

DESIGN AND ACCESS STATEMENT

FOR

1-82 RUNDELL TOWER STOCKWELL LONDON SW8 1JB

PREPARED BY PELLINGS
ON BEHALF OF
THE LONDON BOROUGH OF LAMBETH

Our Ref: 672.2510905 Date: September 2020

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1.0 INTRODUCTION

- 1.1. This Design and Access Statement has been prepared to fulfil the requirements of the Planning permission Town and Country Planning Act 1990.
- 1.2. This application is made for the proposed external wall insulation replacement and window replacement works, roof replacement works to Rundell Towers, Portland Grove London SW8 1JB.
- 1.3. A planning application for a major refurbishment to the building was made on 13th December 1991 (Ref. No: 90/00988/PLANAP RUNDELL TOWER, MURSELL ESTATE, HAMPSON WAY, SW9). These works included: '...recladding of the building and the provision of double-glazed windows, together with the erection of an entry porch, refuse store and railings.' 'The building shall be clad in Cape Senni cladding; colours snow white, oatmeal, sienna, salmon pink and sea green. The entrance porch shall be roofed with steel cladding; colour sienna'.
- 1.4. As the planning application was granted on 5th February 1992, it is assumed the cladding was installed later the same year or thereabouts, making these works circa 28 years old.
- 1.5. Rundell Towers is of the same architype as Kelvedon House a planning application to replace windows with PVCu, as well as install external cladding at Kelvedon House was made on 2nd September 1992 and granted on 8th September 1992. It is assumed works were completed post this date, circa 1993 making the cladding to both Kelvedon House and Rundell Towers of similar age and construction.
- 1.6. The existing external wall insulation on the block has been found not to comply with modern regulations relating to fire, particularly in relation to the horizontal fire breaks. The existing windows are also estimated to be the same age of the existing EWI system which is circa 28 years and are considered to reach the end of their design life.
- 1.7. We understand that the coloured render to the elevations reflected both the resident's choices and views of the planning department at that time.
- 1.8. The existing STO rainscreen system consists of a mesh reinforced render finish over EPS insulation fixed to a plastic rail system. This type of system requires continual fire breaks to prevent the spread of fire within the cavity.

2.0 PROPOSED DEVELOPMENT

2.1. External Wall Insulation

- 2.1.1. The existing External Wall Insulation is aesthetically tired and discoloured due to age and exposure to pollution.
- 2.1.2. The proposal is to fully remove the existing systems and apply a new system with mineral fibre insulation throughout which has been classified to BS EN 13501-1 to achieve an A1 rating and matches existing rendered finish and colour scheme for each block. The render will be a modern Silicone finish as the original with same external colour scheme / pattern.

- 2.1.3. As per the original planning approval dated 5th February 1992 ref: DC/90/0988/ER/37837 the original cladding is Cape Senni, colours snow white, oatmeal, sienna, salmon pink and sea green. As this cladding supplier no longer exists and the colours do not have an associated RAL reference, the proposed colours will be colour matched by Wetherby Building Systems Ltd for as close match as possible.
- 2.1.4. The proposed Wetherby Building Systems Ltd specification details are within Appendix A.

2.2. Flat Roof

- 2.2.1. Due to the age of the building roof replacement has been proposed within this application as the roof has reached the end of its lifespan and requires thermally upgrading.
- 2.2.2. The replacement of a modern asphalt system will improve the thermal performance of the roof, enable effective detailing of the cladding system and ensure all main elements of the building have comparable design life.
- 2.2.3. The proposed Langley Waterproofing Systems Ltd roofing specification details are within Appendix B.

2.3. Windows

- 2.3.1. The windows are reaching the end of their 25-year design life cycle and are showing signs of deterioration to double glazed units, mechanical elements and sections of uPVC windows separating seen to the corner posts.
- 2.3.2. The principle aim of this window replacement proposal is to generate a finished product of high quality and improve thermal performance. This will involve the replacement of all existing double-glazed uPVC framed windows.
- 2.3.3. The proposal to replace the existing windows will use the most appropriate style available of window to match the existing fenestration as closely as possible.
- 2.3.4. Drawing 251 090 5P3 includes the existing fenestrations design and proposed window schedule to illustrate the proposals in Appendix C.

3.0 ACCESS STATEMENT

3.1. Pedestrian or vehicular access is unchanged by these proposals.

4.0 LOCAL PLAN POLICY

4.1. Policy Q2 Amenity

4.2. Given the nature of the proposed works, the proposed works impose no amenity issues to neighbouring properties. There would be no increase in floor space or accommodation within the property nor new development that impose any visual and physical impairment to the neighbouring properties.

4.3. Policy Q5 Local Distinctiveness

4.4. Policy Q5 states that the local distinctiveness of Lambeth should be sustained and reinforced through new development and that proposals will be supported where it is shown that design of development is a response to positive aspects of the local context and historic character in terms of: (I) urban block and grain, patterns of space and relationship, townscape/landscape character; (ii) built form (bulk, scale, height and massing) including roofscapes and (iv) materials. As formerly mentioned, all the above shall remain unaffected given the nature of the works, materials and appearance of the proposals adopted.

4.5. Policy Q11 Building Alterations And Extensions

4.6. Policy Q11 of the Local Plan requires designs to positively respond to the original architecture, roof form, detailing, fenestration (including design, materials and means of opening) of the host building and other locally distinct forms (such as group characteristics); such features should be respected and retained.

5.0 POLICY D11 FIRE SAFETY

- 5.1. The significant points of Policy D11 of the Draft London Plan states that:
 - A. In the interests of fire safety and to ensure the safety of all building users, development proposals must achieve the highest standards of fire safety and ensure that they:
 - 1. are designed to incorporate appropriate features which reduce the risk to life in the event of a fire
 - are constructed in an appropriate way to minimise the risk of fire spread
 - 3. provide suitable and convenient means of escape for all building users
 - 4. adopt a robust strategy for evacuation which all building users can have confidence in
 - 5. provide suitable access and equipment for firefighting which is appropriate for the size and use of the development.
- 5.2. Below lists how the application proposal will achieve fire safety in direct response of Policy D11 Fire Safety requirements formerly mentioned:

The proposed Wetherby External Wall System (EWI) will be an A1 non-combustibility system. The system comprises of a WBS Silicone 'K' 1.5mm Textured Finish coat to achieve a non-combustibility rating in accordance of the European fire classification to the BS EN 13501-1 standard. The thermal benefit of the system is provided by the Wetherby A1 Stone Wool Insulation which is coated in the purely mineral Wetherby K&A A1 Scrim Adhesive (see figure 1 below). This is based predominantly on mineral and non-combustible raw material such as quartz, limestone, cement and lime, which ensures perfect adhesion between substrates and insulation board. The proposal is a significant betterment of the existing Rainscreen Cladding which is believed to be a 'Rainscreen' system

and not suitable for buildings above 18m in height due to its fire safety properties. Furthermore, fully compliant with all latest building legislation and code.

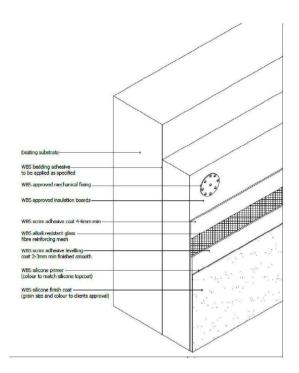


Figure 1 - Wall Make-up of Proposed EWI

The new A2 Wetherby External Wall System has a render finished with external wall insulation systems similar to the existing but designed to be compliant to current Building Regulations Approved Document B sub section B4. This type of EWI system is non-combustible insulation which negates the need for fire breaks. The new system shall protect the core stairwell which may be used as an escape route, limiting any risk to health and safety of the building occupants.

The proposal will impose no change to the existing stay-put policy that is in place.

The proposal will impose no change to access and equipment for firefighting.

6.0 CONCLUSION

- 6.1. It is considered that there will no effect on the surrounding area. The proposals aim to retain the character of the application property by obtaining its retaining appearance. There are to no changes in material which will affect the character of the surrounding area. The improvements to the appearance to Rundell Towers will have a positive effect on its character and the surrounding area.
- 6.2. As noted above, as per the original planning approval dated 5th February 1992 ref: DC/90/0988/ER/37837 the original cladding is Cape Senni, colours snow white, oatmeal, sienna, salmon pink and sea green. As this cladding supplier no longer exists and the colours do not have an associated RAL reference, the proposed colours will be colour matched by Wetherby Building Systems Ltd for as close match as possible.

APPENDIX A EXTERNAL WALL INSULATION SPECIFICATION

Project Ref: PD_20-02275HR1

Project Name: Rundell Tower, Portland Grove, London

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Wetherby A1 Project Specification

Project Name: Rundell Tower, Portland Grove, London

System: Wetherby Stone Wool Heck ED External Wall Insulation System

Substrate: Masonry

Insulation: 110mm Stone Wool Insulation

System Finish: WBS Heck ED Mineral Render Textured Finish

Technical Sales Manager: Paul Dale

E-mail: paul.dale@wbs-ltd.co.uk

Technical Support Manager: Eddie Eeles

Tel: E-mail:

eddie.eeles@wbs-ltd.co.uk



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WETHERBY BUILDING SYSTEMS

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



WETHERBY PREMIUM CERTIFIED PRODUCTS

Wetherby Buildings Systems products and EWI systems are tested to the highest level with an unrivalled range of BBA and ETA certificates available for use on projects in the UK. All testing achieves the ETAG 004 standards, ensuring long term durability, strength and premium performance. BBA approved systems provide a life expectancy in excess of 30 years. BRE Fire Certification has also been achieved for a large number of systems, enabling us to provide a variety of options for use on high rise projects.



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 9001:2008

Wetherby Building Systems have a strong pro-active approach to internal quality systems as well as the manufacture and control of products. Our ISO9001 Quality Management System is regularly audited internally and every 2 years, by independent external auditors Bureau Veritas. This ensures consistency in the supply and quality of our materials and services.



ISO 14001:2004

At Wetherby, we take our environmental responsibilities very seriously. Our ISO14001 Environmental Management Systems, which is internally and externally audited, demonstrates 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.



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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 or technical@wbs-ltd.co.uk





TRAINING SERVICES AND APPROVED APPLICATORS

We provide a variety of in-depth training courses, covering all systems, to ensure that installations are completed to the highest possible standards. We have 5 training centres across the UK, which allow contractors to be rigorously trained and thereafter monitored by our Site Supervisors during actual project installations. For training enquires please contact:



SITE SUPPORT, PULL OUT TESTS AND INSPECTIONS

Wetherby Building Systems offer unrivalled site support for EWI projects with 9 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 example 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

In conjunction with our Recognised Contractors, Wetherby provides a joint guarantee covering defects in materials and installation on Wetherby BBA approved systems for the first 10 years of the system lifespan. Extended guarantees are available for government backed schemes* provided alongside carefully selected third party insurance partners, with Wetherby being a founder member of SWIGA. (*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/xpagex) or on request.

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WETHERBY A1 STONE WOOL AND HECK ED MINERAL RENDER SPECIFICATION

M21

Insulation with rendered finish

To be read with Preliminaries/General Conditions.

GENERAL / SYSTEM REQUIREMENTS

100 REMOVAL OF EXISTING SYSTEM

- The existing EWI render system is to be fully removed before installation of the new system.
- A survey must be carried out following removal to assess the structural stability of the blocks, identifying areas
 requiring repair before the new Wetherby EWI system is installed.
- All repairs must be completed prior to the insulated render system being installed and signed off by a Wetherby Site Supervisor.
- Project specific detailing will be required on removal of the system.
- Once the structural survey has been carried out on the original substrate and the full wall build up can be
 confirmed, Wetherby can produce the necessary u-value calculations which will confirm the required insulation
 thickness and confirm any detailing around fins and plinths which we may need to over sail. Detailing such as this
 will not be known until the existing system is removed and we can see the substrate.

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

On high rise projects, 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. On site pull out tests will also be required.

160 REMEDIAL WORK

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

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180 STRUCTURAL SUBSTRATE

Description: Masonry.

Preparation:

- Treatment to Existing Sound Surfaces

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 remaining bedding adhesive, 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 of the Wetherby bedding adhesive.

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.

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210A EXTERNAL WALL INSULATION SYSTEM

Manufacturer:

Wetherby Building Systems Ltd.

1 Kid Glove Road

Golborne Enterprise Park

Golborne

Greater Manchester

WA3 3GS

Tel: Fax:

Fax: Email: <u>info@wbs-ltd.co.uk</u> Web: <u>www.wbs-ltd.co.uk</u>

System Reference: Wetherby A1 Stone Wool and Heck ED External Wall Insulation System.



- Insulation: WBS Stone Wool Insulation Boards.
 - Thickness: 110mm.
 - Board Size: 1200 x 600mm.
 - Density: 100 Kg/m³.
 - Minimum Compressive Strength: 120 KN/m².
 - Thermal Conductivity: 0.036 Wm²/K.
 - Performance in Relation to Fire:
 - Class 1A (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.
 - Mechanical Fixing: TFIX-8S-155mm 8 fixings per board (Subject to Pull Out Tests / Wind Load Calculations).
 - Fixing Retaining Plate: KWL 90PP.

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WETHERBY BUILDING SYSTEMS PROJECT SPECIFICATION

Project Ref: PD_20-02275HR1

Project Name: Rundell Tower, Portland Grove, London

- Insulation to Reveals: TBC.
 - Thickness: TBC.
 - Fixing: TBC
- Protective Scrim Adhesive Coat (If Required).
 - Reinforcement Adhesive: WBS Heck K+A A1 Scrim Adhesive.
 - Application: 2-3mm 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.
- Movement Joints: As Per Drawings.
 - Vertical Movement Joint Ref: WBS 79/79SS Stainless Steel 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.
- Fire Breaks: Not Required.
- Reinforcement: WBS AGG A1 Alkali Resistant Scrim Cloth incorporated into top third of the WBS Heck K+A A1 Scrim Adhesive.
 - Reinforcement Adhesive: WBS Heck K+A A1 Scrim Adhesive.
 - Stainless Steel Secondary Fixing: Required at a rate of 1 per m².
 - Stainless Steel Fixing Type: TID-MR 8/35 x 170mm.
- Decorative Finish.
 - Wetherby Primer: Solvent free pigmented bonding primer in a colour to match the finish coat.
 - Wetherby Finish Coat: WBS Heck ED Mineral Render Finish.
- Decorative Paint.
 - Wetherby Heck Silicone Paint.
 - Colour: TBC.
- Beads / Trims / Accessories.
 - Full System Beads / Trims:
 - Wetherby Starter Track Ref: WBS 9212RB 110mm Aluminium Base Rail with WBS 37400 Profile Clip.
 - Wetherby Full Depth Stop Bead Ref: WBS 9252RB 110mm Aluminium Stop Profile.
 - Mechanical Fixing: WBS HIT 6/5 Hammerscrew Bead Fixing.
 - Wetherby Roof Detail: TBC.
 - Specialist flashing or WBS 781 type trim to be used subject to roof design, ensuring a long lasting watertight detail (approval required from Wetherby).
 - Wetherby Cills: Type TBC.
 - Specialist cills to be designed and installed to provide a minimum 40mm overhang.
 - Cill manufacturer to design and advise on cill type and fixing.

Wetherby Aluminium Overcills. All cills shall be site measured (ensuring a minimum 40mm overhang) and supplied with welded end caps to suit the application.

Wetherby Aluminium Overcill Ref: 160mm Aluminium Undercill.

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- Surface Render System Beads:
 - Wetherby Corner Bead Ref: WBS 3707 PVC Corner Bead.

Project Name:

- Wetherby Render Bellcast Bead Ref: WBS 410NSS Stainless Steel Bellcast Bead.
- Wetherby Render Stop Bead Ref: WBS 79NSS Stainless Steel Stop Bead.
- Wetherby Movement Joint Ref: WBS 79/79SS Stainless Steel Movement joint.
- Wetherby APU Frame Seal Ref: WBS APU 37909 PVC Frame Seal.

Accessories:

- WBS Sealing Tape: Pre-compressed, expanding waterproof sealing tape.
- WBS Firtree Fixings.
- WBS Fire Rated Silicone Sealant.

N.B. Detailing and beads / trims to be used maybe altered following site inspections and job specific detailing.

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.

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 WBS Heck ED Mineral Render Finish with WBS Heck Silicone Paint.

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.

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.

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410A INSTALLATION

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

415A WBS STONE WOOL HECK ED MINERAL RENDER 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.

Stop Bead

Securely fix Wetherby stop beads on a continuous bead of Wetherby Fire Rated Silicone Sealant 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.

Roofing Detail

Specialist flashing / trim to be installed prior to render works.

Cills

Securely fix cills, ensuring they are secure and provide a water tight detail to protect the EWI system. Apply Wetherby Fire Rated Silicone Sealant where required.

WBS Insulation Bedding Adhesive

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

Application of Stone Wool Insulation Boards

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







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Fixing of Insulation Boards

Fix boards mechanically to the substrate using approved WBS fixings at a rate of 8 fixings per board (subject to pull out tests/wind load calculations) in accordance with WBS fixing pattern (fixing pattern located at the back of this document). Fixings shall be installed so that the fixing head is flush with 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.

Angle Bead

Fix by bedding into first pass of scrim adhesive, angle beads with glassfibre mesh reference WBS 3707 to all external building corners, window / door jambs and heads.

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 200mm x 200mm 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 WBS Heck ED Mineral Render.

WBS 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.

WBS Heck ED Mineral Render Finish

Mix and apply Heck ED Mineral Render 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. Prior to setting, polish render with plastic float to give an even texture and remove all trowel marks. Allow the Mineral Render to fully dry.

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WBS Silicone Paint

Apply 2 coats of WBS Silicone Paint to the WBS Heck ED Mineral Render using a roller or brush as per the printed manufacturer's instructions.









Silicone Sealant

Gun apply a continuous bead of WBS Fire Rated Silicone Sealant at points where the renders will butt up against other materials, e.g. window frames, door frames, eaves, fascia's, projecting wall vents, gas and electric meter boxes etc. ensuring water tightness.

SWI-FIX / Approved Fixings

Install SWI-FIX washer and suitable fixing to be used to fix back items such as RWP's, lights, handrails etc.

Cleaning

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

Application Videos

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

420 ADVERSE WEATHER

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

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VBS-PS-MF-SIL-HR-PAS2030

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440 ON SITE PULL OUT TESTS ON FIXING PINS

- Objective: To prove suitability of structural substrate and determine size and number of fixings required.
- Pull out test load: 2.5 x design load.

490 CONSTRUCTION / MOVEMENT JOINTS / SLIP JOINTS

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

500 FLUES, CHIMNEYS AND COMBUSTION AIR VENTILATORS

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

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

515 LIGHTNING CONDUCTOR

• Fix Stone Wool insulation strip around the lightning conductor with stainless steel fixings. Notch the back of the insulation board to allow for movement of lightning conductor leaving a 10mm gap as per Wetherby detail drawing. Lightning conductors which limit temperature may not require Stone Wool insulation, please contact WBS Technical for more information.

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 or left open and visible and must not be contained by ducting irrespective of duct cover
type.

530 SEALANT JOINTS

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

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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.











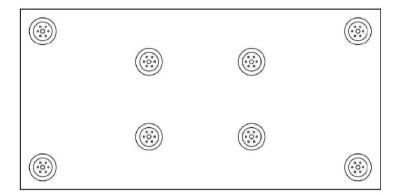
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Wetherby EWI Fixing Pattern (Subject to wind load calculations and pull out tests)



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Silicone, Acrylic and Mineral Render 100 Standard Colours

We have a comprehensive range of 100 standard colours that are available for our Silicone, Four Seasons and Mineral Render Products.











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APPENDIX B FLAT ROOF SPECIFICATION

Specification Document

Project: 40730

Project Name: Rundell Towers

Project Address: Rundell Tower

Portland Grove

London SW8 1JB

Client:

Client Details: Pellings LLP

Specification written by:

Author Address: James Remfry

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Roofing Specification

Roof areas covered by this specification: Roof 1, Roof 2, Roof 3, Roof 4.



Outline Description

This specification has been produced for Pellings LLP for the express use in the construction of the designated roof areas of the property stated above.

Core Samples: These are taken for guidance purposes and indicate the construction only at the sample location/s. Condition/levels of degradation affecting the coverings are only applicable at the time of inspection. Both construction and condition may vary throughout the roof area.



Preliminaries and General Conditions

- Before tendering, the contractor should examine the drawings and specification documents, visit the
 site and ascertain all local conditions and restrictions, accessibility, the full extent and nature of the
 work, the supply and conditions affecting labour and the execution of the contract generally. No
 claims arising from failure to do so will be considered.
- 2. The contractor shall provide, erect and maintain all necessary hoists, scaffolding, mechanical equipment, plant etc of all descriptions required for the satisfactory completion of the works and remove all, as and when required, or when directed by the Contract Administrator.
- The contractor shall not display any advertisements on the scaffolding other than the firm's name board and contact details; neither shall he permit any other advertisements to be displayed without the written authority of the Contracts Administrator.
- 4. The contractor shall provide all necessary containers and storage facilities for materials and for workshops that may be required, maintain them and clear them away on completion.
- The contractor shall provide all necessary latrines and other facilities for the use of operatives as required by the Construction (Design & Management) Regulations 2015 (CDM 2015), maintain them in decent condition and clear them away on completion.
- 6. All roofing materials are to be supplied by Langley Waterproofing Systems Ltd and to be fit for purpose and of the type and quality described herein. Any sub-standard materials will be rejected. No alternatives are to be substituted.
- 7. The contractor shall employ none but fully qualified, competent tradesmen and the whole of the work shall be carried out and completed in accordance with "Best Practice".
- 8. The contractor shall carry out the works without undue inconvenience and nuisance and without danger to occupants and users.

Note

These preliminaries and general conditions will apply in all situations, except where the specifying client inserts a more comprehensive section of preliminaries and conditions, encompassing the complete project.



Detailed Specification: 1

Roof 1

No.	Item	Unit	Qty	Rate	Total
1	SPECIFICATION REQUIREMENTS				
1.1	Guarantee: The following TA-25-W specification is to be covered by the Langley Waterproofing Systems Ltd, single-premium, pre-paid independently-insured workmanship and materials guarantee for a period of 25 years from the date of practical completion. In order to meet this requirement only roofing contractors that participate in this guarantee scheme may be used. The eligibility of proposed roofing contractors should be confirmed with Langley Waterproofing Systems Ltd, Tel: 01327 704778 prior to inviting tenders.				
1.2	Projects Under CDM: In relation to this project, under Construction (Design and Management) Regulations 2015 (CDM 2015), it is the responsibility of the client / contractor to appoint any, or all, relevant "CDM duty-holders".				
1.3	Design Note - Warm Roof: This specification is based on a warm roof construction. The principal thermal insulation is above the structural deck.				
1.4	Design Note - Existing Falls: Overlay of any existing roof system or deck. The new system will follow the existing falls and any deviations will be replicated. As a result, some areas of standing water may occur. However, please note the accumulation of ice, snow or ponding water will not have an adverse effect on the Langley products specified. This applies to both the life expectancy and / or long-term performance of the system specified and will not affect, in any way, the guarantee status.				
1.5	Design Note - Changes & Adjustments: Variations 'A' (general): Any variations must be agreed in writing by both the contract administrator and Langley Waterproofing Systems Ltd. These must be costed and authorised by the client but not be implemented until instructed by the client. Variations 'B' (minor): During work in progress, Langley Waterproofing Systems Ltd must be informed immediately of any proposed change/s and operatives must not implement any change/s until agreed by Langley (minor changes are deemed to be any item not falling within the scope of section a). Unauthorised Changes 'C' (general): Langley Waterproofing Systems Ltd will not be responsible for any changes of which they are unaware or have not authorised, nor will they accept any liability or associated costs due to system failure, i.e. labour, materials, design or programme delays, etc., resulting from said changes.				

Reference: 40730 4 Created: 08 June 2020



1.6	Design Note - Approved Document Part B Building Regulations - Compartmented Walls: Overlaying Existing Waterproofing: Where the Langley Waterproofing system bridges a compartmented wall, it is expected that the existing underlying system is laid on a substrate or deck rated class A2-s3, D2 or better (non-combustible) under BS EN 13501-1 regulations. Buildings below 15m high, the substrate or deck can be rated class B-s3, D2 or worse (combustible), such as timber boarding and battens but they must be fully bedded on mortar (or other no less suitable material) across the full width of the compartmented wall. Double-skinned insulated roof sheeting, such as standing seam or profile metal sheet roofing, should incorporate a band of material rated class A2-s3, D2 or better, a minimum of 300mm in width, centred over the wall.		
	Note: Proposed specification and design will be subject to LABC (Local Authority Building Control) approval before works can commence on-site. Where appropriate, Langley Waterproofing can offer support and guidance to assist application.		
1.7	Roof Structure - Disclaimer: It is deemed the responsibility of the Client Representative, Contractor and / or Property Owner to give due consideration towards the ability of the existing roof deck accepting any additional loadings imposed by the application of the new waterproofing system proposed within this specification. Langley Waterproofing Systems Ltd will not be held responsible or accept any liability or associated costs should structural defects or structural failure occur.		
1.8	Fire Risk - Survey Undertaken: This specification has been formulated with due regard to the inherent risks of fire when using hot work flat roof waterproofing systems and application methods. To the best of our knowledge any potential hazards have been identified and the specification tailored to minimise the risk of accidental ignition occurring. Notwithstanding the foregoing, the contractor / installer is reminded that they have a duty of care and responsibility to carry out their own assessment of the proposed works with regard to the potential fire risk, and introduce working practices that takes any such risks into account. Should the contractor / installer have any reservations about any aspect of the specification proposal, or if during the course of the works any unforeseen items are discovered that present an actual or potential fire risk, they should contact Langley Waterproofing Systems Ltd immediately so that safer methods can be agreed and implemented which do not compromise the integrity of the specification and or its guarantees.		

Reference: 40730 5 Created: 08 June 2020



1.9	Fire Risk - Drying Out: In the event of the roof becoming wet and drying out is necessary, the use of gas torches is not recommended and should be avoided. In all cases Safe2Torch guidelines should be followed. Standing water should be swept to the nearest outlets with a broom or squeegee (care must be taken to avoid debris blocking outlets). The remaining moisture should be soaked up using mops or dry rags and the surface left to dry out naturally. To speed up the process, specialist equipment is commercially available, see 'General Guidance & Requirements' in the appendices of this specification.		
1.10	Safe2Torch - Flame-free Zones: This specification has been compiled in accordance with the NFRC Safe2Torch guidance and includes areas that have been identified as presenting a risk of fire if gas torches are used. This requires the substitution of membranes in these areas.		
1.11	Flame-free Zones - Definition: A Flame-free Zone is defined as being within 900mm of a combustible substrate / material. Note: If combustible material forms part of an overhang then the Flame-free Zone starts from the extremity of the overhang.		
1.12	Risk Assessment - Fire - Installing Contractor: In line with their own Risk Assessment and Method Statement, the installing contractor is to identify any areas where the use of a naked flame is deemed too great a risk. This matter should be raised at the pre-start / pre-commencement meeting or stated in writing to Langley in order that an alternative flame free method can be adopted and specified.		
1.13	Flame-free Zones - Identified Risk Areas: In accordance with Safe2Torch guidance the following area/s have been designated as 'flame-free' zone/s: Detail Noted: Door & Threshold Detail Noted: Pipe Housing Detail Noted: New Timber Detail Noted: Louvered Vents Whilst these area/s have been identified, they may not be definitive. Due allowance must be made so that at any stage of this project, should any additional areas be designated a fire risk by any of the parties involved, they must be logged, all parties informed, and the appropriate measures employed.		
1.14	Fire Accreditation: Unless otherwise stated, the full waterproofing system and/or products contained within this specification have been tested for external fire exposure (both with and without insulation) in accordance with BS EN 13501-5: 2005 (European Test) and are accredited as Broof(t4).		

Reference: 40730 Created: 08 June 2020



1.15	Langley Detailed Drawings: This specification is to be read in conjunction with detailed drawings issued and supplied by Langley Waterproofing. Should the contractor at any point find discrepancies between the issued specification and issued drawings, it is required that the specification takes precedence in all cases, unless otherwise notified and approved. No additional costs or liability arising from failure to follow specification or notifying Langley Waterproofing Systems Ltd of any discrepancies found in good time prior to commencement of works will be considered.		
1.16	Guarantee Requirement - Torch-on Membranes: Applicable to all layers. A 5-10mm bead of bitumen must be exuded from all laps.		
2	SCOPE OF APPLICATION		
2.1	Partial Strip-up - Removal of Overlay to Existing Asphalt: This specification is based on the removal of an existing overlay system and re-covering of the underlying asphalt substrate.		
2.2	Deck and Substrates - Existing Asphalt on Screeded Concrete: This specification is suitable for application to a substrate of an existing prepared asphalt system on a screeded concrete roof deck, not exceeding 5° from the horizontal.		
2.3	Day / Night Joints: The contractor must ensure at the end of each working day or period, that any exposed membranes or substrates that are susceptible to damage through water ingress are sealed with a Langley system compatible membrane to ensure complete water tightness. No loose laid membranes or other such covers are permitted.		
2.4	Electronic Roof Integrity Test (Buried Systems): Prior to the installation of any proposed roof finishes, an electronic leak detection test must be carried out by a WITA approved contractor to ensure the integrity of the newly installed waterproofing system and to meet Langley Waterproofing Systems Ltd guarantee requirements.		
2.5	U-value - Flat Board Insulation: The Parafoam Ultra Flat Board Insulation included in this specification will achieve an overall U-value of 0.18 W/m²K.		
3	PREPARATION		
3.1	Contractor Preparation Note: The contractor is to carry out his own inspection to satisfy himself with regard to the extent of works involved in stripping up the current overlay system and subsequent preparation of the exposed waterproofing coverings and substrates. No claims arising from failure to do so will be considered by Langley Waterproofing Systems Ltd.		
3.2	Fixed Access Ladder/s - Temporary Removal: To facilitate the re-roofing works. The contractor is to remove set aside and safely store for re-use upon completion of the new waterproofing system.		

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3.3	Redundant Plant and Equipment: All redundant plant and equipment (ducting, vents, pipe-work, etc.) as identified by the client contract administrator is to be removed and disposed of to suitable waste facilities. Make good any damage, holes, openings and / or surfaces disturbed prior to the application of any new waterproof coverings.		
3.4	Plant & Equipment: Carefully remove and set aside for re-fixing all free-standing roof mounted plant and items of equipment. No equipment is to be stored during the course of the works on completed areas unless suitable protection has been provided beneath.		
3.5	TV Aerials and / or Satellite Dish Arrays: Any TV aerials and / or satellite dish arrays that will impede roofing works are to be temporarily removed, raised, etc. to facilitate the works. The contractor must liaise with the client contract administrator directly in relation to how best serve the property so that minimal disturbance of services is achieved throughout the contract period.		
3.6	Lightning Conductor Tapes: Temporarily remove and set aside for re-fixing upon completion. Prior to removal, the system must be tested by an approved contractor or testing house to ensure that the system meets all necessary current standard requirements. Should the system no longer meet current standards, then remove and dispose of and replace with new fully compliant system upon completion of roof works. The contractor must allow for temporary alternative protection throughout the contract period until such time as the existing system is reinstated.		
3.7	Wall Mounted Plant, Cable Trays / Conduits etc - Reposition (above skirting height): All wall mounted services and/or plant that will prevent facilitation of the works or will penetrate the new skirting heights. Raised and/or relocate. Allowance must be made for the following items as necessary: 1. Disconnection, de-gassing and re-connection, adaptation of all pipework, supports, connections, electrical connections and cabling. 2. Reposition (above skirting height) or relocate to suitable locations as required. Allow for all adaptions/adjustments and fixings required and re-connection. All in accordance with client's detailed requirements. 3. Certify as fully serviceable on completion.		
3.8	Cables - Temporarily Remove: All cables must be carefully raised and / or temporarily supported clear of the roof surface to facilitate the works.		

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3.9	Existing Outlets - Refurbish with ParaFurb Outlets: Make ready to accept new ParaFurb Refurbishment Outlets (detailed elsewhere). Cut back and remove sufficient existing waterproofing from around the outlets and as required from the surrounding area to allow for correct installation. Important Note: ParaFurb Outlets must not be installed to outlet positions that already have an existing refurbishment outlet in place. Prior to ParaFurb Outlets being installed, any existing refurbishment outlets or lead sleeve inserts must first be removed and surrounding substrates made good.		
3.10	Existing Overlay System - Remove and Prepare Asphalt Substrate:		
	Overlay System: Strip and remove to suitable waste containers all component layers of the existing waterproofing overlay system including any insulation and or vapour control layers that may be found, back to the surface of the original asphalt covering. Asphalt Preparation: Warm and smooth out all ridges and blisters. Where necessary, make good any damage to the asphalt surface. Asphalt Details: Remove all existing asphalt flashings, aprons and		
	collars to pipes, etc. and dispose of to suitable approved waste facilities. Cutting of asphalt must be undertaken with an angle grinder. The use of hammer and chisel is not permitted.		
3.11	Provisional Sum - Pipe Housing - Overclad with Plywood: Overclad existing top and inner face of pipe housing with 18mm thick, class 3, exterior grade plywood. The contractor must include for all necessary battens / timber stud and levelling timbers, etc. Secure with screw fixings suitable for the presented substrate. The pipe housing is to be cladded in the full warm TA25 system including insulation.		
3.12	Door/s, Frame/s and Threshold/s - Renew (ParaFlash B3): Remove all existing door/s, frame/s and threshold/s and discard to suitable waste facilities. The new threshold/s must be raised to allow a minimum skirting height of 150mm above the finished level of the main roof surface. New door/s and frame/s to be adapted as necessary and to include all decorative and security finishings. Install new ParaFlash B3, lead-free cover flashing/s, prior to fitting the new threshold/s. The height of the threshold/s is to be such that the skirting / flashing height is the same as that on either side of the threshold/s. The contractor must confirm with the client/contract administrator the method and materials to be used to facilitate the raising of door threshold/s. Claims arising from failure to seek client instruction prior to commencement of works or provide suitable cost provision for this item will not be entertained by Langley Waterproofing Systems Ltd.		
3.13	Screed Vents - Remove: Remove and dispose to suitable waste facilities . Make good holes in surface and seal with 500mm x 500mm pieces of Paradiene (35) SR4 underlay. Fully bonded by gas torch to a prepared primed surface.		

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3.14	Soil Vent Pipe/s - Extend: Extend where necessary. Collar or pipe sleeve/s must be a minimum of 150mm above the finished roof surface. Note: Extension pipe/s must be fixed inside the existing pipe/s.		
3.15	Priming - Asphalt Surface & Detail Substrates: Asphalt surfaces and substrates for details. Sweep clear of all dirt, debris and loose material. All surfaces must be dry. Prime with Langley Spray-on (synthetic rubber) Primer and allow to dry.		
3.16	Flame-free Zones - Priming Requirement - All Surfaces (Inc Insulation if applicable): Prime all flame-free zone surfaces with Langley Spray-on (synthetic rubber) Primer and allow to dry (bituminous primer must not be used).		
3.17	Flame-free Zones - Self-adhesive Membranes - Additional Priming: Adhesion issues may arise when applying membranes with a hot-air gun. Langley Spray-on Primer can be applied to the surface Paradiene SA underlay to enhance adhesion of the Parafor Solo SA cap sheet. This 'additional priming' is also recommended when the Langley SA Membrane Detailing System is specified as the primary roof covering or over large areas. This will ensure a consistent bond across larger roof areas and improve application times		
3.18	Plywood Panel Joints - Vertical / Horizontal Details: Bond to primed surface of class 3, exterior grade plywood, across all vertical / horizontal joints to upstand detail, with 200mm wide strips of Adequerre Self Adhesive Taping Strip.		
4	AIR AND VAPOUR CONTROL		
4.1	Air and Vapour Control Layer - Torch-on - Field Area: Install Parevapo SBS metal-lined, double reinforced, elastomeric air and vapour control layer. Top Face: Sanded. Underside: Macro perforated fusible film. Fully bond to prepared surface by torch-on method. Side and end laps to overlap by a minimum of 75mm and must be fully sealed by torch-on method.		
4.2	Flame-free Zones - Air and Vapour Control Layer - Change of Membrane - Flat Area: Install Parevapo SA, double reinforced, metal-lined, self-adhesive SBS elastomeric bitumen air and vapour control layer. Fully bond to a prepared and primed substrate by means of the heat activated, self-adhesive face, applying pressure with a weighted roller. Side laps, minimum 75mm, end laps, 100mm, fully bond by heat welding and applying pressure with a seam roller. Priming of substrate must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area AVCL, (outside the flame-free zone) must be minimum 150mm and torch bonded.		

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4.3	Air and Vapour Control Layer - Detail Skirtings: Extend the air and vapour control layer as a separate flashing piece cut from full width of roll to the skirting. Fully bond by torch-on method to a fully prepared surface to a minimum height of 100mm past the finished proposed line of the new insulation level. A minimum of 100mm lap must be achieved to main field return. Side laps to be a minimum of 75mm and must be fully sealed by torch-on method.		
4.4	Flame-free Zones - Air and Vapour Control Layer - All Upstands, Skirtings & Details Generally: Extend Parevapo SA air and vapour control layer to the skirting / details as a separate flashing piece, cut from the width of a roll. Fully bond to a prepared and primed substrate by means of the heat activated self-adhesive face. Minimum height, 100mm above the finished height of the new insulation (or the full girth of details). Priming of substrate must be with Langley Spray-on (synthetic rubber) Primer, (bituminous primer must not be used). Lap to main field return, minimum 100mm, side laps minimum 75mm. Application method as per the main area. Detailing arrangements all as main specification.		
5	INSULATION		
5.1	PIR Flat Board Insulation - Required Thickness: Install Parafoam Ultra 120mm thick Polyisocyanurate (PIR) roof insulation boards. CFC/HCFC-free with zero ODP. Boards to be close butted with staggered joints.		
5.2	PIR Flat Board Insulation - Sumps to Chute / Scupper Outlets: Sumps to be a minimum of 500mm x 500mm square around outlet position. Form with Parafoam Ultra 50mm thick Polyisocyanurate (PIR) roof insulation boards. A Langley Metal Hard Edge to be fixed to all exposed insulation edges. Bond to insulation with either low foaming PU adhesive or strapping with suitable fully bonded underlay membrane.		
5.3	PIR Insulation Boards - PU Attachment: To prepared surface. Bond Insulation with Lang-Stik Solvent Free PU Adhesive. Surface of substrate must be swept clear of all dirt, debris and loose material, prior to application of the adhesive. Boards to be laid close butted with staggered joints. Note: For further information, please refer to 'Fixing Instructions'		
	section of this specification.		
5.4	PIR Insulation Boards - PU Attachment - Flame-free Zones: When using Parevapo SA, in designated flame-free zones, the insulation to these areas must be bonded with Lang-Stik Solvent Free PU Adhesive. Surface substrate must be swept clear of all dirt, debris and loose material, prior to application of the PU adhesive.		
5.5	Insulation - Changes of Levels - Metal Hard Edge: Langley Metal Hard Edge to be fixed to all exposed insulation edges. Bond to insulation with either low foaming PU adhesive or strapping with suitable fully bonded underlay membrane.		

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5.6	Priming - Hard Edges to Insulation: All hard edges, metal and / or timber, must be primed with Langley spray-on (synthetic rubber) primer and allow to dry.	
6	WATERPROOFING - UNDERLAYS	
6.1	Detail Reinforcing Strip - Requirement in Lieu of Angle Fillets: Paradiene M3 S detail reinforcing strips must be fixed at the base of all upstands, prior to subsequent membranes being installed. At a minimum of 250mm width cut from roll, apply 125mm to the horizontal and 125mm to vertical prepared surfaces. Fully bond by torch-on method.	
6.2	Flame-free Zone - Detail Reinforcing Strip - Change of Membrane: Paradiene SA detail reinforcing strips must be installed at the base of all upstands, prior to subsequent membranes being installed. Strips to be minimum 250mm wide in pieces cut from roll, applied 125mm to the horizontal and 125mm to vertical surfaces. Fully bond to a prepared (and primed if applicable) substrate by means of the heat activated self-adhesive face, applying pressure with a seam roller. Where priming is required, it must be with Langley Spray-on (synthetic rubber) Primer, (bituminous primer must not be used).	
6.3	Underlay - Self-Adhesive - Field Area: Adepar JS VV glass fibre reinforced, SBS elastomeric bitumen membrane. Top Face: fusible film. Underside: sanded between self-adhesive strips with siliconised peel-off film over self-adhesive selvedge. Fixing: by means of factory-applied self-adhesive strips. Perimeters and Openings: 500mm wide, fully bond by torching. Side Lap: 80mm determined by selvedge. end lap: minimum 120mm. Note: The siliconised film is not fusible. Fixing Method: See Fixing Instructions. Note: 5-10mm bead of bitumen must be exuded from all laps.	
6.4	Flame-free Zone - Underlay - Change of Membrane - Flat Area: Install Paradiene SA, polyester reinforced, self-adhesive SBS elastomeric bitumen membrane. Fully bond to a prepared and primed substrate by means of the heat activated self-adhesive face, applying pressure with a weighted roller. Side laps, minimum 75mm; end laps, minimum 100mm; fully bonded by heat welding and applying pressure with a seam roller. Priming of substrate (including insulation if applicable) must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area underlay, (outside the flame-free zone) must be minimum 150mm and torch bonded.	
6.5	Underlay - Upstands & Skirtings: To be formed separately using Paradiene M3 S underlay. Cut from the width of the roll and fully bond by torching to base membrane with a minimum 100mm lap. Both surfaces being bonded must be heated and a bead (5-10mm) of bitumen extruded from all head and side laps.	

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6.6	Flame-free Zone - Underlay - Upstands & Skirtings - Change of Membrane: To be formed separately with Paradiene SA underlay, in pieces cut from the width of a roll. Fully bond to a prepared and primed substrate (or AVCL if applicable) by means of the heat activated self-adhesive face, applying pressure with a roller. Minimum height, 150mm above the finished height of the new insulation (or the full girth of details). Where applicable, priming of substrate must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). Lap to main field return, minimum 100mm; Side laps, minimum 75mm. Application method as per the main area. Detailing arrangements all as main specification.	
6.7	Underlay to Outlet Sumps & Internal / Integral Gutters: Paradiene M3 S underlay (fully bonded) must be used (detailed elsewhere). Extend onto main field area by minimum 150mm.	
7	WATERPROOFING CAP SHEETS	
7.1	Cap Sheet - Torch-on - Field Area: Install Elastoflex GS cap sheet. Elastoflex GS is a torch-on polyester-reinforced, SBS-modified elastomeric bitumen membrane. The surface has a Dark Grey granulated surface with a grooved thermofusible film underside. Lay: Fully bonded by torching with 90mm minimum side lap width as determined by the selvedge. Minimum end laps must be 150mm. This layer is to be laid parallel to the under layer, breaking joints by at least 300mm. Both surfaces being bonded must be heated and a bead of bitumen exuded from all laps.	
7.2	Flame-free Zone - Cap Sheet - Change of Membrane - Flat Area: Install Parafor Solo SA, polyester reinforced, self-adhesive, SBS elastomeric bitumen, dark grey granule faced cap sheet. Fully bond to the underlay by means of the heat activated self-adhesive face, applying pressure with a weighted roller. Side laps to suit selvedge (minimum 75mm); end laps, minimum 150mm; fully bond by heat welding and applying pressure with a seam roller. A 5-10mm bead of bitumen must be extruded from all laps. All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area cap sheet, (outside the flame-free zone) must be minimum 150mm and torch bonded.	
8	DETAILS	
8.1	Cap Sheet - General Detailing: Detail flashings. Form separately with Elastoflex GS Cap Sheet cut from width of roll. Colour to match main field membrane. Fully bond by torching to the specified detail underlay membrane. Both surfaces being bonded must be heated and a 5-10mm bead of bitumen extruded from all head and side laps. Cap sheet detail must extend to a minimum of 150mm onto the main field area. Upstand heights must be a minimum of 150mm above the finished roof level.	
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8.2	Flame-free Zone - Cap Sheet - General Detailing - Change of Membrane: Detail flashings to be formed separately using matching colour Parafor Solo SA Cap Sheet, in pieces cut from width of roll. Fully bond to the specified detail underlay by means of the heat activated self-adhesive face, applying pressure with a roller. Minimum height, 150mm above the finished height of the new system (or the full girth of details). Side laps to suit selvedge; end laps, minimum 150mm, bond by heat welding and applying pressure with a seam roller. A 5-10mm bead of bitumen is to be extruded from all laps. Lap to main field return, minimum 150mm.		
8.3	Internal Outlets - ParaFurb Refurbishment Outlets: ParaFurb Refurbishment Outlet: Stainless Steel spigot with expanding EPDM rubber seal and SBS membrane flange. Select outlet to suit diameter/s of fall pipes. Fully bond flange membrane to previously installed underlay or soaker. Fully bond cap sheet over and cut hole to suit diameter of pipe. Install leaf guard/grating supplied. Installation to be in accordance with Langley fixing instructions.		
8.4	Pipe Housing Encapsulation: Pipe housings are to be clad in plywood and encapsulated in flame- free self-adhesive membrane prior to application of the waterproofing system (as specified above). The full waterproofing system (including insualtion) must be carried up the vertical inner face and across the top of the detail, which must be, in all cases, fully supported. Terminate to the parapet wall with a new Langley TB62 GRP Termination Bar. Where required, at the ends of housing, the waterproofing must be turned up and to the side, to allow weathering with new horizontal and vertical cover flashings. Screw fix at maximum 300mm centres into firm grounds. Butt straps are to be inserted at all joints. Surfaces of trim in contact with membranes must be wiped clean and primed with Langley Primer and allowed to dry.		
8.5	Counter Flashing - Langley TB62 GRP Termination Bar: Where a chased counter flashing is impractical. Install and protect detail abutment skirtings with a Langley TB62 GRP face-fixed Termination Bar. Fixing: Position above the membrane skirting and apply two evenly spaced beads of Langley Gap-Seal Mastic to the rear surface of the termination bar before offering-up and positioning above the detail skirting. Once aligned, secure in place by mechanically screwing and plug fixing with dome or pan head non-corroding screws at maximum 300mm centres. Complete detail by applying a fillet of Langley Gap-Seal Mastic at 45° angle along the top edge of the bar to create a required water shed finish. Full contact of mastic must be maintained between the termination bar and substrate at all times.		
8.6	Skirting to Threshold / Cill - ParaFlash B3: Install and protect detail abutment skirtings with ParaFlash B3 lead- free counter flashings 150mm wide. Dress into prepared chase below threshold / cill and wedge at 450mm centres with stainless steel clips provided. Point with Langley Gap-Seal Mastic. Side laps to be a minimum of 100mm and sealed with Langley Lap Adhesive.		

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Skirtings - Vertical Waterproofing Over 400mm in Height Additional Mechanical Fixing Required: Additionally secure with concealed fixings either by nailing or with screws and pressure plates. Laps must be a minimum of 160mm. Nailing: Large headed galvanised steel clout nails set at 75mm centres in two rows 50mm apart. Screws: Maximum 200mm centres with 5 No. minimum per sheet width.				
Soil Vent Pipe - Cast Iron: Soil vent pipes must be a minimum of 150mm high from the finished level of waterproofing. Install new Code 5 Lead pipe sleeves with integral lead flange. Sleeves must be a minimum of 30mm higher than pipe. Flange must be a minimum of 100mm wide. Prime both surfaces of the flange. Fully bond to the underlay or soaker, prior to fully bonding the cap sheet membrane. Sleeves to be turned into top of pipe by 25mm. Colour: Black. Note: Soil vent pipes greater than 300mm require a Code 5 Lead sleeve finishing a minimum of 150mm high above the finished level of the new waterproofing system and terminated with a weathering collar. Finish base of vertical sleeve as previously stated.				
COMPLETION				
Guarantee Requirement - Final Inspection: In accordance with our guarantee requirements, Langley Waterproofing Systems Ltd are to be notified once all works are complete. A final inspection will then be undertaken by us and the contractor must ensure that safe working access is provided.				
Access Ladder/s - Existing Re-fix: Re-fix. The contractor is to allow for any modifications / adaptations necessary to accommodate the new roofing system finished levels. Where possible, fixing points are to be designed to avoid penetrating the waterproofing system.				
Plant and Equipment - Free Standing - Reinstatement: All free-standing roof mounted plant and items of equipment must be placed on load-spreading slabs on sacrificial pieces of loose laid cap sheet, mineral surface down.				
TV Aerials and / or Satellite Dish Arrays: Reinstate to original locations or new positions as instructed by the client contract administrator all TV aerials and / or satellite dish arrays.				
Cables - Reinstate: Collate and support on cable trays if necessary. Secure cables to tray or to original locations and secure with plastic cable ties. If cable trays are used then they are to be rested on load-spreading bases on sacrificial pieces of cap sheet. Securely fasten trays to bases as required.				
	Mechanical Fixing Required: Additionally secure with concealed fixings either by nailing or with screws and pressure plates. Laps must be a minimum of 160mm. Nailing: Large headed galvanised steel clout nails set at 75mm centres in two rows 50mm apart. Screws: Maximum 200mm centres with 5 No. minimum per sheet width. Soil Vent Pipe - Cast Iron: Soil vent pipes must be a minimum of 150mm high from the finished level of waterproofing. Install new Code 5 Lead pipe sleeves with integral lead flange. Sleeves must be a minimum of 30mm higher than pipe. Flange must be a minimum of 100mm wide. Prime both surfaces of the flange. Fully bond to the underlay or soaker, prior to fully bonding the cap sheet membrane. Sleeves to be turned into top of pipe by 25mm. Colour: Black. Note: Soil vent pipes greater than 300mm require a Code 5 Lead sleeve finishing a minimum of 150mm high above the finished level of the new waterproofing system and terminated with a weathering collar. Finish base of vertical sleeve as previously stated. COMPLETION Guarantee Requirement - Final Inspection: In accordance with our guarantee requirements, Langley Waterproofing Systems Ltd are to be notified once all works are complete. A final inspection will then be undertaken by us and the contractor must ensure that safe working access is provided. Access Ladder/s - Existing Re-fix: Re-fix. The contractor is to allow for any modifications / adaptations necessary to accommodate the new roofing system finished levels. Where possible, fixing points are to be designed to avoid penetrating the waterproofing system. Plant and Equipment - Free Standing - Reinstatement: All free-standing roof mounted plant and items of equipment must be placed on load-spreading slabs on sacrificial pieces of loose laid cap sheet, mineral surface down. TV Aerials and / or Satellite Dish Arrays: Reinstate to original locations or new positions as instructed by the client contract administrator all TV aerials and / or satellite dish arrays. Cables - Reinstate: Collate an	Mechanical Fixing Required: Additionally secure with concealed fixings either by nailling or with screws and pressure plates. Laps must be a minimum of 160mm. Nailing: Large headed galvanised steel clout nails set at 75mm centres in two rows 50mm apart. Screws: Maximum 200mm centres with 5 No. minimum per sheet width. Soil Vent Pipe - Cast Iron: Soil vent pipes must be a minimum of 150mm high from the finished level of waterproofing. Install new Code 5 Lead pipe sleeves with integral lead flange. Sleeves must be a minimum of 30mm higher than pipe. Flange must be a minimum of 100mm wide. Prime both surfaces of the flange. Fully bond to the underlay or soaker, prior to fully bonding the cap sheet membrane. Sleeves to be turned into top of pipe by 25mm. Colour: Black. Note: Soil vent pipes greater than 300mm require a Code 5 Lead sleeve finishing a minimum of 150mm high above the finished level of the new waterproofing system and terminated with a weathering collar. Finish base of vertical sleeve as previously stated. COMPLETION Guarantee Requirement - Final Inspection: In accordance with our guarantee requirements, Langley Waterproofing Systems Ltd are to be notified once all works are complete. A final inspection will then be undertaken by us and the contractor must ensure that safe working access is provided. Access Ladder/s - Existing Re-fix: Re-fix. The contractor is to allow for any modifications / adaptations necessary to accommodate the new roofing system finished levels. Where possible, fixing points are to be designed to avoid penetrating the waterproofing system. Plant and Equipment - Free Standing - Reinstatement: All free-standing roof mounted plant and items of equipment must be placed on load-spreading slabs on sacrificial pieces of loose laid cap sheet, mineral surface down. TV Aerials and / or Satellite Dish Arrays: Reinstate to original locations or new positions as instructed by the client contract administrator all TV aerials and / or satellite dish arrays. Cables - Reinstate: Collate an	Mechanical Fixing Required: Additionally secure with concealed fixings either by nailing or with screws and pressure plates. Laps must be a minimum of 160mm. Nailing: Large headed galvanised steel clout nails set at 75mm centres in two rows 50mm apart. Screws: Maximum 200mm centres with 5 No. minimum per sheet width. Soil Vent Pipe - Cast Iron: Soil vent pipes must be a minimum of 150mm high from the finished level of waterproofing. Install new Code 5 Lead pipe sleeves with integral lead flange. Sleeves must be a minimum of 100mm wide. Prime both surfaces of the flange. Fully bond to the underlay or soaker, prior to fully bonding the cap sheet membrane. Sleeves to be turned into top of pipe by 25mm. Colour: Black. Note: Soil vent pipes greater than 300mm require a Code 5 Lead sleeve finishing a minimum of 150mm high above the finished level of the new waterproofing system and terminated with a weathering collar. Finish base of vertical sleeve as previously stated. COMPLETION Guarantee Requirement - Final Inspection: In accordance with our guarantee requirements, Langley Waterproofing Systems Ltd are to be notified once all works are complete. A final inspection will then be undertaken by us and the contractor must ensure that safe working access is provided. Access Ladder/s - Existing Re-fix: Re-fix. The contractor is to allow for any modifications / adaptations necessary to accommodate the new roofing system finished levels. Where possible, fixing points are to be designed to avoid penetrating the waterproofing system. Plant and Equipment - Free Standing - Reinstatement: All free-standing roof mounted plant and items of equipment must be placed on load-spreading slabs on sacrificial pieces of loose laid cap sheet, mineral surface down. TV Aerials and / or Satellite Dish Arrays: Reinstate to original locations or new positions as instructed by the client contract administrator all TV aerials and / or satellite dish arrays. Cables - Reinstate: Collate and support on cable trays if necessary. Secure cables	Mechanical Fixing Required: Additionally secure with concealed fixings either by nailing or with screws and pressure plates. Laps must be a minimum of 160mm. Nailing: Large headed galvanised steel clout nails set at 75mm centres in two rows 50mm apart. Screws: Maximum 200mm centres with 5 No. minimum per sheet width. Soil Vent Pipe - Cast Iron: Soil vent pipes must be a minimum of 150mm high from the finished level of waterproofing, Install new Code 5 Lead pipe sleeves with integral lead flange. Sleeves must be a minimum of 30mm higher than pipe. Flange must be a minimum of 30mm higher than pipe. Flange must be a minimum of 100mm wide. Prime both surfaces of the flange. Fully bond to the underlay or soaker, prior to fully bonding the cap sheet membrane. Sleeves to be turned into top of pipe by 25mm. Colour: Black. Note: Soil vent pipes greater than 300mm require a Code 5 Lead sleeve finishing a minimum of 150mm high above the finished level of the new waterproofing system and terminated with a weathering collar. Finish base of vertical sleeve as previously stated. COMPLETION Guarantee Requirement - Final Inspection: In accordance with our guarantee requirements, Langley Waterproofing Systems Ltd are to be notified once all works are complete. A final inspection will then be undertaken by us and the contractor must ensure that safe working access is provided. Access Ladder/s - Existing Re-fix: Re-fix. The contractor is to allow for any modifications / adaptations necessary to accommodate the new roofing system finished levels. Where possible, fixing points are to be designed to avoid penetrating the waterproofing system. Plant and Equipment - Free Standing - Reinstatement: All free-standing roof mounted plant and items of equipment must be placed on load-spreading slabs on sacrificial pieces of loose laid cap sheet, mineral surface down. TV Aerials and / or Satellite Dish Arrays: Reinstate to original locations or new positions as instructed by the client contract administrator all TV aerials and / or

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Internal Rainwater Outlets - ParaFurb Refurbishment Outlets: Check for blockages. Clear if necessary and leave in a free-running condition. Ensure bung is tightly secured to form correct pressure seal to pipe/s for applicable units. Ensure all supplied leaf guard / gratings are in place and tightly secured.				
Completed Roof Surface - General: Ensure visual inspection of all laps is undertaken to confirm integrity of system prior to final guarantee inspection. Sweep clean and remove debris to suitable waste container.				
Lightning Conductor System - Existing: Reinstate the existing system all in accordance with client contract administrators requirements. The system must be tested and certified operational by an approved specialist contractor. The roofing contractor must provide and install all necessary Langley Lightning Conductor Retention Clips to roof surface to secure the lightning conductor tape. Clips are to be set at no more than 1 metre centres to secure the tape. At lightning conductor corner intersection plates, clips are to be spaced away from the plates at not less than 150mm but no greater than 200mm.				
Arisings from Works: Remove from site all arisings for return to contractor storage or safe disposal.				
	Check for blockages. Clear if necessary and leave in a free-running condition. Ensure bung is tightly secured to form correct pressure seal to pipe/s for applicable units. Ensure all supplied leaf guard / gratings are in place and tightly secured. Completed Roof Surface - General: Ensure visual inspection of all laps is undertaken to confirm integrity of system prior to final guarantee inspection. Sweep clean and remove debris to suitable waste container. Lightning Conductor System - Existing: Reinstate the existing system all in accordance with client contract administrators requirements. The system must be tested and certified operational by an approved specialist contractor. The roofing contractor must provide and install all necessary Langley Lightning Conductor Retention Clips to roof surface to secure the lightning conductor tape. Clips are to be set at no more than 1 metre centres to secure the tape. At lightning conductor corner intersection plates, clips are to be spaced away from the plates at not less than 150mm but no greater than 200mm. Arisings from Works: Remove from site all arisings for return to contractor storage or safe	Check for blockages. Clear if necessary and leave in a free-running condition. Ensure bung is tightly secured to form correct pressure seal to pipe/s for applicable units. Ensure all supplied leaf guard / gratings are in place and tightly secured. Completed Roof Surface - General: Ensure visual inspection of all laps is undertaken to confirm integrity of system prior to final guarantee inspection. Sweep clean and remove debris to suitable waste container. Lightning Conductor System - Existing: Reinstate the existing system all in accordance with client contract administrators requirements. The system must be tested and certified operational by an approved specialist contractor. The roofing contractor must provide and install all necessary Langley Lightning Conductor Retention Clips to roof surface to secure the lightning conductor tape. Clips are to be set at no more than 1 metre centres to secure the tape. At lightning conductor corner intersection plates, clips are to be spaced away from the plates at not less than 150mm but no greater than 200mm. Arisings from Works: Remove from site all arisings for return to contractor storage or safe	Check for blockages. Clear if necessary and leave in a free-running condition. Ensure bung is tightly secured to form correct pressure seal to pipe/s for applicable units. Ensure all supplied leaf guard / gratings are in place and tightly secured. Completed Roof Surface - General: Ensure visual inspection of all laps is undertaken to confirm integrity of system prior to final guarantee inspection. Sweep clean and remove debris to suitable waste container. Lightning Conductor System - Existing: Reinstate the existing system all in accordance with client contract administrators requirements. The system must be tested and certified operational by an approved specialist contractor. The roofing contractor must provide and install all necessary Langley Lightning Conductor Retention Clips to roof surface to secure the lightning conductor tape. Clips are to be set at no more than 1 metre centres to secure the tape. At lightning conductor corner intersection plates, clips are to be spaced away from the plates at not less than 150mm but no greater than 200mm. Arisings from Works: Remove from site all arisings for return to contractor storage or safe	Check for blockages. Clear if necessary and leave in a free-running condition. Ensure bung is tightly secured to form correct pressure seal to pipe/s for applicable units. Ensure all supplied leaf guard / gratings are in place and tightly secured. Completed Roof Surface - General: Ensure visual inspection of all laps is undertaken to confirm integrity of system prior to final guarantee inspection. Sweep clean and remove debris to suitable waste container. Lightning Conductor System - Existing: Reinstate the existing system all in accordance with client contract administrators requirements. The system must be tested and certified operational by an approved specialist contractor. The roofing contractor must provide and install all necessary Langley Lightning Conductor Retention Clips to roof surface to secure the lightning conductor tape. Clips are to be set at no more than 1 metre centres to secure the tape. At lightning conductor corner intersection plates, clips are to be spaced away from the plates at not less than 150mm but no greater than 200mm. Arisings from Works: Remove from site all arisings for return to contractor storage or safe

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Detailed Specification: 2

Roof 2

No.	Item	Unit	Qty	Rate	Total
10	SPECIFICATION REQUIREMENTS				
10.1	Guarantee: The following TA-25-W specification is to be covered by the Langley Waterproofing Systems Ltd, single-premium, pre-paid independently-insured workmanship and materials guarantee for a period of 25 years from the date of practical completion. In order to meet this requirement only roofing contractors that participate in this guarantee scheme may be used. The eligibility of proposed roofing contractors should be confirmed with Langley Waterproofing Systems Ltd, Tel: 01327 704778 prior to inviting tenders.				
10.2	Projects Under CDM: In relation to this project, under Construction (Design and Management) Regulations 2015 (CDM 2015), it is the responsibility of the client / contractor to appoint any, or all, relevant "CDM duty-holders".				
10.3	Design Note - Warm Roof: This specification is based on a warm roof construction. The principal thermal insulation is above the structural deck.				
10.4	Design Note - Existing Falls: Overlay of any existing roof system or deck. The new system will follow the existing falls and any deviations will be replicated. As a result, some areas of standing water may occur. However, please note the accumulation of ice, snow or ponding water will not have an adverse effect on the Langley products specified. This applies to both the life expectancy and / or long-term performance of the system specified and will not affect, in any way, the guarantee status.				
10.5	Design Note - Changes & Adjustments: Variations 'A' (general): Any variations must be agreed in writing by both the contract administrator and Langley Waterproofing Systems Ltd. These must be costed and authorised by the client but not be implemented until instructed by the client. Variations 'B' (minor): During work in progress, Langley Waterproofing Systems Ltd must be informed immediately of any proposed change/s and operatives must not implement any change/s until agreed by Langley (minor changes are deemed to be any item not falling within the scope of section a). Unauthorised Changes 'C' (general): Langley Waterproofing Systems Ltd will not be responsible for any changes of which they are unaware or have not authorised, nor will they accept any liability or associated costs due to system failure, i.e. labour, materials, design or programme delays, etc., resulting from said changes.				



10.6	Design Note - Approved Document Part B Building Regulations - Compartmented Walls: Overlaying Existing Waterproofing: Where the Langley Waterproofing system bridges a compartmented wall, it is expected that the existing underlying system is laid on a substrate or deck rated class A2-s3, D2 or better (non-combustible) under BS EN 13501-1 regulations. Buildings below 15m high, the substrate or deck can be rated class B-s3, D2 or worse (combustible), such as timber boarding and battens but they must be fully bedded on mortar (or other no less suitable material) across the full width of the compartmented wall. Double-skinned insulated roof sheeting, such as standing seam or profile metal sheet roofing, should incorporate a band of material rated class A2-s3, D2 or better, a minimum of 300mm in width, centred over the wall.		
	Note: Proposed specification and design will be subject to LABC (Local Authority Building Control) approval before works can commence on-site. Where appropriate, Langley Waterproofing can offer support and guidance to assist application.		
10.7	Roof Structure - Disclaimer: It is deemed the responsibility of the Client Representative, Contractor and / or Property Owner to give due consideration towards the ability of the existing roof deck accepting any additional loadings imposed by the application of the new waterproofing system proposed within this specification. Langley Waterproofing Systems Ltd will not be held responsible or accept any liability or associated costs should structural defects or structural failure occur.		
10.8	Fire Risk - Survey Undertaken: This specification has been formulated with due regard to the inherent risks of fire when using hot work flat roof waterproofing systems and application methods. To the best of our knowledge any potential hazards have been identified and the specification tailored to minimise the risk of accidental ignition occurring. Notwithstanding the foregoing, the contractor / installer is reminded that they have a duty of care and responsibility to carry out their own assessment of the proposed works with regard to the potential fire risk, and introduce working practices that takes any such risks into account. Should the contractor / installer have any reservations about any aspect of the specification proposal, or if during the course of the works any unforeseen items are discovered that present an actual or potential fire risk, they should contact Langley Waterproofing Systems Ltd immediately so that safer methods can be agreed and implemented which do not compromise the integrity of the specification and or its guarantees.		

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10.9	Fire Risk - Drying Out: In the event of the roof becoming wet and drying out is necessary, the use of gas torches is not recommended and should be avoided. In all cases Safe2Torch guidelines should be followed. Standing water should be swept to the nearest outlets with a broom or squeegee (care must be taken to avoid debris blocking outlets). The remaining moisture should be soaked up using mops or dry rags and the surface left to dry out naturally. To speed up the process, specialist equipment is commercially available, see 'General Guidance & Requirements' in the appendices of this specification.		
10.10	Safe2Torch - Flame-free Zones: This specification has been compiled in accordance with the NFRC Safe2Torch guidance and includes areas that have been identified as presenting a risk of fire if gas torches are used. This requires the substitution of membranes in these areas.		
10.11	Flame-free Zones - Definition: A Flame-free Zone is defined as being within 900mm of a combustible substrate / material. Note: If combustible material forms part of an overhang then the Flame-free Zone starts from the extremity of the overhang.		
10.12	Risk Assessment - Fire - Installing Contractor: In line with their own Risk Assessment and Method Statement, the installing contractor is to identify any areas where the use of a naked flame is deemed too great a risk. This matter should be raised at the pre-start / pre-commencement meeting or stated in writing to Langley in order that an alternative flame free method can be adopted and specified.		
10.13	Flame-free Zones - Identified Risk Areas: In accordance with Safe2Torch guidance the following area/s have been designated as 'flame-free' zone/s: Detail Noted: New Timber Detail Noted: Pipe Housing Whilst these area/s have been identified, they may not be definitive. Due allowance must be made so that at any stage of this project, should any additional areas be designated a fire risk by any of the parties involved, they must be logged, all parties informed, and the appropriate measures employed.		
10.14	Fire Accreditation: Unless otherwise stated, the full waterproofing system and/or products contained within this specification have been tested for external fire exposure (both with and without insulation) in accordance with BS EN 13501-5: 2005 (European Test) and are accredited as Broof(t4).		

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10.15	Langley Detailed Drawings: This specification is to be read in conjunction with detailed drawings issued and supplied by Langley Waterproofing. Should the contractor at any point find discrepancies between the issued specification and issued drawings, it is required that the specification takes precedence in all cases, unless otherwise notified and approved. No additional costs or liability arising from failure to follow specification or notifying Langley Waterproofing Systems Ltd of any discrepancies found in good time prior to commencement of works will be considered.		
10.16	Guarantee Requirement - Torch-on Membranes: Applicable to all layers. A 5-10mm bead of bitumen must be exuded from all laps.		
11	SCOPE OF APPLICATION		
11.1	Partial Strip-up - Removal of Overlay to Existing Asphalt: This specification is based on the removal of an existing overlay system and re-covering of the underlying asphalt substrate.		
11.2	Deck and Substrates - Existing Asphalt on Screeded Concrete: This specification is suitable for application to a substrate of an existing prepared asphalt system on a screeded concrete roof deck, not exceeding 5° from the horizontal.		
11.3	Day / Night Joints: The contractor must ensure at the end of each working day or period, that any exposed membranes or substrates that are susceptible to damage through water ingress are sealed with a Langley system compatible membrane to ensure complete water tightness. No loose laid membranes or other such covers are permitted.		
11.4	Electronic Roof Integrity Test (Buried Systems): Prior to the installation of any proposed roof finishes, an electronic leak detection test must be carried out by a WITA approved contractor to ensure the integrity of the newly installed waterproofing system and to meet Langley Waterproofing Systems Ltd guarantee requirements.		
11.5	U-value - Flat Board Insulation : The Parafoam Ultra Flat Board Insulation included in this specification will achieve an overall U-value of 0.18 W/m²K.		
12	PREPARATION		
12.1	Contractor Preparation Note: The contractor is to carry out his own inspection to satisfy himself with regard to the extent of works involved in stripping up the current overlay system and subsequent preparation of the exposed waterproofing coverings and substrates. No claims arising from failure to do so will be considered by Langley Waterproofing Systems Ltd.		
12.2	Fixed Access Ladder/s - Temporary Removal: To facilitate the re-roofing works. The contractor is to remove set aside and safely store for re-use upon completion of the new waterproofing system.		

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12.3	Redundant Plant and Equipment:		
	All redundant plant and equipment (ducting, vents, pipe-work, etc.) as identified by the client contract administrator is to be removed and disposed of to suitable waste facilities. Make good any damage, holes, openings and / or surfaces disturbed prior to the application of		
	any new waterproof coverings.		
12.4	Plant & Equipment: Carefully remove and set aside for re-fixing all free-standing roof mounted plant and items of equipment. No equipment is to be stored during the course of the works on completed areas unless suitable protection has been provided beneath.		
12.5	TV Aerials and / or Satellite Dish Arrays: Any TV aerials and / or satellite dish arrays that will impede roofing works are to be temporarily removed, raised, etc. to facilitate the works. The contractor must liaise with the client contract administrator directly in relation to how best serve the property so that minimal disturbance of services is achieved throughout the contract period.		
12.6	Lightning Conductor Tapes: Temporarily remove and set aside for re-fixing upon completion. Prior to removal, the system must be tested by an approved contractor or testing house to ensure that the system meets all necessary current standard requirements. Should the system no longer meet current standards, then remove and dispose of and replace with new fully compliant system upon completion of roof works. The contractor must allow for temporary alternative protection throughout the contract period until such time as the existing system is reinstated.		
12.7	Wall Mounted Plant, Cable Trays / Conduits etc - Reposition (above skirting height): All wall mounted services and/or plant that will prevent facilitation of the works or will penetrate the new skirting heights. Raised and/or relocate. Allowance must be made for the following items as necessary: 1. Disconnection, de-gassing and re-connection, adaptation of all pipework, supports, connections, electrical connections and cabling. 2. Reposition (above skirting height) or relocate to suitable locations as required. Allow for all adaptions/adjustments and fixings required and re-connection. All in accordance with client's detailed requirements. 3. Certify as fully serviceable on completion.		
12.8	Cables - Temporarily Remove: All cables must be carefully raised and / or temporarily supported clear of the roof surface to facilitate the works.		

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12.9	Existing Outlets - Refurbish with ParaFurb Outlets: Make ready to accept new ParaFurb Refurbishment Outlets (detailed elsewhere). Cut back and remove sufficient existing waterproofing from around the outlets and as required from the surrounding area to allow for correct installation. Important Note: ParaFurb Outlets must not be installed to outlet positions that already have an existing refurbishment outlet in place. Prior to ParaFurb Outlets being installed, any existing refurbishment outlets or lead sleeve inserts must first be removed and surrounding substrates made good.			
12.10	Existing Overlay System - Remove and Prepare Asphalt Substrate:			
	Overlay System: Strip and remove to suitable waste containers all component layers of the existing waterproofing overlay system including any insulation and or vapour control layers that may be found, back to the surface of the original asphalt covering. Asphalt Preparation: Warm and smooth out all ridges and blisters. Where necessary, make good any damage to the asphalt surface.			
	Asphalt Details: Remove all existing asphalt flashings, aprons and collars to pipes, etc. and dispose of to suitable approved waste facilities. Cutting of asphalt must be undertaken with an angle grinder. The use of hammer and chisel is not permitted.			
12.11	Provisional Sum - Pipe Housing - Overclad with Plywood: Overclad existing top and inner face of pipe housing with 18mm thick, class 3, exterior grade plywood. The contractor must include for all necessary battens / timber stud and levelling timbers, etc. Secure with screw fixings suitable for the presented substrate. The pipe housing is to be cladded in the full warm TA25 system including insulation.			
12.12	Screed Vents - Remove: Remove and dispose to suitable waste facilities. Make good holes in surface and seal with 500mm x 500mm pieces of Paradiene (35) SR4 underlay. Fully bonded by gas torch to a prepared primed surface.			
12.13	Soil Vent Pipe/s - Extend: Extend where necessary. Collar or pipe sleeve/s must be a minimum of 150mm above the finished roof surface. Note: Extension pipe/s must be fixed inside the existing pipe/s.			
12.14	Priming - Asphalt Surface & Detail Substrates: Asphalt surfaces and substrates for details. Sweep clear of all dirt, debris and loose material. All surfaces must be dry. Prime with Langley Spray-on (synthetic rubber) Primer and allow to dry.			
12.15	Flame-free Zones - Priming Requirement - All Surfaces (Inc Insulation if applicable): Prime all flame-free zone surfaces with Langley Spray-on (synthetic rubber) Primer and allow to dry (bituminous primer must not be used).			
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12.16	Flame-free Zones - Self-adhesive Membranes - Additional Priming: Adhesion issues may arise when applying membranes with a hot-air gun. Langley Spray-on Primer can be applied to the surface Paradiene SA underlay to enhance adhesion of the Parafor Solo SA cap sheet. This 'additional priming' is also recommended when the Langley SA Membrane Detailing System is specified as the primary roof covering or over large areas. This will ensure a consistent bond across larger roof areas and improve application times Plywood Panel Joints - Vertical / Horizontal Details: Bond to primed surface of class 3, exterior grade plywood, across all		
	vertical / horizontal joints to upstand detail, with 200mm wide strips of Adequerre Self Adhesive Taping Strip.		
13	AIR AND VAPOUR CONTROL		
13.1	Air and Vapour Control Layer - Torch-on - Field Area: Install Parevapo SBS metal-lined, double reinforced, elastomeric air and vapour control layer. Top Face: Sanded. Underside: Macro perforated fusible film. Fully bond to prepared surface by torch-on method. Side and end laps to overlap by a minimum of 75mm and must be fully sealed by torch-on method.		
13.2	Flame-free Zones - Air and Vapour Control Layer - Change of Membrane - Flat Area: Install Parevapo SA, double reinforced, metal-lined, self-adhesive SBS elastomeric bitumen air and vapour control layer. Fully bond to a prepared and primed substrate by means of the heat activated, self-adhesive face, applying pressure with a weighted roller. Side laps, minimum 75mm, end laps, 100mm, fully bond by heat welding and applying pressure with a seam roller. Priming of substrate must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area AVCL, (outside the flame-free zone) must be minimum 150mm and torch bonded.		
13.3	Air and Vapour Control Layer - Detail Skirtings: Extend the air and vapour control layer as a separate flashing piece cut from full width of roll to the skirting. Fully bond by torch-on method to a fully prepared surface to a minimum height of 100mm past the finished proposed line of the new insulation level. A minimum of 100mm lap must be achieved to main field return. Side laps to be a minimum of 75mm and must be fully sealed by torch-on method.		
13.4	Flame-free Zones - Air and Vapour Control Layer - All Upstands, Skirtings & Details Generally: Extend Parevapo SA air and vapour control layer to the skirting / details as a separate flashing piece, cut from the width of a roll. Fully bond to a prepared and primed substrate by means of the heat activated self-adhesive face. Minimum height, 100mm above the finished height of the new insulation (or the full girth of details).		

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	Flame-free Zones - Air and Vapour Control Layer - All Upstands, Skirtings & Details Generally continued:		
	Priming of substrate must be with Langley Spray-on (synthetic rubber) Primer, (bituminous primer must not be used). Lap to main field return, minimum 100mm, side laps minimum 75mm. Application method as per the main area. Detailing arrangements all as main specification.		
14	INSULATION		
14.1	PIR Flat Board Insulation - Required Thickness: Install Parafoam Ultra 120mm thick Polyisocyanurate (PIR) roof insulation boards. CFC/HCFC-free with zero ODP. Boards to be close butted with staggered joints.		
14.2	PIR Flat Board Insulation - Sumps to Chute / Scupper Outlets: Sumps to be a minimum of 500mm x 500mm square around outlet position. Form with Parafoam Ultra 50mm thick Polyisocyanurate (PIR) roof insulation boards. A Langley Metal Hard Edge to be fixed to all exposed insulation edges. Bond to insulation with either low foaming PU adhesive or strapping with suitable fully bonded underlay membrane.		
14.3	PIR Insulation Boards - PU Attachment: To prepared surface. Bond Insulation with Lang-Stik Solvent Free PU Adhesive. Surface of substrate must be swept clear of all dirt, debris and loose material, prior to application of the adhesive. Boards to be laid close butted with staggered joints.		
	Note: For further information, please refer to 'Fixing Instructions' section of this specification.		
14.4	PIR Insulation Boards - PU Attachment - Flame-free Zones: When using Parevapo SA, in designated flame-free zones, the insulation to these areas must be bonded with Lang-Stik Solvent Free PU Adhesive. Surface substrate must be swept clear of all dirt, debris and loose material, prior to application of the PU adhesive.		
14.5	Insulation - Changes of Levels - Metal Hard Edge: Langley Metal Hard Edge to be fixed to all exposed insulation edges. Bond to insulation with either low foaming PU adhesive or strapping with suitable fully bonded underlay membrane.		
14.6	Priming - Hard Edges to Insulation: All hard edges, metal and / or timber, must be primed with Langley spray-on (synthetic rubber) primer and allow to dry.		
15	WATERPROOFING - UNDERLAYS		
15.1	Detail Reinforcing Strip - Requirement in Lieu of Angle Fillets: Paradiene M3 S detail reinforcing strips must be fixed at the base of all upstands, prior to subsequent membranes being installed. At a minimum of 250mm width cut from roll, apply 125mm to the horizontal and 125mm to vertical prepared surfaces. Fully bond by torch-on method.		

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15.2	Flame-free Zone - Detail Reinforcing Strip - Change of Membrane: Paradiene SA detail reinforcing strips must be installed at the base of all upstands, prior to subsequent membranes being installed. Strips to be minimum 250mm wide in pieces cut from roll, applied 125mm to the horizontal and 125mm to vertical surfaces. Fully bond to a prepared (and primed if applicable) substrate by means of the heat activated self-adhesive face, applying pressure with a seam roller. Where priming is required, it must be with Langley Spray-on (synthetic rubber) Primer, (bituminous primer must not be used).		
15.3	Underlay - Self-Adhesive - Field Area: Adepar JS VV glass fibre reinforced, SBS elastomeric bitumen membrane. Top Face: fusible film. Underside: sanded between self-adhesive strips with siliconised peel-off film over self-adhesive selvedge. Fixing: by means of factory-applied self-adhesive strips. Perimeters and Openings: 500mm wide, fully bond by torching. Side Lap: 80mm determined by selvedge. end lap: minimum 120mm. Note: The siliconised film is not fusible. Fixing Method: See Fixing Instructions. Note: 5-10mm bead of bitumen must be exuded from all laps.		
15.4	Flame-free Zone - Underlay - Change of Membrane - Flat Area: Install Paradiene SA, polyester reinforced, self-adhesive SBS elastomeric bitumen membrane. Fully bond to a prepared and primed substrate by means of the heat activated self-adhesive face, applying pressure with a weighted roller. Side laps, minimum 75mm; end laps, minimum 100mm; fully bonded by heat welding and applying pressure with a seam roller. Priming of substrate (including insulation if applicable) must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area underlay, (outside the flame-free zone) must be minimum 150mm and torch bonded.		
15.5	Underlay - Upstands & Skirtings: To be formed separately using Paradiene M3 S underlay. Cut from the width of the roll and fully bond by torching to base membrane with a minimum 100mm lap. Both surfaces being bonded must be heated and a bead (5-10mm) of bitumen extruded from all head and side laps.		
15.6	Flame-free Zone - Underlay - Upstands & Skirtings - Change of Membrane: To be formed separately with Paradiene SA underlay, in pieces cut from the width of a roll. Fully bond to a prepared and primed substrate (or AVCL if applicable) by means of the heat activated self-adhesive face, applying pressure with a roller. Minimum height, 150mm above the finished height of the new insulation (or the full girth of details). Where applicable, priming of substrate must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). Lap to main field return, minimum 100mm; Side laps, minimum 75mm. Application method as per the main area. Detailing arrangements all as main specification.		

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15.7	Underlay to Outlet Sumps & Internal / Integral Gutters: Paradiene M3 S underlay (fully bonded) must be used (detailed elsewhere). Extend onto main field area by minimum 150mm.	
16	WATERPROOFING CAP SHEETS	· ·
16.1	Cap Sheet - Torch-on - Field Area: Install Elastoflex GS cap sheet. Elastoflex GS is a torch-on polyester-reinforced, SBS-modified elastomeric bitumen membrane. The surface has a Dark Grey granulated surface with a grooved thermofusible film underside. Lay: Fully bonded by torching with 90mm minimum side lap width as determined by the selvedge. Minimum end laps must be 150mm. This layer is to be laid parallel to the under layer, breaking joints by at least 300mm. Both surfaces being bonded must be heated and a bead of bitumen exuded from all laps.	
16.2	Flame-free Zone - Cap Sheet - Change of Membrane - Flat Area: Install Parafor Solo SA, polyester reinforced, self-adhesive, SBS elastomeric bitumen, dark grey granule faced cap sheet. Fully bond to the underlay by means of the heat activated self-adhesive face, applying pressure with a weighted roller. Side laps to suit selvedge (minimum 75mm); end laps, minimum 150mm; fully bond by heat welding and applying pressure with a seam roller. A 5-10mm bead of bitumen must be extruded from all laps. All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area cap sheet, (outside the flame-free zone) must be minimum 150mm and torch bonded.	
17	DETAILS	
17.1	Cap Sheet - General Detailing: Detail flashings. Form separately with Elastoflex GS Cap Sheet cut from width of roll. Colour to match main field membrane. Fully bond by torching to the specified detail underlay membrane. Both surfaces being bonded must be heated and a 5-10mm bead of bitumen extruded from all head and side laps. Cap sheet detail must extend to a minimum of 150mm onto the main field area. Upstand heights must be a minimum of 150mm above the finished roof level.	
17.2	Flame-free Zone - Cap Sheet - General Detailing - Change of Membrane: Detail flashings to be formed separately using matching colour Parafor Solo SA Cap Sheet, in pieces cut from width of roll. Fully bond to the specified detail underlay by means of the heat activated self-adhesive face, applying pressure with a roller. Minimum height, 150mm above the finished height of the new system (or the full girth of details). Side laps to suit selvedge; end laps, minimum 150mm, bond by heat welding and applying pressure with a seam roller. A 5-10mm bead of bitumen is to be extruded from all laps. Lap to main field return, minimum 150mm.	

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17.3	Internal Outlets - ParaFurb Refurbishment Outlets: ParaFurb Refurbishment Outlet: Stainless Steel spigot with expanding EPDM rubber seal and SBS membrane flange. Select outlet to suit diameter/s of fall pipes. Fully bond flange membrane to previously installed underlay or soaker. Fully bond cap sheet over and cut hole to suit diameter of pipe. Install leaf guard/grating supplied. Installation to be in accordance with Langley fixing instructions.		
17.4	Pipe Housing Encapsulation: Pipe housings are to be clad in plywood and encapsulated in flame-free self-adhesive membrane prior to application of the waterproofing system (as specified above). The full waterproofing system (including insulation) must be carried up the vertical inner face and across the top of the detail, which must be, in all cases, fully supported. Terminate to the parapet wall with a new Langley TB62 GRP Termination Bar. Where required, at the ends of housing, the waterproofing must be turned up and to the side, to allow weathering with new horizontal and vertical cover flashings. Screw fix at maximum 300mm centres into firm grounds. Butt straps are to be inserted at all joints. Surfaces of trim in contact with membranes must be wiped clean and primed with Langley Primer and allowed to dry.		
17.5	Counter Flashing - Langley TB62 GRP Termination Bar: Where a chased counter flashing is impractical. Install and protect detail abutment skirtings with a Langley TB62 GRP face-fixed Termination Bar. Fixing: Position above the membrane skirting and apply two evenly spaced beads of Langley Gap-Seal Mastic to the rear surface of the termination bar before offering-up and positioning above the detail skirting. Once aligned, secure in place by mechanically screwing and plug fixing with dome or pan head non-corroding screws at maximum 300mm centres. Complete detail by applying a fillet of Langley Gap-Seal Mastic at 45° angle along the top edge of the bar to create a required water shed finish. Full contact of mastic must be maintained between the termination bar and substrate at all times.		
17.6	Skirting to Threshold / Cill - ParaFlash B3: Install and protect detail abutment skirtings with ParaFlash B3 lead- free counter flashings 150mm wide. Dress into prepared chase below threshold / cill and wedge at 450mm centres with stainless steel clips provided. Point with Langley Gap-Seal Mastic. Side laps to be a minimum of 100mm and sealed with Langley Lap Adhesive.		
17.7	Skirtings - Vertical Waterproofing Over 400mm in Height Additional Mechanical Fixing Required: Additionally secure with concealed fixings either by nailing or with screws and pressure plates. Laps must be a minimum of 160mm. Nailing: Large headed galvanised steel clout nails set at 75mm centres in two rows 50mm apart. Screws: Maximum 200mm centres with 5 No. minimum per sheet width.		



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17.8	Soil Vent Pipe - Cast Iron: Soil vent pipes must be a minimum of 150mm high from the finished level of waterproofing. Install new Code 5 Lead pipe sleeves with integral lead flange. Sleeves must be a minimum of 30mm higher than pipe. Flange must be a minimum of 100mm wide. Prime both surfaces of the flange. Fully bond to the underlay or soaker, prior to fully bonding the cap sheet membrane. Sleeves to be turned into top of pipe by 25mm. Colour: Black. Note: Soil vent pipes greater than 300mm require a Code 5 Lead sleeve finishing a minimum of 150mm high above the finished level of the new waterproofing system and terminated with a weathering collar. Finish base of vertical sleeve as previously stated.		
18	COMPLETION		
18.1	Guarantee Requirement - Final Inspection: In accordance with our guarantee requirements, Langley Waterproofing Systems Ltd are to be notified once all works are complete. A final inspection will then be undertaken by us and the contractor must ensure that safe working access is provided.		
18.2	Access Ladder/s - Existing Re-fix: Re-fix. The contractor is to allow for any modifications / adaptations necessary to accommodate the new roofing system finished levels. Where possible, fixing points are to be designed to avoid penetrating the waterproofing system.		
18.3	Plant and Equipment - Free Standing - Reinstatement: All free-standing roof mounted plant and items of equipment must be placed on load-spreading slabs on sacrificial pieces of loose laid cap sheet, mineral surface down.		
18.4	TV Aerials and / or Satellite Dish Arrays: Reinstate to original locations or new positions as instructed by the client contract administrator all TV aerials and / or satellite dish arrays.		
18.5	Cables - Reinstate: Collate and support on cable trays if necessary. Secure cables to tray or to original locations and secure with plastic cable ties. If cable trays are used then they are to be rested on load-spreading bases on sacrificial pieces of cap sheet. Securely fasten trays to bases as required.		
18.6	Internal Rainwater Outlets - ParaFurb Refurbishment Outlets: Check for blockages. Clear if necessary and leave in a free-running condition. Ensure bung is tightly secured to form correct pressure seal to pipe/s for applicable units. Ensure all supplied leaf guard / gratings are in place and tightly secured.		
18.7	Completed Roof Surface - General: Ensure visual inspection of all laps is undertaken to confirm integrity of system prior to final guarantee inspection. Sweep clean and remove debris to suitable waste container.		

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18.8	Lightning Conductor System - Existing: Reinstate the existing system all in accordance with client contract administrators requirements. The system must be tested and certified operational by an approved specialist contractor. The roofing contractor must provide and install all necessary Langley Lightning Conductor Retention Clips to roof surface to secure the lightning conductor tape. Clips are to be set at no more than 1 metre centres to secure the tape. At lightning conductor corner intersection plates, clips are to be spaced away from the plates at not less than 150mm but no greater than 200mm.		
18.9	Arisings from Works: Remove from site all arisings for return to contractor storage or safe disposal.		



Detailed Specification: 3

Roof 3

No.	Item	Unit	Qty	Rate	Tota
19	SPECIFICATION REQUIREMENTS				
19.1	Guarantee: The following TA-25-C specification is to be covered by the Langley Waterproofing Systems Ltd, single-premium, pre-paid independently-insured workmanship and materials guarantee for a period of 25 years from the date of practical completion. In order to meet this requirement only roofing contractors that participate in this guarantee scheme may be used. The eligibility of proposed roofing contractors should be confirmed with Langley Waterproofing Systems Ltd, Tel: 01327 704778 prior to inviting tenders.				
19.2	Projects Under CDM: In relation to this project, under Construction (Design and Management) Regulations 2015 (CDM 2015), it is the responsibility of the client / contractor to appoint any, or all, relevant "CDM duty-holders".				
19.3	Structural Rooflights - Guarantee: The Langley Structural Rooflights included within the following specification are to be covered by the Langley Waterproofing Systems Ltd, single-premium, pre-paid independently-insured guarantee for the duration of the roofing guarantee from the date of practical completion.				
19.4	Design Note - Waterproofing Only: This specification is based on a waterproofing only overlay of an existing roof covering and does not include thermal insulation.				
19.5	Design Note - Existing Falls: Overlay of any existing roof system or deck. The new system will follow the existing falls and any deviations will be replicated. As a result, some areas of standing water may occur. However, please note the accumulation of ice, snow or ponding water will not have an adverse effect on the Langley products specified. This applies to both the life expectancy and / or long-term performance of the system specified and will not affect, in any way, the guarantee status.				
19.6	Design Note - Changes & Adjustments: Variations 'A' (general): Any variations must be agreed in writing by both the contract administrator and Langley Waterproofing Systems Ltd. These must be costed and authorised by the client but not be implemented until instructed by the client. Variations 'B' (minor): During work in progress, Langley Waterproofing Systems Ltd must be informed immediately of any proposed change/s and operatives must not implement any change/s until agreed by Langley (minor changes are deemed to be any item not falling within the scope of section a).				

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	Unauthorised Changes 'C' (general): Langley Waterproofing Systems Ltd will not be responsible for any changes of which they are unaware or have not authorised, nor will they accept any liability or associated costs due to system failure, i.e. labour, materials, design or programme delays, etc., resulting from said changes.		
19.7	Roof Structure - Disclaimer: It is deemed the responsibility of the Client Representative, Contractor and / or Property Owner to give due consideration towards the ability of the existing roof deck accepting any additional loadings imposed by the application of the new waterproofing system proposed within this specification. Langley Waterproofing Systems Ltd will not be held responsible or accept any liability or associated costs should structural defects or structural failure occur.		
19.8	Fire Risk - Survey Undertaken: This specification has been formulated with due regard to the inherent risks of fire when using hot work flat roof waterproofing systems and application methods. To the best of our knowledge any potential hazards have been identified and the specification tailored to minimise the risk of accidental ignition occurring. Notwithstanding the foregoing, the contractor / installer is reminded that they have a duty of care and responsibility to carry out their own assessment of the proposed works with regard to the potential fire risk, and introduce working practices that takes any such risks into account. Should the contractor / installer have any reservations about any aspect of the specification proposal, or if during the course of the works any unforeseen items are discovered that present an actual or potential fire risk, they should contact Langley Waterproofing Systems Ltd immediately so that safer methods can be agreed and implemented which do not compromise the integrity of the specification and or its guarantees.		
19.9	Fire Risk - Drying Out: In the event of the roof becoming wet and drying out is necessary, the use of gas torches is not recommended and should be avoided. In all cases Safe2Torch guidelines should be followed. Standing water should be swept to the nearest outlets with a broom or squeegee (care must be taken to avoid debris blocking outlets). The remaining moisture should be soaked up using mops or dry rags and the surface left to dry out naturally. To speed up the process, specialist equipment is commercially available, see 'General Guidance & Requirements' in the appendices of this specification.		
19.10	Safe2Torch - Flame-free Zones: This specification has been compiled in accordance with the NFRC Safe2Torch guidance and includes areas that have been identified as presenting a risk of fire if gas torches are used. This requires the substitution of membranes in these areas.		
19.11	Flame-free Zones - Definition: A Flame-free Zone is defined as being within 900mm of a combustible substrate / material. Note: If combustible material forms part of an overhang then the Flame-free Zone starts from the extremity of the overhang.		

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19.12	Risk Assessment - Fire - Installing Contractor: In line with their own Risk Assessment and Method Statement, the installing contractor is to identify any areas where the use of a naked flame is deemed too great a risk. This matter should be raised at the pre-start / pre-commencement meeting or stated in writing to Langley in order that an alternative flame free method can be adopted and specified.		
19.13	Flame-free Zones - Identified Risk Areas: In accordance with Safe2Torch guidance the following area/s have been designated as 'flame-free' zone/s:		
	Detail Noted: Plant & Cables Detail Noted: Louvered Vents		
	Whilst these area/s have been identified, they may not be definitive. Due allowance must be made so that at any stage of this project, should any additional areas be designated a fire risk by any of the parties involved, they must be logged, all parties informed, and the appropriate measures employed.		
19.14	Fire Accreditation: Unless otherwise stated, the full waterproofing system and/or products contained within this specification have been tested for external fire exposure (both with and without insulation) in accordance with BS EN 13501-5: 2005 (European Test) and are accredited as Broof(t4).		
19.15	Langley Detailed Drawings: This specification is to be read in conjunction with detailed drawings issued and supplied by Langley Waterproofing. Should the contractor at any point find discrepancies between the issued specification and issued drawings, it is required that the specification takes precedence in all cases, unless otherwise notified and approved. No additional costs or liability arising from failure to follow specification or notifying Langley Waterproofing Systems Ltd of any discrepancies found in good time prior to commencement of works will be considered.		
19.16	Guarantee Requirement - Torch-on Membranes: Applicable to all layers. A 5-10mm bead of bitumen must be exuded from all laps.		
20	SCOPE OF APPLICATION		
20.1	Overlay of Existing Asphalt: This specification is based on an overlay of an existing asphalt covering.		
20.2	Deck and Substrates - Existing Asphalt on Screeded Concrete: This specification is suitable for application to a substrate of an existing prepared asphalt system on a screeded concrete roof deck, not exceeding 5° from the horizontal.		

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20.3	Day / Night Joints: The contractor must ensure at the end of each working day or period, that any exposed membranes or substrates that are susceptible to damage through water ingress are sealed with a Langley system compatible membrane to ensure complete water tightness. No loose laid membranes or other such covers are permitted.		
21	PREPARATION		
21.1	Contractor Preparation Note: The contractor is to carry out his own inspection to satisfy himself with regard to the extent of works involved in the preparation of the existing roof coverings and substrates. No claims arising from failure to do so will be considered by Langley Waterproofing Systems Ltd.		
21.2	Edge Protection - Existing Fixed Handrail - In-situ: Roofing works are to proceed with the existing handrail system remaining in-situ.		
21.3	Redundant Plant and Equipment: All redundant plant and equipment (ducting, vents, pipe-work, etc.) as identified by the client contract administrator is to be removed and disposed of to suitable waste facilities. Make good any damage, holes, openings and / or surfaces disturbed prior to the application of any new waterproof coverings.		
21.4	Plant & Equipment: Carefully remove and set aside for re-fixing all free-standing roof mounted plant and items of equipment. No equipment is to be stored during the course of the works on completed areas unless suitable protection has been provided beneath.		
21.5	Mobile Telecommunication Equipment: To be decommissioned in accordance with the service provider agreement for the duration of the roofing works. The contractor is to allow for any modifications / adaptations, raising of any supporting plinths etc. where necessary to accommodate the new roofing system finished levels.		
21.6	TV Aerials and / or Satellite Dish Arrays: Any TV aerials and / or satellite dish arrays that will impede roofing works are to be temporarily removed, raised, etc. to facilitate the works. The contractor must liaise with the client contract administrator directly in relation to how best serve the property so that minimal disturbance of services is achieved throughout the contract period.		
21.7	Lightning Conductor Tapes: Temporarily remove and set aside for re-fixing upon completion. Prior to removal, the system must be tested by an approved contractor or testing house to ensure that the system meets all necessary current standard requirements. Should the system no longer meet current standards, then remove and dispose of and replace with new fully compliant system upon completion of roof works. The contractor must allow for temporary alternative protection throughout the contract period until such time as the existing system is reinstated.		

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21.8	Wall Mounted Plant, Cable Trays / Conduits etc - Reposition (above skirting height): All wall mounted services and/or plant that will prevent facilitation of the works or will penetrate the new skirting heights. Raised and/or relocate. Allowance must be made for the following items as necessary: 1. Disconnection, de-gassing and re-connection, adaptation of all pipework, supports, connections, electrical connections and cabling. 2. Reposition (above skirting height) or relocate to suitable locations as required. Allow for all adaptions/adjustments and fixings required and re-connection. All in accordance with client's detailed requirements.			
21.9	3. Certify as fully serviceable on completion. Existing Outlets - Refurbish with ParaFurb Outlets: Make ready to accept new ParaFurb Refurbishment Outlets (detailed elsewhere). Cut back and remove sufficient existing waterproofing from around the outlets and as required from the surrounding area to allow for correct installation. Important Note: ParaFurb Outlets must not be installed to outlet positions that already have an existing refurbishment outlet in place. Prior to ParaFurb Outlets being installed, any existing refurbishment outlets or lead sleeve inserts must first be removed and surrounding substrates made good.			
21.10	Structural Rooflight Glazing - Leave In Situ: Structural rooflight to remain in situ and be encapsualted within the proposed system.			
21.11	Existing Asphalt Surface - Preparation: Warm and smooth out all ridges and blisters. Where necessary, make good any damage to the asphalt surface.			
21.12	Existing Asphalt Details - Remove: Remove all existing asphalt flashings, aprons and collars to pipes, etc. and dispose of to suitable approved waste facilities. Cutting of asphalt must be undertaken with an angle grinder. The use of hammer and chisel is not permitted.			
21.13	Existing Edge Trims - Remove: Carefully remove all existing perimeter edge trims and dispose of to suitable approved waste containers / facilities or return to contractors premises for safe disposal.			
21.14	Perimeter Kerb - Metal Cappings - Discard: Remove all metal cappings to kerb tops and dispose of to suitable waste facilities. Make good exposed surfaces to to a flat smooth finish. Prime with the specified primer ready to receive the new waterproofing.			
21.15	Soil Vent Pipe/s - Extend: Extend where necessary. Collar or pipe sleeve/s must be a minimum of 150mm above the finished roof surface. Note: Extension pipe/s must be fixed inside the existing pipe/s.			
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21.16	Priming - Asphalt Surface & Detail Substrates: Asphalt surfaces and substrates for details. Sweep clear of all dirt, debris and loose material. All surfaces must be dry. Prime with Langley Spray-on (synthetic rubber) Primer and allow to dry.		
21.17	Flame-free Zones - Priming Requirement - All Surfaces (Inc Insulation if applicable): Prime all flame-free zone surfaces with Langley Spray-on (synthetic rubber) Primer and allow to dry (bituminous primer must not be used).		
21.18	Flame-free Zones - Self-adhesive Membranes - Additional Priming: Adhesion issues may arise when applying membranes with a hot-air gun. Langley Spray-on Primer can be applied to the surface Paradiene SA underlay to enhance adhesion of the Parafor Solo SA cap sheet. This 'additional priming' is also recommended when the Langley SA Membrane Detailing System is specified as the primary roof covering or over large areas. This will ensure a consistent bond across larger roof areas and improve application times		
22	WATERPROOFING - UNDERLAYS		
22.1	Detail Reinforcing Strip - Requirement in Lieu of Angle Fillets: Paradiene M3 S detail reinforcing strips must be fixed at the base of all upstands, prior to subsequent membranes being installed. At a minimum of 250mm width cut from roll, apply 125mm to the horizontal and 125mm to vertical prepared surfaces. Fully bond by torch-on method.		
22.2	Flame-free Zone - Detail Reinforcing Strip - Change of Membrane: Paradiene SA detail reinforcing strips must be installed at the base of all upstands, prior to subsequent membranes being installed. Strips to be minimum 250mm wide in pieces cut from roll, applied 125mm to the horizontal and 125mm to vertical surfaces. Fully bond to a prepared (and primed if applicable) substrate by means of the heat activated self-adhesive face, applying pressure with a seam roller. Where priming is required, it must be with Langley Spray-on (synthetic rubber) Primer, (bituminous primer must not be used).		
22.3	Underlay - Torch-on Fully Bonded - Field Area: Install Paradiene S VV Glass-reinforced SBS elastomeric bitumen membrane. Top surface: Continuous fusible film. Underside: Macro- perforated fusible film. Lay: Fully bonded by torching. Side and End Laps must be a minimum of 75mm. Both surfaces being bonded must be heated and a bead of bitumen exuded from all laps.		
22.4	Flame-free Zone - Underlay - Change of Membrane - Flat Area: Install Paradiene SA, polyester reinforced, self-adhesive SBS elastomeric bitumen membrane. Fully bond to a prepared and primed substrate by means of the heat activated self-adhesive face, applying pressure with a weighted roller. Side laps, minimum 75mm; end laps, minimum 100mm; fully bonded by heat welding and applying pressure with a seam roller.		

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Flame-free Zone - Underlay - Change of Membrane - Flat Area Continued:				
Priming of substrate (including insulation if applicable) must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area underlay, (outside the flame-free zone) must be minimum 150mm and torch bonded.				
Underlay - Upstands & Skirtings: To be formed separately using Paradiene M3 S underlay. Cut from the width of the roll and fully bond by torching to base membrane with a minimum 100mm lap. Both surfaces being bonded must be heated and a bead (5-10mm) of bitumen extruded from all head and side laps.				
Flame-free Zone - Underlay - Upstands & Skirtings - Change of Membrane: To be formed separately with Paradiene SA underlay, in pieces cut from the width of a roll. Fully bond to a prepared and primed substrate (or AVCL if applicable) by means of the heat activated self-adhesive face, applying pressure with a roller. Minimum height, 150mm above the finished height of the new insulation (or the full girth of details). Where applicable, priming of substrate must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). Lap to main field return, minimum 100mm; Side laps, minimum 75mm. Application method as per the main area. Detailing arrangements all as main specification.				
Underlay to Outlet Sumps & Internal / Integral Gutters: Paradiene M3 S underlay (fully bonded) must be used (detailed elsewhere). Extend onto main field area by minimum 150mm.				
WATERPROOFING CAP SHEETS				
Cap Sheet - Torch-on - Field Area: Install Elastoflex GS cap sheet. Elastoflex GS is a torch-on polyester-reinforced, SBS-modified elastomeric bitumen membrane. The surface has a Dark Grey granulated surface with a grooved thermofusible film underside. Lay: Fully bonded by torching with 90mm minimum side lap width as determined by the selvedge. Minimum end laps must be 150mm. This layer is to be laid parallel to the under layer, breaking joints by at least 300mm. Both surfaces being bonded must be heated and a bead of bitumen exuded from all laps.				
	Priming of substrate (including insulation if applicable) must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area underlay, (outside the flame-free zone) must be minimum 150mm and torch bonded. Underlay - Upstands & Skirtings: To be formed separately using Paradiene M3 S underlay. Cut from the width of the roll and fully bond by torching to base membrane with a minimum 100mm lap. Both surfaces being bonded must be heated and a bead (5-10mm) of bitumen extruded from all head and side laps. Flame-free Zone - Underlay - Upstands & Skirtings - Change of Membrane: To be formed separately with Paradiene SA underlay, in pieces cut from the width of a roll. Fully bond to a prepared and primed substrate (or AVCL if applicable) by means of the heat activated self-adhesive face, applying pressure with a roller. Minimum height, 150mm above the finished height of the new insulation (or the full girth of details). Where applicable, priming of substrate must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). Lap to main field return, minimum 100mm; Side laps, minimum 75mm. Application method as per the main area. Detailing arrangements all as main specification. Underlay to Outlet Sumps & Internal / Integral Gutters: Paradiene M3 S underlay (fully bonded) must be used (detailed elsewhere). Extend onto main field area by minimum 150mm. WATERPROOFING CAP SHEETS Cap Sheet - Torch-on - Field Area: Install Elastoflex GS cap sheet. Elastoflex GS is a torch-on polyester-reinforced, SBS-modified elastomeric bitumen membrane. The surface has a Dark Grey granulated surface with a grooved thermofusible film underside. Lay: Fully bonded by torching with 90mm minimum side lap width as determined by the selvedge. Minimum end laps must be 150mm. This layer is to be laid parallel to the under layer, breaking joints by at least 300mm	Priming of substrate (including insulation if applicable) must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area underlay, (outside the flame-free zone) must be minimum 150mm and torch bonded. Underlay - Upstands & Skirtings: To be formed separately using Paradiene M3 S underlay. Cut from the width of the roll and fully bond by torching to base membrane with a minimum 100mm lap. Both surfaces being bonded must be heated and a bead (5-10mm) of bitumen extruded from all head and side laps. Flame-free Zone - Underlay - Upstands & Skirtings - Change of Membrane: To be formed separately with Paradiene SA underlay, in pieces cut from the width of a roll. Fully bond to a prepared and primed substrate (or AVCL if applicable) by means of the heat activated self-adhesive face, applying pressure with a roller. Minimum height, 150mm above the finished height of the new insulation (or the full girth of details). Where applicable, priming of substrate must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). Lap to main field return, minimum 100mm; Side laps, minimum 75mm. Application method as per the main area. Detailing arrangements all as main specification. Underlay to Outlet Sumps & Internal / Integral Gutters: Paradiene M3 S underlay (fully bonded) must be used (detailed elsewhere). Extend onto main field area by minimum 150mm. WATERPROOFING CAP SHEETS Cap Sheet - Torch-on - Field Area: Install Elastoflex GS cap sheet. Elastoflex GS is a torch-on polyester-reinforced, SBS-modified elastomeric bitumen membrane. The surface has a Dark Grey granulated surface with a grooved thermofusible film underside. Lay: Fully bonded by torching with 90mm minimum side lap width as determined by the selvedge. Minimum end laps must be 150mm. This layer is to be laid parallel to the under layer, breaking joints by at least 300mm	Continued: Priming of substrate (including insulation if applicable) must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area underlay, (outside the flame-free zone) must be minimum 150mm and torch bonded. Underlay - Upstands & Skirtings: To be formed separately using Paradiene M3 S underlay. Cut from the width of the roll and fully bond by torching to base membrane with a minimum 100mm lap. Both surfaces being bonded must be heated and a bead (5-10mm) of bitumen extruded from all head and side laps. Flame-free Zone - Underlay - Upstands & Skirtings - Change of Membrane: To be formed separately with Paradiene SA underlay, in pieces cut from the width of a roll. Fully bond to a prepared and primed substrate (or AVCL if applicable) by means of the heat activated self-adhesive face, applying pressure with a roller. Minimum height, 150mm above the finished height of the new insulation (or the full girth of details). Where applicable, priming of substrate must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). Lap to main field return, minimum 100mm; Side laps, minimum 75mm. Application method as per the main area. Detailing arrangements all as main specification. Underlay to Outlet Sumps & Internal / Integral Gutters: Paradiene M3 S underlay (fully bonded) must be used (detailed elsewhere). Extend onto main field area by minimum 150mm. WATERPROOFING CAP SHEETS Cap Sheet - Torch-on - Field Area: Install Elastoflex GS cap sheet. Elastoflex GS is a torch-on polyester-reinforced, SBS-modified elastomeric bitumen membrane. The surface has a Dark Grey granulated surface with a grooved thermofusible film underside. Lay: Fully bonded by torching with 90mm minimum side lap width as determined by the selvedge. Minimum end laps must be 150mm. This layer is to be laid parallel to the under layer, breaking joints by at	Continued: Priming of substrate (including insulation if applicable) must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area underlay, (outside the flame-free zone) must be minimum 150mm and torch bonded. Underlay - Upstands & Skirtings: To be formed separately using Paradiene M3 S underlay. Cut from the width of the roll and fully bond by torching to base membrane with a minimum 100mm lap. Both surfaces being bonded must be heated and a bead (5-10mm) of bitumen extruded from all head and side laps. Flame-free Zone - Underlay - Upstands & Skirtings - Change of Membrane: To be formed separately with Paradiene SA underlay, in pieces cut from the width of a roll. Fully bond to a prepared and primed substrate (or AVCL if applicable) by means of the heat activated self-adhesive face, applying pressure with a roller. Minimum height, 150mm above the finished height of the new insulation (or the full girth of details). Where applicable, priming of substrate must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). Lap to main field return, minimum 100mm; Side laps, minimum 75mm. Application method as per the main area. Detailing arrangements all as main specification. Underlay to Outlet Sumps & Internal / Integral Gutters: Paradiene M3 S underlay (fully bonded) must be used (detailed eisewhere). Extend onto main field area by minimum 150mm. WATERPROOFING CAP SHEETS Cap Sheet - Torch-on - Field Area: Install Elastoflex GS cap sheet. Elastoflex GS is a torch-on polyester-reinforced, SBS-modified elastomeric bitumen membrane. The surface has a Dark Grey granulated surface with a grooved thermofusible film underside. Lay: Fully bonded by torching with 90mm minimum side lap width as determined by the selvedge. Minimum end laps must be 150mm. This layer is to be laid parallel to the under layer, breaking joints by at



23.2	Flame-free Zone - Cap Sheet - Change of Membrane - Flat Area: Install Parafor Solo SA, polyester reinforced, self-adhesive, SBS elastomeric bitumen, dark grey granule faced cap sheet. Fully bond to the underlay by means of the heat activated self-adhesive face, applying pressure with a weighted roller. Side laps to suit selvedge (minimum 75mm); end laps, minimum 150mm; fully bond by heat welding and applying pressure with a seam roller. A 5-10mm bead of bitumen must be extruded from all laps. All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area cap sheet, (outside the flame-free zone) must be minimum 150mm and torch bonded.		
24	DETAILS		
24.1	Perimeter Kerb Detail - Requirement: All perimeter kerb details must be a minimum of 50mm above the finished roof surface level.		
24.2	Cap Sheet - General Detailing: Detail flashings. Form separately with Elastoflex GS Cap Sheet cut from width of roll. Colour to match main field membrane. Fully bond by torching to the specified detail underlay membrane. Both surfaces being bonded must be heated and a 5-10mm bead of bitumen extruded from all head and side laps. Cap sheet detail must extend to a minimum of 150mm onto the main field area. Upstand heights must be a minimum of 150mm above the finished roof level.		
24.3	Flame-free Zone - Cap Sheet - General Detailing - Change of Membrane: Detail flashings to be formed separately using matching colour Parafor Solo SA Cap Sheet, in pieces cut from width of roll. Fully bond to the specified detail underlay by means of the heat activated self-adhesive face, applying pressure with a roller. Minimum height, 150mm above the finished height of the new system (or the full girth of details). Side laps to suit selvedge; end laps, minimum 150mm, bond by heat welding and applying pressure with a seam roller. A 5-10mm bead of bitumen is to be extruded from all laps. Lap to main field return, minimum 150mm.		
24.4	Internal Outlets - ParaFurb Refurbishment Outlets: ParaFurb Refurbishment Outlet: Stainless Steel spigot with expanding EPDM rubber seal and SBS membrane flange. Select outlet to suit diameter/s of fall pipes. Fully bond flange membrane to previously installed underlay or soaker. Fully bond cap sheet over and cut hole to suit diameter of pipe. Install leaf guard/grating supplied. Installation to be in accordance with Langley fixing instructions.		

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24.5	Counter Flashing - Langley TB62 GRP Termination Bar: Where a chased counter flashing is impractical. Install and protect detail abutment skirtings with a Langley TB62 GRP face-fixed Termination Bar. Fixing: Position above the membrane skirting and apply two evenly spaced beads of Langley Gap-Seal Mastic to the rear surface of the termination bar before offering-up and positioning above the detail skirting. Once aligned, secure in place by mechanically screwing and plug fixing with dome or pan head non-corroding screws at maximum 300mm centres. Complete detail by applying a fillet of Langley Gap-Seal Mastic at 45° angle along the top edge of the bar to create a required water shed finish. Full contact of mastic must be maintained between the termination bar and substrate at all times.	
24.6	Handrail Penetrations - Self Terminating Strap: To the prepared and primed surface. Apply a liberal coating of Pararapide WP Detailing coating system with a brush or roller at a rate of 2.5 – 3.5 kg/m². Roll out and embed 260mm wide Pararapide Fleece. Immediately apply a second coat of Pararapide WP Detailing. The self-terminating strap width should be a minimum of 300mm lapping 150mm onto each surface. Pararapide Sealer Coat. Colour: Dark Grey (RAL 7043). To a prepared surface. Apply the mixed resin with a roller or brush at a rate of 0.4 – 0.8 kg/m².	
24.7	Kerbs - ParaTrim GRP Edge Trim: Base layer and detail cap sheet layer of new waterproofing system must be carried up the vertical inner face and across the top of the kerb detail, which must be, in all cases, fully supported. Terminate to leading edge with a new ParaTrim GRP edge trim of an appropriate profile for the site conditions applied over the base layer membrane. Where required, at the ends of the kerbs, the waterproofing must be turned up and to the side to allow weathering with new horizontal and vertical cover flashings. Screw fix at maximum 300mm centres to the substrate. Butt straps are to be inserted at all joints. Surfaces of trim in contact with membranes must be wiped clean and primed with Langley Primer and allowed to dry.	
24.8	Parapets - ParaTrim GRP Edge Trim: Base layer and detail cap sheet layer of new waterproofing system must be carried up the vertical inner face and across the top of the parapet detail, which must be, in all cases, fully supported. Terminate to leading edge with a new ParaTrim GRP edge trim of an appropriate profile for the site conditions applied over the base layer membrane. Where required, at the ends of parapets, the waterproofing must be turned up and to the side, to allow weathering with new horizontal and vertical cover flashings. Screw fix at maximum 300mm centres into firm grounds. Butt straps are to be inserted at all joints. Surfaces of trim in contact with membranes must be wiped clean and primed with Langley Primer and allowed to dry.	



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24.9	Soil Vent Pipe - Cast Iron: Soil vent pipes must be a minimum of 150mm high from the finished level of waterproofing. Install new Code 5 Lead pipe sleeves with integral lead flange. Sleeves must be a minimum of 30mm higher than pipe. Flange must be a minimum of 100mm wide. Prime both surfaces of the flange. Fully bond to the underlay or soaker, prior to fully bonding the cap sheet membrane. Sleeves to be turned into top of pipe by 25mm. Colour: Black. Note: Soil vent pipes greater than 300mm require a Code 5 Lead sleeve finishing a minimum of 150mm high above the finished level of the new waterproofing system and terminated with a weathering collar. Finish base of vertical sleeve as previously stated.			
25	COMPLETION			
25.1	Guarantee Requirement - Final Inspection: In accordance with our guarantee requirements, Langley Waterproofing Systems Ltd are to be notified once all works are complete. A final inspection will then be undertaken by us and the contractor must ensure that safe working access is provided.			
25.2	Plant and Equipment - Free Standing - Reinstatement: All free-standing roof mounted plant and items of equipment must be placed on load-spreading slabs on sacrificial pieces of loose laid cap sheet, mineral surface down.			
25.3	Mobile Telecommunication Equipment: Re-commission in accordance with the service provider agreement. The contractor must provide any necessary protection to the completed areas of waterproofing whilst the re-commissioning is being undertaken.			
25.4	TV Aerials and / or Satellite Dish Arrays: Reinstate to original locations or new positions as instructed by the client contract administrator all TV aerials and / or satellite dish arrays.			
25.5	Sacrificial Layers - Free-standing Plant / Handrails etc: All freestanding items. Install a sacrificial layer of cap sheet (granule surface down) under all load spreading supports / pads.			
25.6	Internal Rainwater Outlets - ParaFurb Refurbishment Outlets: Check for blockages. Clear if necessary and leave in a free-running condition. Ensure bung is tightly secured to form correct pressure seal to pipe/s for applicable units. Ensure all supplied leaf guard / gratings are in place and tightly secured.			
25.7	Completed Roof Surface - General: Ensure visual inspection of all laps is undertaken to confirm integrity of system prior to final guarantee inspection. Sweep clean and remove debris to suitable waste container.			
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25.8	Lightning Conductor System - Existing: Reinstate the existing system all in accordance with client contract administrators requirements. The system must be tested and certified operational by an approved specialist contractor. The roofing contractor must provide and install all necessary Langley Lightning Conductor Retention Clips to roof surface to secure the lightning conductor tape. Clips are to be set at no more than 1 metre centres to secure the tape. At lightning conductor corner intersection plates, clips are to be spaced away from the plates at not less than 150mm but no greater than 200mm.			
25.9	Arisings from Works: Remove from site all arisings for return to contractor storage or safe disposal.			

Detailed Specification: 4

Roof 4

No.	Item	Unit	Qty	Rate	Total
26	SPECIFICATION REQUIREMENTS				
26.1	Guarantee: The following TA-25-C specification is to be covered by the Langley Waterproofing Systems Ltd, single-premium, pre-paid independently-insured workmanship and materials guarantee for a period of 25 years from the date of practical completion. In order to meet this requirement only roofing contractors that participate in this guarantee scheme may be used. The eligibility of proposed roofing contractors should be confirmed with Langley Waterproofing Systems Ltd, Tel: 01327 704778 prior to inviting tenders.				
26.2	Projects Under CDM: In relation to this project, under Construction (Design and Management) Regulations 2015 (CDM 2015), it is the responsibility of the client / contractor to appoint any, or all, relevant "CDM duty-holders".				
26.3	Structural Rooflights - Guarantee: The Langley Structural Rooflights included within the following specification are to be covered by the Langley Waterproofing Systems Ltd, single-premium, pre-paid independently-insured guarantee for the duration of the roofing guarantee from the date of practical completion.				
26.4	Design Note - Waterproofing Only: This specification is based on a waterproofing only overlay of an existing roof covering and does not include thermal insulation.				
26.5	Design Note - Existing Falls: Overlay of any existing roof system or deck. The new system will follow the existing falls and any deviations will be replicated. As a result, some areas of standing water may occur. However, please note the accumulation of ice, snow or ponding water will not have an adverse effect on the Langley products specified. This applies to both the life expectancy and / or long-term performance of the system specified and will not affect, in any way, the guarantee status.				
26.6	Design Note - Changes & Adjustments: Variations 'A' (general): Any variations must be agreed in writing by both the contract administrator and Langley Waterproofing Systems Ltd. These must be costed and authorised by the client but not be implemented until instructed by the client. Variations 'B' (minor): During work in progress, Langley Waterproofing Systems Ltd must be informed immediately of any proposed change/s and operatives must not implement any change/s until agreed by Langley (minor changes are deemed to be any item not falling within the scope of section a).				

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	Unauthorised Changes 'C' (general): Langley Waterproofing Systems Ltd will not be responsible for any changes of which they are unaware or have not authorised, nor will they accept any liability or associated costs due to system failure, i.e. labour, materials, design or programme delays, etc., resulting from said changes.		
26.7	Roof Structure - Disclaimer: It is deemed the responsibility of the Client Representative, Contractor and / or Property Owner to give due consideration towards the ability of the existing roof deck accepting any additional loadings imposed by the application of the new waterproofing system proposed within this specification. Langley Waterproofing Systems Ltd will not be held responsible or accept any liability or associated costs should structural defects or structural failure occur.		
26.8	Fire Risk - Survey Undertaken: This specification has been formulated with due regard to the inherent risks of fire when using hot work flat roof waterproofing systems and application methods. To the best of our knowledge any potential hazards have been identified and the specification tailored to minimise the risk of accidental ignition occurring. Notwithstanding the foregoing, the contractor / installer is reminded that they have a duty of care and responsibility to carry out their own assessment of the proposed works with regard to the potential fire risk, and introduce working practices that takes any such risks into account. Should the contractor / installer have any reservations about any aspect of the specification proposal, or if during the course of the works any unforeseen items are discovered that present an actual or potential fire risk, they should contact Langley Waterproofing Systems Ltd immediately so that safer methods can be agreed and implemented which do not compromise the integrity of the specification and or its guarantees.		
26.9	Fire Risk - Drying Out: In the event of the roof becoming wet and drying out is necessary, the use of gas torches is not recommended and should be avoided. In all cases Safe2Torch guidelines should be followed. Standing water should be swept to the nearest outlets with a broom or squeegee (care must be taken to avoid debris blocking outlets). The remaining moisture should be soaked up using mops or dry rags and the surface left to dry out naturally. To speed up the process, specialist equipment is commercially available, see 'General Guidance & Requirements' in the appendices of this specification.		
26.10	Safe2Torch - Flame-free Zones: This specification has been compiled in accordance with the NFRC Safe2Torch guidance and includes areas that have been identified as presenting a risk of fire if gas torches are used. This requires the substitution of membranes in these areas.		
26.11	Flame-free Zones - Definition: A Flame-free Zone is defined as being within 900mm of a combustible substrate / material. Note: If combustible material forms part of an overhang then the Flame-free Zone starts from the extremity of the overhang.		

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26.12	Risk Assessment - Fire - Installing Contractor: In line with their own Risk Assessment and Method Statement, the installing contractor is to identify any areas where the use of a naked flame is deemed too great a risk. This matter should be raised at the pre-start / pre-commencement meeting or stated in writing to Langley in order that an alternative flame free method can be adopted and specified.		
26.13	Flame-free Zones - Identified Risk Areas: In accordance with Safe2Torch guidance the following area/s have been designated as 'flame-free' zone/s:		
	Detail Noted: Plant/Vent Openings		
	Whilst these area/s have been identified, they may not be definitive. Due allowance must be made so that at any stage of this project, should any additional areas be designated a fire risk by any of the parties involved, they must be logged, all parties informed, and the appropriate measures employed.		
26.14	Fire Accreditation: Unless otherwise stated, the full waterproofing system and/or products contained within this specification have been tested for external fire exposure (both with and without insulation) in accordance with BS EN 13501-5: 2005 (European Test) and are accredited as Broof(t4).		
26.15	Langley Detailed Drawings: This specification is to be read in conjunction with detailed drawings issued and supplied by Langley Waterproofing. Should the contractor at any point find discrepancies between the issued specification and issued drawings, it is required that the specification takes precedence in all cases, unless otherwise notified and approved. No additional costs or liability arising from failure to follow specification or notifying Langley Waterproofing Systems Ltd of any discrepancies found in good time prior to commencement of works will be considered.		
26.16	Guarantee Requirement - Torch-on Membranes: Applicable to all layers. A 5-10mm bead of bitumen must be exuded from all laps.		
27	SCOPE OF APPLICATION		
27.1	Partial Strip-up - Removal of Overlay to Existing Asphalt: This specification is based on the removal of an existing overlay system and re-covering of the underlying asphalt substrate.		
27.2	Deck and Substrates - Existing Asphalt on Screeded Concrete: This specification is suitable for application to a substrate of an existing prepared asphalt system on a screeded concrete roof deck, not exceeding 5° from the horizontal, and one section sloping at over 20° from the horizontal.		

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Day / Night Joints: The contractor must ensure at the end of each working day or period, that any exposed membranes or substrates that are susceptible to damage through water ingress are sealed with a Langley system compatible membrane to ensure complete water tightness. No loose laid membranes or other such covers are permitted.				
PREPARATION				
Contractor Preparation Note: The contractor is to carry out his own inspection to satisfy himself with regard to the extent of works involved in the preparation of the existing roof coverings and substrates. No claims arising from failure to do so will be considered by Langley Waterproofing Systems Ltd.				
Edge Protection - Existing Fixed Handrail - In-situ: Roofing works are to proceed with the existing handrail system remaining in-situ.				
Fixed Access Ladder/s - Temporary Removal: To facilitate the re-roofing works. The contractor is to remove set aside and safely store for re-use upon completion of the new waterproofing system.				
Redundant Plant and Equipment: All redundant plant and equipment (ducting, vents, pipe-work, etc.) as identified by the client contract administrator is to be removed and disposed of to suitable waste facilities. Make good any damage, holes, openings and / or surfaces disturbed prior to the application of any new waterproof coverings.				
Plant & Equipment: Carefully remove and set aside for re-fixing all free-standing roof mounted plant and items of equipment. No equipment is to be stored during the course of the works on completed areas unless suitable protection has been provided beneath.				
Mobile Telecommunication Equipment: To be decommissioned in accordance with the service provider agreement for the duration of the roofing works. The contractor is to allow for any modifications / adaptations, raising of any supporting plinths etc. where necessary to accommodate the new roofing system finished levels.				
TV Aerials and / or Satellite Dish Arrays: Any TV aerials and / or satellite dish arrays that will impede roofing works are to be temporarily removed, raised, etc. to facilitate the works. The contractor must liaise with the client contract administrator directly in relation to how best serve the property so that minimal disturbance of services is achieved throughout the contract period.				
	The contractor must ensure at the end of each working day or period, that any exposed membranes or substrates that are susceptible to damage through water ingress are sealed with a Langley system compatible membrane to ensure complete water tightness. No loose laid membranes or other such covers are permitted. PREPARATION Contractor Preparation Note: The contractor is to carry out his own inspection to satisfy himself with regard to the extent of works involved in the preparation of the existing roof coverings and substrates. No claims arising from failure to do so will be considered by Langley Waterproofing Systems Ltd. Edge Protection - Existing Fixed Handrail - In-situ: Roofing works are to proceed with the existing handrail system remaining in-situ. Fixed Access Ladder/s - Temporary Removal: To facilitate the re-roofing works. The contractor is to remove set aside and safely store for re-use upon completion of the new waterproofing system. Redundant Plant and Equipment: All redundant plant and equipment (ducting, vents, pipe-work, etc.) as identified by the client contract administrator is to be removed and disposed of to suitable waste facilities. Make good any damage, holes, openings and / or surfaces disturbed prior to the application of any new waterproof coverings. Plant & Equipment: Carefully remove and set aside for re-fixing all free-standing roof mounted plant and items of equipment. No equipment is to be stored during the course of the works on completed areas unless suitable protection has been provided beneath. Mobile Telecommunication Equipment: To be decommissioned in accordance with the service provider agreement for the duration of the roofing works. The contractor is to allow for any modifications / adaptations, raising of any supporting plinths etc. where necessary to accommodate the new roofing system finished levels. TV Aerials and / or Satellite Dish Arrays: Any TV aerials and / or satellite dish arrays that will impede roofing works are to be temporarily removed, raised, etc. t	The contractor must ensure at the end of each working day or period, that any exposed membranes or substrates that are susceptible to damage through water ingress are sealed with a Langley system compatible membrane to ensure complete water tightness. No loose laid membranes or other such covers are permitted. PREPARATION Contractor Preparation Note: The contractor is to carry out his own inspection to satisfy himself with regard to the extent of works involved in the preparation of the existing roof coverings and substrates. No claims arising from failure to do so will be considered by Langley Waterproofing Systems Ltd. Edge Protection - Existing Fixed Handrail - In-situ: Roofing works are to proceed with the existing handrail system remaining in-situ. 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Mobile Telecommunication Equipment: To be decommissioned in accordance with the service provider agreement for the duration of the roofing works. The contractor is to allow for any modifications / adaptations, raising of any supporting pinths etc. where necessary to accommodate the new roofing system finished levels. TV Aerials and / or satellite Dish Arrays: Any TV aerials and / or satellite bish arrays that will impede roofing works are to be temporarily removed, raised, etc. to	The contractor must ensure at the end of each working day or period, that any exposed membranes or substrates that are susceptible to damage through water ingress are sealed with a Langley system compatible membrane to ensure complete water tightness. No loose laid membranes or other such covers are permitted. PREPARATION Contractor Preparation Note: The contractor is to carry out his own inspection to satisfy himself with regard to the extent of works involved in the preparation of the existing roof coverings and substrates. No claims arising from failure to do so will be considered by Langley Waterproofing Systems Ltd. Edge Protection - Existing Fixed Handrail - In-situ: Roofing works are to proceed with the existing handrail system remaining in-situ. Fixed Access Ladder/s - Temporary Removal: To facilitate the re-roofing works. The contractor is to remove set aside and safely store for re-use upon completion of the new waterproofing system. Redundant Plant and Equipment: All redundant plant and equipment (ducting, vents, pipe-work, etc.) as identified by the client contract administrator is to be removed and disposed of to suitable waste facilities. Make good any damage, holes, openings and / or surfaces disturbed prior to the application of any new waterproof coverings. 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28.8	Wall Mounted Plant, Cable Trays / Conduits etc - Reposition (above skirting height): All wall mounted services and/or plant that will prevent facilitation of the works or will penetrate the new skirting heights. Raised and/or relocate. Allowance must be made for the following items as necessary: 1. Disconnection, de-gassing and re-connection, adaptation of all pipework, supports, connections, electrical connections and cabling. 2. Reposition (above skirting height) or relocate to suitable locations as required. Allow for all adaptions/adjustments and fixings required and re-connection. All in accordance with client's detailed requirements. 3. Certify as fully serviceable on completion.		
28.9	Existing Outlets - Refurbish with ParaFurb Outlets: Make ready to accept new ParaFurb Refurbishment Outlets (detailed elsewhere). Cut back and remove sufficient existing waterproofing from around the outlets and as required from the surrounding area to allow for correct installation. Important Note: ParaFurb Outlets must not be installed to outlet positions that already have an existing refurbishment outlet in place. Prior to ParaFurb Outlets being installed, any existing refurbishment outlets or lead sleeve inserts must first be removed and surrounding substrates made good.		
28.10	Structural Rooflight Glazing - Leave In Situ: Structural rooflight to remain in situ and be encapsualted within the proposed system.		
28.11	Existing Overlay System - Remove and Prepare Asphalt Substrate: Overlay System: Strip and remove to suitable waste containers all component layers of the existing waterproofing overlay system including any insulation and or vapour control layers that may be found, back to the surface of the original asphalt covering. Asphalt Preparation: Warm and smooth out all ridges and blisters. Where necessary, make good any damage to the asphalt surface. Asphalt Details: Remove all existing asphalt flashings, aprons and collars to pipes, etc. and dispose of to suitable approved waste facilities. Cutting of asphalt must be undertaken with an angle grinder. The use of hammer and chisel is not permitted.		
28.12	Existing Asphalt Surface - Preparation: Warm and smooth out all ridges and blisters. Where necessary, make good any damage to the asphalt surface.		
28.13	Existing Asphalt Details - Remove: Remove all existing asphalt flashings, aprons and collars to pipes, etc. and dispose of to suitable approved waste facilities. Cutting of asphalt must be undertaken with an angle grinder. The use of hammer and chisel is not permitted.		



2014	Eviating Edge Trime Deve area		
28.14	Existing Edge Trims - Remove: Carefully remove all existing perimeter edge trims and dispose of to		
	suitable approved waste containers / facilities or return to		
	contractors premises for safe disposal.		
28.15	Perimeter Kerb - Metal Cappings - Discard:		
	Remove all metal cappings to kerb tops and dispose of to suitable		
	waste facilities. Make good exposed surfaces to to a flat smooth finish. Prime with the specified primer ready to receive the new		
	waterproofing.		
28.16	Soil Vent Pipe/s - Extend:		
	Extend where necessary. Collar or pipe sleeve/s must be a minimum		
	of 150mm above the finished roof surface. Note: Extension pipe/s must be fixed inside the existing pipe/s.		
28.17	Flues and Hot Pipes Insulating Double Skin:		
	Independent non-ferrous metal sleeves with integral flange. Sleeve must be a minimum 150mm above finished roof surface, flange must		
	be a minimum 100mm wide. Fix to roof deck. Sleeve must provide a		
	minimum 25mm air gap. Note: The gap can be filled with a non-		
	combustible insulation. See Details section for weathering detail.		
	Important Notes: a) Flues are controlled services as defined in Building Regulations Part		
	J.		
	b) Any work to flues may be notifiable building work.		
	c) Flue extension must be of the correct material and same diameter		
	or correct cross-sectional area to match the existing. d) Must be securely fixed and sealed to the existing so as to comply		
	with either Gas Appliances Safety Regulations 1995 or relevant		
	regulatory body.		
28.18	Priming - Asphalt Surface & Detail Substrates:		
	Asphalt surfaces and substrates for details. Sweep clear of all dirt,		
	debris and loose material. All surfaces must be dry. Prime with		
	Langley Spray-on (synthetic rubber) Primer and allow to dry.		
28.19	Flame-free Zones - Priming Requirement - All Surfaces (Inc		
	Insulation if applicable): Prime all flame-free zone surfaces with Langley Spray-on (synthetic		
	rubber) Primer and allow to dry (bituminous primer must not be		
	used).		
28.20	Flame-free Zones - Self-adhesive Membranes - Additional Priming:		
	Adhesion issues may arise when applying membranes with a hot-air		
	gun. Langley Spray-on Primer can be applied to the surface Paradiene		
	SA underlay to enhance adhesion of the Parafor Solo SA cap sheet. This 'additional priming' is also recommended when the Langley SA		
	Membrane Detailing System is specified as the primary roof covering		
	or over large areas. This will ensure a consistent bond across larger		
	roof areas and improve application times		

Reference: 40730 46 Created: 08 June 2020



29	WATERPROOFING - UNDERLAYS		
29.1	Detail Reinforcing Strip - Requirement in Lieu of Angle Fillets: Paradiene M3 S detail reinforcing strips must be fixed at the base of all upstands, prior to subsequent membranes being installed. At a minimum of 250mm width cut from roll, apply 125mm to the horizontal and 125mm to vertical prepared surfaces. Fully bond by torch-on method.		
29.2	Flame-free Zone - Detail Reinforcing Strip - Change of Membrane: Paradiene SA detail reinforcing strips must be installed at the base of all upstands, prior to subsequent membranes being installed. Strips to be minimum 250mm wide in pieces cut from roll, applied 125mm to the horizontal and 125mm to vertical surfaces. Fully bond to a prepared (and primed if applicable) substrate by means of the heat activated self-adhesive face, applying pressure with a seam roller. Where priming is required, it must be with Langley Spray-on (synthetic rubber) Primer, (bituminous primer must not be used).		
29.3	Underlay - Torch-on Fully Bonded - Field Area: Install Paradiene S VV Glass-reinforced SBS elastomeric bitumen membrane. Top surface: Continuous fusible film. Underside: Macro- perforated fusible film. Lay: Fully bonded by torching. Side and End Laps must be a minimum of 75mm. Both surfaces being bonded must be heated and a bead of bitumen exuded from all laps.		
29.4	Flame-free Zone - Underlay - Change of Membrane - Flat Area: Install Paradiene SA, polyester reinforced, self-adhesive SBS elastomeric bitumen membrane. Fully bond to a prepared and primed substrate by means of the heat activated self-adhesive face, applying pressure with a weighted roller. Side laps, minimum 75mm; end laps, minimum 100mm; fully bonded by heat welding and applying pressure with a seam roller. Priming of substrate (including insulation if applicable) must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area underlay, (outside the flame-free zone) must be minimum 150mm and torch bonded.		
29.5	Underlay - Upstands & Skirtings: To be formed separately using Paradiene M3 S underlay. Cut from the width of the roll and fully bond by torching to base membrane with a minimum 100mm lap. Both surfaces being bonded must be heated and a bead (5-10mm) of bitumen extruded from all head and side laps.		



29.6	Flame-free Zone - Underlay - Upstands & Skirtings - Change of Membrane: To be formed separately with Paradiene SA underlay, in pieces cut from the width of a roll. Fully bond to a prepared and primed substrate (or AVCL if applicable) by means of the heat activated self-adhesive face, applying pressure with a roller. Minimum height, 150mm above the finished height of the new insulation (or the full girth of details). Where applicable, priming of substrate must be with Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). Lap to main field return, minimum 100mm; Side laps, minimum 75mm. Application method as per the main area. Detailing arrangements all as main specification.		
	Paradiene M3 S underlay (fully bonded) must be used (detailed elsewhere). Extend onto main field area by minimum 150mm.		
30	WATERPROOFING CAP SHEETS		
30.1	Cap Sheet - Torch-on - Field Area: Install Elastoflex GS cap sheet. Elastoflex GS is a torch-on polyester-reinforced, SBS-modified elastomeric bitumen membrane. The surface has a Dark Grey granulated surface with a grooved thermofusible film underside. Lay: Fully bonded by torching with 90mm minimum side lap width as determined by the selvedge. Minimum end laps must be 150mm. This layer is to be laid parallel to the under layer, breaking joints by at least 300mm. Both surfaces being bonded must be heated and a bead of bitumen exuded from all laps.		
30.2	Flame-free Zone - Cap Sheet - Change of Membrane - Flat Area: Install Parafor Solo SA, polyester reinforced, self-adhesive, SBS elastomeric bitumen, dark grey granule faced cap sheet. Fully bond to the underlay by means of the heat activated self-adhesive face, applying pressure with a weighted roller. Side laps to suit selvedge (minimum 75mm); end laps, minimum 150mm; fully bond by heat welding and applying pressure with a seam roller. A 5-10mm bead of bitumen must be extruded from all laps. All heat activation and welding within the flame-free zone must be carried out with a hot-air gun. Note: All laps with main area cap sheet, (outside the flame-free zone) must be minimum 150mm and torch bonded.		
31	DETAILS		
31.1	Perimeter Kerb Detail - Requirement: All perimeter kerb details must be a minimum of 50mm above the finished roof surface level.		
31.2	Cap Sheet - General Detailing: Detail flashings. Form separately with Elastoflex GS Cap Sheet cut from width of roll. Colour to match main field membrane. Fully bond by torching to the specified detail underlay membrane. Both surfaces being bonded must be heated and a 5-10mm bead of bitumen extruded from all head and side laps. Cap sheet detail must extend to a minimum of 150mm onto the main field area. Upstand heights must be a minimum of 150mm above the finished roof level.		

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31.3	Flame-free Zone - Cap Sheet - General Detailing - Change of Membrane: Detail flashings to be formed separately using matching colour Parafor Solo SA Cap Sheet, in pieces cut from width of roll. Fully bond to the specified detail underlay by means of the heat activated self-adhesive face, applying pressure with a roller. Minimum height, 150mm above the finished height of the new system (or the full girth of details). Side laps to suit selvedge; end laps, minimum 150mm, bond by heat welding and applying pressure with a seam roller. A 5-10mm bead of bitumen is to be extruded from all laps. Lap to main field return, minimum 150mm.		
31.4	Internal Outlets - Para Furb Refurbishment Outlets: Para Furb Refurbishment Outlet: Stainless Steel spigot with expanding EPDM rubber seal and SBS membrane flange. Select outlet to suit diameter/s of fall pipes. Fully bond flange membrane to previously installed underlay or soaker. Fully bond cap sheet over and cut hole to suit diameter of pipe. Install leaf guard/grating supplied. Installation to be in accordance with Langley fixing instructions.		
31.5	Flues and Hot Pipes (single skin, non-insulated): New independent, non-ferrous metal sleeve with integral flange, securely fixed to deck. Minimum 150mm high from the surface of the new waterproofing system. Sleeve to provide a minimum 25mm air gap around pipe. The gap can be filled with a non-combustible insulation if required. New, Code 5 lead pipe sleeve/s with integral flange. Sleeve minimum 150mm high, flange minimum 100mm wide. Prime both surfaces of the flange. Fully bond between underlay or soaker and cap sheet. Top of sleeve: Protect with a weathering collar, securely fixed to pipe. Base of Sleeve: Form a fillet with silicone mastic sealant. Colour: black.		
31.6	Counter Flashing - Langley TB62 GRP Termination Bar: Where a chased counter flashing is impractical. Install and protect detail abutment skirtings with a Langley TB62 GRP face-fixed Termination Bar. Fixing: Position above the membrane skirting and apply two evenly spaced beads of Langley Gap-Seal Mastic to the rear surface of the termination bar before offering-up and positioning above the detail skirting. Once aligned, secure in place by mechanically screwing and plug fixing with dome or pan head non-corroding screws at maximum 300mm centres. Complete detail by applying a fillet of Langley Gap-Seal Mastic at 45° angle along the top edge of the bar to create a required water shed finish. Full contact of mastic must be maintained between the termination bar and substrate at all times.		



31.7	Handrail & Ladder Penetrations Once Reinstated - Self Terminating Strap: To the prepared and primed surface. Apply a liberal coating of Pararapide WP Detailing coating system with a brush or roller at a rate of 2.5 – 3.5 kg/m². Roll out and embed 260mm wide Pararapide Fleece. Immediately apply a second coat of Pararapide WP Detailing. The self-terminating strap width should be a minimum of 300mm lapping 150mm onto each surface. Pararapide Sealer Coat. Colour: Dark Grey (RAL 7043). To a prepared surface. Apply the mixed resin with a roller or brush at a rate of 0.4 – 0.8 kg/m².		
31.8	Kerbs - ParaTrim GRP Edge Trim: Base layer and detail cap sheet layer of new waterproofing system must be carried up the vertical inner face and across the top of the kerb detail, which must be, in all cases, fully supported. Terminate to leading edge with a new ParaTrim GRP edge trim of an appropriate profile for the site conditions applied over the base layer membrane. Where required, at the ends of the kerbs, the waterproofing must be turned up and to the side to allow weathering with new horizontal and vertical cover flashings. Screw fix at maximum 300mm centres to the substrate. Butt straps are to be inserted at all joints. Surfaces of trim in contact with membranes must be wiped clean and primed with Langley Primer and allowed to dry.		
31.9	Parapets - ParaTrim GRP Edge Trim: Base layer and detail cap sheet layer of new waterproofing system must be carried up the vertical inner face and across the top of the parapet detail, which must be, in all cases, fully supported. Terminate to leading edge with a new ParaTrim GRP edge trim of an appropriate profile for the site conditions applied over the base layer membrane. Where required, at the ends of parapets, the waterproofing must be turned up and to the side, to allow weathering with new horizontal and vertical cover flashings. Screw fix at maximum 300mm centres into firm grounds. Butt straps are to be inserted at all joints. Surfaces of trim in contact with membranes must be wiped clean and primed with Langley Primer and allowed to dry.		
31.10	Soil Vent Pipe - Cast Iron: Soil vent pipes must be a minimum of 150mm high from the finished level of waterproofing. Install new Code 5 Lead pipe sleeves with integral lead flange. Sleeves must be a minimum of 30mm higher than pipe. Flange must be a minimum of 100mm wide. Prime both surfaces of the flange. Fully bond to the underlay or soaker, prior to fully bonding the cap sheet membrane. Sleeves to be turned into top of pipe by 25mm. Colour: Black. Note: Soil vent pipes greater than 300mm require a Code 5 Lead sleeve finishing a minimum of 150mm high above the finished level of the new waterproofing system and terminated with a weathering collar. Finish base of vertical sleeve as previously stated.		



32	COMPLETION		
32.1	Guarantee Requirement - Final Inspection: In accordance with our guarantee requirements, Langley Waterproofing Systems Ltd are to be notified once all works are complete. A final inspection will then be undertaken by us and the contractor must ensure that safe working access is provided.		
32.2	Access Ladder/s - Existing Re-fix & Detail as Listed Elsewhere: Re-fix. The contractor is to allow for any modifications / adaptations necessary to accommodate the new roofing system finished levels. Where possible, fixing points are to be designed to avoid penetrating the waterproofing system.		
32.3	Plant and Equipment - Free Standing - Reinstatement: All free-standing roof mounted plant and items of equipment must be placed on load-spreading slabs on sacrificial pieces of loose laid cap sheet, mineral surface down.		
32.4	Mobile Telecommunication Equipment: Re-commission in accordance with the service provider agreement. The contractor must provide any necessary protection to the completed areas of waterproofing whilst the re-commissioning is being undertaken.		
32.5	TV Aerials and / or Satellite Dish Arrays: Reinstate to original locations or new positions as instructed by the client contract administrator all TV aerials and / or satellite dish arrays.		
32.6	Sacrificial Layers - Free-standing Plant / Handrails etc: All freestanding items. Install a sacrificial layer of cap sheet (granule surface down) under all load spreading supports / pads.		
32.7	Internal Rainwater Outlets - ParaFurb Refurbishment Outlets: Check for blockages. Clear if necessary and leave in a free-running condition. Ensure bung is tightly secured to form correct pressure seal to pipe/s for applicable units. Ensure all supplied leaf guard / gratings are in place and tightly secured.		
32.8	Completed Roof Surface - General: Ensure visual inspection of all laps is undertaken to confirm integrity of system prior to final guarantee inspection. Sweep clean and remove debris to suitable waste container.		
32.9	Arisings from Works: Remove from site all arisings for return to contractor storage or safe disposal.		



Schedule of Products

Langley Spray-on Primer - Canister

Synthetic rubber primer. Supplied as a canister (450mm x 330mm). Packaged in a cardboard carry box. Canister content: 18.5 kg. Gross canister weight: 24.5 kg

Coverage Rates: Self-adhered systems – up to 150m² (0.12m²/kg) Torch-on system – up to 250m² (13.5m²/kg). Other components required and supplied separately include: Applicator gun and 3m hose (re-usable). Spray-tip and Spray Cleaner

Parevapo SBS Metal Lined Vapour Barrier - Roll Size: 10m x 1m

Metal-lined, double-reinforced, SBS-modified, elastomeric bitumen vapour barrier. Top Face: Sanded. Underside: Macroperforated fusible film. Nominal Weight: 38kg/roll.

Parevapo SA Self-Adhesive Metal Lined Air and Vapour Control Layer - Roll Size: 15m x 1M

Double-reinforced, metal-lined, SBS elastomeric bitumen vapour barrier. Top Face: resin coating, colour Blue. Selvedge: Self-adhesive with a peel-off polyethylene film; Nominal Width 100mm. Underside: Heat activated self-adhesive bitumen with a siliconised peel-off release film. Nominal Weight: 25kg/roll (1.6kg/m²).

Parafoam Ultra Flat Board Insulation

Polyisocyanurate (PIR) roof insulation boards. CFC/HCFC-free with zero ODP. Both Faces: Perforated mineral coated glass fibre tissue.

Board Size: $1200 mm \times 600 mm$. Available Thicknesses: 25 mm / 30 mm / 40 mm / 50 mm / 60 mm / 70 mm / 80 mm / 90 mm / <math>100 mm / 120 mm / 130 mm / 140 mm / 150 mm.

Langley Metal Hard Edge

Galvanised Steel Angle. 3m lengths x 50mm x 50mm. Thickness 0.7mm.

Paradiene S VV Underlayer - Roll Size: 10m x 1m

Glass-reinforced SBS-modified elastomeric bitumen underlay. Top Face: Continuous fusible film. Underside: Macroperforated fusible film. Nominal Weight: 33.4kg/roll.

Adequerre Taping Strip - Roll Size: 10m x 200mm

Self adhesive bitumen taping strip for angle and joint reinforcement.

Paradiene [35] SR4 Underlayer - Roll Size: 8m x 1m

Polyester-reinforced, torch-applied SBS-modified elastomeric bitumen underlay. Top Face: Sanded. Underside: Macroperforated fusible film. Nominal Weight: 37kg/roll.

Paradiene M3 S Underlayer - Roll Size: 10m x 1m

Polyester-reinforced, torch-applied SBS-modified elastomeric bitumen underlay. Top Face: Sanded. Underside: Thermofusible film. Nominal Weight: 36.5 kg/roll (3.6 kg/m²)

Adepar JS VV Underlayer - Roll Size: 10m x 1m

Self-adhesive, partially bonded, glass fibre reinforced, SBS-modified, elastomeric bitumen underlay. Top surface: Macroperforated fusible film with siliconised peel-off film over self-adhesive selvedge. Underside: Sanded between self-adhesive strips, protected with siliconised peel-off film. Nominal Weight: 27kg/roll.

Paradiene SA Self-Adhesive Underlayer - Roll Size: 15m x 1m

Polyester reinforced, SBS elastomeric bitumen membrane. Top Face: resin coating, colour Red. Selvedge: Self-adhesive with a polyethylene peel-off film. Nominal Width 100mm. Underside: heat activated self-adhesive bitumen with a siliconised peel-off release film. Nominal Weight: 30kg/roll (3kg/m²).



Elastoflex GS (30 - Dark Grey) Cap Sheet - Roll Size: 8m x 1m

Polyester-reinforced, SBS-modified, elastomeric bitumen cap sheet with granule surface finish. Colour: Dark Grey. Selvedge: Nominal 90mm with fusible film. Underside: Grooved with continuous fusible film. Nominal Weight: 47.7kg/roll.

Parafor Solo SA (Dark Grey) Self-Adhesive Cap Sheet - Roll Size: 7.5m x 1m

Polyester reinforced, SBS elastomeric bitumen cap sheet with granule surface finish. Colour: Dark Grey. Selvedge: Selfadhesive with a polyethylene peel-off film. Nominal width 100mm. Underside: heat activated, self-adhesive bitumen with a siliconised peel-off release film. Nominal Weight: 38kg/roll (5kg/m²).

ParaFlash B3

Non-lead Flashing System. SBS elastomeric bitumen reinforced with a core of flattened, expanded aluminium mesh. Top Face: charcoal coloured granules. Underside: polypropylene film. Roll Size: 12m (length) x 150mm (width). Nominal Thickness: 3.5mm. Nominal Weight per Roll: 7.2Kg. Nominal Weight per m²: 4Kg. Each roll is supplied with 25 No. stainless steel chase retaining clips. Chase mastic sealant and lap adhesive are supplied separately.

LangStik SF Can - Solvent-free PU Insulation Adhesive

Single component moisture curing solvent free polyurethane adhesive. Packaging: 6.5kg can. Nominal Coverage: 35m²/can.

LangStik SF Canister - Solvent-free PU Insulation Adhesive

Single component moisture curing solvent free polyurethane adhesive. Container: 18.5 kg / metal canister. Labelling: LangStik SF Canister. Nominal coverage, up to 250 m^2 / canister.

Langley Lightning Conductor Retention Clip

Plastic lightning conductor retention clip with integral 100mm x 100mm Parafor Solo felt pad for torch-on application. Packaging: 50 No. per carton.

ParaFurb Refurbishment Outlets

Refurbishment rainwater outlet with 500mm x 500mm flexible SBS felt membrane attachment flange. Spigot Depth as Standard: 400mm.

Available Sizes:

- (2") Drain Diameter 50mm To suit existing pipe sizes of 58mm-64mm complete with 8mm O-Ring seal and stainless steel cylindrical leaf guard.
- (2.5") Drain Diameter 62mm To suit existing pipe sizes of 70mm-76mm complete with 8mm O-Ring seal and stainless steel cylindrical leaf guard.
- (3") Drain Diameter 70mm To suit existing pipe sizes of 75mm-78mm complete with UF-3 Bung and aluminium turbine leaf guard. Requires ParaFurb Refurbishment Outlet Installation Tool.
- (3.5") Drain Diameter 70mm To suit existing pipe sizes of 80mm-104mm complete with Ribseal/UF-3 Bung and aluminium turbine leaf guard. Requires ParaFurb Refurbishment Outlet Installation Tool.
- (4") Drain Diameter 95mm To suit existing pipe sizes of 102mm-109mm complete with UF-4 Bung and aluminium turbine leaf guard. Requires ParaFurb Refurbishment Outlet Installation Tool.
- (6") Drain Diameter 145mm To suit existing pipe sizes of 150mm-153mm complete with UF-6 Bung and aluminium turbine leaf guard. Requires ParaFurb Refurbishment Outlet Installation Tool.

Additional diameter, spigot sizes and accessories are available upon request.

ParaTrim GRP Edge Trim

Available Profiles: PF55 (55mm) / PF82 (82mm) / PF107 (107mm) / PF132 (132mm). Supplied in 3m lengths. Available Accessories: $240mm \times 240mm$ internal and external 90° pre-formed corners.

Available Colours: Charcoal only.

Langley TB62 GRP Termination Bar

Dimensions: 62mm Deep x 3m Length

Available Colours: White - Dove Grey - Charcoal

Reference: 40730 53 Created: 08 June 2020



Exterior Grade Plywood

Conforming to the relevant requirements of BS EN 636:2012 + A1:2015 Class 3 and marked BS EN 636-3. To be sourced direct from supplier.

Pre-treated Timber

As recommended in BS 5268: Part 5. The treatment should be compatible with the use of bitumen-based products. To be sourced direct from supplier.

Langley Gap-Seal Mastic

For use with ParaFlash B3, termination bars and lead counter flashings to close joints. Low modulus neutral cure silicone mastic sealant. Approximately 6Lm for 10mm x 10mm bead. Supplied in 310ml tube cartridges. Colour: Black.

ParaFlash B3 Lap Adhesive

For use with ParaFlash B3 to bond end laps and to substrate surfaces where required. High-performance single component hybrid MS polymer adhesive. Approximately 5Lm for 10mm x 10mm bead. Supplied in 290ml tube cartridges. Colour: Black.

Code 5 Rolled Lead Sheet

For use to create chutes, pipe sleeves, outlets and saddles. To be sourced direct from supplier and conform to BS EN 12588: 1999.

Clout Nails - Extra Large Headed

Minimum 20mm long galvanised steel to BS 1202: Part 1. To be sourced direct from supplier.

Clout Nails - Extra Large Headed

Minimum 25mm long galvanised steel to BS 1202: Part 1. To be sourced direct from supplier.

Pararapide Asphalt Primer

A 2 component, solvent-free resin primer. Colour: White. Approximate coverage rate: 0.50 kg/m^2 ($20 \text{ m}^2 \text{ per drum}$). Packaging. 10 kg drum (includes catalyst).

Pararapide Masonry Primer

A two component, solvent-free PMMA resin primer. Colour: White. Approximate coverage rate: 0.50 kg/m² (20 m² per drum).

Packaging. 10 kg drum (includes catalyst).

Pararapide Metal Primer

A single component, solvent-free, acrylate based primer. Colour: Grey. Approximate coverage rate: 0.20 kg/m² (5m² per can)

Packaging. 1 kg can.

Pararapide WP Detailing

A two component, solvent-free, high viscosity, thixotropic PMMA based waterproofing resin. Colour: Grey (RAL 7043). Minimum coverage rate: 3.00 kg/m^2 ($1.6 \text{ m}^2 \text{ per } 5 \text{ kg tin}$) ($3.3 \text{ m}^2 \text{ per } 10 \text{ kg drum}$) ($8.3 \text{ m}^2 \text{ per } 25 \text{ kg drum}$). Packaging. 5 kg tin. 10 kg or 25 kg drums (includes catalyst).

Pararapide Sealer - Dark Grey

A two component, solvent-free, PMMA-based, pigmented (RAL 7043), sealing resin. Approximate coverage rate: On smooth surface $-0.5 \, \text{kg/m}^2$ (20 m²/drum). On quartz granule finished surface $-0.60 \, \text{kg/m}^2$ (16.6 m² per 10 kg drum). Packaging. 10 kg drum (includes catalyst).



Pararapide Catalyst

Oxygen-rich, powdered, peroxide based compound. Colour: White. Packaging. 0.10 kg plastic bag. Usage (normal conditions) 1 x bag = 2%. (ie. 1 bag per 5 kg of resin). Packaging. 0.10 kg plastic bag.

Pararapide Fleece 0.26 m

A synthetic fibre reinforcement fleece. 110 g/m 2 . Colour: White. Packaging. Roll 0.26 x 50 m (13 m 2 /roll).

Pararapide De-Bonding Tape

A self-adhesive, multi-purpose, fabric reinforced cloth tape. Supplied in 50 m rolls: 50mm or 100mm wide.



Fixing Instructions

Bitumen Membranes Generally

Waterproofing membranes must be installed in accordance with BS 8217: 2005, BS 8000: Part 4: 1989 and the Langley Fixing Instructions.

Membranes Generally

Lay in direction of fall. Lay parallel to the preceding layer, breaking joints by at least 300mm. Stagger end laps by minimum 300mm. In gutters, membranes to be laid lengthways to minimise laps.

Bitumen Membranes - Internal Gutters

To minimise laps, membranes must be laid lengthways, in direction of fall. Both surfaces being bonded must be heated and a 5mm-10mm bead of bitumen exuded from all laps.

Parapet Details - GRP Trims

Over 500mm girth. Detail cap sheet, butt joint to rear edge of trim. Cap sheet cover strip: Fully bond to trim and cap sheet

Requirement when Torching Bitumen Membranes

Surfaces being bonded must be heated and a required 5mm-10mm bead of bitumen must be extruded from all laps and is applicable to all layers. End laps, or as details require when bonding onto granule surfaced membranes, must first be heated and the granules removed to ensure a bitumen-to-bitumen bond.

Hot Air Welding Bitumen Membranes

Both surfaces being bonded must be heated and a narrow bead of bitumen 5mm-10mm must be exuded from all laps. Laps onto granule surfaces, end laps etc must first be heated and the granules removed to ensure a bitumen-to-bitumen bond.

Spot Bonding Bitumen Membranes by Torching

Torch top of roll in a staggered spot formation as the roll is pushed forward. Side and end laps to be fully bonded by torching. Both surfaces being bonded must be heated and a 5mm-10mm bead of bitumen exuded from all laps.

Bonding Bitumen

Bitumen must not be heated to a temperature in excess of 260°C, or above its flash point minus 15°C (whichever is the lower), and should not exceed 240°C at the time of laying. **Please note** that Langley Waterproofing Systems Ltd do not advocate the use of bonding bitumen unless other means of attachment are not possible.

Adepar Self Adhesive Bitumen Membranes

Fix in dry conditions at an ambient temperature greater than 15°C. At lower temperatures, but never less than 5°C, warm the self-adhesive compound with a torch. Unroll sheet and position. Re-roll and remove siliconised release film as the sheet is fixed in position with applied pressure. Side lap is self-adhesive. Apply pressure to lap with roller if required. End lap, seal by torching: Perimeters and Opening, 500mm wide, fully bond by torching. When torching, re-roll sheet and torch as it is unrolled, whilst simultaneously removing the siliconised film. Surfaces being bonded must be heated and a narrow bead of bitumen, 5mm-10mm, must be exuded from all laps.

Flame-free Self-Adhesive Bitumen Membranes

Fix in dry, frost-free conditions and (where required) to a primed substrate. Note, primer must be Langley Spray-on (synthetic rubber) Primer (bituminous primer must not be used). Unroll membrane and set out. Re-roll and remove siliconised release film as the sheet is rolled into position, gently heating the underside with a hot air gun and applying pressure with a weighted roller. Side lap is self-adhesive (AVCL & underlay only), however in certain conditions heat may be required. End lap, bond by heat welding. Lap must be sealed and checked for security as work proceeds. Cap sheet: All laps must be heat welded and a 5-10mm bead of bitumen exuded. For detailed information, refer to Langley Installation Guide IG5-0917 SA-20 Flame Free Detailing System.



Langhome Strip Slates

Install in accordance with BS 5534: 2003 and Langley Fixing Instructions. When installing with Colle Par Adhesive it is only effective if it is used in dry conditions and in a sufficiently plastic state to be spread by simple pressure applied to the element being bonded. The contents of packs of Langhome Strip Slates should be intermixed in case of slight shade variations. All cutting of Langhome Shingles must be done before they are fixed in place. When dust, dampness or temperature prevent adhesion to the adhesive strips, it is necessary to warm with a torch the adhesive strips and the undersides of the tails of the Langhome Strip Slates before applying pressure to each of the shingles as fixing proceeds.

Fixings Generally - Pull-Out Tests and Fixing Types

Fixing Pull-out Tests to be carried out by; and all fasteners to be obtained from:

Fixfast Ltd, Merlin House, Seven Mile Lane, Borough Green, Sevenoaks. Kent TN15 8QY.

Phone: 0845 450 7483 Email: info@fixfast

Mechanical Fixings - Insulation Attachment

For Metal and Timber Deck Applications: Use Surefast® FS-RS 4.8 carbon steel fasteners. Fixings must protrude 15mm beneath the deck (steel) or 12mm (plywood or timber). In humid conditions (swimming pools, kitchens etc) stainless steel fixing must be used. Note: In all cases, pull-out tests must achieve a pull-out force of not less than 1.2 kN. For Surefast® fixings and technical assistance contact: Fixfast Ltd. Tel. 0845 450 7483 info@fixfast.co

Bonding PIR Insulation with LangStik SF PU Adhesive

LangStik SF PU Adhesive - Canister (18.5 kg).

Guidelines for Use: Please note: A spray-tip is not required.

- 1. Ensure the insulation board or other roof substrate is dry and clean from grease, dirt and other contaminants before applying adhesive.
- 2. Set the canister up as described in the Set-Up and Maintenance Guide.
- 3. Ensure the LangStik SF Canister is applying a bead of adhesive approximately 20-40mm wide.
- 4. Apply beads at 200-300mm centres to the AVCL/deck or in compliance with wind uplift calculations.
- 5. Place the insulation board directly into LangStik SF.
- 6. Apply pressure to the insulation board to ensure full contact with LangStik SF Canister.
- 7. Allow to cure before weatherproofing the insulation board.

LangStik SF PU Adhesive - Can (6.5 kg).

Guidelines for Use: Applied direct from the can. Note. Once opened, contents of can must be used. Do not re-seal.

- 1. Substrate to be swept clear of all dirt, debris and loose material, prior to application of adhesive.
- 2. Pierce can to form a 20mm hole.
- 3. Apply 15-20mm beads of PU Adhesive to the vapour control layer or designated substrate in a serpentine pattern approximately 400mm apart.
- 4. Set board into the beads within 10-15 minutes and immediately walk-in the board to spread the beads for maximum contact.
- 5. Repeat walking-in every 5-7 minutes, until the board is firmly attached.



ParaFurb Refurbishment Outlets

ParaFurb Outlets must not be installed to outlet positions that already have an existing refurbishment outlet in place. Any existing refurbishment outlets or lead sleeve inserts must be removed with surrounding substrates being made good prior to any new ParaFurb Outlets being installed.

Fitting Instruction for units with Expanding EPDM Rubber Seal - UF-3 / Ribseal / UF-3 / UF-4 and UF-6 Bungs:

- Select the correct size of outlet to suit the diameter of the downpipe.
- Check depth of existing outlet / downpipe and, if necessary, cut spigot to length. Minimum length of spigot must be 60mm.
- The expanding EPDM rubber seal will project 50mm from the spigot. Overall length, including seal, will be a minimum of 110mm and a maximum of 450mm.
- Prior to installing outlet, fix in place required system underlay or underlay soaker, 500mm x 500mm.
- Insert EPDM rubber seal into the end of the spigot. Ensure shoulder is in full contact with the end of the spigot and tighten stainless steel screws with the special screwdriver until the top part of the seal has expanded sufficiently to secure the seal to the spigot. Then Insert the complete assembly into the downpipe, ensuring the stainless steel supporting flange under the membrane flange is in full contact with the underlay / soaker. If necessary, secure in position with suitable fixings and washers through the four holes provided. Fully bond the outlet membrane flange to the underlay / soaker. Activate the seal by further tightening the stainless steel screws until hand-tight. Do not over-tighten. Screws should be tightened in sequence and progressively. Where there are four screws the sequence should be diagonal in pairs. Fully bond the system cap sheet to the membrane flange. Install leaf guard / grating supplied.

Fitting Instruction for units with O-Ring Seal:

Note: The O-Ring seal can only be used if the inside diameter of the existing pipe is within the minimum / maximum dimensions stated in the ParaFurb data sheet.

- Select the correct size of outlet to suit the diameter of the downpipe.
- Check depth of existing outlet / downpipe and, if necessary, cut spigot to length. Minimum length of spigot must be 60mm.
- Prior to installing outlet, fix in place required system underlay or underlay soaker, 500mm x 500mm.
- Place the O-Ring seal approximately 25mm from the end of the spigot then insert the complete assembly into
 the downpipe, ensuring the stainless steel supporting flange under the membrane flange is in full contact with
 the underlay / soaker. If necessary, secure in position with suitable fixings and washers through the four holes
 provided. Fully bond the outlet membrane flange to the underlay. Fully bond the system cap sheet to the
 membrane flange. Install leaf guard / grating supplied.

Exposed Substrates - General Requirement

All structural deck types and detail substrates must be kept dry at all times during the construction phase.

Skirtings Behind Existing Slates / Tiles, Cladding, etc

When forming skirtings behind existing roof tiles / slates, vertical cladding or timber boarding, particular attention must be paid to the risk of fire due to old, dry and dusty materials. Torch-on application must be undertaken with great care and, if necessary, following an assessment of the risk on site, an alternative method of attachment should be used.

Cold Roof Construction - Ventilation

The roof voids in cold roof constructions must be ventilated in accordance with BS 6229: 2018 and BS 5250: 2011.

Hybrid Roof Construction

In hybrid roof constructions, consideration must be given to ensuring that adequate condensation control is achieved in accordance with BS 6229: 2018 and BS 5250: 2011.

Damp Proof Course

Where waterproof skirtings and counter-flashings are being installed at a higher position than an existing damp-proof course, a new cavity tray must be installed above the new proposed finishes, especially in exposed conditions. Any damp-proof courses that are covered by Langley waterproofing membranes are done so purely at client risk and will not be covered by the Langley Guarantee.



Pararapide Resins (2 Components) - Mixing

Mix tub of resin with a twin paddle agitator for a minimum of 1 minute until the liquid has a uniform colour. Add the premeasured Pararapide Catalyst and continue mixing for 2 minutes until the powder is completely mixed. Note. The catalyst is completely dissolved when there no white specs remaining.

Pararapide Fleece

NB fleece must be dry. Apply directly to the wet Pararapide resin coating. Side & end laps 50mm. Roll out, smooth side up, avoiding any folds or wrinkles (the fleece will rapidly saturate with the resin). Use the 250mm roller (for details use the 100mm roller) or a brush to work the fleece into the resin, working from the bottom up, to eliminate air bubbles, wrinkles etc. Once fleece is saturated, immediately apply a second coat of mixed resin.

Design Note - Application Temperature

Pararapide PMMA cold applied waterproofing can be undertaken whilst air temperature is between - 15°C and 35°C. Note. The substrate must be a minimum of 3°C above the dew point.

An integrated, electronic measuring device is recommended for determining the dew point.



General Guidance and Requirements

Drying Out - Equipment Suggestions

Commercially available equipment includes the following:

- Leaf Blowers
- Hot Air Blowers
- Roof Pumps (puddle suckers)
- Bowdry Roller

Latent Defects

All specifications provided by Langley Waterproofing Systems Ltd are written on the basis that the substrates, roof deck and structure are sound and durable. We cannot accept responsibility for the consequences of latent defects in the roof deck and / or structure.

Installation

Waterproofing systems are to be installed in accordance with BS 8217: 2005, BS 8000: Part 4: 1989 and Langley Fixing Instructions.

Ventilation - Cold Roof Construction

Roof voids in cold roof constructions must be ventilated in accordance with BS 6229: 2018 and BS 5250: 2011.

Hybrid Roof Constructions

Consideration should be given to ensuring that adequate condensation control is achieved in accordance with BS 6229: 2018 and BS 5250: 2011.

Building Works - Caution Note

Building works adjacent to roofing operations: It is the roofing contractor's responsibility to ensure suitable protection of semi-completed or completed works is provided should any building works be undertaken, either by the roofing contractor or others; such as cutting of chases, re-pointing, new brickwork, rendering, etc.

Lead Work

Flashings and other sheet lead work must be carried out in accordance with the recommendations of the Lead Development Association and the Lead Sheet Association.

Protection of Works - Caution Note

Any references within this specification relating to plant, equipment or materials being temporarily removed and / or stored for use / re-use, must not be stored, during the entire course of the works, at any time, on semi-completed or completed areas unless suitable protection measures are provided beneath. No claims arising from failure to protect Langley Waterproofing Systems Ltd installed products will be entertained.

Damp-Proof Courses / Cavity Trays

Where there is no existing damp-proof course, or where the skirtings and / or counter-flashings are being installed at a higher level than the existing D.P.C., a new cavity tray should be installed, especially in exposed conditions. Where tops of new waterproof skirtings will be above the line of the existing damp-proof course or cavity tray, it is a requirement that the contractor makes suitable provision to renew and raise these to a higher level. The contractor must liaise with, and seek separate instruction from the client contract administrator as to the method of raising these details. Claims arising from failure to seek client instruction prior to commencement of works or provide suitable cost provision for this item will not be entertained by Langley Waterproofing Systems Ltd.

Exposed Openings - Caution Note

It is solely the contractor's responsibility that any exposed openings created during the construction phase; removal of rooflights / structural glazing, ducting, replacement of deck substrates, etc. must be temporarily and fully protected at all times to protect workforce and building occupants. Furthermore, any and all openings must be made watertight at the end of each working period.



Langley Felt Membrane Systems - Storage

Rolls of Langley waterproofing are to be stored under cover, on end, on a flat firm surface and, if outside, clear of the ground or supporting surface and sheet covered.

Unforeseen - Deleterious Materials

During the construction phase, any exposed or discovered unforeseen deleterious materials must be notified immediately upon finding to the client contract administrator and Langley Waterproofing Systems Ltd to await further instruction before works proceed. No claims arising will be considered through failure to report such findings.

Prepared Surfaces - Requirement

Prepared surfaces and substrates to receive new waterproof coverings must be prepared all in accordance with detailed specification notes contained herein and must be swept clean of all dirt, debris and loose material. In addition, all surfaces must be dry.

Upstand Skirtings - Requirement

For guarantee purposes, all upstand and skirting details must be a minimum height of 150mm above the finished roof surface level.

Upstand Skirtings - Requirement

It is the contractor's responsibility to ensure that any and all details found to be below the required 150mm requirement are raised to accommodate the extra thickness created by the new waterproofing system. No claims arising from failure to do so will be entertained by Langley Waterproofing Systems Ltd.

Perimeter Kerbs - Requirement

It is the contractor's responsibility to ensure that any perimeter non-watershed check kerb details meet the 50mm height requirement. The contractor must raise any perimeter kerbs where necessary to accommodate the new finished levels created by the new waterproofing system. No claims arising from failure to do so will be entertained by Langley Waterproofing Systems Ltd.

Langley Insulation Products - Storage

All insulation materials <u>must be</u> stored under cover. Plastic wrappings should not be considered to be sufficient protection for storage outside. If stored outside, insulation materials should be adequately protected with tarpaulins / sheeting and also be clear of the ground or supporting surfaces.

Completed Works Protection

Each layer of the installed Langley waterproofing system <u>must be</u> protected from any following trades, foot traffic, or other sources of damage during installation and other construction work. Where necessary, appropriate protection, such as new plywood sheets, must be provided.

Fire Safety

The Roofing Contractor is to provide adequate fire extinguishers and fire safety measures throughout the duration of the contract period.

Protection of Internal Outlet Positions - Requirement

All outlets must be temporarily covered throughout the contract period to prevent debris entering the outlet / drainage system. Covering to be such, that water run off is not impeded at any time.

Safe Working

All works are to be carried out in accordance with current Health and Safety Legislation.

Existing Roof Drainage - Requirement

Prior to works commencing and after practical completion; any existing external rainwater systems or internal outlet drainage points must be checked for blockages and cleared as necessary by the roofing contractor. In addition, it is a requirement that should internal drainage pipes exist, that they are inspected using CCTV technology to confirm their integrity and serviceability prior to the commencement of any works.



Inclement Weather Protection

All necessary measures and allowances <u>must be</u> made for protecting the works from damage due to inclement weather. The contractor must ensure at the end of each working day or period, that any exposed membranes or substrates that are susceptible to damage through water ingress are sealed with a Langley system compatible membrane to ensure complete water tightness. No loose laid membranes or other such covers are permitted.

House Keeping

The Roofing Contractor is to maintain and keep the site tidy at all times. All debris, wrappers and surplus materials, etc. to be removed from the site each day or deposited in secure storage.

Gas Cylinders

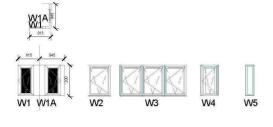
Remove from roof levels at the end of each working day and store in a secure compound designed for the purpose.

Temporary Removal - General

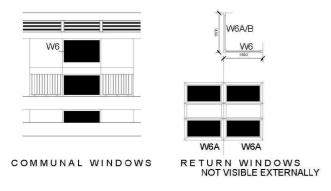
Roof mounted plant and equipment to be temporarily removed and set aside for re-fixing upon completion. No plant and equipment is to be stored on semi-completed or completed areas of new works during the course of the contract unless suitable protection has been provided beneath.

APPENDIX C WINDOW SCHEDULE DRAWING

EXISTING WINDOW TYPES

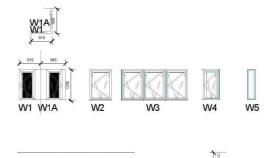


THE EXISTING **WNDOWS** ARE DOUBLE GLAZED UPVC TO THE INDIVIDUAL FLATS AND METAL FRAMED WINDOWS TO THE COMMUNAL STAIRCASE AREAS.

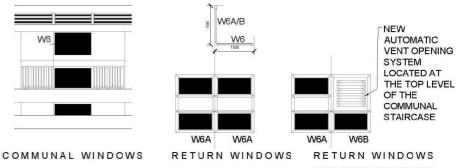


PLANNING

PROPOSED WINDOW TYPES



THE WINDOWS ARE TO BE REPLACED TO MATCH EXISTING IN DOUBLE GLAZED UPVC TO ALL AREAS, WITH METAL LOUVRES ADDED TO THE COMMUNAL RETURN WINDOWS FOR VENTILATION.



NOT VISIBLE EXTERNALLY

NOT VISIBLE EXTERNALLY

NOTES

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leport all discrepancies, errors and omissions

to not scale from this drawing ferify all dimersions on site before commencing any work or

renty an unmersions on size defice commensing any work of repairing shop crawings. Ill materials, components and workmanship are to comply with it the relevant British Standards, Codes of Practice, and oppropriate manufacturers recommendations that from time to

ime shall apply: or all specialist work, see relevant drawings.

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