Specification Document

Project: 17871

Project Name: Warren Cottage - Revision 1

Project Address: Warren Cottage
Thetford
IP26 5ET

Client:

Client Details: Hamson Barron Smith

Specification written by:

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Table of Contents

Roofing Specification

Roof areas covered by this specification: Porch Roof, Lean-to Roof.

Outline Description

This specification has been produced for Hamson Barron Smith for the express use in the refurbishment 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.

DETAILED SPECIFICATION : 1

Porch Roof

No.	Item	Unit	Qty	Rate	Total
1.00	**SPECIFICATION REQUIREMENTS**				
1.01	**Guarantee:** The following 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 ***15 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, and the guarantee is further subject to the Langley Roof Maintenance Schedule being adhered to. The eligibility of proposed roofing contractors should be confirmed with Langley Waterproofing Systems Ltd, Tel: 01327 704778 prior to inviting tenders.				
1.02	**Projects Under CDM:** In relation to this project, under Construction (Design and Management) Regulations 2015 (CDM 2015), it is the responsibility of the client / contractor to appoint any, or all, relevant "CDM duty-holders".				
1.03	**Design Note:** This specification is based on a cold roof construction with no thermal insulation above the structural deck.				
1.04	**Design Note - Changes & Adjustments:** **Variations 'A' (general):** Any variations must be agreed in writing by both the client 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.				
1.05	**Information Supplied by Others - No Survey Undertaken:** This specification is based on information supplied by others and no site/roof survey has been undertaken by Langley. Before ordering any materials, Langley are required to visit site to confirm the suitability of the 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 Systems Ltd. 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.				

No.	Item	Unit	Qty	Rate	Total
1.06	**Fire Risk - No Survey Undertaken:** This specification has been formulated based on information received only. The roof areas contained within this specification have not been accessed or surveyed by Langley Waterproofing Systems Ltd and therefore no fire risk assessment has been undertaken. Should the contractor / installer have any reservations about any aspect of the specification proposal, or if during the course of the works any unforeseen items are discovered that present an actual or potential fire risk, they should contact Langley Waterproofing Systems Ltd immediately so that safer methods can be agreed and implemented which do not compromise the integrity of the specification and or its guarantees.				
1.07	**Risk Assessment – Fire – Installing Contractor:** In line with their own Risk Assessment and Method Statement, the installing contractor is to identify any areas where a torch applied system is deemed too great a risk. This matter should be raised at the pre-start / pre-commencement meeting or stated in writing to Langley in order that an alternative flame free method can be adopted and specified.				
1.08	**Langley Detailed Drawings:** This specification is to be read in conjunction with detailed drawings issued and supplied by Langley Waterproofing Systems Ltd. Should the contractor at any point find discrepancies between the issued specification and issued drawings, it is required that the specification takes precedence in all cases, unless otherwise notified and approved. No additional costs or liability arising from failure to follow specification or notifying Langley Waterproofing Systems Ltd of any discrepancies found in good time prior to commencement of works will be considered.				
1.09	**Guarantee Requirement - Torch-on Membranes:** Applicable to all layers. A 5-10mm bead of bitumen must be exuded from all laps.				
2.00	**SCOPE OF APPLICATION**				
2.01	**Existing Waterproofing System - Removal:** This specification is based on a full strip-up of the existing waterproofing system.				
2.02	**Deck and Substrates - Screeded Concrete:** This specification is suitable for application to a screeded concrete roof deck not exceeding 5° from the horizontal.				
2.03	**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.				
2.04	**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.				

No.	Item	Unit	Qty	Rate	Total
2.05	**Design - Falls:** BS 6229:2003 Code of Practice for flat roofs with continuously supported coverings, should have a minimum finished fall of 1:80. Clause 7.2 Minimum Finished Falls: 1:80 minimum finished fall at any point. It is, however, good practice to work to 1:60.				
3.00	**PREPARATION**				
3.01	**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.				
3.02	**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.				
3.03	**Deck / Substrate - Major Exposed Defects:** Investigate any structural defects or cracks found in the deck / substrate upon exposure and immediately inform Langley Waterproofing Systems Ltd and / or the Client CA of findings for further instruction before proceeding to install the new waterproofing system. Any arisings from failing to report defects will not be considered.				
3.04	**Deck / Substrate - Minor Movement Joints / Fractures:** Loose cover with minimum 100mm wide strips of vapour control or underlay membrane. Membrane strip to be butt jointed at strip ends and at perpendicular intersections.				
3.05	**Drip Battens - New:** Install new 25mm x 50mm treated timber battens. Screw fix at max. 300mm centres.				
3.06	**Damp-proof Courses / Cavity Trays - Raise:** Where tops of new skirtings will be above the line of the existing, new damp-proof courses or cavity trays must be installed at a higher level. Please refer to previous requirement note within this specification.				
3.07	**Perimeter Check Kerbs - New:** Install new timber check kerbs. The contractor must ensure that a 50mm minimum height is achieved above the finished level of the new roofing system.				
3.08	**Redundant Chases - Make Good:** Rake out and prepare any redundant chase lines. In-fill with sand and cement mortar, flush with wall face.				

No.	Item	Unit	Qty	Rate	Total
3.09	**Upstands to Brickwork - New Chase:** In preparation of a new secondary 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.				
3.10	**Priming - Exposed Timber:** All deck and detail substrate surfaces. Prime with Langley Spray-on (synthetic rubber) Primer and allow to dry.				
3.11	**Priming Deck & Detail Substrates:** All deck and detail substrate surfaces. Prime with Langley Spray-on (synthetic rubber) Primer and allow to dry.				
4.00	**VAPOUR CONTROL**				
4.01	**Vapour Control Layer - Torch-on:** Install Paradiene S VV SBS elastomeric vapour control membrane. Top Face: Continuous fusible film. Underside: Macro perforated fusible film. Fully bond to prepared surface by torch-on method. Side and end laps to overlap by a minimum 75mm. **Note:** Fusible film on top surface must be removed by lightly torching prior to fixing insulation boards with PU adhesive.				
4.02	**Vapour Control Layer - Detail Skirtings:** Extend vapour control layer as a separate flashing piece cut from full width of roll to the skirting. Fully bond by torch-on method to a fully prepared surface to a minimum height of 100mm past the finished proposed line of the new insulation level. A minimum of 100mm lap must be achieved to main field return. Side laps to be a minimum of 75mm and must be fully sealed by torch-on method.				
5.00	**INSULATION**				
5.01	**PIR Flat Board Insulation - Required Thickness:** Install Parafoam Ultra 120mm thick Polyisocyanurate (PIR) roof insulation boards. CFC/HCFC-free with zero ODP. Boards to be close butted with staggered joints.				
5.02	**PIR Insulation Boards - PU Attachment:** To prepared surface. Bond Insulation with Lang-Stik Solvent Free PU Adhesive. Surface of substrate must be swept clear of all dirt, debris and loose material, prior to application of the adhesive. Boards to be laid close butted with staggered joints. **Note:** For further information, please refer to 'Fixing Instructions' section of this specification.				
5.03	**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.				

No.	Item	Unit	Qty	Rate	Total
6.00	**WATERPROOFING - UNDERLAYS**				
6.01	**Detail Reinforcing Strip - Requirement in Lieu of Angle Fillets:** Paradiene (35) S R4 detail reinforcing strips must be installed at the base of all upstands prior to subsequent membranes being installed. At a minimum of 250mm width cut from roll, apply 125mm to the horizontal and 125mm to vertical prepared surfaces. Fully bond by torch-on method.				
6.02	**Underlay - Self-Adhesive:** Adepar JS VV glass fibre reinforced, SBS elastomeric bitumen membrane. Top Face: fusible film. Underside: sanded between self-adhesive strips with siliconised peel-off film over self-adhesive selvedge. Fixing: by means of factory-applied self-adhesive strips. Perimeters and Openings: 500mm wide, fully bond by torching. Side Lap: 80mm determined by selvedge. End Lap: minimum 120mm. **Note**: The siliconised film is not fusible. Fixing Method: See Fixing Instructions.				
6.03	**Underlay to Outlet Sumps & Internal / Integral Gutters:** Paradiene 35 SR4 underlay (fully bonded) must be used (detailed elsewhere). Extend onto main field area by minimum 150mm.				
6.04	**Underlay - Upstands & Skirtings:** To be formed separately using Paradiene (35) S R4 underlay, cut from the width of the roll and torch applied fully bonded to base membrane by a minimum of 100mm. Both surfaces being bonded are heated with a required bead (5-10mm) of bitumen to be extruded from all head and side laps.				
7.00	**WATERPROOFING – CAP SHEETS**				
7.01	**Cap Sheet - Torch-on:** Install Elastoflex GS cap sheet. Elastoflex GS is a torch-on polyester-reinforced, SBS-modified elastomeric bitumen membrane. The surface has a Dark Grey granulated surface with a grooved thermofusible film underside. Lay: Fully bonded by torching with 90mm minimum side lap width as determined by the selvedge. Minimum end laps must be 150mm. This layer is to be laid parallel to the under layer, breaking joints by at least 300mm. Both surfaces being bonded must be heated and a bead of bitumen exuded from all laps.				
8.00	**DETAILS**				
8.01	**Detail Perimeter Kerbs - Requirement:** All detail perimeter kerbs must be a minimum of 50mm above the finished roof surface level.				

No.	Item	Unit	Qty	Rate	Total
8.02	**Cap Sheet - General Detailing:** Detail flashings to be formed separately using Elastoflex GS Cap Sheet cut from width of roll in matching colour to main field membrane. Fully bonded by torching to the underlayer base membrane. Both surfaces being bonded are heated and a required bead of 5-10mm of bitumen is to be extruded from all head and side laps. Cap sheet detail must extend to a minimum of 150mm onto the main field area. Upstand heights must be a minimum of 150mm above the finished roof level. **Note:** Any subsequent specification notes, unless otherwise specified must be executed using Elastoflex GS cap sheet membrane.				
8.03	**Underlay Details – Outlet Sumps:** Install Paradiene (35) S R4. To extend onto main field area by minimum 150mm in all directions. Fully bond to substrate.				
8.04	**Counter Flashing - ParaFlash B3:** Install and protect detail abutment skirtings with ParaFlash B3 lead-free counter flashings 150mm wide. Dress into prepared chase 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 by torching or with Langley Lap Adhesive.				
8.05	**Kerbs - Welted Drip:** Base layer and detail cap sheet layer of new waterproofing system must be carried up the vertical inner face and across the top of the kerb detail which must be, in all cases, fully supported. Welted Drips to be formed from detailing cap sheet (detailed elsewhere).				
8.06	**Perimeter Edge - Welted Drip:** At the perimeter edge, install new 25mm x 50mm treated timber drip battens. Screw fix at a maximum of 300mm centres. Welted Drips to be formed from detailing cap sheet (detailed elsewhere).				
8.07	**Welted Drips:** Form from detailing cap sheet membrane cut from the width of the roll. Form over 6mm exterior grade plywood (or alternatively 3mm hardboard) formers, mechanically fixed at 150mm centres to new treated timber drip battens. Fixings to be large headed galvanised clout nails set at 50mm centres, staggered vertically between 20-30mm. These must penetrate the drip batten by minimum 15mm. Membrane surfaces must be heated and a 5-10mm bead of bitumen must be extruded from all laps. 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:** Hardboard formers must be primed and allowed to dry prior to forming the drip detail.				
9.00	**COMPLETION**				
9.01	**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.				

No.	Item	Unit	Qty	Rate	Total
9.02	**Arisings from Works:** Remove from site all arisings for return to contractor storage or safe disposal.				

DETAILED SPECIFICATION : 2

Lean-to Roof

No.	Item	Unit	Qty	Rate	Total
1.00	**SPECIFICATION REQUIREMENTS**				
1.01	**Guarantee:** The following 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 ***15 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, and the guarantee is further subject to the Langley Roof Maintenance Schedule being adhered to. The eligibility of proposed roofing contractors should be confirmed with Langley Waterproofing Systems Ltd, Tel: 01327 704778 prior to inviting tenders.				
1.02	**Design Note:** This specification is based on a warm roof construction. The principal thermal insulation is above the structural deck.				
1.03	**Falls - New or Existing Deck:** The new system will follow the falls of the roof deck as presented to or provided by the roofing contractor. It must be expected that any or all deviations present within the deck will be replicated through to the new waterproofing system being installed. As a result, some areas of standing water may occur. Please note that neither ice, snow or ponding water will have an adverse effect 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.				
1.04	**Design Note - Changes & Adjustments:** **Variations 'A' (general):** Any variations must be agreed in writing by both the client 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.				

No.	Item	Unit	Qty	Rate	Total
1.05	**Roof Structure - Disclaimer:** It is deemed the responsibility of the Client Representative, Contractor and / or Property Owner to give due consideration towards the ability of the existing roof deck accepting any additional loadings imposed by the application of the new waterproofing system proposed within this specification. Langley Waterproofing Systems Ltd will not be held responsible or accept any liability or associated costs should structural defects or structural failure occur.				
1.06	**Information Supplied By Others - No Survey Undertaken:** This specification is based on information supplied by others and no site/roof survey has been undertaken by Langley. Before ordering any materials, Langley are required to visit site to confirm the suitability of the 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 Systems Ltd. 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.				
1.07	**Fire Risk - No Survey Undertaken:** This specification has been formulated based on information received only. The roof areas contained within this specification have not been accessed or surveyed by Langley Waterproofing Systems Ltd and therefore no fire risk assessment has been undertaken. Should the contractor / installer have any reservations about any aspect of the specification proposal, or if during the course of the works any unforeseen items are discovered that present an actual or potential fire risk, they should contact Langley Waterproofing Systems Ltd immediately so that safer methods can be agreed and implemented which do not compromise the integrity of the specification and or its guarantees.				
1.08	**Risk Assessment – Fire – Installing Contractor:** In line with their own Risk Assessment and Method Statement, the installing contractor is to identify any areas where a torch applied system is deemed too great a risk. This matter should be raised at the pre-start / pre-commencement meeting or stated in writing to Langley in order that an alternative flame free method can be adopted and specified.				
1.09	**Langley Detailed Drawings:** This specification is to be read in conjunction with detailed drawings issued and supplied by Langley Waterproofing Systems Ltd. Should the contractor at any point find discrepancies between the issued specification and issued drawings, it is required that the specification takes precedence in all cases, unless otherwise notified and approved. No additional costs or liability arising from failure to follow specification or notifying Langley Waterproofing Systems Ltd of any discrepancies found in good time prior to commencement of works will be considered.				
1.10	**Guarantee Requirement - Torch-on Membranes:** Applicable to all layers. A 5-10mm bead of bitumen must be exuded from all laps.				

No.	Item	Unit	Qty	Rate	Total
2.00	**SCOPE OF APPLICATION**				
2.01	**Existing Waterproofing System - Removal:** This specification is based on a full strip-up of the existing waterproofing system.				
2.02	**Deck and Substrates - Screeded Concrete:** This specification is suitable for application to a screeded concrete roof deck not exceeding 5° from the horizontal.				
2.03	**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.				
2.04	**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.				
2.05	**U-value - Flat Board Insulation:** The Parafoam Ultra Flat Board Insulation included in this specification will achieve an overall U-value of 0.18 W/m²K.				
2.06	**Design - Falls:** BS 6229:2003 Code of Practice for flat roofs with continuously supported coverings, should have a minimum finished fall of 1:80. Clause 7.2 Minimum Finished Falls: 1:80 minimum finished fall at any point. It is, however, good practice to work to 1:60.				
3.00	**PREPARATION**				
3.01	**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.				
3.02	**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.				

No.	Item	Unit	Qty	Rate	Total
3.03	**Existing Outlets - Refurbish with ParaFurb Outlets:** Make ready to accept new ParaFurb Refurbishment Outlets (detailed elsewhere). Cut back and remove sufficient existing waterproofing from around the outlets and as required from the surrounding area to allow for correct installation. **Important Note:** ParaFurb Outlets must not be installed to outlet positions that already have an existing refurbishment outlet in place. Prior to ParaFurb Outlets being installed, any existing refurbishment outlets or lead sleeve inserts must first be removed and surrounding substrates made good.				
3.04	**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.				
3.05	**Deck / Substrate - Major Exposed Defects:** Investigate any structural defects or cracks found in the deck / substrate upon exposure and immediately inform Langley Waterproofing Systems Ltd and / or the Client CA of findings for further instruction before proceeding to install the new waterproofing system. Any arisings from failing to report defects will not be considered.				
3.06	**Damp-proof Courses / Cavity Trays - Raise:** Where tops of new skirtings will be above the line of the existing, new damp-proof courses or cavity trays must be installed at a higher level. Please refer to previous requirement note within this specification.				
3.07	**Existing Perimeter Kerbs - Raise:** Raise perimeter check kerbs to accommodate any presented increased height of the new waterproofing system. The contractor must ensure that a 50mm minimum height is achieved above the finished level of the new roofing system.				
3.08	**Raised Drip / Check Kerbs External Faces - Cover:** Where the height of external faces are to be increased, for whatever reason, any exposed timber or voids must be covered with new fascia boards or cladding. This must align with the top of the timber hard edge prior to fixing any drip batten or edge trims. The contractor must liaise with, and seek separate instruction from, the client contract administrator as to the method, type and colour of materials, etc. to cover these external raised 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.				

No.	Item	Unit	Qty	Rate	Total
3.09	**Fascias and Soffits - New uPVC:** Install new uPVC fascias and soffits if required. The contractor must liaise with, and seek separate instruction from the client contract administrator as to the method of fixing, type and colour of materials to be used. 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.				
3.10	**Redundant Chases - Make Good:** Rake out and prepare any redundant chase lines. In-fill with sand and cement mortar, flush with wall face.				
3.11	**Upstands to Brickwork - New Chase:** In preparation of a new secondary 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.				
3.12	**Priming Deck & Detail Substrates:** All deck and detail substrate surfaces. Prime with Langley Spray-on (synthetic rubber) Primer and allow to dry.				
4.00	**VAPOUR CONTROL**				
4.01	**Vapour Control Layer - Torch-on:** Install Paradiene S VV SBS elastomeric vapour control membrane. Top Face: Continuous fusible film. Underside: Macro perforated fusible film. Fully bond to prepared surface by torch-on method. Side and end laps to overlap by a minimum 75mm. **Note:** Fusible film on top surface must be removed by lightly torching prior to fixing insulation boards with PU adhesive.				
4.02	**Vapour Control Layer - Detail Skirtings:** Extend vapour control layer as a separate flashing piece cut from full width of roll to the skirting. Fully bond by torch-on method to a fully prepared surface to a minimum height of 100mm past the finished proposed line of the new insulation level. A minimum of 100mm lap must be achieved to main field return. Side laps to be a minimum of 75mm and must be fully sealed by torch-on method.				
5.00	**INSULATION**				
5.01	**PIR Flat Board Insulation - Required Thickness:** Install Parafoam Ultra 120mm thick Polyisocyanurate (PIR) roof insulation boards. CFC/HCFC-free with zero ODP. Boards to be close butted with staggered joints.				
5.02	**PIR Flat Board Insulation - Sumps to Chute / Scupper Outlets:** Sumps to be a minimum of 500mm x 500mm square around outlet position. Form with Parafoam Ultra 70mm 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.				

No.	Item	Unit	Qty	Rate	Total
5.03	**PIR Insulation Boards - PU Attachment:** To prepared surface. Bond Insulation with Lang-Stik Solvent Free PU Adhesive. Surface of substrate must be swept clear of all dirt, debris and loose material, prior to application of the adhesive. Boards to be laid close butted with staggered joints. **Note:** For further information, please refer to 'Fixing Instructions' section of this specification.				
5.04	**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.				
6.00	**WATERPROOFING - UNDERLAYS**				
6.01	**Detail Reinforcing Strip - Requirement in Lieu of Angle Fillets:** Paradiene (35) S R4 detail reinforcing strips must be installed at the base of all upstands prior to subsequent membranes being installed. At a minimum of 250mm width cut from roll, apply 125mm to the horizontal and 125mm to vertical prepared surfaces. Fully bond by torch-on method.				
6.02	**Underlay to Outlet Sumps & Internal / Integral Gutters:** Paradiene 35 SR4 underlay (fully bonded) must be used (detailed elsewhere). Extend onto main field area by minimum 150mm.				
6.03	**Underlay - Upstands & Skirtings - Single Layer Systems:** To be formed separately using Paradiene (35) S R4 underlay, cut from the width of the roll and torch applied fully bonded to substrate by a minimum of 100mm. Both surfaces being bonded are heated with a required bead (5-10mm) of bitumen to be extruded from all head and side laps. Installation Note: This layer must be installed prior to the main area cap sheet.				
7.00	**WATERPROOFING – CAP SHEETS**				
7.01	**Cap Sheet - Self-Adhesive:** Install Thermosolo GS cap sheet. Thermosolo GS is a self-adhesive polyester-reinforced SBS-modified elastomeric bitumen membrane. The surface has a Dark Grey granulated surface. Underside: Self-adhesive strips with thermofusible film. Lay: Partially bond by lightly torching adhesive strips. Laps: Fully bonded by torching allowing for 90mm minimum side laps as determined by the selvedge. Minimum end laps must be 150mm. Note: This membrane must not be used for detail flashing application. Please refer to Details section of this specification for correct cap sheet detail flashing application.				

No.	Item	Unit	Qty	Rate	Total
8.00	**DETAILS**				
8.01	**Cap Sheet - General Detailing:** Detail flashings to be formed separately using Elastoflex GS Cap Sheet cut from width of roll in matching colour to main field membrane. Fully bonded by torching to the underlayer base membrane. Both surfaces being bonded are heated and a required bead of 5-10mm of bitumen is to be extruded from all head and side laps. Cap sheet detail must extend to a minimum of 150mm onto the main field area. Upstand heights must be a minimum of 150mm above the finished roof level. **Note:** Any subsequent specification notes, unless otherwise specified must be executed using Elastoflex GS cap sheet membrane.				
8.02	**Underlay Details – Outlet Sumps:** Install Paradiene (35) S R4. To extend onto main field area by minimum 150mm in all directions. Fully bond to substrate.				
8.03	**Internal Outlets - Refurbidrain Outlets:** ParaFurb Refurbidrain Outlet: Stainless Steel spigot with expanding EPDM rubber seal and SBS membrane flange. Select outlet to suit diameter/s of fall pipes. Fully bond flange membrane to previously installed underlay or soaker by torching. Fully bond cap sheet over and cut hole to suit diameter of pipe. Install leaf guard/grating supplied. Installation to be in accordance with Langley fixing instructions.				
8.04	**Counter Flashing - ParaFlash B3:** Install and protect detail abutment skirtings with ParaFlash B3 lead-free counter flashings 150mm wide. Dress into prepared chase 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 by torching or with Langley Lap Adhesive.				
8.05	**Kerbs - Welted Drip:** Base layer and detail cap sheet layer of new waterproofing system must be carried up the vertical inner face and across the top of the kerb detail which must be, in all cases, fully supported. Welted Drips to be formed from detailing cap sheet (detailed elsewhere).				
8.06	**Welted Drips:** Form from detailing cap sheet membrane cut from the width of the roll. Form over 6mm exterior grade plywood (or alternatively 3mm hardboard) formers, mechanically fixed at 150mm centres to new treated timber drip battens. Fixings to be large headed galvanised clout nails set at 50mm centres, staggered vertically between 20-30mm. These must penetrate the drip batten by minimum 15mm. Membrane surfaces must be heated and a 5-10mm bead of bitumen must be extruded from all laps. 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:** Hardboard formers must be primed and allowed to dry prior to forming the drip detail.				

No.	Item	Unit	Qty	Rate	Total
9.00	**COMPLETION**				
9.01	**Internal Rainwater Outlets - ParaFurb Refurbishment Outlets:** Check for blockages. Clear if necessary and leave in a free-running condition. Ensure bung is tightly secured to form correct pressure seal to pipe/s for applicable units. Ensure all supplied leaf guard / gratings are in place and tightly secured.				
9.02	**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.				
9.03	**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

Paradiene S VV Vapour Control Layer - Roll Size: 10m x 1m:
Glass-reinforced SBS-modified elastomeric bitumen underlay used as a vapour check. Top Face: Continuous fusible film. Underside: Macro-perforated fusible film. Nominal Weight: 33.4kg/roll.

Parafoam Ultra Flat Board Insulation:
Polyisocyanurate (PIR) roof insulation boards. CFC/HCFC-free with zero ODP. Both Faces: Perforated mineral coated glass fibre tissue.
Board Size: 1200mm x 600mm. Available Thicknesses: 25mm / 30mm / 40mm / 50mm / 60mm / 70mm / 80mm / 90mm / 100mm / 120mm / 130mm / 140mm / 150mm.

Langley Metal Hard Edge:
Galvanised Steel Angle. 3m lengths x 50mm x 50mm. Thickness 0.7mm.

Paradiene [35] SR4 Underlayer - Roll Size: 8m x 1m:
Polyester-reinforced, torch-applied SBS-modified elastomeric bitumen underlay. Top Face: Sanded. Underside: Macro-perforated fusible film. Nominal Weight: 37kg/roll.

Adepar JS VV Underlayer - Roll Size: 10m x 1m:
Self-adhesive, partially bonded, glass fibre reinforced, SBS-modified, elastomeric bitumen underlay. Top surface: Macro-perforated fusible film with siliconised peel-off film over self-adhesive selvedge. Underside: Sanded between self-adhesive strips, protected with siliconised peel-off film. Nominal Weight: 27kg/roll.

Elastoflex GS (30 - Dark Grey) Cap Sheet - Roll Size: 8m x 1m:
Polyester-reinforced, SBS-modified, elastomeric bitumen cap sheet with granule surface finish. Colour: Dark Grey. Selvedge: Nominal 90mm with fusible film. Underside: Grooved with continuous fusible film. Nominal Weight: 47.7kg/roll.

Thermosolo GS (30 - Dark Grey) Cap Sheet - Roll Size: 7m x 1m:
Single layer cap sheet, self-adhesive, partially-bonded, polyester reinforced, SBS-modified, elastomeric bitumen membrane with granule surface finish. Colour: Dark Grey. Nominal Selvedge: 90mm wide. Underside: Sanded between adhesive strips with a fusible film. Nominal Weight: 45.2kg/roll.

ParaFlash B3:
Non-lead Flashing System. SBS elastomeric bitumen reinforced with a core of flattened, expanded aluminium mesh. Top Face: charcoal coloured granules. Underside: polypropylene film. Roll Size: 12m (length) x 150mm (width). Nominal Thickness: 3.5mm. Nominal Weight per Roll: 7.2Kg. Nominal Weight per m²: 4Kg. Each roll is supplied with 25 No. stainless steel chase retaining clips. Chase mastic sealant and lap adhesive are supplied separately.

LangStik SF Insulation PU Adhesive:
Single component moisture curing solvent free polyurethane adhesive. Packaging: 6.5kg can. Nominal Coverage: 35m²/can.

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

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

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

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

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

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

Clout Nails - Extra Large Headed:
Minimum 20mm long galvanised steel to BS 1202: Part 1. To be sourced direct from supplier.

Clout Nails - Extra Large Headed:
Minimum 25mm long galvanised steel to BS 1202: Part 1. To be sourced direct from supplier.

FIXING INSTRUCTIONS

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

Membranes Generally:
Lay in direction of fall parallel to the preceding layer, breaking joints by at least 300mm. End laps, stagger by a minimum 300mm. Both surfaces being bonded must be heated and a 5mm-10mm bead of bitumen exuded from all laps.

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

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

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

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

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

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

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

Veral Bitumen Membranes:
When fixing metal-faced membranes by torching, it is important to ensure that heat is not applied directly to the metal facing. All temporary folding during application must be avoided. Overlaps are to be carefully pressed down with a damp cloth immediately after application. Exercise special care when handling metal-faced Veral to ensure that roll ends are not damaged in any way. Store on selvedge end to avoid damage to facing and store away from any sources of heat.

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

Mechanical Fixings - Insulation Attachment:
For Metal Deck Applications: Use Global type BS 4.8 stainless steel fasteners. Fixings must protrude 15mm beneath the deck.
For Timber Deck Applications: Use Global type BS 5.2 stainless steel fasteners. Fixings must protrude 15mm beneath the deck.

Note: In all cases, a minimum pull-out test must achieve a pull-out force of not less than 1.2 k.

Bonding Insulation with LangStik SF PU Adhesive:
Substrate to be swept clear of all dirt, debris and loose material, prior to application of adhesive. Apply 15-20mm beads of Lang-Stik Self Adhesive PU Adhesive to the vapour control layer or designated substrate in a serpentine pattern approximately 400mm apart. Set board into the beads within 10-15 minutes and immediately walk-in the board to spread the beads for maximum contact. Repeat ‘walking-in’ every 5-7 minutes, until the board is firmly attached. General Notes: Once opened, contents of can must be used. Do not re-seal.

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

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

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

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

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

Exposed Substrates - General Requirement:
All structural deck types and detail substrates must be kept dry at all times during the construction phase.

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

Cold Roof Construction - Ventilation:
The roof voids in cold roof constructions must be ventilated in accordance with BS 6229: 2003 and BS 5250: 2002.

Hybrid Roof Construction:
In hybrid roof constructions, consideration must be given to ensuring that adequate condensation control is achieved in accordance with BS 6229: 2003 and BS 5250: 2002.

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

GENERAL GUIDANCE AND REQUIREMENTS

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

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

Ventilation - Cold Roof Construction:
Roof voids in cold roof constructions must be ventilated in accordance with BS 6229: 2003 and BS 5250: 2002.

Hybrid Roof Constructions:
Consideration should be given to ensuring that adequate condensation control is achieved in accordance with BS 6229: 2003 and BS 5250: 2002.

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

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

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

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

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

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

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

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

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

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

Langley Insulation Products - Storage:
All insulation materials ***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.

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

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

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

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

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

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

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

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

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