
Specification Document

Project: 51085 - Revision 1

Project Name: Heals Building
Project Address: Heals Building
London
W1T 7LQ

Client:

Client Details: Workman LLP

Specification written by:

Author Address: Kelvin Burrows
Langley Waterproofing Systems Limited
Langley House
Lamport Drive
Heartlands Business Park
Daventry
Northants
NN11 8YH
Telephone: 01327 704778
Mobile: 07547 412569
Web: www.langley.co.uk

Copyright

All Intellectual property in the designs, specifications, drawings, plans, software and any other documents or materials in any medium which have been created, supplied and/or developed by Langley Waterproofing Systems Ltd in relation to this project remain vested with Langley Waterproofing Systems Ltd.

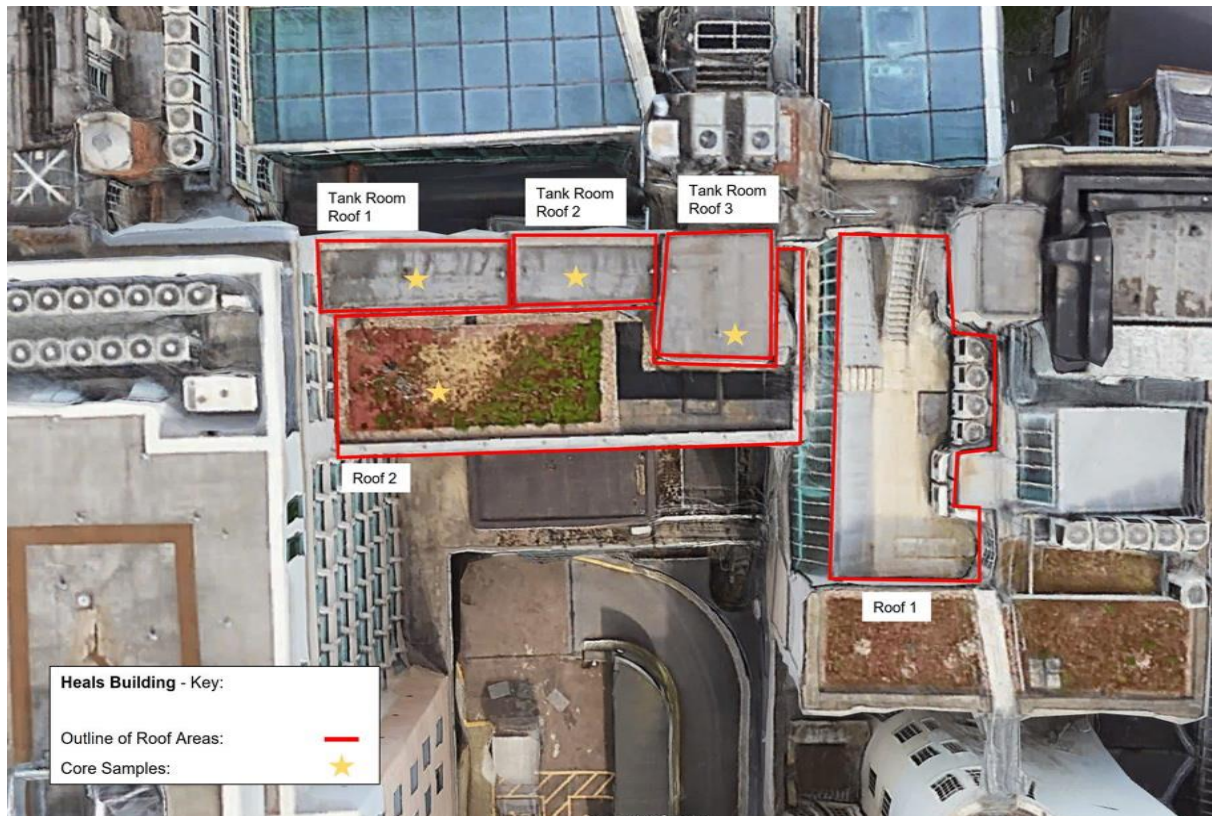
Table of Contents

Roofing Specification	2
Outline Description	2
Preliminaries and General Conditions	3
Roof 1	4
Roof 2	20
Tank Room Roof 1 & 2	37
Tank Room Roof 3	48
Schedule of Products	58
Fixing Instructions.....	62
General Guidance and Requirements	67

Heals Building

Roofing Specification

Roof areas covered by this specification: Roof 1, Roof 2, Tank Room Roof 1 & 2, Tank Room Roof 3.



Outline Description

This specification has been produced for Workman 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

1. 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.
3. 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.
5. 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.

Heals Building

Detailed Specification: 1

Roof 1

No.	Item	Unit	Qty	Rate	Total
1	SPECIFICATION REQUIREMENTS				
1.1	Guarantee: The following PU-20-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 20 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) ensure that all duties are met as detailed here https://www.hse.gov.uk/construction/cdm/2015/summary.htm				
1.3	Items Not Supplied by Langley - Guarantee: Only products supplied by Langley are included in our guarantee. Products others supply are not included in our guarantee and are advised in good faith only to ensure compatibility and performance. Where existing items are reused (rainwater outlets etc.) their suitability and functionality are to be confirmed prior to works commencing and these items will be excluded from the guarantee. The waterproofing to these items will be included unless stated otherwise.				
1.4	Maintenance Item - Mastic Sealant: Please note that Langley Gap Seal Mastic, like other mastic sealants, will degrade when exposed to ultraviolet (UV) and has a maximum life expectancy of 5 years under these conditions. This normal degradation can lead to potential failure, and subsequent leaks, to the waterproofing detail if remedial works are not undertaken in a timely manner. Twice yearly as part of the scheduled maintenance programme the condition of all sealant should be visually inspected and its elasticity checked by touch. Cracked and hard mastic, or evidence of moisture present, likely resulting in the deteriorating integrity of the sealant, should be replaced. This is done by first removing the aged/failed sealant, the substrate cleared of loose material, or any contamination that is likely to cause adhesion issues, before new Langley Gap Seal Mastic is applied. Areas where sealant has been replaced should be documented as evidence against any future warranty/guarantee claims.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.5	Design Note - Langley PU Liquid - Storage: Store in a cool, dry place (5°C - 25°C), indoors and avoid unnecessary opening of containers. Keep away from any ignition sources. Storage stability – 6 months in unopened cans. Once opened Langley PU will start to cure and a skin will form.				
1.6	Design Note - Warm Roof: This specification is based on a warm roof construction. The principal thermal insulation is above the structural deck.				
1.7	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.				
1.8	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.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.9	<p>Design Note - Approved Document Part B Building Regulations - Compartmented Walls:</p> <p>Removal of Existing Structural Deck and/or 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) to BS EN 13501-1. Some buildings (Hotels, boarding houses, residential colleges, residence halls, hostels, offices, assembly and recreation buildings) no taller than 15m are permitted to have a roof deck classified as Euroclass B-s3, D2 or worse (combustible). However, to comply with Approved Document Part B, additional fire stopping will be required underneath the roof deck. Because of the reduced resilience to fire, thermoplastic insulation materials (XPS, EPS) can only be used within the 1500mm zone on either side, and over the compartment wall when the deck is rated class A2-s3, D2 or better (non-combustible) to BS EN 13501-1. 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.</p> <p>Note: Proposed specification and design will be subject to LABC (Local Authority Building Control) or assigned AI (Approved Inspector) approval before works can commence on-site. Where appropriate, Langley Waterproofing can offer support and guidance to assist application.</p>				
1.10	<p>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 structure 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.</p>				
1.11	<p>Electronic Roof Integrity Test & Root Protection (Compulsory For Buried Systems) - Disclaimer: Should the roof waterproofing system receive any subsequent coverings such as an inverted roof system, living roof system, paving slabs, ballast, decking, or similar, an electronic leak detection (ELD) test must be carried out by a qualified expert to confirm the waterproofing system integrity. You must also ensure an ELD is completed if the roof will receive a PV panel installation. You must ensure a record of this ELD test, and any repairs completed, is shared with Langley. Where appropriate, a root resistant membrane must be installed to protect the Langley waterproofing system from root penetration.</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.12	Fire Risk - Langley PU System: This specification has been formulated on the basis that minimal hot works are required. Should the contractor/installer have 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. 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.				
1.13	Incomplete Survey - No Core Samples Taken: Due to site conditions and/or existing system, no core samples have been undertaken by Langley and therefore aspects of this specification have been based on assumptions. Before ordering any materials, Langley are required to visit site to confirm the suitability of this specification. Should any changes then be deemed necessary, either to materials and/or scope of works, any liability for costs due to these changes cannot be accepted by Langley Waterproofing. At this point, if any required changes to the scope of works are not possible, it may have implications for the guarantee, including exclusions where necessary.				
1.14	Fire Risk - Drying Out: In the event of the roof being/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.				
1.15	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.				
2	SCOPE OF APPLICATION				
2.1	Existing Waterproofing System - Removal: This specification is based on a full strip-up of the existing waterproofing system.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
2.2	Deck and Substrates - Screeded Concrete: This specification is suitable for application to a screeded concrete roof deck not exceeding 5° from the horizontal.				
2.3	Removal of Existing Waterproofing System: Existing coverings must not be stripped at a rate greater than can be safely re-waterproofed during that working day so as to reduce risk of water ingress to the property.				
2.4	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.				
2.5	U-value - Flat Board Insulation: To comply with Part L of the current Building Regulations, the flat board insulation included in this specification will achieve an overall U-value of 0.18W/m²K.				
3	PREPARATION				
3.1	Contractor Preparation Note: The contractor must take his own roof core samples to satisfy himself with regard to the existing roof build-up and ascertain the extent of the work involved in stripping up the existing roof coverings. No claims arising from failure to do so will be considered by Langley Waterproofing Systems Ltd.				
3.2	General Substrate Preparation: All substrates must be: clean, dry, free of oil, grease, curing compounds, release agents, laitance, gross irregularities, loose, unsound or foreign material including, but not limited to, paint, moss, algae growth, dirt, ice, snow, water or any other condition that would be detrimental to adhesion of the proposed waterproofing system. All substrates should have adhesion tests* undertaken to determine if additional substrate preparation is required. Please contact Langley Technical if assistance is required. * Please contact the Langley technical team to arrange for Langley to conduct the adhesion test if substrate is single-ply or a direct application to a metal deck.				
3.3	Damp-proof Courses / Cavity Trays - Requirement: 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.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
3.4	Edge Protection - Existing Fixed Handrail - In-situ: Roofing works are to proceed with the existing handrail system remaining in-situ.				
3.5	Access Steps/ Walkway Gantry - Temporary Removal/ Raise: Roofing works are to proceed with the existing access steps/walkway gantry being removed and raised to accommodate roof refurbishment. The contractor is to allow for any modifications/adaptations necessary to accommodate the new roofing system finished levels. Contractor to provide details in their tender return.				
3.6	Redundant Structures, Plant and Equipment: All redundant structures, plant and equipment (ducting, vents, pipe-work, etc.) as identified by the client contract administrator are 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.				
3.7	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.				
3.8	Cable Trays - Temporarily Remove: To facilitate the works, temporarily remove all cable trays and/or associated items and set aside. Allow for replacement/renewal of any missing or damaged items. Reinstate on completion (detailed elsewhere).				
3.9	Wall Mounted Plant, Cables / 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 adaptations/adjustments and fixings required and re-connection. All in accordance with client's detailed requirements. 3. Certify as fully serviceable on completion.				
3.10	Cables - Temporarily Remove: All cables must be carefully raised and/or temporarily supported clear of the roof surface to facilitate the works.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
3.11	Existing Outlets - Refurbish with ParaFurb Outlets: Make ready to accept new ParaFurb Refurbishment Outlets (detailed elsewhere). Where necessary, 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.				
3.12	Existing Waterproofing System - Remove: Strip and remove to suitable waste containers all component layers of the existing waterproofing system including any insulation and or vapour control layers that may be found, back to but not including the original deck / substrate.				
3.13	Redundant Chases - Make Good: Rake out and prepare any redundant chase lines. In-fill with sand and cement mortar, flush with wall face.				
3.14	Upstands - New Chase: In preparation of a new cover flashing the contractor is to cut a new chase to a minimum 25mm depth and at a minimum height of 150mm above the intended finished roof level surface. Brush clean and prime with appropriate primer to seal substrate.				
3.15	Existing Render - Alteration: The existing render is to be cut back to allow a new chase line to be cut at a higher level to accommodate the new levels presented by the new waterproofing system. The new chase must be cut with an angle grinder cutting disc to a minimum depth of 25mm, brushed clean and primed with appropriate primer to seal the substrate surface.				
3.16	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.				
3.17	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.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
3.18	<p>Screed - Inspect and Repair Where Necessary: Contractor must thoroughly inspect for signs of damage or failure. Immediately inform Langley Waterproofing and/or the CA of findings for further instruction before proceeding to install the new waterproofing system. Any issues arising from failing to report defects will not be considered by Langley Waterproofing.</p> <p>Where required, repair or renew any defective areas found and allow to dry prior to the application of the new waterproofing system.</p> <p>Note: Should screed removal be necessary, the contractor must consider the presence of underlying cables or conduits contained within the screed that may hamper remedial works.</p>				
3.19	<p>Presented Substrate - Clean: Prior to installation of the Langley PU system applicable substrates should be clean and any contamination that could impair system adhesion removed. Any contaminated areas should be swept or power washed as appropriate.</p> <p>Note: Power Washing (max. 2000 psi unless stated differently elsewhere within this specification) - care must be taken to avoid penetrating the substrate or any existing waterproofing system, where present, through cracks/fissures etc. Substrates should be dry prior to installation of proposed waterproofing system.</p>				
3.20	<p>Priming - Substrate & Applicable Details - Air and Vapour Control Layer: Sweep clear of all dirt, debris and loose material. Prime with Langley Spray-on (synthetic rubber) Primer and allow to dry. Note: Bitumen based primer must not be used.</p>				
3.21	<p>Design Note - Priming Insulation - Paratene Self-adhesive Carrier Membrane: Surface of insulation must also be primed with Langley Spray-on (synthetic rubber) Primer (detailed elsewhere).</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
3.22	<p>Priming - Metal/Metallic Surfaces Receiving Direct Application of Langley PU System Only: All ferrous metal surfaces such as steel, cast iron and wrought iron: Ensure loose rust and dirt are removed prior to application of primer. Bare metal should be cleaned to an St2 standard (thorough hand and power tool cleaning with wire brush, surface to have a faint metallic sheen) and washed down to remove all loose contaminants. Mix both component parts of the Langley PU Metal Primer together in the ratio that they are supplied. A test area should be undertaken to confirm adhesion requirements prior to full application. Note: For powder coated metal surfaces, adhesion tests should be undertaken to determine if additional surface preparation is required. Adhesion test area to be a minimum 300x300mm Apply with brush, roller or spray Langley PU Metal Primer. Application Rate: Approximately 7m² per litre. Allow to cure for at least 24 hours before over coating.</p> <p>Corroded metal: As above but surfaces should be abraded to an St3 standard (very thorough hand and power tool cleaning with wire brush, surface to have a pronounced metallic sheen) prior to application of metal primer.</p> <p>Non-ferrous metals including lead, zinc, copper, aluminium and existing galvanised steel: Clean and abrade surface prior to waterproofing application. Primer should not be required however an adhesion test should be undertaken first to confirm this.</p> <p>New galvanised steel: Clean and abrade surfaces, wash with Mordant T-Wash prior to waterproofing application. Primer should not be required however an adhesion test should be undertaken first to confirm this.</p> <p>Plastisol Coated Metal: Clean surface to remove any contamination prior to waterproofing application. Primer should not be required however an adhesion test should be undertaken first to confirm this.</p> <p>Important note: At no time should surfaces be cleaned with soap detergent as this can leave residue which would impair adhesion.</p>				
4	AIR AND VAPOUR CONTROL				
4.1	<p>Air and Vapour Control Layer - Priming Substrate: Substrate must be primed with Langley Spray-on (synthetic rubber) Primer (detailed elsewhere).</p> <p>Note: Bitumen based primer must not be used.</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
4.2	<p>Air and Vapour Control Layer - Paratene Self-Adhesive Membrane: Install Paratene, aluminium foil faced, glass reinforced, bitumen membrane. Top Face: Polyester coated reinforced aluminium foil. Underside: Siliconised peel-off film. Fixing: Self-adhesive. Fully bond to a primed surface. See Fixing Instructions. Side and End Laps: 80mm.</p> <p>Note: Laps must also be primed. At upstands, membrane to finish a minimum 50mm above top of insulation. In all cases, primer must be Langley Spray-on (synthetic rubber) Primer (bitumen based primer must not be used).</p>				
5	INSULATION				
5.1	<p>Parafoam Ultra Flat Board Insulation - Field Area - Required Thickness 130mm: Install Parafoam Ultra 130mm thick Polyisocyanurate (PIR) roof insulation boards. CFC/HCFC-free with zero ODP. Boards to be close butted with staggered joints.</p>				
5.2	<p>Parafoam Ultra Flat Board Insulation - Sumps to Outlets - Required Thickness 80mm: Sumps to be a minimum of 500mm x 500mm square around outlet position. Form with Parafoam Ultra 80mm 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.</p>				
5.3	<p>Parafoam Ultra Insulation - PU Attachment: To prepared surface. Bond insulation with LangStik 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.</p> <p>Note: For further information, please refer to 'Fixing Instructions' section of this specification.</p>				
5.4	<p>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.</p>				
5.5	<p>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.</p>				
5.6	<p>Surface Condensation/Moisture - Application Warning: Contractor to ensure that the surface of the insulation is free of surface condensation/moisture prior to the application of the waterproofing system.</p> <p>Important Note: Surface condensation/moisture is particularly prevalent during cold months and during extreme hot weather.</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
5.7	Priming Insulation - Paratene Self-Adhesive Carrier Membrane: Surface of Parafoam Ultra insulation. Must be primed with Langley Spray-on (synthetic rubber) Primer and allowed to dry. 1 Note: Bitumen based primer must not be used.				
6	WATERPROOFING - UNDERLAYS				
6.1	Design Note - Carrier Membrane - Priming Insulation: Insulation surface for carrier membrane must be primed with Langley Spray-on (synthetic rubber) Primer (detailed elsewhere).				
6.2	Carrier Membrane - Paratene Self-adhesive - To Insulation: Install Paratene, aluminium foil faced, glass reinforced, bitumen membrane. Top Face: Polyester coated reinforced aluminium foil. Underside: Siliconised peel-off film. Fixing: Self-adhesive. Fully bond to (primed) surface of the insulation. Fixing Method: See Fixing Instructions. Side and end Laps: 80mm. Note: Laps must also be primed. At upstands, turn up membrane a minimum 50mm. Note: In all cases, primer must be Langley Spray-on (synthetic rubber) Primer (bitumen based primer must not be used).				
7	WATERPROOFING - COVERINGS				
7.1	Detailing Generally: All skirtings, details, penetrations, etc. to be waterproofed prior to the main area (see Detail Section).				
7.2	Details - Minor Substrate Breaks or Gaps: Any penetrations or gaps must be taped with a heavy duty reinforced "Duct Tape" prior to applying the Langley PU Embedment Coat to prevent any loss or slumping of coating.				
7.3	Langley Winter Accelerator: <u>If application of waterproofing system is undertaken from September to March or if the ambient temperature falls below 10°C then Langley Winter Accelerator must be added to Langley PU Embedment Coat and Top Coat.</u> Shake 250g pack of Langley Winter Accelerator well, add to 12.5 litres of Langley PU Embedment Coat or Top Coat and stir thoroughly. Refer to fixing instructions for typical curing times				
7.4	Embedment Coat (20yr System): Mix Langley PU Embedment Coat thoroughly to a consistent colour. Apply a continuous and even coat by brush or roller, at the rate of 1.0 litre/m². Colour: Red Note: For installation requirements and handling of the Langley PU Embedment Coat please refer to the Fixing Instruction and Guidance sections of this specification.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
7.5	Embedment Coat Reinforcement: Embed Langley PU GFM Reinforcement, with a roller, into the the wet embedment coat. The roller must be fully loaded with embedment coat. Under no circumstances should a dry roller or brush be used. Roll in, leaving no wicks. Ensure coating is forced through the mat removing all trapped air pockets. Allow to dry. Laps in reinforcement mat to be a minimum 50mm. Note: For installation requirements and handling of the Langley GFM Reinforcement please refer to the Fixing Instruction and Guidance sections of this specification.				
7.6	Embedment Coat - Inspect: When the embedment coat is dry, check for wicks. Any that are standing proud must be removed by cutting and sanding down.				
7.7	Reactivation of Embedment Coat - Where Required: Where delays exceed 4 days, prior to the application of the top coat, or if coatings are rained upon for a sustained period of time, then the surface of the embedment coat should be reactivated by lightly applying Langley PU Solvent with a rag or cloth at a rate of 20m ² /litre. If further guidance is needed then Langley Technical should be contacted.				
7.8	Top Coat: Mix thoroughly to a consistent colour. Apply a continuous and even coat by brush or roller, at the rate of 0.75 litres/m ² Colour: Slate Grey (RAL 7015) Note: For installation requirements and handling of the Langley PU Top Coat please refer to the Fixing Instruction and Guidance sections of this specification.				
8	DETAILS				
8.1	Detail Skirtings & Upstands - Requirement: All detail skirtings and upstands must be a minimum of 150mm above the finished horizontal roof surface level, including any paving, ballast, living roof coverings etc. Important Note: If the required height cannot be achieved for any reason, then the details below 150mm will not be covered by the Langley Waterproofing guarantee				
8.2	Detailing General Requirement - Langley PU: Details should be completed prior to main field areas. Waterproofing detail work must follow the same application guidance set out in the above waterproofing section. Details to be fully reinforced with GFM Reinforcement. Note: For installation requirements and handling of the Langley PU Embedment or Top Coats please refer to the Fixing Instruction and Guidance sections of this specification.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
8.3	Drainage - Outlet Sumps: At change in level from field area to sump the Paratene carrier membrane should be dressed over the hard edge, down the face of the field area insulation and lap onto the Paratene AVCL to form a bund. An additional section of Paratene carrier membrane should also be dressed across the top of the sump insulation, up the change in level and lap onto field area carrier membrane by a minimum 75mm on either side of the sump. At the outlet opening the carrier membrane should be dressed down the face of the insulation and lap onto the AVCL. Side and end laps to be a minimum 75mm. Langley PU waterproofing system to be continuous throughout.				
8.4	Internal Drainage - ParaFurb Outlets: Install to suit diameter of downpipes, ParaFurb Outlet. Fully bond bitumen flange membrane to previously installed Paratene carrier membrane or appropriate substrate. To a primed surface apply the full Langley PU system over the flange and dressed into the outlet opening.				
8.5	Where Design of Existing Outlets Preclude the Use of ParaFurb Outlets: Remove grating, clamping ring and existing waterproofing. Clean and prime flange and bowl. Fully bond waterproofing layers to the flanges and openings to form watertight seals. Secure with clamping rings and re-fit grating. Prior to work continuing a method of waterproofing must be demonstrated, on site, with a working example, one for each type of outlet, for approval by Langley Waterproofing Systems Ltd. Once approved, the same method must be used for all subsequent outlets.				
8.6	Fixed Guardrail - Height: Contractor to ensure that the fixed guardrail is fully compliant with Part K of the current Building Regulations and will achieve the regulation height of 1100mm from the finished horizontal surface of the roof.				
8.7	Hand Rail Stanchions: Langley PU liquid coating to be minimum 150mm high: Prime pipe with the appropriate primer. Protect with a weathering collar or secure with a stainless steel Jubilee clip and Langley Gap-Seal mastic. All Jubilee clip tensioners should face away from any proposed access routes.				
8.8	Lightning Conductor Tapes: Secure with Langley Lightning Conductor Clips bonded to the surface at max. 1m centres (or as otherwise directed).				

Heals Building

No.	Item	Unit	Qty	Rate	Total
8.9	Counter Flashing - Code 4 Lead: Install and protect detail abutment skirtings with Code 4 lead counter flashings. Dress lead into a prepared chase and wedge at 450mm centres with lead clips or mechanical fixings to suit chase conditions. Point with Langley Gap-Seal Mastic. Exposed Vertical Edges protect with vertical stepped flashings. All lead work must be fixed in accordance with LDA/LSA recommendations. Flashings must not exceed 1.5m in length with laps being a minimum of 100mm. Clips to be spaced along the free edge to suit the exposure conditions.				
8.10	Skirting to Threshold/Cill - Flashing to Match Main Roof Skirtings: Install and protect detail abutment skirtings with counter flashings to match main roof area, 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 Gap-Seal Mastic.				
8.11	Self Terminating Strap (Locations TBC with Langley Technical): Details/locations to receive self-terminating straps to be agreed with Langley Technical prior to installation. To the prepared and primed surface (suitable Pararapide primer subject to adhesion tests). Apply a liberal coating of Pararapide WP Detailing coating system with a brush or roller at a rate of 2.5 – 3.5 kg/m ² . 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/m ² . <u>If you would like to colour match the primary waterproof coating, a special colour order of RAL 7015 should be placed.</u> Note: For mixing and installation requirements, please refer to the Fixing Instruction and Guidance sections of this specification. Note: The Langley PU waterproofing must be left to fully cure for a minimum of 28 days before the application of the Pararapide WP strap and Sealer Coat.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
8.12	Mansard Head - Watershed Trim: Install suitably sized, preservative treated timber batten over new flashings (Paraflash or Lead) dressed over the top row of tiles or slates and securely clipped or adhered as appropriate. At the head of mansard slopes install ParaTrim Watershed Drip Trim of the appropriate profile for the site conditions. Colour: Charcoal. Screw fix at maximum 300mm centres. The full system (including the GFM Reinforcement) to be dressed onto the trim and down the external face. Where required, at abutment junctions, the system must be turned up and to the side abutment, to allow weathering with new horizontal and vertical cover flashings. Note: Exposed costal locations require the use of stainless steel fasteners and securement at more frequent centres maximum 150mm.				
8.13	Penetrations - Soil Vent Pipes: Prime vent pipe with Langley PU Metal Primer and allow to dry. Langley PU liquid waterproofing membranes must extended up the pipe by a minimum of 150mm above the finished level of the roof surface. Protect finished detail with a suitable weathering collar or a jubilee clip and Langley Gap-Seal Mastic.				
9	WATERPROOFING COVER				
9.1	Demarcation and Access Walkways - Slip-inhibiting Finish: Once the primary waterproofing layer is fully cured temporarily demarcate required walkway area/s with 50mm Gaffer tape (low tack) to form a neat edge. Install an additional blinding coat of Langley PU Embedment Coat (red) at a rate of 0.2 litres per m ² to the clean and fully cured surface of the previously installed waterproofing system. Whilst the blinding coat is still wet, evenly broadcast a layer of Langley Aluminium Oxide Grit 30 Mesh (coarse grit) at a rate of 1 kg per m ² . Remove demarcation tape. When the binding coat has cured, remove any residual grit by gently sweeping or vacuuming.				
10	COMPLETION				
10.1	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.				
10.2	Access Steps/Walkway Gantry - Existing Re-install: Re-install to original locations. 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. All free-standing items are to be placed on load spreading slabs/ feet on sacrificial layers.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
10.3	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.				
10.4	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.				
10.5	Cables - Reinststate: 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.				
10.6	Existing Render - Alteration: Upon completion of the secondary waterproof counter flashing the contractor must install a new render-stop bead or bell-mouth render stop trim suitable to requirement. The render must be made good and re-decorated to match existing finishes.				
10.7	Rainwater Outlets - ParaFurb Outlets: Check for blockages. Clear if necessary and leave in a free-running condition. Ensure Ribseal (where present) is tightly secured to form correct pressure seal to pipe/s for applicable units. Ensure all supplied leaf guards are in place and tightly secured.				
10.8	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.				
10.9	Lightning Conductor System - New: Install new system all in accordance with client contract administrators requirements. The new 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.				
10.10	Arisings from Works: Remove from site all arisings for return to contractor storage or safe disposal.				

Heals Building

Detailed Specification: 2

Roof 2

No.	Item	Unit	Qty	Rate	Total
1	SPECIFICATION REQUIREMENTS				
1.1	<p>Guarantee:</p> <p>The following PU-20-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 20 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.</p>				
1.2	<p>Projects Under CDM:</p> <p>The Construction (Design and Management) Regulations 2015 (CDM 2015) apply to all construction projects. It is the Client's responsibility to ensure that all required duty holders are appointed as necessary.</p> <p>The Principal Designer must advise the Client on health and safety issues during the design and planning phases of construction work, using their expertise in health and safety, planning, management, construction, and communications to mitigate any health and safety risks.</p> <p>As part of our specification service, Langley may prepare or modify drawings, specifications, or design calculations. Under CDM 2015, Langley's role falls under the responsibilities of a Designer, working under the Principal Designer.</p> <p>When undertaking samples or inspecting works, Langley's role under CDM 2015 becomes that of a Worker, where we have a duty to cooperate and report any identified risks that may endanger the health and safety of ourselves or others.</p> <p>Since the roof area will require maintenance in accordance with BS 6229:2018, the Client should ensure that safe access to and from the roof area is considered under CDM 2015. This may include installing free-standing guardrails around potential hazards, such as rooflights, or implementing other appropriate fall prevention methods.</p> <p>A summary of duties can be found here: https://www.hse.gov.uk/construction/cdm/2015/summary.htm</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.3	Items Not Supplied by Langley - Guarantee: Only products supplied by Langley are included in our guarantee. Products others supply are not included in our guarantee and are advised in good faith only to ensure compatibility and performance. Where existing items are reused (rainwater outlets etc.) their suitability and functionality are to be confirmed prior to works commencing and these items will be excluded from the guarantee. The waterproofing to these items will be included unless stated otherwise.				
1.4	Maintenance Item - Mastic Sealant: Please note that the Langley Gap Seal Mastic, like other mastic sealants, will degrade when exposed to ultraviolet (UV) and has a maximum life expectancy of 5 years under these conditions. This expected degradation can lead to potential failure and subsequent leaks in the waterproofing detail if remedial works are not undertaken promptly. As part of the scheduled maintenance program, it is recommended that all sealants be visually inspected and their elasticity checked twice yearly. Cracked and hard mastic, or evidence of moisture present, likely results in deteriorating sealant integrity and should be replaced. First, remove the aged/failed sealant, clear the substrate of loose material and any contamination that could cause adhesion issues, and then apply new Langley Gap Seal Mastic. It is essential to document areas where the sealant has been replaced as evidence against any future warranty or guarantee claims.				
1.5	Roof Drainage - Guarantee Requirement - CCTV Inspection: 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.				
1.6	Design Note - Langley PU Liquid - Storage: Store in a cool, dry place (5°C - 25°C), indoors and avoid unnecessary opening of containers. Keep away from any ignition sources. Storage stability – 6 months in unopened cans. Once opened Langley PU will start to cure and a skin will form.				
1.7	Design Note - Warm Roof: This specification is based on a warm roof construction. The principal thermal insulation is above the structural deck.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.8	<p>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.</p> <p>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.</p>				
1.9	<p>Tapered Insulation: When preparing a tapered scheme, a flat and level deck is assumed and, although the tapered scheme is intended to provide adequate drainage, some ponding may still occur due to obstructions, membrane lap build-ups or unforeseen deck deflection.</p> <p>Please note that neither ice, snow or ponding water will have an adverse affect on the Langley products specified. This applies to both the life expectancy and long-term performance of the system and will not affect in any way, the guarantee status.</p>				
1.10	<p>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.</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.11	<p>Design Note - Approved Document Part B Building Regulations - Compartmented Walls:</p> <p>Overlaying Existing Waterproofing/Substrate:</p> <p>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) to BS EN 13501-1.</p> <p>Some buildings (Hotels, boarding houses, residential colleges, residence halls, hostels, offices, assembly and recreation buildings) no taller than 15m are permitted to have a roof deck classified as Euroclass B-s3, D2 or worse (combustible). However, to comply with Approved Document Part B, additional fire stopping will be required underneath the roof deck. Because of the reduced resilience to fire, thermoplastic insulation materials (XPS, EPS) can only be used within the 1500mm zone on either side, and over the compartment wall when the deck is rated class A2-s3, D2 or better (non-combustible) to BS EN 13501-1.</p> <p>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.</p> <p>Note: Proposed specification and design will be subject to LABC (Local Authority Building Control) or assigned AI (Approved Inspector) approval before works can commence on-site. Where appropriate, Langley Waterproofing can offer support and guidance to assist application.</p>				
1.12	<p>Roof Structure - Disclaimer:</p> <p>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 structure 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.</p>				
1.13	<p>Electronic Roof Integrity Test & Root Protection (Compulsory For Buried Systems) - Disclaimer:</p> <p>Should the roof waterproofing system receive any subsequent coverings such as an inverted roof system, living roof system, paving slabs, ballast, decking, or similar, an electronic leak detection (ELD) test must be carried out by a qualified expert to confirm the waterproofing system integrity.</p> <p>You must also ensure an ELD is completed if the roof will receive a PV panel installation.</p> <p>You must ensure a record of this ELD test, and any repairs completed, is shared with Langley.</p> <p>Where appropriate, a root resistant membrane must be installed to protect the Langley waterproofing system from root penetration.</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.14	Fire Risk - Langley PU System: This specification has been formulated on the basis that minimal hot works are required. Should the contractor/installer have 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. 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.				
1.15	Fire Risk - Drying Out: In the event of the roof being/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.				
1.16	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.				
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 Un-screeded Concrete: This specification is suitable for application to a substrate of an existing prepared asphalt system on an un-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.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
2.4	U-value - Tapered Insulation: To comply with Part L of the current Building Regulations, the average thickness of the scheme included in this specification is calculated in accordance with Annex E of EN ISO 6946: 2017. This is to ensure that the effective thickness of the scheme is sufficient to meet the target U-value of 0.18W/m ² K.				
2.5	Contractors Note - Tapered Insulation: The specified tapered insulation scheme is based on the assumption that the contours of the underlying substrate reflects that of the existing roof coverings. In the event of any abnormalities being uncovered, it is the responsibility of the Roofing Contractor to report these immediately to Langley so that any amendments to the insulation scheme that may be necessary can be made. This may result in a delay. No claims arising from any additional costs incurred from such delays will be entertained by Langley Waterproofing Systems Ltd.				
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	General Substrate Preparation: All substrates must be: clean, dry, free of oil, grease, curing compounds, release agents, laitance, gross irregularities, loose, unsound or foreign material including, but not limited to, paint, moss, algae growth, dirt, ice, snow, water or any other condition that would be detrimental to adhesion of the proposed waterproofing system. All substrates should have adhesion tests* undertaken to determine if additional substrate preparation is required. Please contact Langley Technical if assistance is required. * Please contact the Langley technical team to arrange for Langley to conduct the adhesion test if substrate is single-ply or a direct application to a metal deck.				
3.3	Damp-proof Courses / Cavity Trays - Requirement: 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.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
3.4	Edge Protection - Existing Fixed Guardrail - Temporarily Remove - TBC by CA: Wherever possible temporarily remove the existing fixed guardrail. Safely store for reinstallation, upon completion of the waterproofing works, having made all necessary modifications to avoid penetration of the waterproofing system. Where penetration of the waterproofing is unavoidable then the fixing should be suitably waterproofed with a PMMA self-terminating strap or lead collar (as appropriate)				
3.5	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.				
3.6	Access Steps/ Walkway Gantry - Temporary Removal/ Raise: Roofing works are to proceed with the existing access steps/walkway gantry being removed and raised to accommodate roof refurbishment. The contractor is to allow for any modifications/adaptations necessary to accommodate the new roofing system finished levels. Contractor to provide details in their tender return.				
3.7	Redundant Structures, Plant and Equipment: All redundant structures, plant and equipment (ducting, vents, pipe-work, etc.) as identified by the client contract administrator are 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.				
3.8	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.				
3.9	Lightning Conductor Tapes - Temporarily Remove: 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.				
3.10	Cable Trays - Temporarily Remove: To facilitate the works, temporarily remove all cable trays and/or associated items and set aside. Allow for replacement/renewal of any missing or damaged items. Reinstall on completion (detailed elsewhere).				

Heals Building

No.	Item	Unit	Qty	Rate	Total
3.11	Wall Mounted Plant, Cables / 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 adaptations/adjustments and fixings required and re-connection. All in accordance with client's detailed requirements. 3. Certify as fully serviceable on completion.				
3.12	Cables - Temporarily Remove: All cables must be carefully raised and/or temporarily supported clear of the roof surface to facilitate the works.				
3.13	Existing Outlets - Refurbish with ParaFurb Outlets: Make ready to accept new ParaFurb Refurbishment Outlets (detailed elsewhere). Where necessary, 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.				
3.14	Internal Gutters - Existing: Re-create within new insulation scheme (detailed elsewhere), matching existing locations.				
3.15	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.				
3.16	Existing Flashings / Termination Bars etc. - Remove: Carefully remove all existing secondary cover flashings, termination bars etc. and dispose of to suitable approved waste containers / facilities or return to contractors premises for safe disposal.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
3.17	Redundant Chases - Make Good: Rake out and prepare any redundant chase lines. In-fill with sand and cement mortar, flush with wall face.				
3.18	Upstands - New Chase: In preparation of a new cover flashing the contractor is to cut a new chase to a minimum 25mm depth and at a minimum height of 150mm above the intended finished roof level surface. Brush clean and prime with appropriate primer to seal substrate.				
3.19	Vent Grilles / Airbricks: Raise to a minimum 150mm above the new roof level.				
3.20	Parapet Metal Cappings - Temporary Removal: Carefully remove parapet metal capping sections and set aside for re-use. Clearly identify each section and log its position to ensure their correct relocation after completion of the new waterproofing system. Make good exposed surfaces to a flat smooth finish. Prime with the specified primer ready to receive the new waterproofing.				
3.21	Door Threshold/s - Raise Existing (ParaFlash B3) If required with new tapered scheme: The threshold/s must be raised to allow a minimum skirting height of 150mm above the finished level of the main roof surface. 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 re-fitting the 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.				
3.22	Presented Substrate - Clean: Prior to installation of the Langley PU system applicable substrates should be clean and any contamination that could impair system adhesion removed. Any contaminated areas should be swept or power washed as appropriate. Note: Power Washing (max. 2000 psi unless stated differently elsewhere within this specification) - care must be taken to avoid penetrating the substrate or any existing waterproofing system, where present, through cracks/fissures etc. Substrates should be dry prior to installation of proposed waterproofing system.				
3.23	Priming - Asphalt Surface & Detail Substrates - Air and Vapour Control Layer: Sweep clear of all dirt, debris and loose material. Prime with Langley Spray-on (synthetic rubber) Primer and allow to dry. Note: Bitumen based primer must not be used.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
3.24	Design Note - Priming Insulation - Paratene Self-adhesive Carrier Membrane: Surface of insulation must also be primed with Langley Spray-on (synthetic rubber) Primer (detailed elsewhere).				
3.25	Priming - Metal/Metallic Surfaces Receiving Direct Application of Langley PU System Only: All ferrous metal surfaces such as steel, cast iron and wrought iron: Ensure loose rust and dirt are removed prior to application of primer. Bare metal should be cleaned to an St2 standard (thorough hand and power tool cleaning with wire brush, surface to have a faint metallic sheen) and washed down to remove all loose contaminants. Mix both component parts of the Langley PU Metal Primer together in the ratio that they are supplied. A test area should be undertaken to confirm adhesion requirements prior to full application. Note: For powder coated metal surfaces, adhesion tests should be undertaken to determine if additional surface preparation is required. Adhesion test area to be a minimum 300x300mm Apply with brush, roller or spray Langley PU Metal Primer. Application Rate: Approximately 7m ² per litre. Allow to cure for at least 24 hours before over coating. Corroded metal: As above but surfaces should be abraded to an St3 standard (very thorough hand and power tool cleaning with wire brush, surface to have a pronounced metallic sheen) prior to application of metal primer. Non-ferrous metals including lead, zinc, copper, aluminium and existing galvanised steel: Clean and abrade surface prior to waterproofing application. Primer should not be required however an adhesion test should be undertaken first to confirm this. New galvanised steel: Clean and abrade surfaces, wash with Mordant T-Wash prior to waterproofing application. Primer should not be required however an adhesion test should be undertaken first to confirm this. Plastisol Coated Metal: Clean surface to remove any contamination prior to waterproofing application. Primer should not be required however an adhesion test should be undertaken first to confirm this. Important note: At no time should surfaces be cleaned with soap detergent as this can leave residue which would impair adhesion.				

Heals Building

4	AIR AND VAPOUR CONTROL				
4.1	Air and Vapour Control Layer - Priming Substrate: Substrate must be primed with Langley Spray-on (synthetic rubber) Primer (detailed elsewhere). Note: Bitumen based primer must not be used.				
4.2	Air and Vapour Control Layer - Paratene Self-Adhesive Membrane: Install Paratene, aluminium foil faced, glass reinforced, bitumen membrane. Top Face: Polyester coated reinforced aluminium foil. Underside: Siliconised peel-off film. Fixing: Self-adhesive. Fully bond to a primed surface. See Fixing Instructions. Side and End Laps: 80mm. Note: Laps must also be primed. At upstands, membrane to finish a minimum 50mm above top of insulation. In all cases, primer must be Langley Spray-on (synthetic rubber) Primer (bitumen based primer must not be used).				
5	INSULATION				
5.1	Parafoam Ultra Tapered Board Insulation - Field Area: Install Tapered Parafoam Ultra Polyisocyanurate (PIR) roof insulation board. CFC/HCFC-free with zero ODP. Set out in accordance with tapered scheme drawings supplied by Langley Waterproofing Systems Ltd. Boards to be close butted with staggered joints.				
5.2	Parafoam Ultra Tapered Insulation Scheme - Sumps to Outlet Positions: Sumps to be a minimum of 500mm x 500mm square around outlet position. Form with Parafoam Ultra Polyisocyanurate (PIR) flat board insulation. Board thickness in accordance with Tapered Scheme drawing. 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	Parafoam Ultra Insulation - PU Attachment: To prepared surface. Bond insulation with LangStik 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	Parafoam Ultra Insulation - Dual Layer Applications: Where thicknesses in excess of 150mm are specified the contractor must allow for the installation of a second layer of boards and the additional adhesive required. All boards to be laid close butted with staggered joints with the top layer off-set from the preceding one.				

Heals Building

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.				
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.				
5.7	Surface Condensation/Moisture - Application Warning: Contractor to ensure that the surface of the insulation is free of surface condensation/moisture prior to the application of the waterproofing system. Important Note: Surface condensation/moisture is particularly prevalent during cold months and during extreme hot weather.				
5.8	Priming Insulation - Paratene Self-Adhesive Carrier Membrane: Surface of Parafoam Ultra insulation. Must be primed with Langley Spray-on (synthetic rubber) Primer and allowed to dry. Note: Bitumen based primer must not be used.				
6	WATERPROOFING - UNDERLAYS				
6.1	Design Note - Carrier Membrane - Priming Insulation: Insulation surface for carrier membrane must be primed with Langley Spray-on (synthetic rubber) Primer (detailed elsewhere).				
6.2	Carrier Membrane - Paratene Self-adhesive - To Insulation: Install Paratene, aluminium foil faced, glass reinforced, bitumen membrane. Top Face: Polyester coated reinforced aluminium foil. Underside: Siliconised peel-off film. Fixing: Self-adhesive. Fully bond to (primed) surface of the insulation. Fixing Method: See Fixing Instructions. Side and end Laps: 80mm. Note: Laps must also be primed. At upstands, turn up membrane a minimum 50mm. Note: In all cases, primer must be Langley Spray-on (synthetic rubber) Primer (bitumen based primer must not be used).				
7	WATERPROOFING - COVERINGS				
7.1	Detailing Generally: All skirtings, details, penetrations, etc. to be waterproofed prior to the main area (see Detail Section).				
7.2	Langley Winter Accelerator: <u>If application of waterproofing system is undertaken from September to March or if the ambient temperature falls below 10°C then Langley Winter Accelerator must be added to Langley PU Embedment Coat.</u> Shake 250g pack of Langley Winter Accelerator well, add to 12.5 litres of Langley PU Embedment Coat and stir thoroughly. Refer to fixing instructions for typical curing times				

Heals Building

7.3	<p>Embedment Coat (20yr System): Mix Langley PU Embedment Coat thoroughly to a consistent colour. Apply a continuous and even coat by brush or roller, at the rate of 1.0 litre/m². Colour: Red</p> <p>Note: For installation requirements and handling of the Langley PU Embedment Coat please refer to the Fixing Instruction and Guidance sections of this specification.</p>				
7.4	<p>Embedment Coat Reinforcement: Embed Langley PU GFM Reinforcement, with a roller, into the the wet embedment coat. The roller must be fully loaded with embedment coat. Under no circumstances should a dry roller or brush be used. Roll in, leaving no wicks. Ensure coating is forced through the mat removing all trapped air pockets. Allow to dry. Laps in reinforcement mat to be a minimum 50mm.</p> <p>Note: For installation requirements and handling of the Langley GFM Reinforcement please refer to the Fixing Instruction and Guidance sections of this specification.</p>				
7.5	<p>Embedment Coat - Inspect: When the embedment coat is dry, check for wicks. Any that are standing proud must be removed by cutting and sanding down.</p>				
7.6	<p>Reactivation of Embedment Coat - Where Required: Where delays exceed 4 days, prior to the application of the top coat, or if coatings are rained upon for a sustained period of time, then the surface of the embedment coat should be reactivated by lightly applying Langley PU Solvent with a rag or cloth at a rate of 20m²/litre. If further guidance is needed then Langley Technical should be contacted.</p>				
7.7	<p>Top Coat: Mix thoroughly to a consistent colour. Apply a continuous and even coat by brush or roller, at the rate of 0.75 litres/m² Colour: Slate Grey (RAL 7015)</p> <p>Note: For installation requirements and handling of the Langley PU Top Coat please refer to the Fixing Instruction and Guidance sections of this specification.</p>				
8	DETAILS				
8.1	<p>Detail Skirtings & Upstands - Requirement: All detail skirtings and upstands must be a minimum of 150mm above the finished horizontal roof surface level, including any paving, ballast, living roof coverings etc.</p> <p>Important Note: If the required height cannot be achieved for any reason, then the details below 150mm will not be covered by the Langley Waterproofing guarantee</p>				

Heals Building

8.2	<p>Detailing General Requirement - Langley PU: Details should be completed prior to main field areas. Waterproofing detail work must follow the same application guidance set out in the above waterproofing section. Details to be fully reinforced with GFM Reinforcement.</p> <p>Note: For installation requirements and handling of the Langley PU Embedment or Top Coats please refer to the Fixing Instruction and Guidance sections of this specification.</p>				
8.3	<p>Internal Gutters: At change in level from field area to gutter the Paratene carrier membrane should be dressed over the hard edge, down the face of the field area insulation and lap onto the Paratene AVCL to form a bund. An additional section of Paratene carrier membrane should also be dressed across the top of the gutter insulation, up the change in level and lap onto field area carrier membrane by a minimum 75mm on either side of the gutter. All membranes to gutter to be laid lengthways to minimise laps. Laps to be laid with falls to assist drainage Side and end laps to be a minimum 75mm. Langley PU waterproofing system to be continuous throughout.</p>				
8.4	<p>Drainage - Outlet Sumps: At change in level from field area to sump the Paratene carrier membrane should be dressed over the hard edge, down the face of the field area insulation and lap onto the Paratene AVCL to form a bund. An additional section of Paratene carrier membrane should also be dressed across the top of the sump insulation, up the change in level and lap onto field area carrier membrane by a minimum 75mm on either side of the sump. At the outlet opening the carrier membrane should be dressed down the face of the insulation and lap onto the AVCL. Side and end laps to be a minimum 75mm. Langley PU waterproofing system to be continuous throughout.</p>				
8.5	<p>Internal Drainage - ParaFurb Outlets: Install to suit diameter of downpipes, ParaFurb Outlet. Fully bond bitumen flange membrane to previously installed Paratene carrier membrane or appropriate substrate. To a primed surface apply the full Langley PU system over the flange and dressed into the outlet opening.</p>				
8.6	<p>Where Design of Existing Outlets Preclude the Use of ParaFurb Outlets: Remove grating, clamping ring and existing waterproofing. Clean and prime flange and bowl. Fully bond waterproofing layers to the flanges and openings to form watertight seals. Secure with clamping rings and re-fit grating. Prior to work continuing a method of waterproofing must be demonstrated, on site, with a working example, one for each type of outlet, for approval by Langley Waterproofing Systems Ltd. Once approved, the same method must be used for all subsequent outlets.</p>				
8.7	<p>Lightning Conductor Tapes: Secure with Langley Lightning Conductor Clips bonded to the surface at max. 1m centres (or as otherwise directed).</p>				

Heals Building

8.8	<p>Counter Flashing - Code 4 Lead: Install and protect detail abutment skirtings with Code 4 lead counter flashings. Dress lead into a prepared chase and wedge at 450mm centres with lead clips or mechanical fixings to suit chase conditions. Point with Langley Gap-Seal Mastic. Exposed Vertical Edges protect with vertical stepped flashings. All lead work must be fixed in accordance with LDA/LSA recommendations. Flashings must not exceed 1.5m in length with laps being a minimum of 100mm. Clips to be spaced along the free edge to suit the exposure conditions.</p>				
8.9	<p>Overhangs - Adapted Counter Flashing - Langley TB62 GRP Termination Bar: For use beneath Copings, Overhangs, Window cills and Door Frames etc, where required to suit site conditions. Install an adapted Langley TB62 GRP face-fixed Termination Bar. Modify by removing the bottom return section by cutting. Fix modified bar over the waterproofing, with the top angled return facing the upstand to form a "V" with the underside of the overhang. Apply a bead of Langley Gap-Seal Mastic to the rear surface before positioning over the membrane. Once aligned, secure in place by mechanically screwing and plug fixing with dome or pan head non-corroding screws at maximum 300mm centres. Infill the "V" with a bead of Langley Gap-Seal Mastic.</p>				
8.10	<p>Skirting to Threshold/Cill - Flashing to Match Main Roof Skirtings: Install and protect detail abutment skirtings with counter flashings to match main roof area, 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 Gap-Seal Mastic.</p>				
8.11	<p>Self Terminating Strap (Locations TBC with Langley Technical): Details/locations to receive self-terminating straps to be agreed with Langley Technical prior to installation. To the prepared and primed surface (suitable Pararapide primer subject to adhesion tests). 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.</p> <p>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. <u>If you would like to colour match the primary waterproof coating, a special colour order of RAL 7015 should be placed.</u></p> <p>Note: For mixing and installation requirements, please refer to the Fixing Instruction and Guidance sections of this specification.</p> <p>Note: The Langley PU waterproofing must be left to fully cure for a minimum of 28 days before the application of the Pararapide WP strap and Sealer Coat.</p>				

Heals Building

8.12	<p>Parapets - To Receive Metal Cappings: The full Langley PU system, including GFM Reinforcement and carrier membrane (where specified) must be carried up the vertical inner face and across the top of the parapet detail, which must, in all cases, be fully supported. Terminate to leading edge. Where required, at the ends of the parapet meeting vertical abutments, the waterproofing must be turned up and to the side, to allow weathering with new horizontal and vertical cover flashings.</p>				
8.13	<p>Penetrations - Pipes Generally: Undertake an adhesion test to determine if a primer is required. Where necessary prime the pipe with the appropriate primer and allow to dry. Langley PU liquid waterproofing membranes, fully reinforced with GFM reinforcement, must extended up the pipe by a minimum of 150mm above the finished level of the roof surface. Protect finished detail with a suitable weathering collar or a jubilee clip and Langley Gap-Seal Mastic.</p>				
9	WATERPROOFING COVER				
9.1	<p>Demarcation and Access Walkways - Slip-inhibiting Finish: Once the primary waterproofing layer is fully cured temporarily demarcate required walkway area/s with 50mm Gaffer tape (low tack) to form a neat edge. Reactivate the waterproofing layer surface by lightly applying Langley PU Solvent with a rag or cloth at a rate of 20m²/litre. Install an additional blinding coat of Langley PU Embedment Coat (red) at a rate of 0.2 litres per m² to the clean and fully cured surface of the previously installed waterproofing system. Whilst the blinding coat is still wet, evenly broadcast a layer of Langley Aluminium Oxide Grit 30 Mesh (coarse grit) at a rate of 0.5kg per m² to 1 kg per m², depending on the aesthetic finish required. Remove demarcation tape. When the binding coat has cured, remove any residual grit by gently sweeping or vacuuming.</p>				
10	COMPLETION				
10.1	<p>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.</p>				
10.2	<p>Guardrail - Reinstall: Reinstall to original locations having made all necessary modifications to suit the newly installed waterproofing; ensure handrail height complies with current building regulations and achieves a minimum height of 1100mm. Avoid penetrations to the waterproofing system. Where penetrations are unavoidable the guardrail should be suitably waterproofed. Contractor to allow for all necessary fixings.</p>				

Heals Building

10.3	Access Steps/Walkway Gantry - Existing Re-install: Re-install to original locations. 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. All free-standing items are to be placed on load spreading slabs/ feet on sacrificial layers.				
10.4	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.				
10.5	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.				
10.6	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.				
10.7	Cables - Reinstall: 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.				
10.8	Rainwater Outlets - ParaFurb Outlets: Check for blockages. Clear if necessary and leave in a free-running condition. Ensure Ribseal (where present) is tightly secured to form correct pressure seal to pipe/s for applicable units. Ensure all supplied leaf guards are in place and tightly secured.				
10.9	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.				
10.10	Lightning Conductor System - Existing: Reinstall 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.				
10.11	Arisings from Works: Remove from site all arisings for return to contractor storage or safe disposal.				

Heals Building

Detailed Specification: 3

Tank Room Roof 1 & 2

No.	Item	Unit	Qty	Rate	Total
1	SPECIFICATION REQUIREMENTS				
1.1	<p>Guarantee: The following PU-20-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 20 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.</p>				
1.2	<p>Projects Under CDM: The Construction (Design and Management) Regulations 2015 (CDM 2015) apply to all construction projects. It is the Client's responsibility to ensure that all required duty holders are appointed as necessary. The Principal Designer must advise the Client on health and safety issues during the design and planning phases of construction work, using their expertise in health and safety, planning, management, construction, and communications to mitigate any health and safety risks. As part of our specification service, Langley may prepare or modify drawings, specifications, or design calculations. Under CDM 2015, Langley's role falls under the responsibilities of a Designer, working under the Principal Designer. When undertaking samples or inspecting works, Langley's role under CDM 2015 becomes that of a Worker, where we have a duty to cooperate and report any identified risks that may endanger the health and safety of ourselves or others. Since the roof area will require maintenance in accordance with BS 6229:2018, the Client should ensure that safe access to and from the roof area is considered under CDM 2015. This may include installing free-standing guardrails around potential hazards, such as rooflights, or implementing other appropriate fall prevention methods. A summary of duties can be found here: https://www.hse.gov.uk/construction/cdm/2015/summary.htm</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.3	<p>Items Not Supplied by Langley - Guarantee: Only products supplied by Langley are included in our guarantee. Products others supply are not included in our guarantee and are advised in good faith only to ensure compatibility and performance. Where existing items are reused (rainwater outlets etc.) their suitability and functionality are to be confirmed prior to works commencing and these items will be excluded from the guarantee. The waterproofing to these items will be included unless stated otherwise.</p>				
1.4	<p>Maintenance Item - Mastic Sealant: Please note that the Langley Gap Seal Mastic, like other mastic sealants, will degrade when exposed to ultraviolet (UV) and has a maximum life expectancy of 5 years under these conditions. This expected degradation can lead to potential failure and subsequent leaks in the waterproofing detail if remedial works are not undertaken promptly. As part of the scheduled maintenance program, it is recommended that all sealants be visually inspected and their elasticity checked twice yearly. Cracked and hard mastic, or evidence of moisture present, likely results in deteriorating sealant integrity and should be replaced. First, remove the aged/failed sealant, clear the substrate of loose material and any contamination that could cause adhesion issues, and then apply new Langley Gap Seal Mastic. It is essential to document areas where the sealant has been replaced as evidence against any future warranty or guarantee claims.</p>				
1.5	<p>Design Note - Langley PU Liquid - Storage: Store in a cool, dry place (5°C - 25°C), indoors and avoid unnecessary opening of containers. Keep away from any ignition sources. Storage stability – 6 months in unopened cans. Once opened Langley PU will start to cure and a skin will form.</p>				
1.6	<p>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.</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.7	<p>Design Note - Changes & Adjustments:</p> <p>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.</p> <p>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).</p> <p>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.</p>				
1.8	<p>Design Note - Approved Document Part B Building Regulations - Compartmented Walls:</p> <p>Overlaying Existing Waterproofing/Substrate: 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) to BS EN 13501-1. Some buildings (Hotels, boarding houses, residential colleges, residence halls, hostels, offices, assembly and recreation buildings) no taller than 15m are permitted to have a roof deck classified as Euroclass B-s3, D2 or worse (combustible). However, to comply with Approved Document Part B, additional fire stopping will be required underneath the roof deck. Because of the reduced resilience to fire, thermoplastic insulation materials (XPS, EPS) can only be used within the 1500mm zone on either side, and over the compartment wall when the deck is rated class A2-s3, D2 or better (non-combustible) to BS EN 13501-1. 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.</p> <p>Note: Proposed specification and design will be subject to LABC (Local Authority Building Control) or assigned AI (Approved Inspector) approval before works can commence on-site. Where appropriate, Langley Waterproofing can offer support and guidance to assist application.</p>				
1.9	<p>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 structure 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.</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.10	Electronic Roof Integrity Test & Root Protection (Compulsory For Buried Systems) - Disclaimer: Should the roof waterproofing system receive any subsequent coverings such as an inverted roof system, living roof system, paving slabs, ballast, decking, or similar, an electronic leak detection (ELD) test must be carried out by a qualified expert to confirm the waterproofing system integrity. You must also ensure an ELD is completed if the roof will receive a PV panel installation. You must ensure a record of this ELD test, and any repairs completed, is shared with Langley. Where appropriate, a root resistant membrane must be installed to protect the Langley waterproofing system from root penetration.				
1.11	Fire Risk - Langley PU System: This specification has been formulated on the basis that minimal hot works are required. Should the contractor/installer have 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. 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.				
1.12	Fire Risk - Drying Out: In the event of the roof being/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.				
1.13	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.				

Heals Building

SCOPE OF APPLICATION					
1.14	Partial Strip-up - Removal of Overlay to Existing Asphalt with Chippings: This specification is based on the removal of an existing overlay system and re-covering of the underlying asphalt substrate.				
1.15	Deck and Substrates - Existing Asphalt on Un-screeded Concrete: This specification is suitable for application to a substrate of an existing prepared asphalt system on an un-screeded concrete roof deck, not exceeding 5° from the horizontal.				
1.16	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.				
1.17	Fixings - Pull-out Test - Requirement: Prior to work commencing, the contractor must ensure that suitable pull-out tests are undertaken with the proposed fixings. All tests conducted must be recorded. Any failed tests must be reported to the Contract / Client Administrator and Langley Waterproofing Systems Ltd immediately so that alternative solutions can be arranged and implemented.				
2	PREPARATION				
2.1	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.				
2.2	General Substrate Preparation: All substrates must be: clean, dry, free of oil, grease, curing compounds, release agents, laitance, gross irregularities, loose, unsound or foreign material including, but not limited to, paint, moss, algae growth, dirt, ice, snow, water or any other condition that would be detrimental to adhesion of the proposed waterproofing system. All substrates should have adhesion tests* undertaken to determine if additional substrate preparation is required. Please contact Langley Technical if assistance is required. * Please contact the Langley technical team to arrange for Langley to conduct the adhesion test if substrate is single-ply or a direct application to a metal deck.				

Heals Building

2.3	<p>Damp-proof Courses / Cavity Trays - Requirement: 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.</p>				
2.4	<p>Safety Anchor Posts - In Situ: Works to proceed with the existing safety anchor posts/system remaining in situ wherever possible. If this is not practical, or if the safety system requires raising due to the increased height of the proposed waterproofing system, then the system must be temporarily removed and safely stored for reinstallation upon completion and/or replaced where necessary. Contractor to allow for all necessary modifications, fixings and fittings etc. System to comply with BS 795:2012 and all necessary regulations, be tested by a competent person and certified safe upon completion of the works.</p>				
2.5	<p>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.</p>				
2.6	<p>Lightning Conductor Tapes - Temporarily Remove: 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.</p>				
2.7	<p>Contamination - Remove: Remove any contamination that could impair system adhesion. All affected areas should be swept or power washed.</p> <p>Note: Power Washing (max. 2000 psi) Care must be taken to avoid penetrating the existing waterproofing system through any existing defects. Important note: At no time should surfaces be cleaned with soap detergent as this can leave residue which would impair adhesion.</p>				

Heals Building

2.8	<p>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.</p> <p>Asphalt Preparation: Warm and smooth out all ridges and blisters. Where necessary, make good any damage to the asphalt surface.</p> <p>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.</p>				
2.9	<p>Existing Asphalt Surface - Walkways and Balconies - Additional Requirements: Contractor Requirement: Prior to application of any primer. Contractor to ensure that any undulations, deflections or poor falls that cannot be overcome by warming and smoothing are reported to both Langley and the CA for further inspection.</p>				
2.10	<p>Existing Flashings / Termination Bars etc. - Remove: Carefully remove all existing secondary cover flashings, termination bars etc. and dispose of to suitable approved waste containers / facilities or return to contractors premises for safe disposal.</p>				
2.11	<p>Redundant Chases - Make Good: Rake out and prepare any redundant chase lines. In-fill with sand and cement mortar, flush with wall face.</p>				
2.12	<p>Existing Render - Alteration: The existing render is to be cut back to allow a new chase line to be cut at a higher level to accommodate the new levels presented by the new waterproofing system. The new chase must be cut with an angle grinder cutting disc to a minimum depth of 25mm, brushed clean and primed with appropriate primer to seal the substrate surface.</p>				
2.13	<p>Parapet Coping Stones - Temporary Removal: Carefully remove copings, clean and set aside for re-use. Clearly identify each coping and log its position to ensure their correct relocation on completion. Make good wall top surface to a flat smooth finish. Prime with the specified primer, ready to receive the new waterproofing.</p>				
2.14	<p>Parafoam Ultra Recovery Board - Field Area - Required Thickness 30mm: To the prepared surface. Mechanically fix 30mm Parafoam Ultra recovery boards. Boards to be laid close butted with staggered joints.. Use suitable fasteners, with tube washers, to match substrate material, depth of insulation and required deck penetration or embedment.</p> <p>Note: For further details regarding pull-out tests, fixing types and application, please refer to 'Fixing Instructions'.</p>				

Heals Building

2.15	<p>Presented Substrate - Clean: Prior to installation of the Langley PU system applicable substrates should be clean and any contamination that could impair system adhesion removed. Any contaminated areas should be swept or power washed as appropriate.</p> <p>Note: Power Washing (max. 2000 psi unless stated differently elsewhere within this specification) - care must be taken to avoid penetrating the substrate or any existing waterproofing system, where present, through cracks/fissures etc. Substrates should be dry prior to installation of proposed waterproofing system.</p>				
2.16	<p>Priming Recovery Board & Detail Substrates: All recovery boards and detail substrate surfaces. Prime with Langley Spray-on (synthetic rubber) Primer and allow to dry.</p>				
2.17	<p>Adhesion Tests - Requirement - General: Applicable to all substrates excluding Single Ply and Metal Decks; these are detailed elsewhere.</p> <p>Test Areas: Minimum 300x300mm. Clean, remove all dust and contamination. Prime with Langley PU Porous Surface Primer or Langley PU Metal Primer, as applicable to substrate, and allow to dry. The contractor must document and record the identified test areas after applying the base coat. The embedment coat must be allowed to fully cure for the correct period of time as detailed elsewhere within this specification (please refer to fixing instructions) prior to the adhesion test being undertaken. Should the adhesion tests fail then the contractor must notify Langley Waterproofing Systems Ltd immediately upon their findings so that alternative measures can be agreed before the main works commence.</p>				
2.18	<p>Priming - Main Surface Substrates and Details: A test area should be undertaken to confirm adhesion requirements prior to full application. If deemed necessary by adhesion tests then prime main surface & detail substrates with Langley PU Porous Surface Primer as detailed below: Remove all loose surface contamination and clean substrates as necessary prior to application. Thoroughly mix both component parts of primer together in the ratio they are supplied. Langley PU Porous Surface Primer application rate: Approximately 10-m²/litre. Apply with brush or roller and allow to dry (3 hours). Primer must be over-coated within 48 hours of drying 2 coats may be required for highly porous materials.</p>				
3	WATERPROOFING - COVERINGS				
3.1	<p>Detailing Generally: All skirtings, details, penetrations, etc. to be waterproofed prior to the main area (see Detail Section).</p>				

Heals Building

3.2	<p>Langley Winter Accelerator: <u>If application of waterproofing system is undertaken from September to March or if the ambient temperature falls below 10°C then Langley Winter Accelerator must be added to Langley PU Embedment Coat.</u> Shake 250g pack of Langley Winter Accelerator well, add to 12.5 litres of Langley PU Embedment Coat and stir thoroughly. Refer to fixing instructions for typical curing times</p>				
3.3	<p>Embedment Coat (20yr System): Mix Langley PU Embedment Coat thoroughly to a consistent colour. Apply a continuous and even coat by brush or roller, at the rate of 1.0 litre/m². Colour: Red</p> <p>Note: For installation requirements and handling of the Langley PU Embedment Coat please refer to the Fixing Instruction and Guidance sections of this specification.</p>				
3.4	<p>Embedment Coat Reinforcement: Embed Langley PU GFM Reinforcement, with a roller, into the the wet embedment coat. The roller must be fully loaded with embedment coat. Under no circumstances should a dry roller or brush be used. Roll in, leaving no wicks. Ensure coating is forced through the mat removing all trapped air pockets. Allow to dry. Laps in reinforcement mat to be a minimum 50mm.</p> <p>Note: For installation requirements and handling of the Langley GFM Reinforcement please refer to the Fixing Instruction and Guidance sections of this specification.</p>				
3.5	<p>Embedment Coat - Inspect: When the embedment coat is dry, check for wicks. Any that are standing proud must be removed by cutting and sanding down.</p>				
3.6	<p>Reactivation of Embedment Coat - Where Required: Where delays exceed 4 days, prior to the application of the top coat, or if coatings are rained upon for a sustained period of time, then the surface of the embedment coat should be reactivated by lightly applying Langley PU Solvent with a rag or cloth at a rate of 20m²/litre. If further guidance is needed then Langley Technical should be contacted.</p>				
3.7	<p>Top Coat: Mix thoroughly to a consistent colour. Apply a continuous and even coat by brush or roller, at the rate of 0.75 litres/m² Colour: Slate Grey (RAL 7015)</p> <p>Note: For installation requirements and handling of the Langley PU Top Coat please refer to the Fixing Instruction and Guidance sections of this specification.</p>				

Heals Building

4	DETAILS				
4.1	<p>Detail Skirtings & Upstands - Requirement: All detail skirtings and upstands must be a minimum of 150mm above the finished horizontal roof surface level, including any paving, ballast, living roof coverings etc.</p> <p>Important Note: If the required height cannot be achieved for any reason, then the details below 150mm will not be covered by the Langley Waterproofing guarantee</p>				
4.2	<p>Detailing General Requirement - Langley PU: Details should be completed prior to main field areas. Waterproofing detail work must follow the same application guidance set out in the above waterproofing section. Details to be fully reinforced with GFM Reinforcement.</p> <p>Note: For installation requirements and handling of the Langley PU Embedment or Top Coats please refer to the Fixing Instruction and Guidance sections of this specification.</p>				
4.3	<p>Penetrations - Safety Anchor Posts: Prime post with Langley PU Metal Primer and allow to dry. Liquid waterproofing membranes must extended up the pipe by a minimum of 150mm above the finished level of the roof surface. Protect finished detail with a suitable weathering collar or a jubilee clip and Gap Seal mastic.</p>				
4.4	<p>Lightning Conductor Tapes: Secure with Langley Lightning Conductor Clips bonded to the surface at max. 1m centres (or as otherwise directed).</p>				
4.5	<p>Overhangs - Adapted Counter Flashing - Langley TB62 GRP Termination Bar: For use beneath Copings, Overhangs, Window cills and Door Frames etc, where required to suit site conditions. Install an adapted Langley TB62 GRP face-fixed Termination Bar. Modify by removing the bottom return section by cutting. Fix modified bar over the waterproofing, with the top angled return facing the upstand to form a "V" with the underside of the overhang. Apply a bead of Langley Gap-Seal Mastic to the rear surface before positioning over the membrane. Once aligned, secure in place by mechanically screwing and plug fixing with dome or pan head non-corroding screws at maximum 300mm centres. Infill the "V" with a bead of Langley Gap-Seal Mastic.</p>				
4.6	<p>Parapets - To Receive Coping Stones: The new full Langley PU system, including GFM Reinforcement and carrier membrane (where specified) must be carried up the vertical inner face and across the top of the parapet detail, which must, in all cases, be fully supported. Terminate at leading edge of wall. Apply an additional layer of top coat and fully blind the top surface with quartz sand to form a key for the mortar bedding. When cured, sweep away loose sand ready to receive the coping stones (detailed elsewhere). Parapet ends, abutment with vertical (if applicable), waterproofing must be turned up and to the side, to allow weathering with new horizontal and vertical flashing details.</p>				

Heals Building

4.7	<p>GRP Watershed Trim: Install ParaTrim Watershed Drip Trim of the appropriate profile for the site conditions. Screw fix at maximum 300mm centres. The full system (including the GFM Reinforcement) to be dressed onto the trim and down the external face. Where required, at abutment junctions, the system must be turned up and to the side abutment, to allow weathering with new horizontal and vertical cover flashings.</p> <p>Note: Exposed costal locations require the use of stainless steel fasteners and securement at more frequent centres maximum 150mm.</p>				
5	COMPLETION				
5.1	<p>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.</p>				
5.2	<p>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.</p>				
5.3	<p>Existing Render - Alteration: Upon completion of the secondary waterproof counter flashing the contractor must install a new render-stop bead or bell-mouth render stop trim suitable to requirement. The render must be made good and re-decorated to match existing finishes.</p>				
5.4	<p>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.</p>				
5.5	<p>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.</p>				
5.6	<p>Arisings from Works: Remove from site all arisings for return to contractor storage or safe disposal.</p>				

Heals Building

Detailed Specification: 4

Tank Room Roof 3

No.	Item	Unit	Qty	Rate	Total
1	SPECIFICATION REQUIREMENTS				
1.1	<p>Guarantee: The following PU-20-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 20 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.</p>				
1.2	<p>Projects Under CDM: The Construction (Design and Management) Regulations 2015 (CDM 2015) apply to all construction projects. It is the Client's responsibility to ensure that all required duty holders are appointed as necessary. The Principal Designer must advise the Client on health and safety issues during the design and planning phases of construction work, using their expertise in health and safety, planning, management, construction, and communications to mitigate any health and safety risks. As part of our specification service, Langley may prepare or modify drawings, specifications, or design calculations. Under CDM 2015, Langley's role falls under the responsibilities of a Designer, working under the Principal Designer. When undertaking samples or inspecting works, Langley's role under CDM 2015 becomes that of a Worker, where we have a duty to cooperate and report any identified risks that may endanger the health and safety of ourselves or others. Since the roof area will require maintenance in accordance with BS 6229:2018, the Client should ensure that safe access to and from the roof area is considered under CDM 2015. This may include installing free-standing guardrails around potential hazards, such as rooflights, or implementing other appropriate fall prevention methods. A summary of duties can be found here: https://www.hse.gov.uk/construction/cdm/2015/summary.htm</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.3	<p>Items Not Supplied by Langley - Guarantee:</p> <p>Only products supplied by Langley are included in our guarantee.</p> <p>Products others supply are not included in our guarantee and are advised in good faith only to ensure compatibility and performance.</p> <p>Where existing items are reused (rainwater outlets etc.) their suitability and functionality are to be confirmed prior to works commencing and these items will be excluded from the guarantee. The waterproofing to these items will be included unless stated otherwise.</p>				
1.4	<p>Maintenance Item - Mastic Sealant:</p> <p>Please note that the Langley Gap Seal Mastic, like other mastic sealants, will degrade when exposed to ultraviolet (UV) and has a maximum life expectancy of 5 years under these conditions. This expected degradation can lead to potential failure and subsequent leaks in the waterproofing detail if remedial works are not undertaken promptly.</p> <p>As part of the scheduled maintenance program, it is recommended that all sealants be visually inspected and their elasticity checked twice yearly. Cracked and hard mastic, or evidence of moisture present, likely results in deteriorating sealant integrity and should be replaced.</p> <p>First, remove the aged/failed sealant, clear the substrate of loose material and any contamination that could cause adhesion issues, and then apply new Langley Gap Seal Mastic. It is essential to document areas where the sealant has been replaced as evidence against any future warranty or guarantee claims.</p>				
1.5	<p>Design Note - Langley PU Liquid - Storage:</p> <p>Store in a cool, dry place (5°C - 25°C), indoors and avoid unnecessary opening of containers.</p> <p>Keep away from any ignition sources.</p> <p>Storage stability – 6 months in unopened cans. Once opened Langley PU will start to cure and a skin will form.</p>				
1.6	<p>Design Note - Existing Falls:</p> <p>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.</p> <p>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.</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.7	<p>Design Note - Changes & Adjustments:</p> <p>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.</p> <p>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).</p> <p>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.</p>				
1.8	<p>Design Note - Approved Document Part B Building Regulations - Compartmented Walls:</p> <p>Overlaying Existing Waterproofing/Substrate: 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) to BS EN 13501-1. Some buildings (Hotels, boarding houses, residential colleges, residence halls, hostels, offices, assembly and recreation buildings) no taller than 15m are permitted to have a roof deck classified as Euroclass B-s3, D2 or worse (combustible). However, to comply with Approved Document Part B, additional fire stopping will be required underneath the roof deck. Because of the reduced resilience to fire, thermoplastic insulation materials (XPS, EPS) can only be used within the 1500mm zone on either side, and over the compartment wall when the deck is rated class A2-s3, D2 or better (non-combustible) to BS EN 13501-1. 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.</p> <p>Note: Proposed specification and design will be subject to LABC (Local Authority Building Control) or assigned AI (Approved Inspector) approval before works can commence on-site. Where appropriate, Langley Waterproofing can offer support and guidance to assist application.</p>				
1.9	<p>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 structure 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.</p>				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.10	Electronic Roof Integrity Test & Root Protection (Compulsory For Buried Systems) - Disclaimer: Should the roof waterproofing system receive any subsequent coverings such as an inverted roof system, living roof system, paving slabs, ballast, decking, or similar, an electronic leak detection (ELD) test must be carried out by a qualified expert to confirm the waterproofing system integrity. You must also ensure an ELD is completed if the roof will receive a PV panel installation. You must ensure a record of this ELD test, and any repairs completed, is shared with Langley. Where appropriate, a root resistant membrane must be installed to protect the Langley waterproofing system from root penetration.				
1.11	Fire Risk - Langley PU System: This specification has been formulated on the basis that minimal hot works are required. Should the contractor/installer have 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. 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.				
1.12	Incomplete Survey - No Core Samples Taken: Due to site conditions and/or existing system, no core samples have been undertaken by Langley and therefore aspects of this specification have been based on assumptions. Before ordering any materials, Langley are required to visit site to confirm the suitability of this specification. Should any changes then be deemed necessary, either to materials and/or scope of works, any liability for costs due to these changes cannot be accepted by Langley Waterproofing. At this point, if any required changes to the scope of works are not possible, it may have implications for the guarantee, including exclusions where necessary.				
1.13	Fire Risk - Drying Out: In the event of the roof being/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.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
1.14	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.				
2	SCOPE OF APPLICATION				
2.1	Overlay of Existing Felt: This specification is based on the overlay of an existing, prepared felt waterproofing system.				
2.2	Deck and Substrates - Existing BUR on Un-screeded Concrete: This specification is suitable for application to a substrate of an existing prepared BUR felt system on an un-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.				
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 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.				
3.2	General Substrate Preparation: All substrates must be: clean, dry, free of oil, grease, curing compounds, release agents, laitance, gross irregularities, loose, unsound or foreign material including, but not limited to, paint, moss, algae growth, dirt, ice, snow, water or any other condition that would be detrimental to adhesion of the proposed waterproofing system. All substrates should have adhesion tests* undertaken to determine if additional substrate preparation is required. Please contact Langley Technical if assistance is required. * Please contact the Langley technical team to arrange for Langley to conduct the adhesion test if substrate is single-ply or a direct application to a metal deck.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
3.3	Damp-proof Courses / Cavity Trays - Requirement: 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.				
3.4	Safety Anchor Posts - In Situ: Works to proceed with the existing safety anchor posts/system remaining in situ wherever possible. If this is not practical, or if the safety system requires raising due to the increased height of the proposed waterproofing system, then the system must be temporarily removed and safely stored for reinstallation upon completion and/or replaced where necessary. Contractor to allow for all necessary modifications, fixings and fittings etc. System to comply with BS 795:2012 and all necessary regulations, be tested by a competent person and certified safe upon completion of the works.				
3.5	Lightning Conductor Tapes - Temporarily Remove: 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.				
3.6	Organic Growth - Remove: Neutralise any residual bacterial growth with Langley Biowash. Apply with brush, roller or spray at rate of 6-8m ² per litre. Allow to dry and sweep off any residue. Further washing will not be necessary.				
3.7	Contamination - Remove: Remove any contamination that could impair system adhesion. All affected areas should be swept or power washed. Note: Power Washing (max. 2000 psi) Care must be taken to avoid penetrating the existing waterproofing system through any existing defects. Important note: At no time should surfaces be cleaned with soap detergent as this can leave residue which would impair adhesion.				
3.8	Liquid Coatings - Remove: Remove Liquid coatings where possible. Any coating that cannot be removed must be primed (subject to adhesion tests).				
3.9	Loose Coverings and/or Patch Repairs - Remove: All loose coverings, patch repairs, etc. must be removed and discarded to suitable waste containers.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
3.10	Existing BUR Felt Surface - Preparation: All ridges and blisters in the existing waterproof membranes must be star cut, heated and smoothed out. Seal cut areas with pieces of the specified underlayer, which must extend beyond the damaged area in any direction by a minimum of 100mm. Fully bond by torching to a prepared primed surface.				
3.11	Existing Felt Details - Remove/Repair: Check integrity of felt upstands, skirtings and details generally. Cut back or repair as appropriate to ensure a sound secure base for the new liquid waterproofing system.				
3.12	Presented Substrate - Clean: Prior to installation of the Langley PU system applicable substrates should be clean and any contamination that could impair system adhesion removed. Any contaminated areas should be swept or power washed as appropriate. Note: Power Washing (max. 2000 psi unless stated differently elsewhere within this specification) - care must be taken to avoid penetrating the substrate or any existing waterproofing system, where present, through cracks/fissures etc. Substrates should be dry prior to installation of proposed waterproofing system.				
3.13	Adhesion Tests - Requirement - General: Applicable to all substrates excluding Single Ply and Metal Decks; these are detailed elsewhere. Test Areas: Minimum 300x300mm. Clean, remove all dust and contamination. Prime with Langley PU Porous Surface Primer or Langley PU Metal Primer, as applicable to substrate, and allow to dry. The contractor must document and record the identified test areas after applying the base coat. The embedment coat must be allowed to fully cure for the correct period of time as detailed elsewhere within this specification (please refer to fixing instructions) prior to the adhesion test being undertaken. Should the adhesion tests fail then the contractor must notify Langley Waterproofing Systems Ltd immediately upon their findings so that alternative measures can be agreed before the main works commence.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
3.14	Priming - Main Surface Substrates and Details: A test area should be undertaken to confirm adhesion requirements prior to full application. If deemed necessary by adhesion tests then prime main surface & detail substrates with Langley PU Porous Surface Primer as detailed below: Remove all loose surface contamination and clean substrates as necessary prior to application. Thoroughly mix both component parts of primer together in the ratio they are supplied. Langley PU Porous Surface Primer application rate: Approximately 10-m ² /litre. Apply with brush or roller and allow to dry (3 hours). Primer must be over-coated within 48 hours of drying 2 coats may be required for highly porous materials.				
4	WATERPROOFING - COVERINGS				
4.1	Detailing Generally: All skirtings, details, penetrations, etc. to be waterproofed prior to the main area (see Detail Section).				
4.2	Langley Winter Accelerator: <u>If application of waterproofing system is undertaken from September to March or if the ambient temperature falls below 10°C then Langley Winter Accelerator must be added to Langley PU Embedment Coat.</u> Shake 250g pack of Langley Winter Accelerator well, add to 12.5 litres of Langley PU Embedment Coat and stir thoroughly. Refer to fixing instructions for typical curing times				
4.3	Embedment Coat (20yr System): Mix Langley PU Embedment Coat thoroughly to a consistent colour. Apply a continuous and even coat by brush or roller, at the rate of 1.0 litre/m ² . Colour: Red Note: For installation requirements and handling of the Langley PU Embedment Coat please refer to the Fixing Instruction and Guidance sections of this specification.				
4.4	Embedment Coat Reinforcement: Embed Langley PU GFM Reinforcement, with a roller, into the the wet embedment coat. The roller must be fully loaded with embedment coat. Under no circumstances should a dry roller or brush be used. Roll in, leaving no wicks. Ensure coating is forced through the mat removing all trapped air pockets. Allow to dry. Laps in reinforcement mat to be a minimum 50mm. Note: For installation requirements and handling of the Langley GFM Reinforcement please refer to the Fixing Instruction and Guidance sections of this specification.				

Heals Building

No.	Item	Unit	Qty	Rate	Total
4.5	Embedment Coat - Inspect: When the embedment coat is dry, check for wicks. Any that are standing proud must be removed by cutting and sanding down.				
4.6	Reactivation of Embedment Coat - Where Required: Where delays exceed 4 days, prior to the application of the top coat, or if coatings are rained upon for a sustained period of time, then the surface of the embedment coat should be reactivated by lightly applying Langley PU Solvent with a rag or cloth at a rate of 20m ² /litre. If further guidance is needed then Langley Technical should be contacted.				
4.7	Top Coat: Mix thoroughly to a consistent colour. Apply a continuous and even coat by brush or roller, at the rate of 0.75 litres/m ² Colour: Slate Grey (RAL 7015) Note: For installation requirements and handling of the Langley PU Top Coat please refer to the Fixing Instruction and Guidance sections of this specification.				
5	DETAILS				
5.1	Detail Skirtings & Upstands - Requirement: All detail skirtings and upstands must be a minimum of 150mm above the finished horizontal roof surface level, including any paving, ballast, living roof coverings etc. Important Note: If the required height cannot be achieved for any reason, then the details below 150mm will not be covered by the Langley Waterproofing guarantee				
5.2	Detailing General Requirement - Langley PU: Details should be completed prior to main field areas. Waterproofing detail work must follow the same application guidance set out in the above waterproofing section. Details to be fully reinforced with GFM Reinforcement. Note: For installation requirements and handling of the Langley PU Embedment or Top Coats please refer to the Fixing Instruction and Guidance sections of this specification.				
5.3	Penetrations - Safety Anchor Posts: Prime post with Langley PU Metal Primer and allow to dry. Liquid waterproofing membranes must extended up the pipe by a minimum of 150mm above the finished level of the roof surface. Protect finished detail with a suitable weathering collar or a jubilee clip and Gap Seal mastic.				
5.4	Lightning Conductor Tapes: Secure with Langley Lightning Conductor Clips bonded to the surface at max. 1m centres (or as otherwise directed).				

Heals Building

No.	Item	Unit	Qty	Rate	Total
5.5	GRP Watershed Trim: Install ParaTrim Watershed Drip Trim of the appropriate profile for the site conditions. Screw fix at maximum 300mm centres. The full system (including the GFM Reinforcement) to be dressed onto the trim and down the external face. Where required, at abutment junctions, the system must be turned up and to the side abutment, to allow weathering with new horizontal and vertical cover flashings. Note: Exposed costal locations require the use of stainless steel fasteners and securement at more frequent centres maximum 150mm.				
6	COMPLETION				
6.1	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.				
6.2	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.				
6.3	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.				
6.4	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

Langley Biowash

Single component pack, water based fungicidal and biocidal treatment. Approximate Coverage Rates: 6-8 m² Per Litre (30-40 m² per can). Supplied in 5 Litre cans.

Langley PU Porous Surface Primer

Langley PU Porous Surface Primer is a low viscosity, low odour twin pack, moisture-curing polyurethane.

It has been formulated to enhance the adhesion of Langley PU Systems to porous substrates, including felt, asbestos, asphalt, bitumen, fibre cement and concrete.

2 component parts are to be thoroughly mixed at a ratio of 10 parts A (Base Unit) / 1 part B (Activator Unit)

Supplied in 5 litre kits

Approximate Coverage Rates: 10m²/litre (50 m²/kit).

Langley PU Metal Primer

Langley PU Metal Primer is a two-component, low odour high, performance anti-corrosive epoxy primer.

To be used to prime metal substitutes prior and applying Langley PU Embedment coat.

2 component parts are to be mixed at a ratio of 1.75 parts A / 0.75 part B

Supplied in 2.5 litre kits

Approximate Coverage Rates: 7 m²/litre (17.5 m²/kit).

Langley PU Solvent

Solvent for reactivating Langley PU embedment coat Approximate Coverage rate of up to : 20m² per litre (100m² per can). Supplied in 5 litre cans.

Paratene - Self-adhesive AVCL / Carrier Membrane Roll Size: 40m x 1.080m

Cold-applied, self-adhesive glass reinforced bituminous membrane. 0.60mm thick.

Top Face: Polyester coated reinforced aluminium foil.

Underside: Siliconised peel-off film.

Nominal Weight: 0.6 kg/m². 26 kg/roll.

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 350 m² / canister.

Parafoam Ultra Flat Board Insulation

Parafoam Ultra Flat Polyisocyanurate (PIR) roof insulation boards. CFC/HCFC-free with zero ODP. Both

Faces: Perforated mineral coated glass fibre tissue.

Board Size: 1200mm x 600mm. Available Thicknesses: 25mm / 30mm / 40mm / 50mm / 60mm / 70mm / 80mm / 90mm / 100mm / 120mm / 130mm / 140mm / 150mm.

Heals Building

Parafoam Ultra Tapered Insulation

Parafoam Ultra Tapered Polyisocyanurate (PIR) roof insulation boards. CFC/HCFC-free with zero ODP. Both Faces: Perforated mineral coated glass fibre tissue. Board Size: Variable to scheme. Cut-to-falls scheme drawings are supplied by Langley Waterproofing Systems Ltd.

Langley Metal Hard Edge

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

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 (Langley Gap-Seal Mastic supplied separately.

Langley Lightning Conductor Retention Clip

Self-adhesive plastic lightning conductor retention clip. Packaging: 50 No. per carton.

ParaFurb Outlets

Internal rainwater outlet with 500mm x 500mm flexible SBS felt membrane attachment flange.

Spigot Depth as Standard: 400mm.

Available Sizes:

- Drain Diameter 50mm - To suit existing pipe sizes of 59mm-75mm complete with EPDM rubber Ribseal and aluminium turbine leaf guard
- Drain Diameter 62mm - To suit existing pipe sizes of 71mm-88mm complete with EPDM rubber Ribseal and aluminium turbine leaf guard
- Drain Diameter 75mm - To suit existing pipe sizes of 85mm-106mm complete with EPDM rubber Ribseal and aluminium turbine leaf guard
- Drain Diameter 95mm - To suit existing pipe sizes of 103mm-109mm complete with EPDM rubber Ribseal and aluminium turbine leaf guard
- Drain Diameter 145mm - To suit existing pipe sizes of 150mm-198mm complete with EPDM rubber Ribseal and aluminium turbine leaf guard

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

Langley TB62 GRP Termination Bar

Dimensions: 62mm Deep x 3m Length

Available Colours: White - Dove Grey - Charcoal

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.

Code 4 Rolled Lead Sheet

For use as counter flashings. To be sourced directly from a supplier of the contractors choice but must conform to BS EN 12588: 1999.

Mechanical Fasteners and Washers

To be obtained from Fixfast Ltd, Merlin House, Seven Mile Lane, Borough Green, Sevenoaks. Kent TN15 8QY.
Phone: 01732 882 387
Email: sales@fixfast.com

Heals Building

Langley PU Winter Accelerator

Langley PU Accelerator is a catalyst to be used with Langley PU Embedment Coat.

If application of waterproofing system is undertaken from September to March or if the ambient temperature falls below 10°C then Langley Winter Accelerator must be added to Langley PU Embedment Coat.

Pack size: 250g

Store in a cool, dry place (5°C – 25°C) away from ignition sources. Stability – 12 months if unopened.

Langley PU Embedment Coat

Single component pack, cold applied, elastomeric liquid polyurethane coating.

Colour: Red

Supplied in 12.5 litre packs

Approximate Coverage (20 year system): 12.5m² per pack (1 litre/m² application rate)

Langley GFM Reinforcement

An emulsion bonded, random weave 225 g/m² glass fibre mat for use within the Langley PU Systems.

Dimensions: Roll 0.95x52.7m.

Nominal Weight: Approximately 11.25kg per roll.

Langley PU Top Coat

Single component pack, cold applied, elastomeric liquid polyurethane coating.

Colour: Slate Grey (RAL 7015)

Supplied in 12.5 litre packs

Approximate Coverage: 16.6 m² per pack (0.75 litres/m²)

ParaTrim GRP Watershed Drip Trim

Available Profiles;

PA50 (50mm) Deep Face x (90mm) Fixing Arm

PF55-TECO (55mm) Deep Face x (60mm) Fixing Arm

PF82-TECO (82mm) Deep Face x (60mm) Fixing Arm

PF107-TECO (107mm) Deep Face x (60mm) Fixing Arm

PF132-TECO (132mm) Deep Face x (60mm) Fixing Arm

All supplied in 3m lengths.

Available Accessories: 240mm x 240mm internal and external 90° pre-formed corners.

Available Colours: Charcoal only.

Pararapide Asphalt Primer

A 2 component, solvent-free resin primer. Colour: White. Approximate coverage rate: 0.50 kg/m² (20 m² per drum).

Packaging. 5 & 10 kg drum.

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 (catalyst sold separately).

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/m² (1.6 m² per 5 kg tin) (3.3 m² per 10 kg drum) (8.3 m² per 25 kg drum).

Packaging. 5 kg tin. 10 kg or 25 kg drums (catalyst sold separately).

Heals Building

Pararapide Sealer - Dark Grey

A two component, solvent-free, PMMA-based, pigmented (RAL 7043), sealing resin.

Approximate coverage rate: On smooth surface – 0.4 kg/m² (20 m²/drum).

On quartz granule finished surface - 0.60 kg/m² (16.6 m² per 10 kg drum).

Packaging. 10 kg drum (catalyst sold separately).

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/m². Colour: White.

Packaging. Roll 0.26 x 50 m (13 m²/roll).

Pararapide Cleaner

An ethyl-acetate cleaning solvent.

Packaging. Canister 10 or 30 litres.

Pararapide De-Bonding Tape

A self-adhesive, multi-purpose, fabric reinforced cloth tape.

Supplied in 50 m rolls: 50 mm or 100 mm wide.

Langley Aluminium Oxide Grit 30 Mesh (Coarse Grit)

For use on access walkways to provide a slip-inhibiting finish.

Application rate 0.5-1 kg/m².

Supplied in 25 kg bags.

Heals Building

Fixing Instructions

Langley Spray-on Primer

Ensure substrates are dry and clean from grease, dirt and other contaminants before applying the primer. Set-up the canister as described in the Set-up & Maintenance Guides. Ensure the canister spray-system is spraying correctly and the spray-pattern is 300mm wide.

Apply 1-2 coats of the primer to the substrate, ensuring an even distribution of primer is achieved.

Allow the solvents to evaporate from the primer layer for a minimum of 20 minutes at 10°C. NB: this time will vary depending on temperature.

Paratene - Self-adhesive AVCL/Carrier Membrane

Cold applied.

Minimum application temperature + 5°C

Substrate surface must be dry and clean from grease, dirt and other contaminants.

All application surfaces, including laps, must be primed with Langley Spray-on (synthetic rubber) Primer.

Note: Bitumen based primer must not be used.

Unroll sheet and position.

Re-roll and remove siliconised release film as sheet is fixed in position.

Apply pressure with a heavy broom or roller.

Details: Take care not to entrap air pockets.

Side and End Laps: 80mm. Apply pressure to lap with a seam roller.

Note: When lifting membrane roll weights in excess of 25kg, a two person or mechanical lift is required.

Langley PU Porous Surface Primer

Storage:

Store in a cool, dry place (5°C - 25°C) indoors, away from ignition sources.

Stability - 12 months unopened.

Surface preparation:

All surfaces to be treated should be clean, sound and dry (<5.5 on protimeter moisture scale).

Free from laitance, dirt and other contaminants.

Treat areas of fungus, lichens and moss with Langley fungicidal wash.

Application:

Thoroughly mix both components together thoroughly at the ratio as supplied.

Apply with a brush or roller to the pre-cleaned substrate.

Two coats may be required for highly porous materials.

It is always recommended that a test area is done to confirm good adhesion before full application.

Application Temperature:

Check ambient and substrate temperature prior to application.

Typical working temperature range 5°C - 35°C

Coats:

Once dry, subsequent coat/s must be applied within 48 hours.

Coverage:

10 - 12 m²/litre

Curing time:

Substrate Temperature	Touch Dry	Fully Cured	Overcoating	
			Min	Max
20°C	2 hours	3 hours	3 hours	48 hours

Heals Building

Langley PU Metal Primer

Storage:

Store in a cool, dry place (5°C - 25°C) indoors, away from ignition sources.

Stability - 12 months unopened.

Surface preparation:

Clean metal to ST2 standard for manual cleaning and wash down to ensure loose contamination is removed.

Ensure all loose rust and dirt are removed before application.

Application:

Mix both components together thoroughly in the ratio they have been supplied.

Apply with a brush, roller or spray to the pre-cleaned and prepared metal surface.

It is always recommended that a test area is done to confirm good adhesion before full application

Application Temperature:

Check ambient and substrate temperature prior to application.

Typical working temperature range 5°C - 35°C

Coats:

Once dry, subsequent coat/s must be applied within 48 hours.

Coverage:

7 m²/litre

Curing time:

Substrate Temperature	Touch Dry	Fully Cured	Overcoating	
			Min	Max
20°C	8-16 hours	24 hours	24 hours	28 days

Heals Building

Liquid Coatings - Langley PU - 20 Year System

Storage:

Langley PU must be stored in a cool dry place between 5°C - 25°C at all times.

Avoid unnecessary opening of containers.

Keep away from any ignition source.

Application temperature:

Check ambient and substrate temperature prior to application.

Ambient temperature: 5°C-30°C

Substrate temperature: 5°C-35°C

Material: 5°C-30°C

Cure time:

Touch dry: 4 hours

Fully cured: 24 hours

Cure time between subsequent coats of Langley PU: Min 24 hours, Max 4 days

Times stated are for a substrate temperature of 20°C

Important note: Between September and March, or if the ambient temperature falls below 10°C, please add Langley Winter Accelerator to the Embedment Coat and mix thoroughly before use. If this is not done, predicted cure times will not be achieved.

Substrate Temperature	Touch Dry	Fully Cured	Overcoating	
			Min	Max
20°C no Winter Accelerator	8 hours	Overnight	Overnight	4 days
20°C with Winter Accelerator	2 hours	3 hours	3 hours	4 days
5°C no Winter Accelerator	Overnight	2 – 3 days	2 – 3 days	4 days
5°C with Winter Accelerator	4 – 6 hours	Overnight	Overnight	4 days

Details:

Details to be waterproofed prior to field area

System products & application rates, general notes:

Primer: See primer matrix

Embedment coat: Langley PU Embedment Coat - 1.0 litre/m²

Reinforcement: Langley GFM Reinforcement - 50mm laps between sheets

Top coat: Langley PU Top Coat - 0.75 litres/m²

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: 01732 882 387

Email: sales@fixfast.com

Heals Building

Mechanical Fixings (If/Where Required) - Parafoam Ultra Insulation Attachment

For Metal and Timber Deck Applications: Use Surefast® SF-RS 5.8 carbon steel fasteners and SF Tube Insulation Washers. Fixings must protrude a min 15mm beneath the deck (steel) or 12mm (plywood or timber).

For Concrete Deck Applications: Use Surefast® SF-RS 6.1 carbon steel fasteners and SF Tube Insulation Washers. Fixings must achieve a min 25mm embedment into the deck (subject to pullout testing).

Minimum number of fasteners per board is subject to project specific wind load calculations. However, as an absolute minimum: 4 per 1200mm x 600mm board, min 5 per 1200mm x 1200mm board and min 6 per 1200mm x 2400mm board. The requirement for additional fixings should be assessed in accordance with BS 6399-2: 1997 (Loadings for buildings. Code of practice for wind loads) or BS EN 1991-1.4: 2005 + A1: 2010 (National Annex to Eurocode 1. Actions on structures. General Actions. Wind Actions).

Fasteners at insulation board edges must be located > 50mm and < 150 mm from edges and corners of the board and not overlap board joints. Boards to be close butted with staggered joints.

Important Note: All existing and concrete deck types must undergo pullout testing to establish relevant mechanical performance is achieved. In exceptionally humid conditions (swimming pools, commercial kitchens etc) stainless steel fixing must be used.

For Surefast® fixings, technical assistance for wind load calculations and pullout testing please contact: Fixfast Ltd. Tel. 01732 882 387 sales@fixfast.com.

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 300mm centres in the field area and 200mm centres in exposed perimeter zones of the roof or in compliance with specific 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 20 mm hole.
3. Apply 20mm beads at 300mm centres in the field area and 200mm centres in exposed perimeter zones of the roof or in compliance with specific wind uplift calculations. Beads to be applied in a serpentine pattern.
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.
6. Allow to cure before weatherproofing the insulation board.

Heals Building

ParaFurb 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 EPDM rubber RibSeals:

- 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 150mm.
- Prior to installing outlet, fix in place required system underlay or underlay soaker, 500mm x 500mm.
- Insert EPDM rubber Ribseal onto the end of the spigot. Ensure Ribseal fits tightly and shoulder is in full contact with 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. Secure in position with suitable fixings and washers through the four holes provided. Fully bond the outlet membrane flange to the underlay / soaker. Where applicable, 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.

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 pre-measured 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 50 mm. Roll out, smooth side up, avoiding any folds or wrinkles (the fleece will rapidly saturate with the resin). Use the 250 mm roller (for details use the 100 mm 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.

GFM Reinforcement

Always wear gloves when handling fleece.

Ensure fleece is stored in packaging and kept dry until use.

Apply directly to the wet embedment/base coat.

Side & end laps 50 mm.

Roll out, smooth side up, avoiding any folds or wrinkles (the fleece will rapidly saturate with the resin).

Use the 250 mm roller (for details use the 100 mm roller) or a brush to work the fleece into the liquid, working from the bottom up, to eliminate air bubbles, wrinkles etc.

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.

Heals Building

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.

Langley PU Liquid Applied Membranes - Installation

All Langley PU liquid applied membrane systems are to be installed in accordance with Langley Fixing Instructions.

Leadwork

Flashings and other sheet leadwork 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. Any damp-proof courses that are covered by Langley waterproofing membranes or roof coverings are done so purely at client risk and will not be covered by the Langley Guarantee. 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.

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.

Heals Building

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.

Langley PU Liquid Applied Membranes - Storage

All Langley PU liquid applied membrane products **must be** stored under cover, upright at between +5° to +25°C at all times.

If stored outside of this temperature range, then the liquids **must be** stabilised for a minimum 24 hours at between +5° to +25°C before use.

Langley Insulation Products - Storage

All insulation materials **must be** 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.