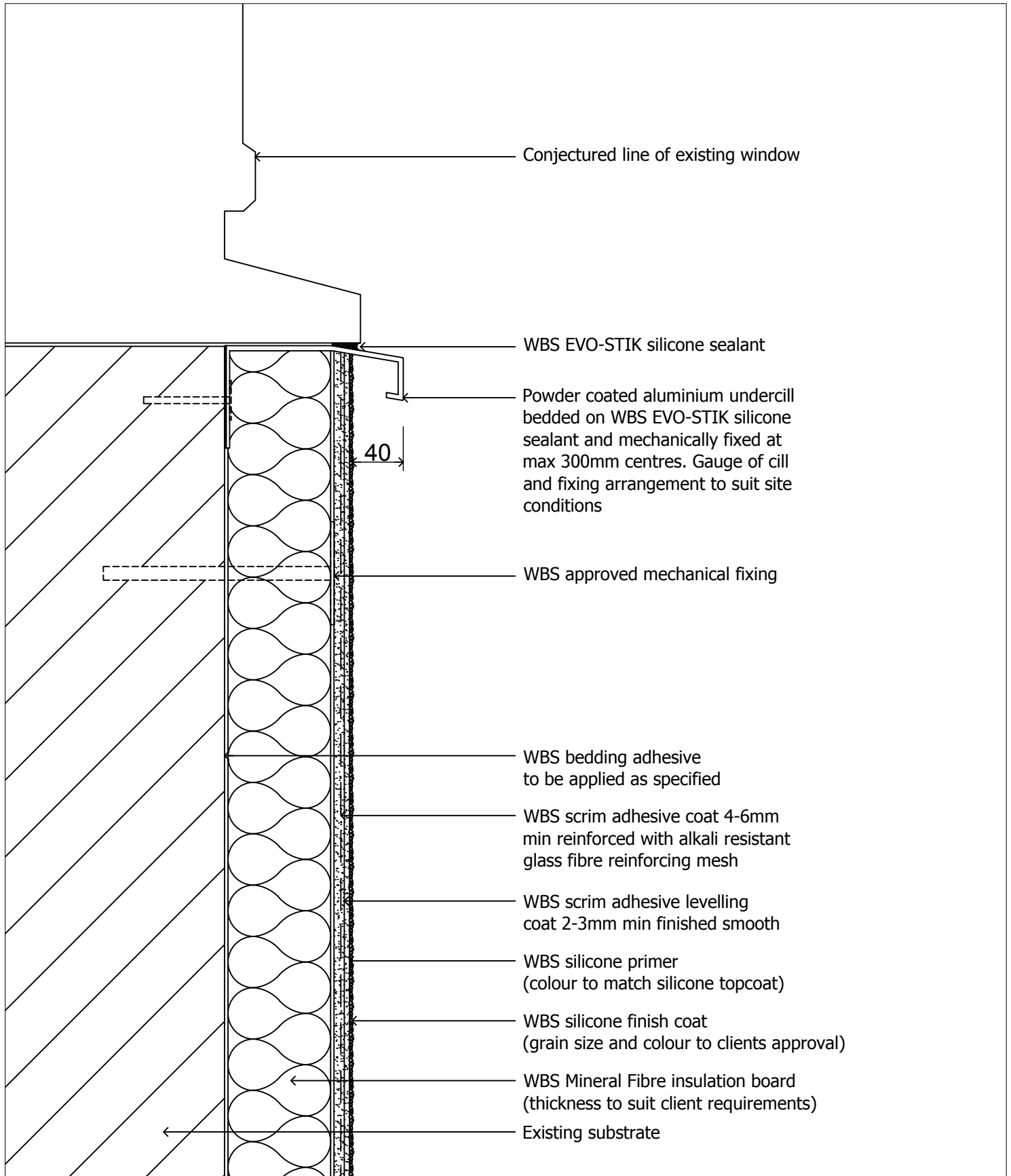
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-15**



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Conjectured line of existing window

WBS EVO-STIK silicone sealant

Powder coated aluminium undercill bedded on WBS EVO-STIK silicone sealant and mechanically fixed at max 300mm centres. Gauge of cill and fixing arrangement to suit site conditions

40

WBS approved mechanical fixing

WBS bedding adhesive to be applied as specified

WBS scrim adhesive coat 4-6mm min reinforced with alkali resistant glass fibre reinforcing mesh

WBS scrim adhesive levelling coat 2-3mm min finished smooth

WBS silicone primer (colour to match silicone topcoat)

WBS silicone finish coat (grain size and colour to clients approval)

WBS Mineral Fibre insulation board (thickness to suit client requirements)

Existing substrate

drawing. **Undercill detail**

date. April 2018

revision. -

drawn by. LS

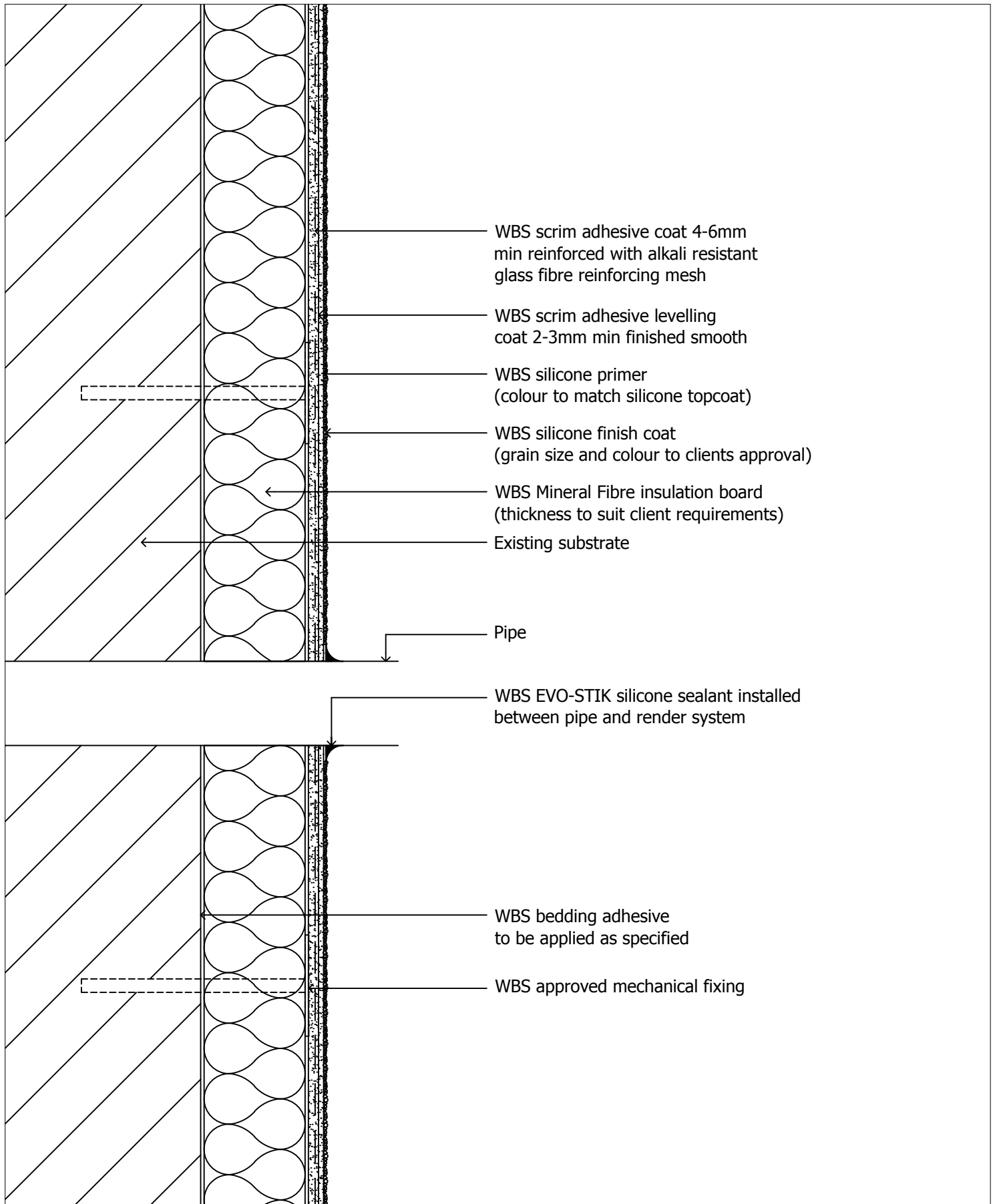
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-16**



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drawing. **Pipe detail**

date. April 2018

revision. -

drawn by. LS

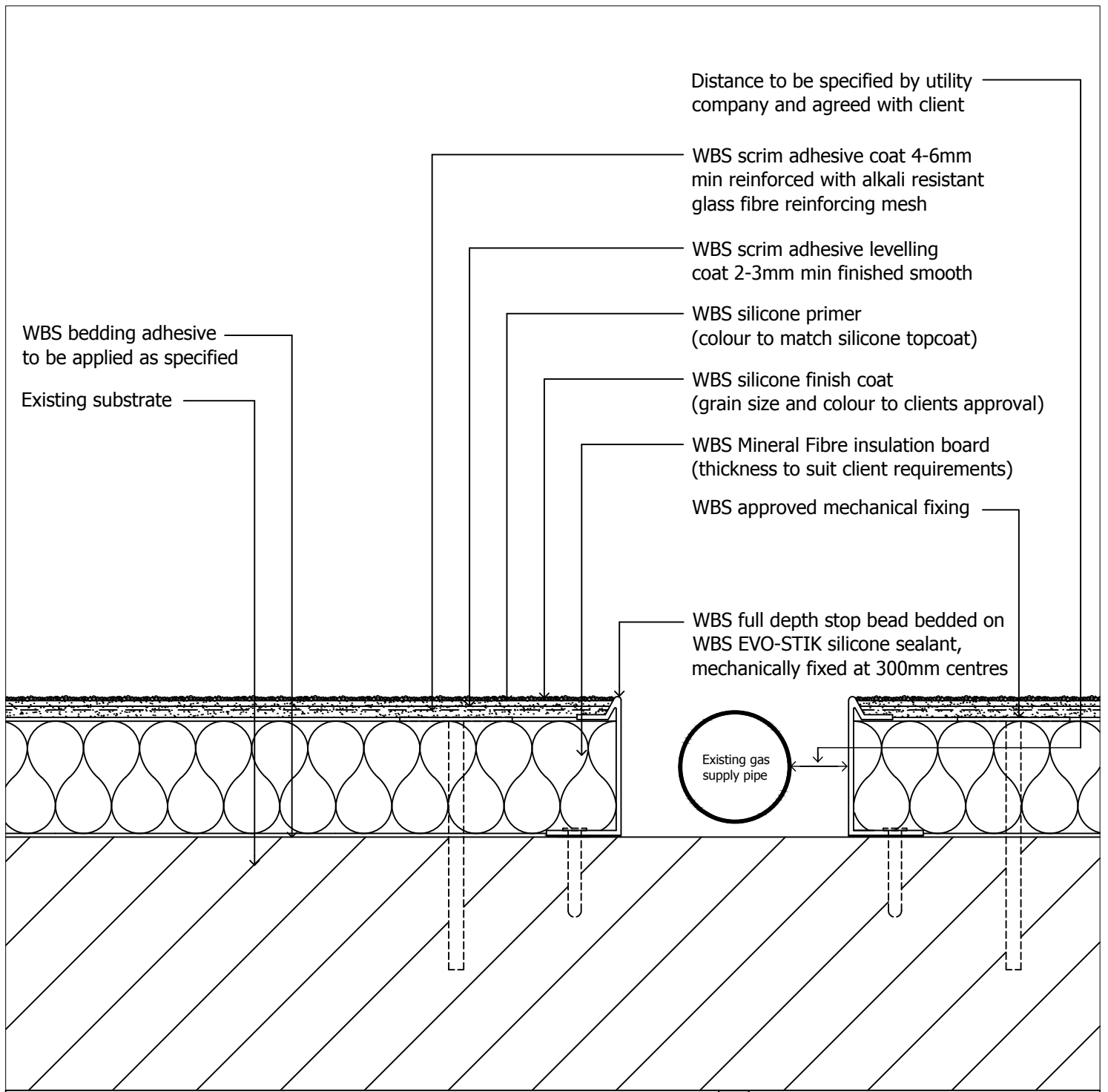
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-18**



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drawing. **Gas pipe detail (1 of 2)**

date. April 2018

revision. -

drawn by. LS

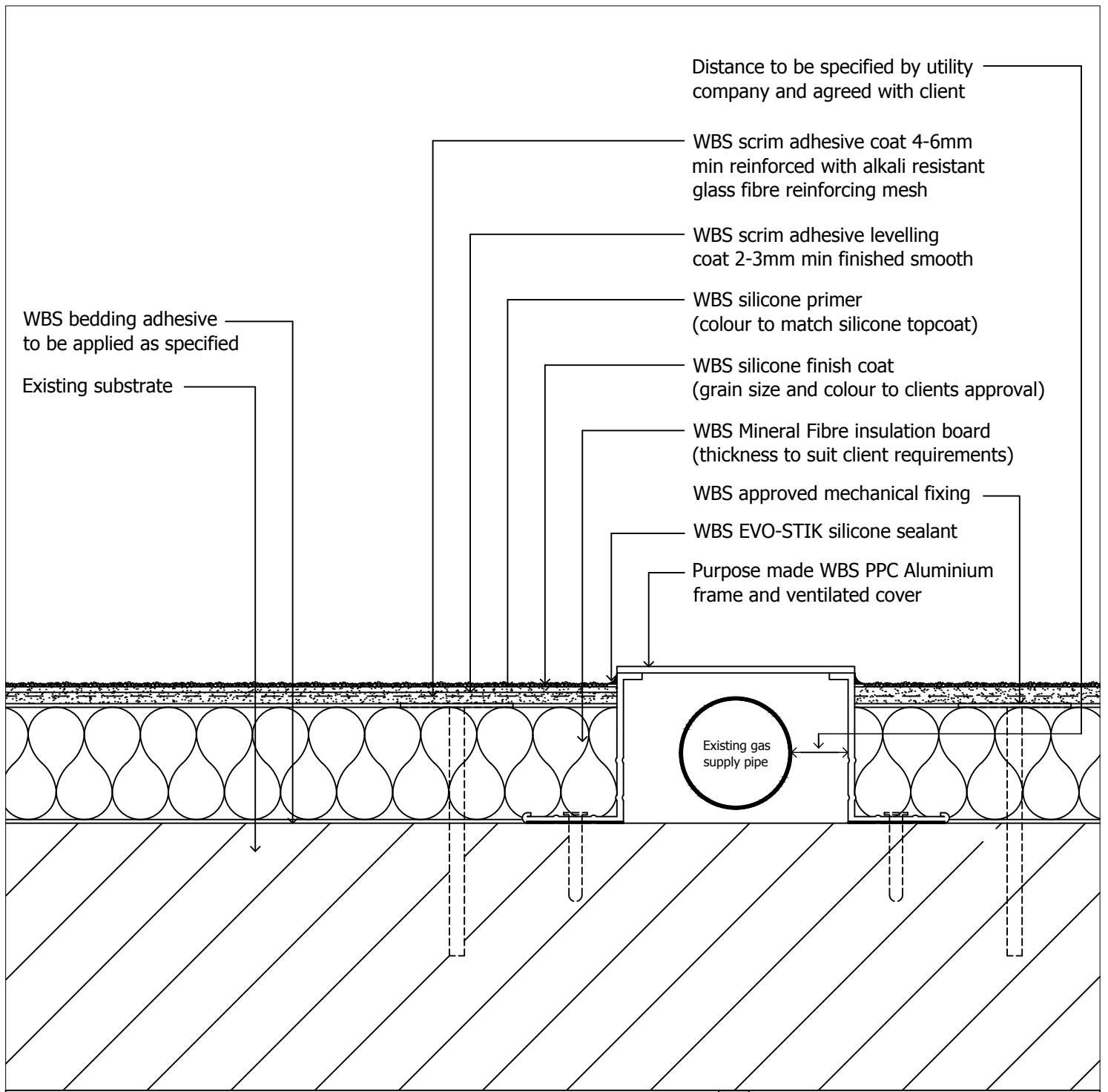
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project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-19A**



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drawing. **Gas pipe detail (2 of 2)**

date. April 2018

revision. -

drawn by. LS

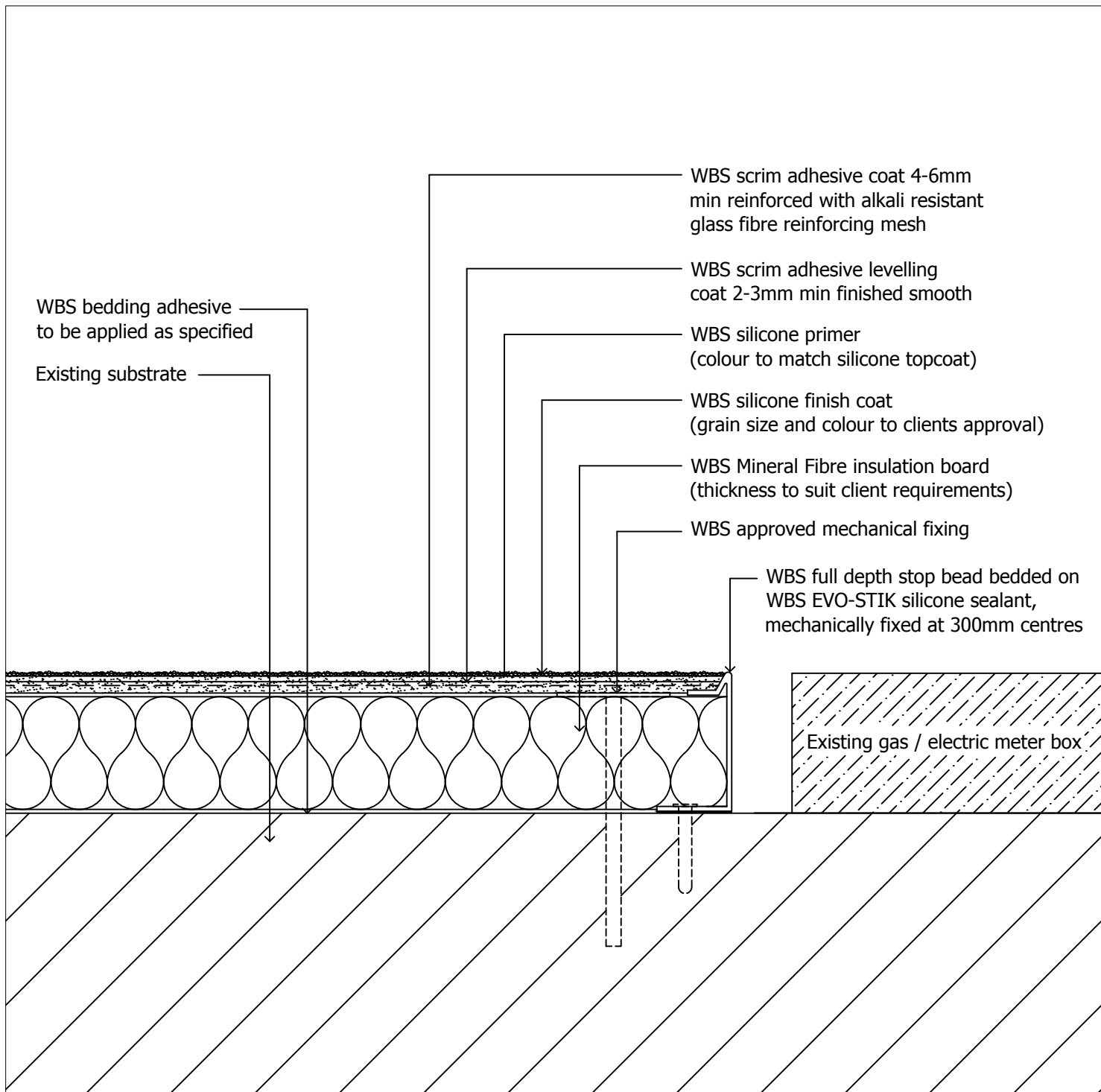
scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-19B**



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drawing. **Service box detail**

date. April 2018

revision. -

drawn by. LS

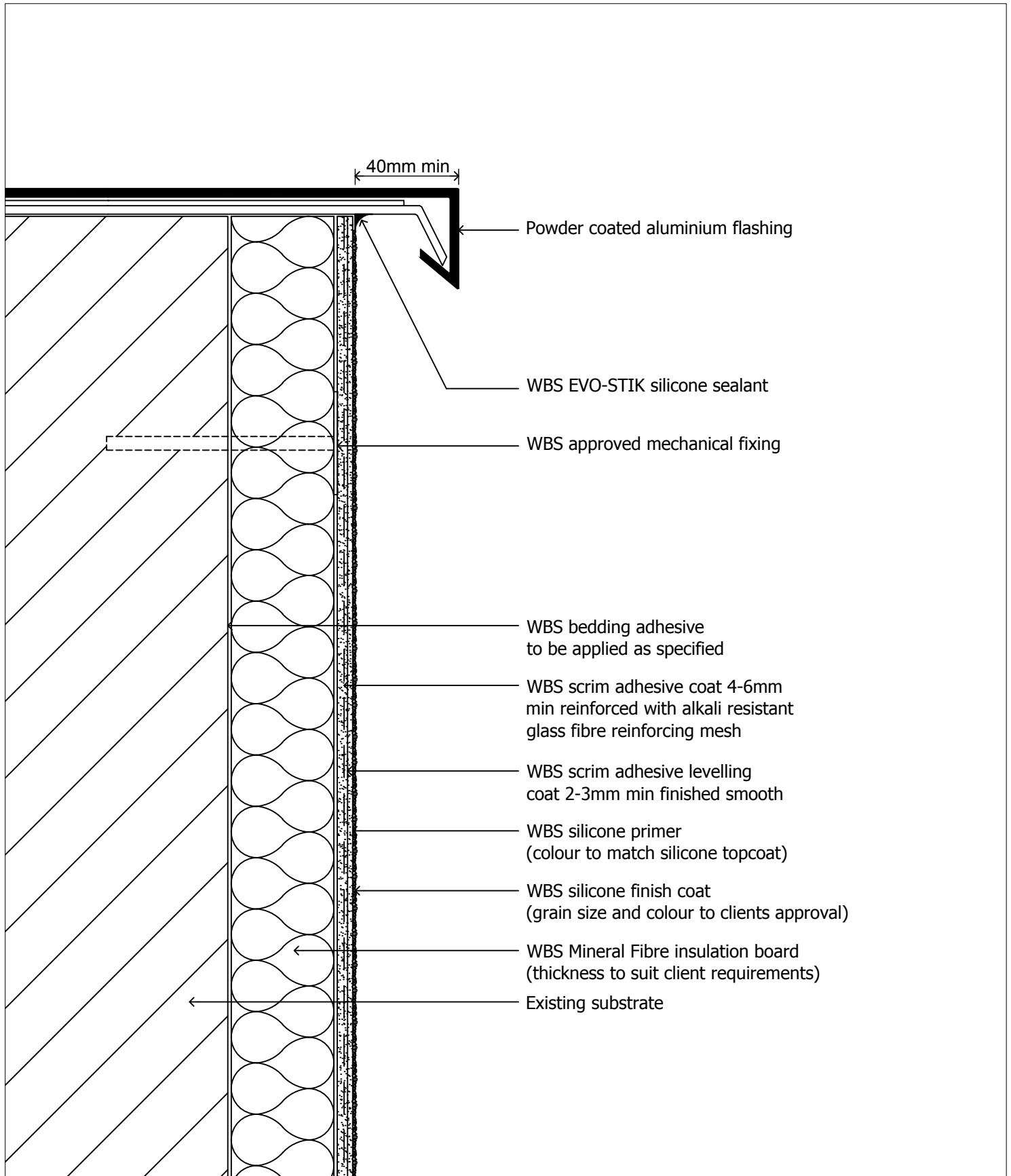
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project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-20**



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drawing. **Parapet detail**

date. **April 2018**

revision. -

drawn by. **LS**

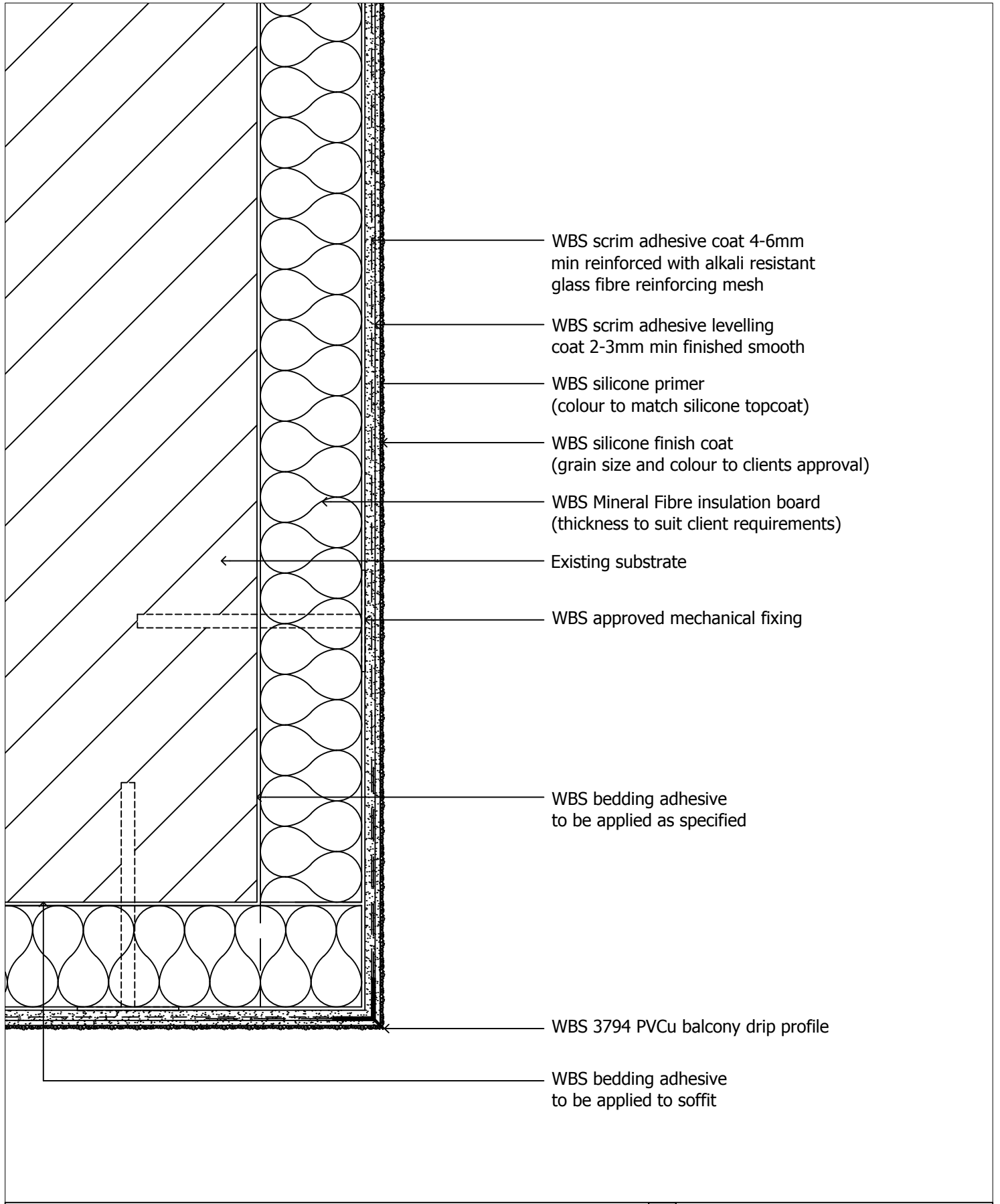
scale. **nts**

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-21**



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drawing. **Soffit detail**

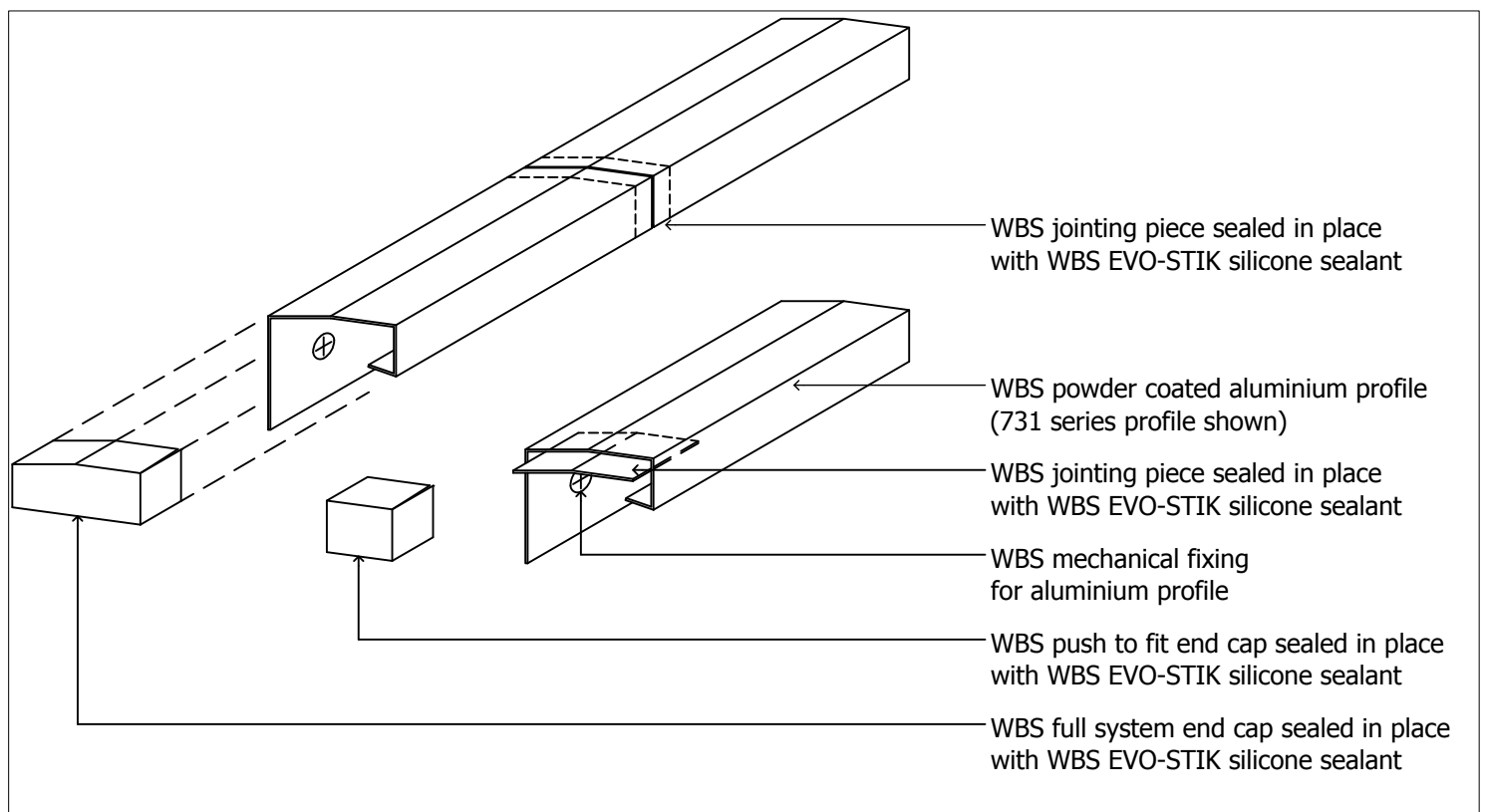
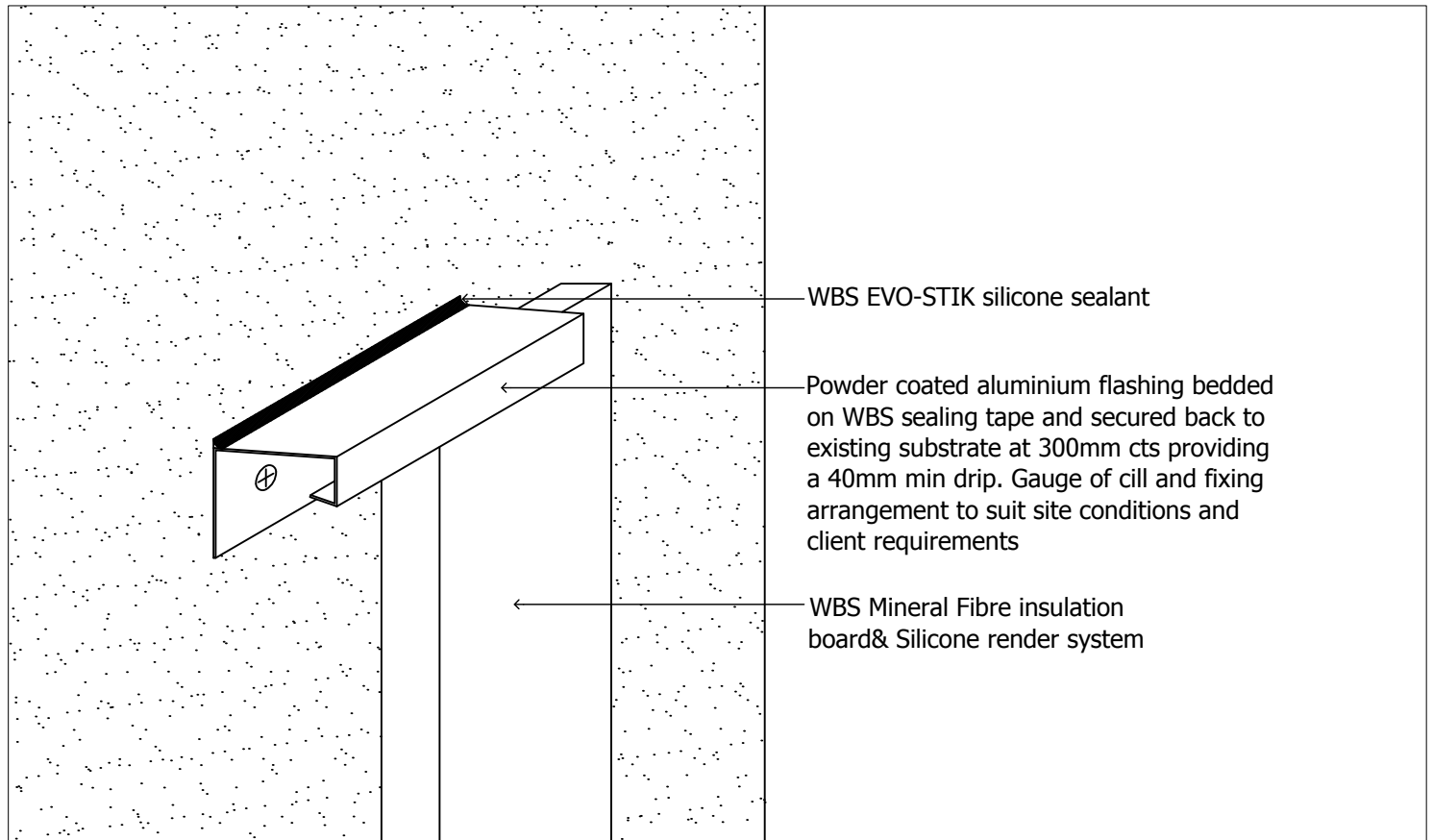
date. April 2018 revision. - drawn by. LS scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-22**



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drawing. **Trims & flashings detail**

date. April 2018

revision. -

drawn by. LS

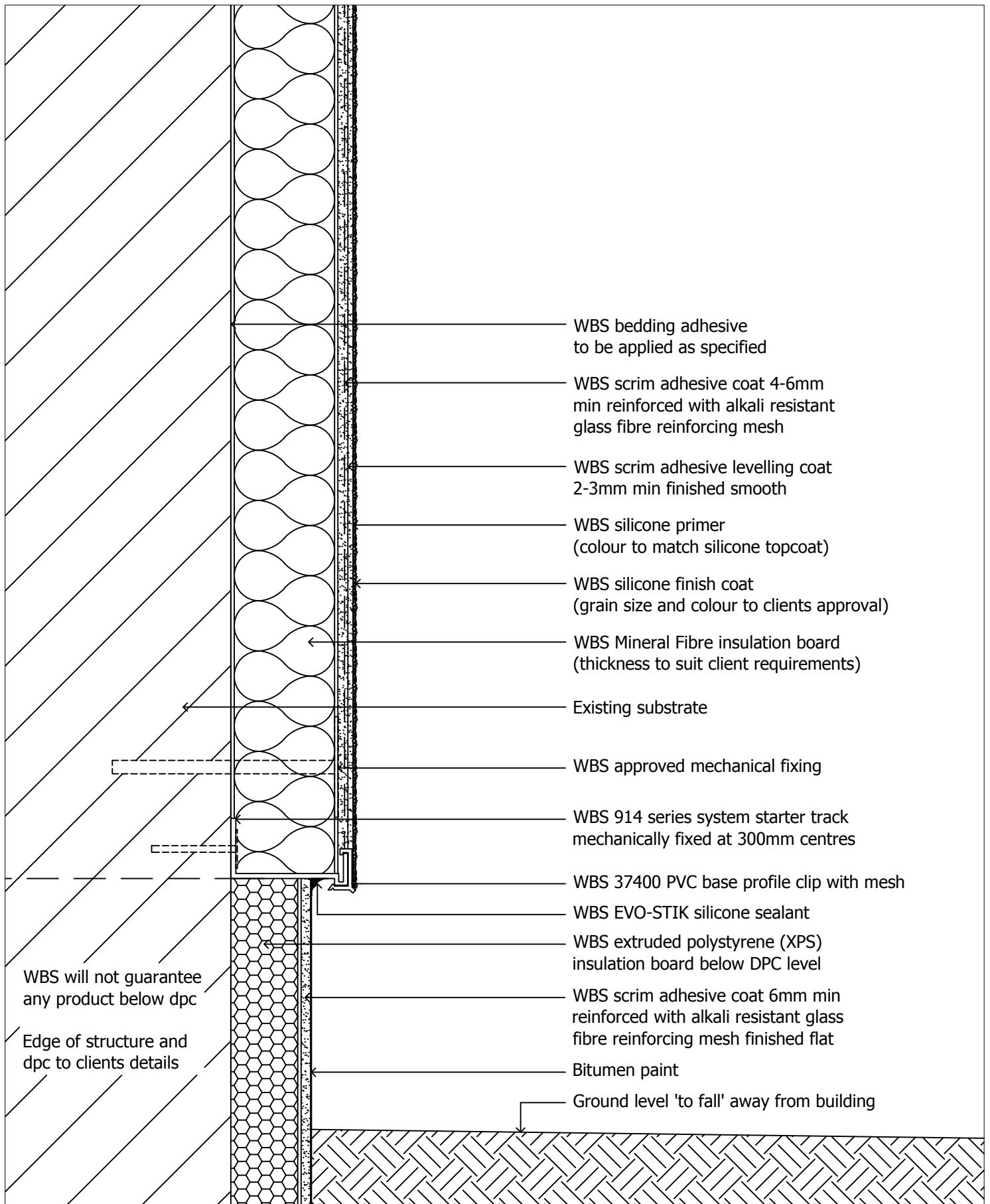
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project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-23**



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drawing. **DPC detail**

date. April 2018

revision. -

drawn by. LS

scale. nts

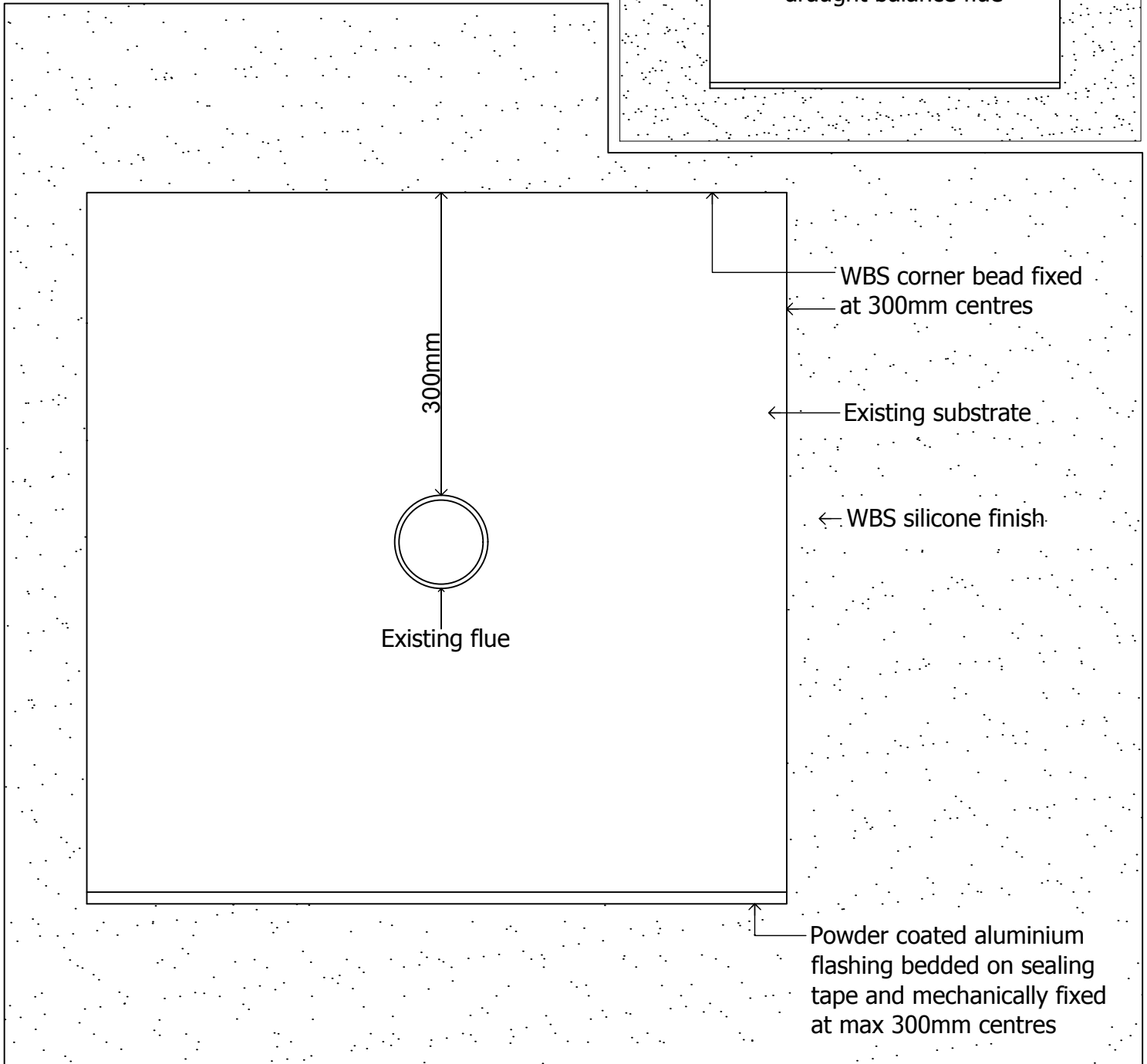
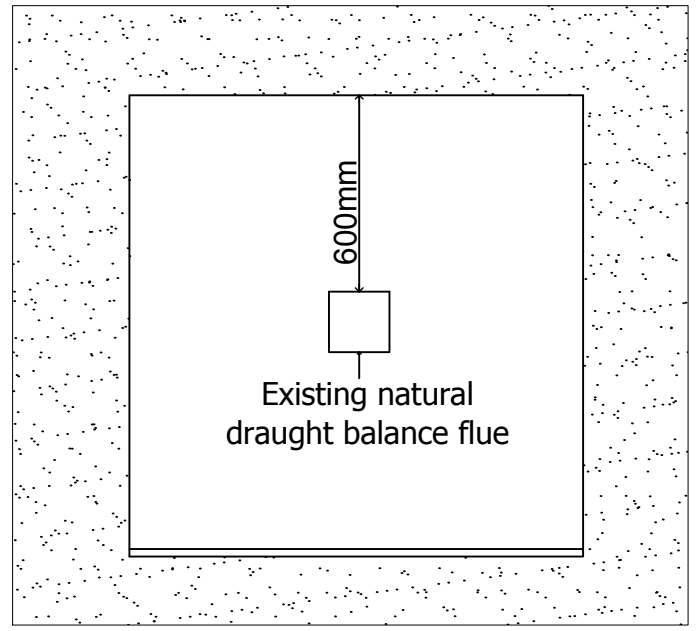
project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-24**



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N.B. 600mm minimum clearance required around natural draught balance flue



drawing. **Flue detail (1 of 3)**

date. April 2018

revision. -

drawn by. LS

scale. nts

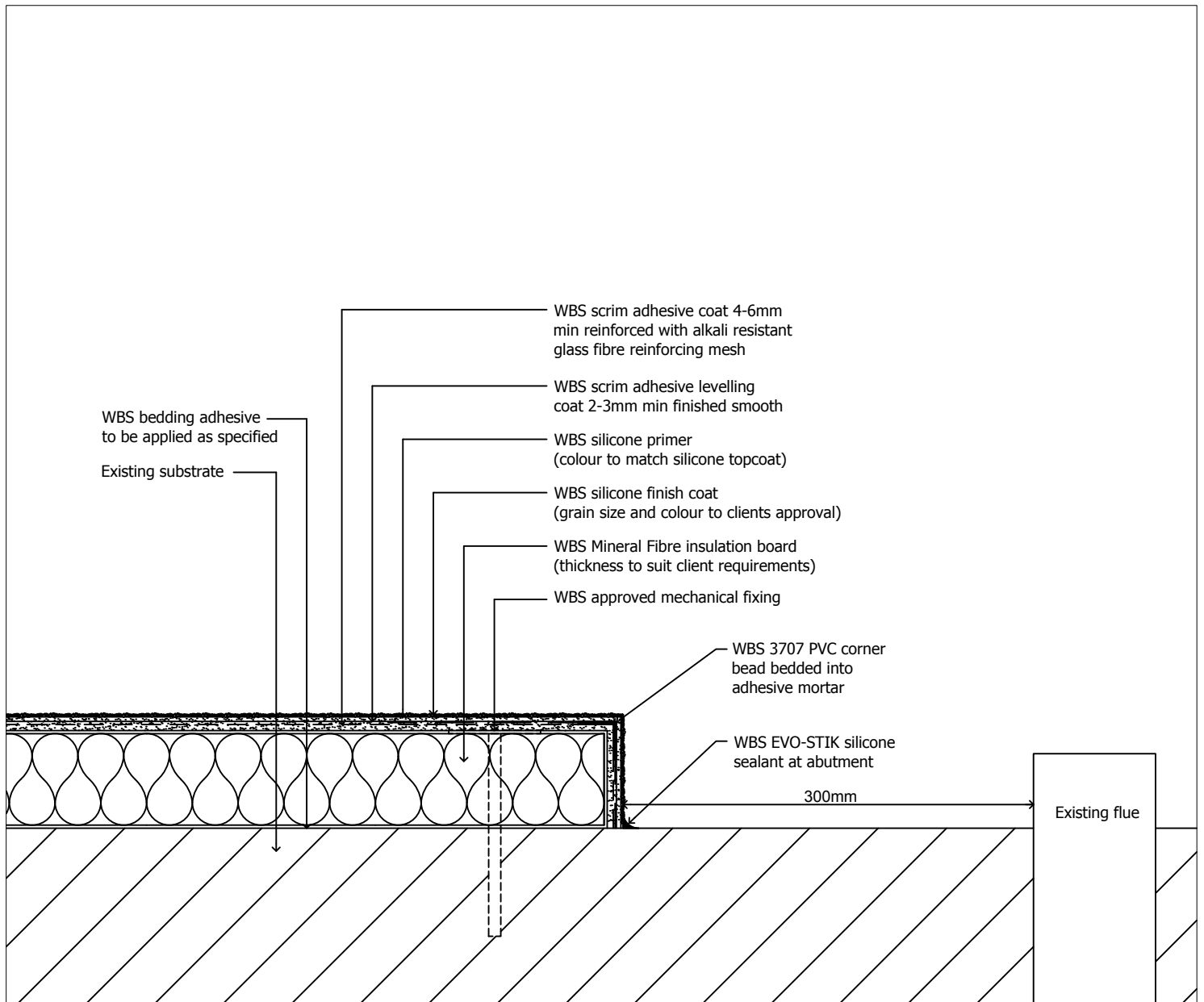
project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-25A**



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N.B. 600mm minimum clearance required
around natural draught balance flue



drawing. **Flue detail (2 of 3)**

date. April 2018

revision. -

drawn by. LS

scale. nts

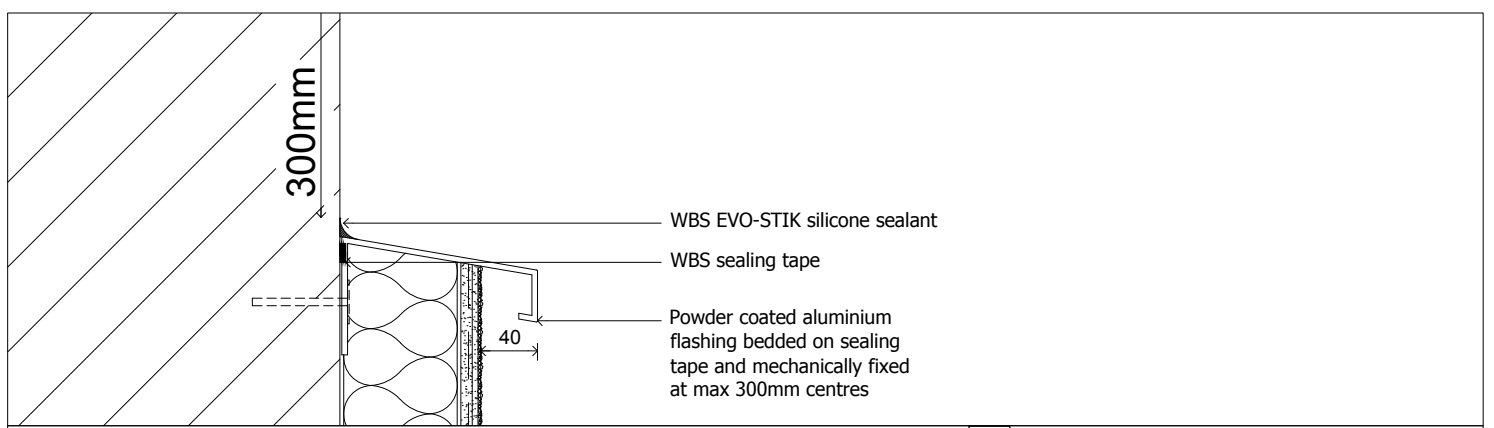
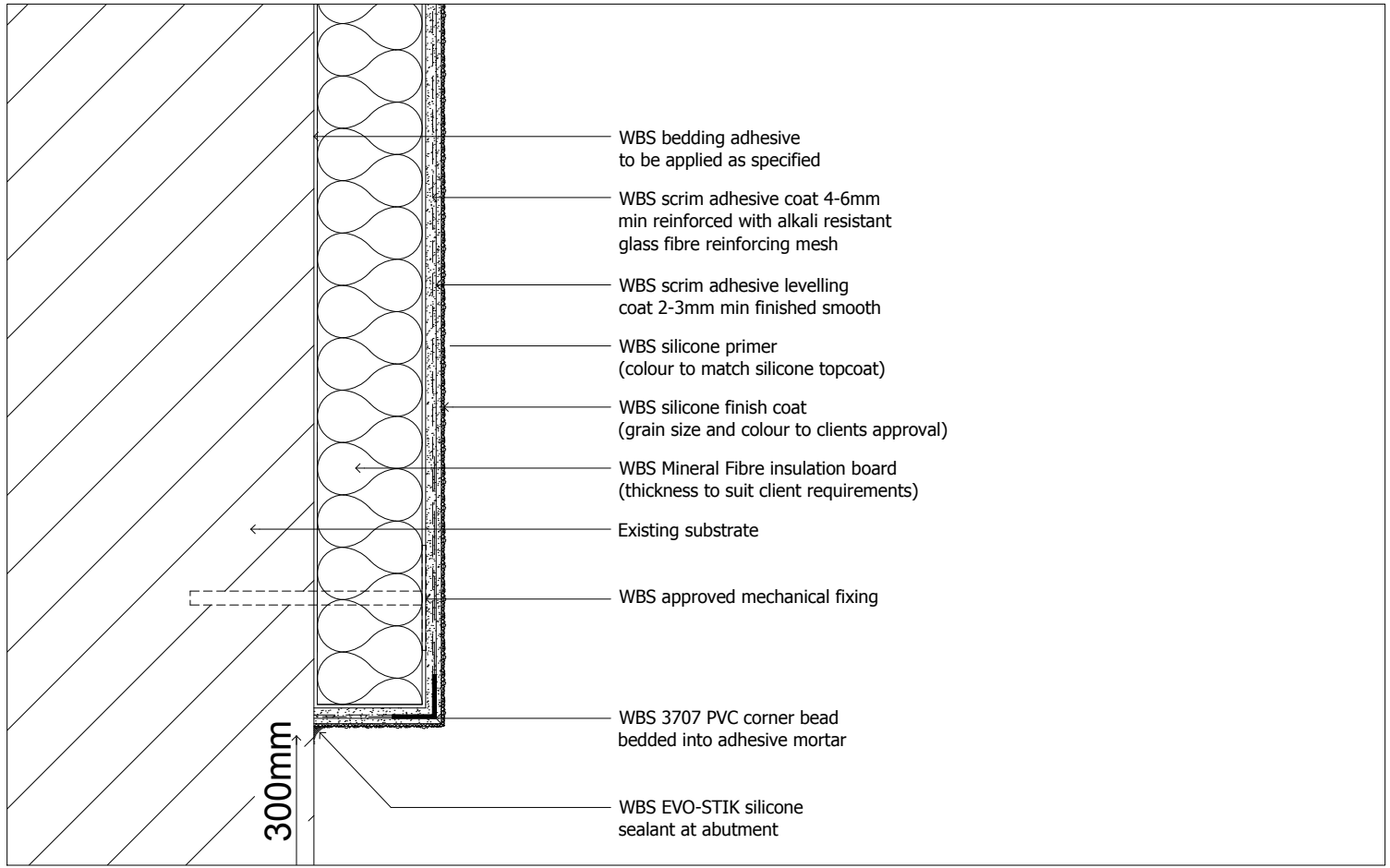
project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-25B**



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E-mail: technical@wbs-ltd.co.uk

N.B. 600mm minimum clearance required around natural draught balance flue



drawing. **Flue detail (3 of 3)**

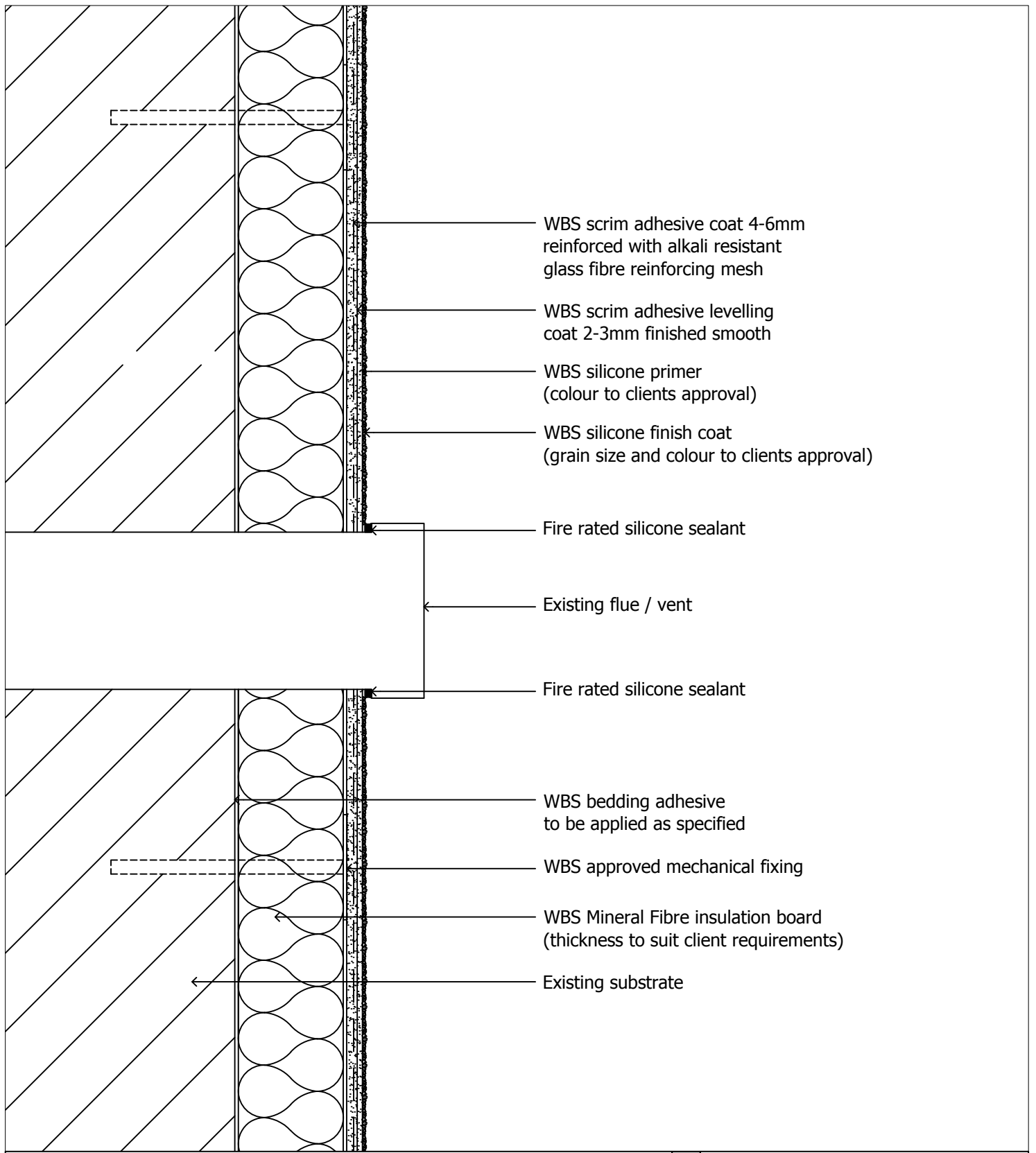
date. April 2018 revision. - drawn by. LS scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-25C**



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E-mail: technical@wbs-ltd.co.uk



WBS scrim adhesive coat 4-6mm reinforced with alkali resistant glass fibre reinforcing mesh

WBS scrim adhesive levelling coat 2-3mm finished smooth

WBS silicone primer (colour to clients approval)

WBS silicone finish coat (grain size and colour to clients approval)

Fire rated silicone sealant

Existing flue / vent

Fire rated silicone sealant

WBS bedding adhesive to be applied as specified

WBS approved mechanical fixing

WBS Mineral Fibre insulation board (thickness to suit client requirements)

Existing substrate

drawing. **Extended flue detail**

date. April 2018 revision. - drawn by. LS scale. nts

project ref. **Mechanical & Adhesive Fix**

drawing no. **EWI-SILICONE-26**



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Wallington County Grammar School



Technical Helpline: 0800 1073299



01942 717100



wbs-ltd.co.uk



18/0229
ETA APPROVED
WBS STONE WOOL
SILICONE SYSTEM

Project Specification

Project Name:	Wallington County Grammar School
System:	Wetherby Stone Wool Silicone External Wall Insulation System
Substrate:	Masonry
Project Height:	2 Storeys
Insulation:	110mm Stone Wool Insulation
System Finish:	WBS HECK Silicone 'K' 1.5mm Textured Finish
Technical Sales Manager:	Paul Dale
Tel:	07801 203830
E-mail:	paul.dale@wbs-ltd.co.uk
Technical Support Manager:	Eddie Eeles
Tel:	07866 928751
E-mail:	eddie.eeles@wbs-ltd.co.uk

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.



Certificate Number 16512
ISO 9001
ISO 14001
ISO 45001

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.



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/xpagemx) 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

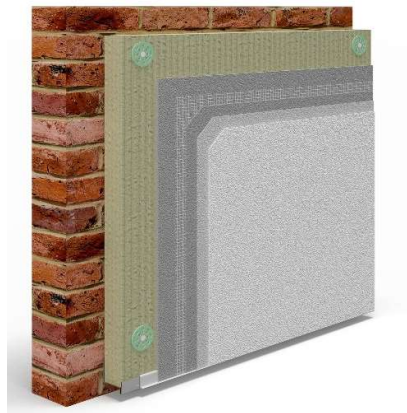
- Remedial work shown to be necessary by survey: Employer's responsibility.

180 STRUCTURAL SUBSTRATE

- Description: Masonry.
- Preparation:
 - Treatment to Existing Sound Surfaces
Remove any existing loose material and where required dub out the surface level, ready to receive the EWI system. The existing walls are to be cleaned with a wire brush or pressure jet wash, to the satisfaction of the Contract Administrator, to remove any friable material, algae or lichen, and to provide a good key for Wetherby products. Treat areas of moss, algae and mould growth with WBS Biocidal Wash. Dense smooth surfaces may require treating with WBS Stabilising Solution / Bonding Agent to ensure adequate adhesion on wet fix or render only applications.
 - If the walls include existing render or the substrate isn't line and level and requires dubbing out, the fixing lengths stated within this specification may need to change. 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.
 - Dubbing Out
Where necessary dub out, using Wetherby Dubbing Render, any hollow / defective areas to leave a suitable surface for the application of the insulation boards. Maximum dubbing coat thickness: 16mm.
 - 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 rendering commences.
 - Stabilising Solution
Where required, apply one coat of Wetherby Stabilising Solution to the entire surface by roller, ensuring uniform coverage and allow to dry.

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: 110mm.
 - 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.
 - Fixing Type: TFIX-8M x 155mm (subject to pull out tests).
 - Fixing Retaining Plate: WBS 90mm Insulation Washer.
 - 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 MJ6 Movement Joint.
 - Horizontal Movement Joint Ref: WBS RCJT & RCJB Horizontal Compression Joint.
 - Movement joints must be used to replicate any structural movement joints in the existing substrate as per site survey / Structural Engineers report.
 - All beads must be fully meshed in.
- 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.
 - Secondary Fixing: Required at 1 per m².
 - Secondary Fixing Type: TFIX-8M x 155mm.
 - Secondary mechanical fixings are required on all projects 2 storeys and above as per BRE Report BR135:2013.
 - NHBC require in all cases that a minimum of one non-combustible fixing is installed through the reinforcement mesh per insulation board, in addition to other fixings.
 - Secondary fixing requirements to be confirmed by local building control.
- 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.
- Additional Coating (Optional).
 - Wetherby Aspira Render Protector: Apply one clear coat of Aspira Render Protector.
- Beads / Trims / Accessories.
 - Full System Beads / Trims:
 - Wetherby Starter Track Ref: WBS 9212RB (90811) 110mm Aluminium Base Rail with WBS 37400 Profile Clip.
 - Wetherby Full Depth Stop Bead Ref: WBS 9251 (93311) 110mm Aluminium Full System Stop Profile.
 - Wetherby Verge Trim: WBS 741/160 160mm Powder Coated Galv. Verge Trim.
 - Mechanical Fixing: WBS HIT 6/5 Hammerscrew Bead Fixing.
 - Wetherby Cills: Type TBC.
 - Aluminium Overcill (if required)
Wetherby Aluminium Overcills. All cills shall be site measured and supplied with welded end caps to suit the application.
 - Aluminium Undercill Extenders (if required)
Wetherby Aluminium Undercill Ref: 731/135 160mm Aluminium Undercill.
 - All cills and flashings must provide a minimum 40mm overhang to protect the Wetherby System.

- Surface Render System Beads:
 - Wetherby Corner Bead Ref: WBS 3707 PVC Corner Bead.
 - Wetherby Render Bellcast Bead Ref: WBS B10 PVC Bellcast Bead.
 - Wetherby Render Stop Bead Ref: WBS RS6 PVC Stop Bead.
 - Wetherby Vertical Movement Joint Ref: WBS MJ6 PVC Movement Joint.
 - Wetherby Horizontal Movement Joint Ref: RCJT & RCJB 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 Jointing Pieces.
 - WBS End Caps.
 - WBS Approved Silicone Sealant.

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 Approved Silicone Sealant must be applied to seal the stop bead to the substrate.

Roof Detail / Verge Trim

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

Where the existing roof does not provide an adequate overhang to the EWl system (minimum 40mm), a specialist roofing profile or verge trim must be sought to provide adequate protection. Alternatively, the roof must be extended as necessary to provide overhang to the EWl system. The EWl system must be sealed to the roofing profile using WBS Sealing Tape and Silicone Sealant.

Where a verge trim is used, sealing tape and silicone sealant must be installed behind the profile to ensure a long lasting water tight seal between trim and substrate. Verge trims are to be fixed at max. 300mm centres, 50mm from each end. Jointing pieces must be used & correctly installed / sealed. Install end caps where required and apply Wetherby Approved Silicone Sealant to the top of the verge to ensure no water ingress is possible.

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 Approved Silicone Sealant where required.

WBS Insulation Bedding Adhesive – (Minimum 40%)

WBS Bedding Adhesive should be applied in a continuous line around the perimeter of the board with 3 additional dabs of adhesive distributed uniformly over the remaining surface. At least 40% of the board should be covered. The boards should be fully bedded into the adhesive and a mechanical fixing installed through the centre of each board to hold in place whilst the adhesive dries. Alternatively, apply WBS Insulation Bedding Adhesive to the entire face of the insulation boards using a 10mm minimum notched trowel ensuring a full spread of adhesive.

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.



Fixing Of Insulation Boards

Fix boards mechanically to the substrate using approved WBS fixings at a rate of 8 - 9 per m² in accordance with WBS fixing pattern (fixing pattern located at the back of this document subject to pull-out / wind load calculations). Fixings shall be installed so that the fixing head embeds 1-2mm in to the face of the insulation board surface. Additional fixings should be installed to ensure a maximum of 300mm centres at either side of building corners and around all openings.

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.

PVC Angle Bead

Fix by bedding into first pass of scrim adhesive, PVC angle beads with glassfibre mesh reference WBS 3707 to all external building corners, window / door jambs and heads.

APU Beads (where required)

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

Alkali Resistant Glassfibre Scrim Coat

Trowel 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. The scrim cloth must be overlapped around building corners and returned into all reveals and heads. All beads must be fully scrimmed in. Install additional 250mm x 300mm minimum pieces of scrim cloth diagonally across corners of all wall openings. Install secondary fixings through the wet scrim adhesive and alkali resistant scrim cloth whilst adhesive is wet. 100mm x 100mm scrim patches to be installed over each secondary fixing head. Finally smooth out scrim adhesive using a spatula.



Scrim Adhesive Coat (Second Application)

When initial layer of scrim adhesive has hardened, trowel apply a further 2-3mm coat of scrim adhesive ensuring all alkali resistant mesh is covered. Level the scrim adhesive using a spatula / damp sponge float to achieve a uniform flat and even surface ready to receive the WBS final finish. Allow sufficient drying time before applying the Wetherby Primer.

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.

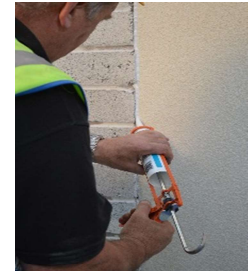
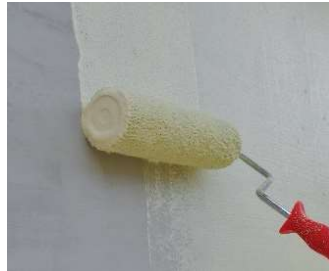
Silicone Primer

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 WBS Approved 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.

Aspira Render Protector (Optional)

Apply Wetherby Aspira Render Protector with a roller ensuring a full and even coverage, covering 100% of the substrate. The substrate must be fully dry and clean before application; ensuring morning dew is not present on the substrate. Cross hatch application is recommended to ensure all areas are fully treated. Do not dilute product and protect from rain for a minimum 12 hours after application to allow coating to fully dry.

Cleaning

Wipe clean all exposed PVC 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 to the Specification of External Wall Insulation ensuring the Safety and Operation of Fuel Burning Appliances, 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.
- Type: timber pattresses same thickness as the insulation, fixed back to the load-bearing background using proprietary countersunk stainless steel screws or other non-corrodible fixings. Timber pattress to be no more than 200mm x 200mm.
- No load is to be transferred to the insulated render system.
- Alternatively, sleeved fixings shall be installed into the load-bearing background after completion of the render works in accordance with Wetherby recommendations.

528 EXTERNAL 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.

530 SEALANT JOINTS

- Sealant: WBS Approved Silicone Sealant.
- Joints: Formed in accordance with section Z22 and system manufacturer's recommendations using any necessary joint fillers, backing strips etc.
- Sealant should be regularly checked and replaced as required. Sealant is not covered as part of the Wetherby system warranty.

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.

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.

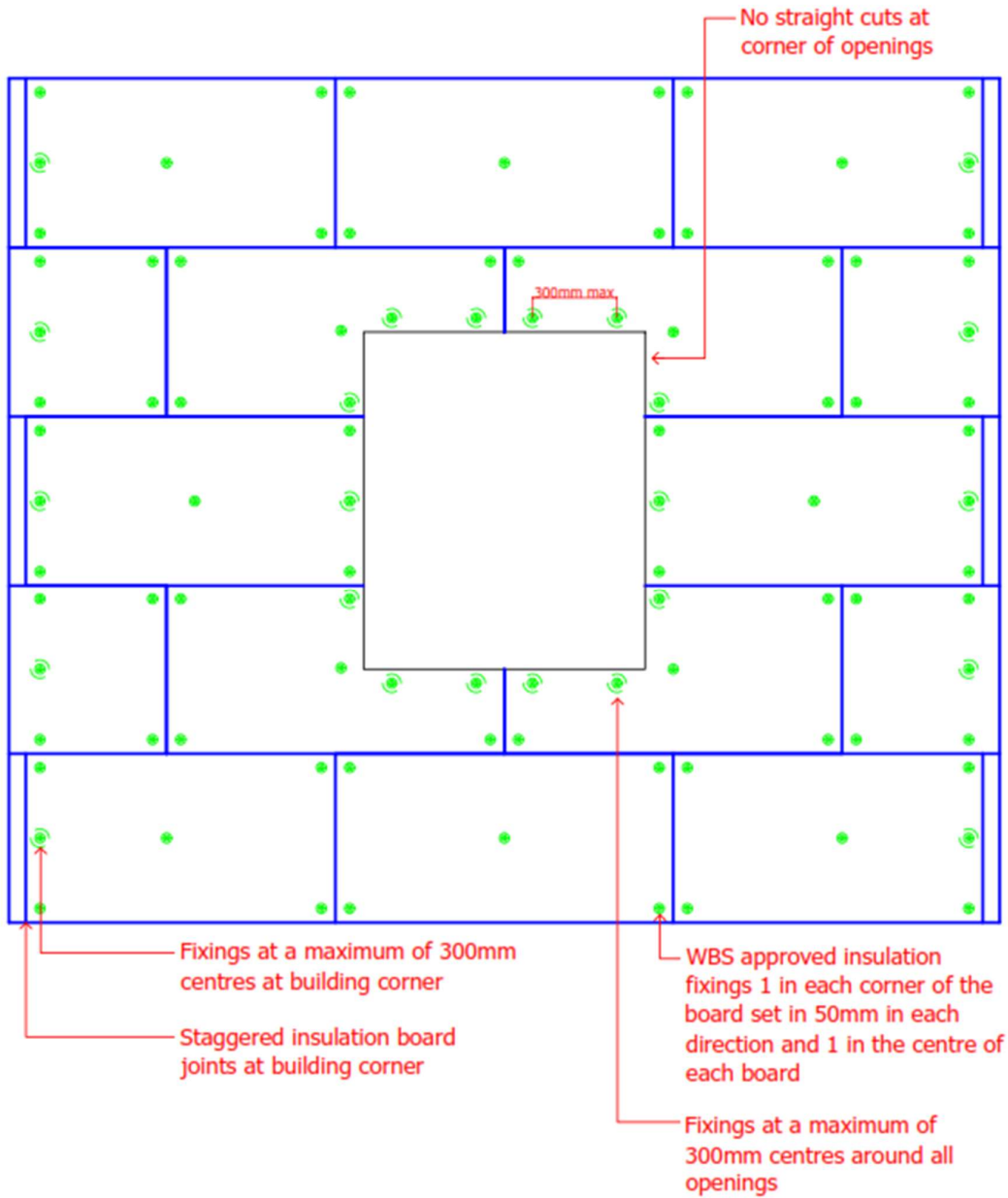
590 CONTROL OF POLLUTION

- 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. Sealant is not covered as part of the Wetherby warranty.
- 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 Maintenance Information for further details.

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



Quotation

Panasonic Heating & Ventilation
Air-Conditioning UK Ltd
Ground Floor, Building 3, Albany
Place
Hyde Way, Welwyn Garden City,
Herts., AL7 3BT
Tel: 01707 378670

Satvir Bhamra
Baily Garner LLP Birmingham
55 Charlotte Street
Birmingham
West Midlands
B3 1PX

Prepared by Paul Court
Email address Paul.Court@eu.panasonic.com
Sales Rep Specification Sales Team
Contact number

Payment terms PROFORMA
Quotation No. 310635
Lead No. C06684
Document date 22/08/2023
Valid until 21/09/2023

Project name: Wellington County Grammar School

Item Number	Description	Item Cost (GBP)	Qty.	Total Net (GBP)
KIT-25PY3Z5	2.5kW 4 Way Compact Cassette NX Series Standard Inverter Split System - R32 With NanoeX - 1Ph	0.00	1	0.00
S-25PY3E	2.5kW - PACi 600 x 600 4 Way Cassette Indoor Unit - R32 With NanoeX	688.00	1	688.00
CZ-KPY4	4 Way Compact Cassette Grille (PY3 / MY3)	245.00	1	245.00
CZ-RTC5B	Premium Control (ECOi & PACi), inc. PU2 & MU2 functions + run, standby & failover	157.00	1	157.00
U-25PZ3E5	2.5kW - PACi NX Standard Outdoor Unit (3 Wire)- R32 - Single Phase	775.00	1	775.00
Total net cost exc VAT (GBP)				1,865.00

Applicable Warranty Years:

Due to recent legislation changes we now require details of your F-Gas company certificate prior to delivery, the details we currently have on record are as follows.

F-Gas Company Certificate Number: L of A Issuing Body: No Details Expiry Date: 27/08/2025 00

If any of the above details are incorrect or missing, please inform us by emailing sales.PHVACUK@eu.panasonic.com

Quotation / Order Notes:

- The nominal cooling capacities shown (kW) are based on indoor air temperature: 27°C db/19°C wb, outdoor air temperature: 35°C db/24°C wb.
- The prices shown are supply only and valid for this project only.

Panasonic Heating & Ventilation, Air-Conditioning UK Ltd

Building 3, Albany Place, Hydeway, Welwyn Garden City, AL7 3BT

T: 01707 378670 E: sales.phvacuk@eu.panasonic.com
W: www.aircon.panasonic.eu/GB_en

Panasonic



Item Number	Description	Item Cost (GBP)	Qty.	Total Net (GBP)
-------------	-------------	--------------------	------	--------------------

- The availability of the equipment should be checked prior to ordering to ensure it suits your programme of works. Special order control panels: minimum of 3 working weeks providing the specific items required are available e.g. controller
- Payment will be as per the agreed terms.
- The quotation shall remain valid for a period of 30 days unless otherwise stated.
- Delivery costs (subject to availability, UK mainland only):
 - If written delivery instructions are received before midday, split system orders will be delivered free of charge if the next working day (Monday - Friday) between the hours of 0800hrs and 1730hrs, excluding public holidays. VRF orders / call off's below £7,000 may incur a delivery charge and require a minimum of 2 working days notice.
 - Specified AM or PM deliveries will be charged - POA per consignment.
 - Specified timed deliveries will be charged - POA per consignment.
 - Weekend or deliveries requiring special vehicles (e.g. Hi-Ab) - POA.
- It is the responsibility of the recipient to verify and confirm that the equipment selection and system design is correct before installation. Final design liability lies with others.
- All systems must be installed in accordance with the December 2014 EU F-Gas regulation guidance (IS 18: F-Gas Wholesalers) <<http://www.gluckmanconsulting.com/wp-content/uploads/2014/12/IS-18-F-Gas-Wholesalers.pdf>>
- Due to revised EU F-Gas regulations the sale of spare parts for existing R22 systems is subject to manufacturers' availability and therefore we are unable to provide any warranty. Any purchase order for a refrigerant system component must be accompanied by a letter confirming that the system will be recharged using a drop in replacement for R22. (Regulation EC1005/2009)
- Should this project be pre-specified, we reserve the right to amend our price accordingly.
- A rehandling fee will be charged for any items returned after delivery. This fee will be at our discretion and all transport costs shall be the responsibility of the customer. We will only accept items back if they are in "as new" condition.

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Panasonic



12. Where our assistance is required in commissioning controls systems, including central controllers, Windows controls package & BMS interfaces, we will require 3 weeks notice prior to attending site, and the system(s) should be addressed and a unit schedule issued to us prior to our arrival (an addressing template can be supplied).
13. If you are intending to reuse existing pipe work please confirm with the technical department that the quoted system and existing pipework is suitable prior to installation.

Our advice and technical recommendations on Panasonic heating and cooling systems are non-binding and are recommendations only. They only apply to the use of the unit corresponding to Panasonic's technical specifications. They are in no way a substitute for professional advice and installation planning by a qualified specialist company (installer) in your individual case. Please contact your specialist company for individual advice. Please contact us if you require information on specialist (installer) companies.

Should you require any further information, please do not hesitate to contact us.

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Panasonic



KIT-25PY3Z5 (S-25PY3E + U-25PZ3E5)

4 way 60x60 cassette - PY3

From 2,5 to 6,0 kW (4 capacity sizes)

Chassis dimensions (H x W x D): 243 x 575

x 575 mm

Built-in drain pump

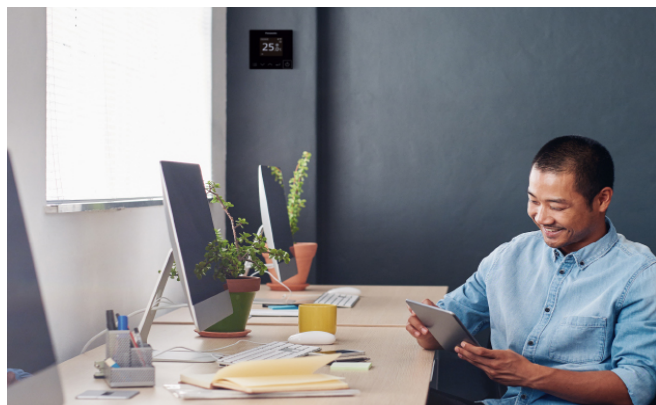
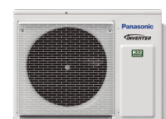
Compact and stylish design.

Ceiling depth is only 250 mm

Exposed area is only 30 mm

Individual flap control.

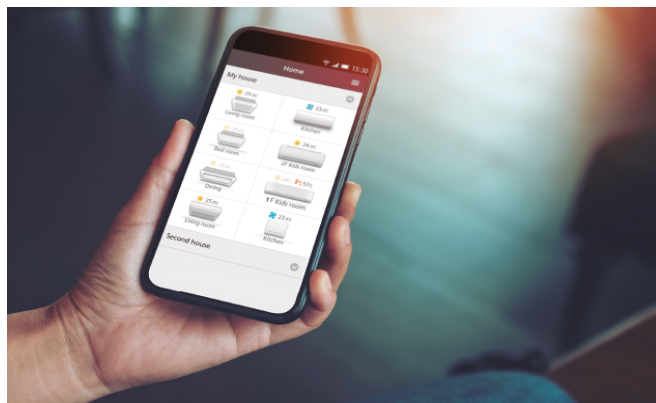
Better control of the air flow with 4 motors.



New wired remote controller

CONEX with IoT integration. Not only detailed operation and maintenance settings are possible with the smartphone or tablet, but also service and diagnostic functions.

[FIND OUT MORE](#)



Commercial WLAN Adaptor

Panasonic CZ-CAPWFC1 interface adaptor, allows connection of one or a group of indoor units to Panasonic Comfort Cloud App, which provides control, monitoring, scheduling and error alerts.

[FIND OUT MORE](#)



PACi NX Series

NX Series with R32 refrigerant has been developed to meet the demand for easy refurbishment with the 3 wired method.

Also integrated with IoT solutions and includes nanoe? X function as standard.

[FIND OUT MORE](#)



Bringing nature's balance indoors

nanoe? X, technology with the benefits of hydroxyl radicals.

Abundant in nature, hydroxyl radicals (OH radicals) have the capacity to inhibit pollutants, certain viruses, and bacteria to clean and deodorise.

nanoe? X technology can bring these incredible benefits indoors so that hard surfaces, soft furnishings, and the indoor environment can be a cleaner and pleasant place to be, whether at home, at work, or visiting hotels, shops, restaurants etc.

[FIND OUT MORE](#)



PACi NX 4 way 60x60 cassette

The PY3, with built-in nanoe? X for better indoor air quality, perfectly matches with 600 x 600 mm ceiling grids.

[FIND OUT MORE](#)

PACi NX Series Standard 4 way 60x60 cassette Inverter+ - R32

SINGLE PHASE

		2.5 kW
Kit		KIT-25PY3Z5
Remote controller		CZ-RTC5B
Cooling capacity (Nominal)	kW	2,5
Cooling capacity (Min)	kW	1,5
Cooling capacity (Max)	kW	3,9
EER (Nominal) (1)	W/W	4,46
EER (Min) (1)	W/W	3,55
EER (Max) (1)	W/W	5,88
SEER (2)		6,5 A++
Pdesign (cooling)	kW	2,5
Input power cooling (Nominal)	kW	0,56
Annual energy consumption cooling (3)	kWh/a	134
Input power cooling (Min)	kW	0,26
Input power cooling (Max)	kW	1,10
Annual energy consumption cooling (3)	kWh/a	134
Heating capacity (Nominal)	kW	3,2
Heating capacity (Min)	kW	1,5
Heating capacity (Max)	kW	4,6
COP (Nominal) (1)	W/W	4,44
COP (Min) (1)	W/W	3,41
COP (Max) (1)	W/W	6,52
SCOP (2)		4,6 A++
Pdesign at -10°C	kW	2,8
Input power heating (Nominal)	kW	0,72
Input power heating (Min)	kW	0,23
Input power heating (Max)	kW	1,35

**PACi NX Series Standard 4
way 60x60 cassette Inverter+
- R32**

SINGLE PHASE

		2.5 kW
Annual energy consumption heating (3)	kWh/a	850
Indoor unit		S-25PY3E
Indoor air flow (Hi)	m ³ /min	8,5
Indoor air flow (Med)	m ³ /min	7,0
Indoor air flow (Lo)	m ³ /min	6,0
Moisture removal volume	L/h	0,7
Indoor sound pressure (Med) (4)	dB(A)	28
Indoor sound pressure (Lo) (4)	dB(A)	25
Indoor sound power (Hi)	dB(A)	46
Indoor sound power (Med)	dB(A)	43
Indoor sound power (Lo)	dB(A)	40
Indoor dimension (Height)	mm	243
Indoor dimension (Width)	mm	575
Indoor dimension (Depth)	mm	575
Panel dimension (Height)	mm	30
Panel dimension (Depth)	mm	625
Indoor net weight	kg	15
Panel net weight	kg	2,8
nanoe X Generator		Mark 2
Outdoor unit		U-25PZ3E5
Outdoor power source	V	220 - 230 - 240
Current in cooling (1p 220V / 3p 380)	A	2,65
Current in cooling (1p 230V / 3p 400)	A	2,55
Current in cooling (1p 240V / 3p 415)	A	2,45

PACi NX Series Standard 4 way 60x60 cassette Inverter+ - R32		SINGLE PHASE
		2.5 kW
Current in heating (1p 220V / 3p 380)	A	3,40
Current in heating (1p 230V / 3p 400)	A	3,25
Current in heating (1p 240V / 3p 415)	A	3,10
Outdoor air flow (Cool)	m ³ /min	33,6
Outdoor air flow (Heat)	m ³ /min	34,0
Outdoor sound pressure (Cool -Hi)	dB(A)	46
Outdoor sound pressure (Heat -Hi)	dB(A)	47
Outdoor sound power (Cool -Hi)	dB(A)	64
Outdoor sound power (Heat -Hi)	dB(A)	66
Outdoor dimension (Height)	mm	619
Outdoor dimension (Width)	mm	824
Outdoor dimension (Depth)	mm	299
Outdoor net weight	kg	32
Pipe diameter (Liquid)	Inch (mm)	1/4 (6,35)
Pipe diameter (Gas)	Inch (mm)	1/2 (12,70)
Pipe length range	m	3 ~ 15
Elevation difference (in/out) (5)	m	15 / 15
Pipe length for additional gas	m	7,5
Additional gas amount	g/m	10
Refrigerant (R32) / CO2 Eq.	kg / T	0,87 / 0,59
Operating range (Cool - Min)	°C	-10
Operating range (Cool - Max)	°C	+43
Operating range (Heat - Min)	°C	-15

PACi NX Series Standard 4 way 60x60 cassette Inverter+ - R32		SINGLE PHASE
		2.5 kW
Operating range (Heat - Max)	°C	+24
Kit		KIT-25PY3Z5
Remote controller		CZ-RTC5B
Cooling capacity (Nominal)	kW	2,5
Cooling capacity (Min)	kW	1,5
Cooling capacity (Max)	kW	3,9
EER (Nominal) (1)	W/W	4,46
EER (Min) (1)	W/W	3,55
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SEER (2)		6,5 A++
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Heating capacity (Nominal)	kW	3,2
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**PACi NX Series Standard 4
way 60x60 cassette Inverter+
- R32**

SINGLE PHASE

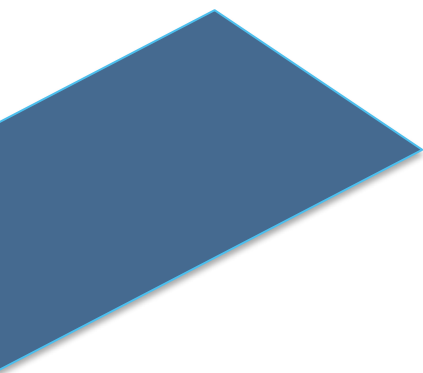
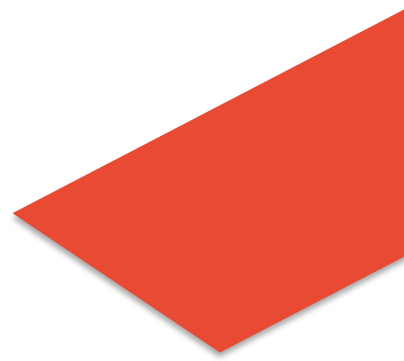
		2.5 kW
Annual energy consumption heating (3)	kWh/a	850
Indoor unit		S-25PY3E
Indoor air flow (Hi)	m ³ /min	8,5
Indoor air flow (Med)	m ³ /min	7,0
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Indoor sound power (Hi)	dB(A)	46
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Indoor dimension (Height)	mm	243
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Panel dimension (Height)	mm	30
Panel dimension (Depth)	mm	625
Indoor net weight	kg	15
Panel net weight	kg	2,8
nanoe X Generator		Mark 2
Outdoor unit		U-25PZ3E5
Outdoor power source	V	220 - 230 - 240
Current in cooling (1p 220V / 3p 380)	A	2,65
Current in cooling (1p 230V / 3p 400)	A	2,55
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PACi NX Series Standard 4 way 60x60 cassette Inverter+ - R32		SINGLE PHASE
		2.5 kW
Current in heating (1p 220V / 3p 380)	A	3,40
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Outdoor dimension (Height)	mm	619
Outdoor dimension (Width)	mm	824
Outdoor dimension (Depth)	mm	299
Outdoor net weight	kg	32
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Pipe diameter (Gas)	Inch (mm)	1/2 (12,70)
Pipe length range	m	3 ~ 15
Pipe length for additional gas	m	7,5
Additional gas amount	g/m	10
Refrigerant (R32) / CO2 Eq.	kg / T	0,87 / 0,59
Operating range (Cool - Min)	°C	-10
Operating range (Cool - Max)	°C	+43
Operating range (Heat - Min)	°C	-15
Operating range (Heat - Max)	°C	+24

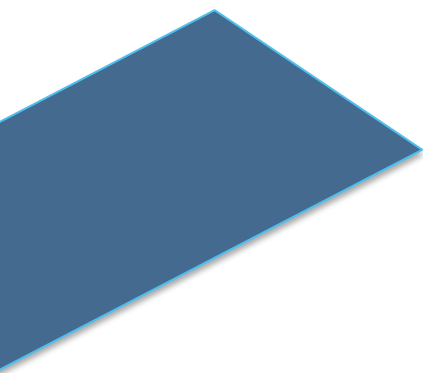
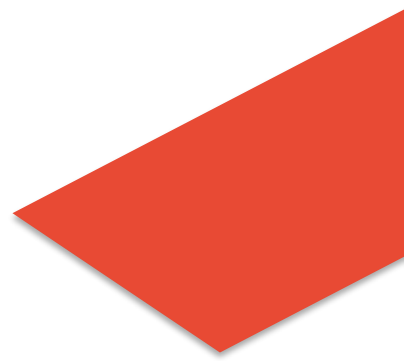
- 1) EER and COP calculation is based in accordance with EN14511.
 - 2) For models below 12kW, the SEER and SCOP is calculated based on values of EU/626/2011. For models above 12kW, the η_{sc} / η_{sh} values are calculated based on EN 14825.
 - 3) Factory setting.
 - 4) The sound pressure of the units shows the value measured of the position 1,5m below the unit. The sound pressure is measured in accordance with Eurovent 6/C/006-97 specification.
 - 5) Connect the liquid socket tube ($\varnothing 6,35$ - $\varnothing 9,52$) to the liquid tubing side indoor unit.
 - 6) Connect the gas socket tube ($\varnothing 12,70$ - $\varnothing 15,88$) to the gas tubing side indoor unit.
 - 7) When installing the outdoor unit at a higher position than the indoor unit.
 - 8) Outdoor unit located lower / outdoor unit located higher.
- * Recommended fuse for the indoor 3A.
** Above values are in the case of nanoe™ X OFF.
*** Available in Autumn 2021.
**** Tentative data.

Complementary products

APPENDIX D



APPENDIX E





Wallington County Grammar
School (WGS)
English Block



