Report Document

Project: 43163

Project Name: Regina Road 58-108a

Project Address: Regina Road
London
SE25 4TT

Client:

Client Details: Ridge & Partners LLP

Report written by:

Author Address: Freddie Ruby
Langley Waterproofing Systems Limited
Langley House
Lamport Drive
Heartlands Business Park
Daventry
Northants
NN11 8YH

Telephone: 01327 708990

Mobile: 07880 230318

Email: f.ruby@langley.co.uk

Roof Survey Report & Recommendations

Roof area covered by this report: Existing Main Roof , Profiled Metal Extension Roof

1. Outline Description

This report has been produced for Ridge & Partners LLP for the express use in the refurbishment of the designated roof areas of the property stated above. It is based on our site inspection of Regina Road, London, SE25 4TT and should be read in conjunction with the enclosed photographs.

2. Scope of Report

This report is not a structural survey.

Any comments on roof structure or other building related issues in this report should not be taken to imply that its integrity has been assessed or deemed acceptable. A qualified party should verify any concerns relating to the integrity and/or capabilities of any part of the structure.

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

Listed Building Status: It is the responsibility of the building surveyor and/or client to ascertain the status of the building/s in question.

3. Roofs

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

3.1. Existing Main Roof

Existing Construction

Core Sample 01 Low - Core Sample analysis revealed a moisture reading of 41.4%. Protimeter used to measure / confirm presence of moisture within existing insulation board.

- **Deck - Unscreeded Concrete**
- **Air and Vapour Control Layer - Bituminous**
- **Insulation - Expanded Polystyrene**
  Thickness: 50 mm
  State: Wet
- **Insulation - Fibreboard**
  Thickness: 20 mm
  State: Wet
- **Waterproofing - Built Up Felt**

Photographic Record

Core Sample 02 High

- **Deck - Unscreeded Concrete**
- **Air and Vapour Control Layer - Bituminous**
- **Insulation - Expanded Polystyrene**
  Thickness: 190 mm
- **Insulation - Fibreboard**
  Thickness: 20 mm
- **Waterproofing - Built Up Felt**

Photographic Record

Thermal Properties

- Langley U-value calculations are carried out in accordance with BS EN ISO 6946: 2007. Condensation calculations performed in accordance with BS5250.
- Building Regulations – Approved Document L1B Conservation of fuel and power in existing buildings: requires that (when re-roofing), the existing roof construction must achieve the threshold U-value of 0.35 W/m²K or better. If the threshold value is not achieved then the roof must be thermally upgraded to meet the current required maximum U-value of 0.18 W/m²K.
- The current U-value of the main roof is circa 5.08W/m²K which falls well outside the threshold U-value of 0.35 W/m²K and should be considered extremely poor. This area will therefore require thermally upgrading upon refurbishment.

Roof Defects and Design Considerations

- **Main Area**
  Details: Existing RBM System to original roof area. Additional works carried out means this roof is now deemed an internal space since the installation of steel structure extension.
  Defects: Liquid repairs have been carried out in various locations. Evidence of ingress from above can be seen on the ceiling in the communal areas.
- **Drainage/Falls**
  Details: Internal outlet and downpipe from higher roof level.
- **Lift/Tank**
  Details: Underside of woodwool deck to tank room.
- **Skirtings**
  Details: Upstand to lift and tank rooms.
  Defects: No cover flashings present, and liquid repairs have been carried out in defective areas. It is likely that rainwater is leaking from above and breaching the system in these areas.
- **Penetrations**
  Details: Flue, running down the outside of the existing building, is encapsulated by metal cladding.
- **Cills**
  Details: Door threshold to tank room.
- **Handrails**
  Details: Access ladder to higher roof level via hatch.

Photographic Record

Main Roof Area - Description

Image of main field area.

Main Roof Area - Defects and Design Notes

Areas of ponding water identified despite the profiled metal sheeting above.

Liquid repairs have also been carried out in this location.

Main Roof Area - Description

Entrance gate and railings provide access the original roof area.

Main Roof Area - Defects and Design Notes

Bulging and staining can be seen on the ceiling of the communal walkway directly below the original roof system.

Main Roof Area - Defects and Design Notes

Damage the ceiling suggests a history of ingress from the failing waterproofing above. Water in close proximity to light fitting is a potential health & safety hazard

Drainage Falls - Description

Downpipes from the higher roof level discharge into internal outlets.

No leaf guards present. Debris and animal carcass can be seen blocking the outlet.

Lift Tank Notes - Description

Underside of woodwool deck to tank and lift motor room. If woodwool becomes wet it can disintegrate

Skirtings - Description

Support steel beams are fixed into the original parapet wall structure.

Upstand to steel beam has not been terminated sufficiently to create a robust detail.

Liquid skirting installed should be 150mm above the finished roof level.

Skirtings - Description

Skirting to brickwork upstand of tank and lift motor rooms.

Minimal cover flashings present leaving the system exposed. Areas of the upstand have received liquid repairs.

Penetrations - Description

Flue, from higher roof level, is fixed to, and runs down, the outside of the existing building, encapsulated by the cladding system.

Penetrations - Description

Image showing the flue penetrate the higher roof level.

Cills - Description

Timber door threshold providing access to tank and lift motor rooms.

Handrails - Description

Fixed ladder and access hatch providing entry to the higher-level profiled metal roof.

3.2. Profiled Metal Extension Roof

Thermal Properties

- No core samples were taken in this area. The full build up of the extension roof can be seen from original roof level, therefore core samples were not required.

Roof Defects and Design Considerations

- **Main Area**
  Details: Existing profiled metal system. Structure was installed above existing roof.
- **Drainage/Falls**
  Details: Internal outlets within valley box gutter running through the middle of the roof.
  Defects: Falls within the gutter are inadequate and a build up of ponding water was identified during our survey.
- **Parapets**
  Details: Metal clad parapets with metal cappings.
  Defects: Gaps can be seen in the junctions between each capping. This is leaving the area below exposed to the elements.
- **Penetrations**
  Details: Mansafe posts and vent pipes.
- **Rooflights (Kerb Mounted)**
  Details: Metal framed access hatch.
- **Plant**
  Details: Lightening conductor cables.

Photographic Record

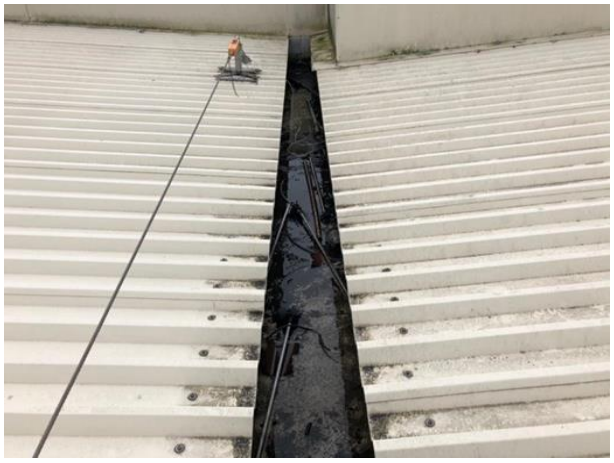
Main Roof Area - Description

Image of main field area with box valley gutters running across the roof in two locations.

Main Roof Area - Description

Additional image of main roof area.

Note – liquid repairs undertaken to parapet wall.



Drainage Falls - Description

Box valley gutter.

Falls within the gutter are inadequate leading to a build up of ponding water.

Drainage Falls - Description

Internal outlet. No leaf guard present.

Parapets - Description

Parapets with metal cappings.

Lightning conductor cables have been fixed to the parapets and profiled metal sheeting.

Penetrations - Description

Mansafe system has been installed to the profiled metal sheeting.

Penetrations - Description

Vent pipes penetrating the profiled metal.

Pipes have received remedial repairs.

Rooflights Kerb - Description

Metal framed access hatch. Access hatch chain has broken away leaving the hatch unstable when in use.

4. Summary

Existing Main Roof

The level of water found in the core samples, along with the noted defects, lead us to the conclusion that the roof is well past its serviceable life. In terms of fire compliance, Part B (fire performance) of the Building Regulations stipulates that the flat roofing system must achieve an AA, AB, AC (BS476-3) or Broof(t4) (EN 13501-5) fire rating to pass across compartmented walls.

The only insulation that is outlawed above compartmented walls is “thermoplastic” insulations such as XPS/EPS as they tend to drip and melt when exposed to fire. PIR is a “thermoset” insulation and will not react in the same way and is perfectly suitable to bridge compartmented walls as per Part B of the Building Regulations.

All our insulated RBM systems achieve Broof(t4) and utilise PIR insulation as an integral part of the system.

Therefore, we recommend that the existing waterproofing system, including Expanded Polystyrene Insulation, is removed back to the original concrete deck and roof area upgraded as per our specification to current regulations.

Profiled Metal Extension Roof

The current roof covering is in reasonable condition, however, there are signs that the roof surface is coming to the end of its serviceable life. There are areas on the roof where liquid repairs have been carried out, suggesting issues relating to ingress, therefore we would recommend that the existing profiled metal sheeting remain in situ and the area be coated with a new cold applied liquid system. Option is subject to CA confirmation.

Key Design Notes

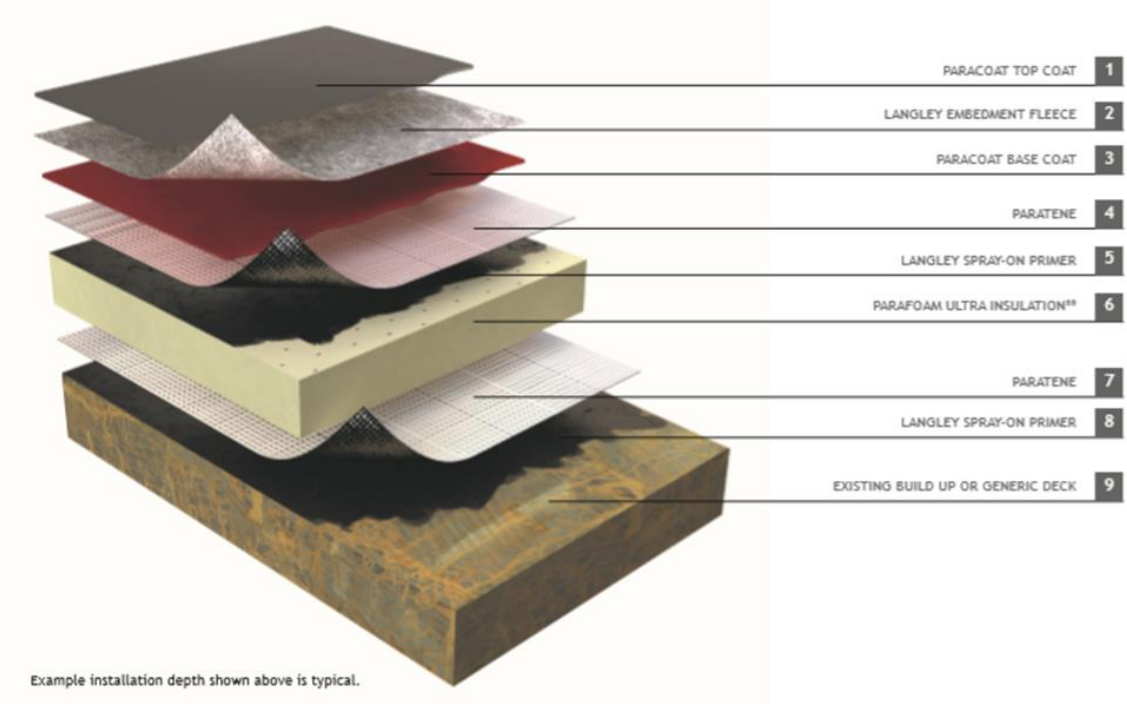
- Door thresholds will require raising to accommodate the proposed insulation. The thresholds are required to be 150mm above the finished roof surface to comply with BS 6229:2019.
- Subject to confirmation of the size and nature of the internal downpipes, the rainwater outlets can be refurbished with a Parafurb unit. This will provide a robust seal at the junction and in the event of blockages or 'backing-up' prevent breaching of the new system.
- Metal Cappings/Cladding are required to be temporary removed and reinstated after the waterproofing system has been installed.
- Tapered insulation is to be installed to increase the falls on the roof to direct the rainwater more efficiently to the outlets.
- Further investigations to be carried out to the profiled metal extension roof to determine its suitability for a liquid overlay subject to CA authorization.

5. Recommendations

Existing Main Roof

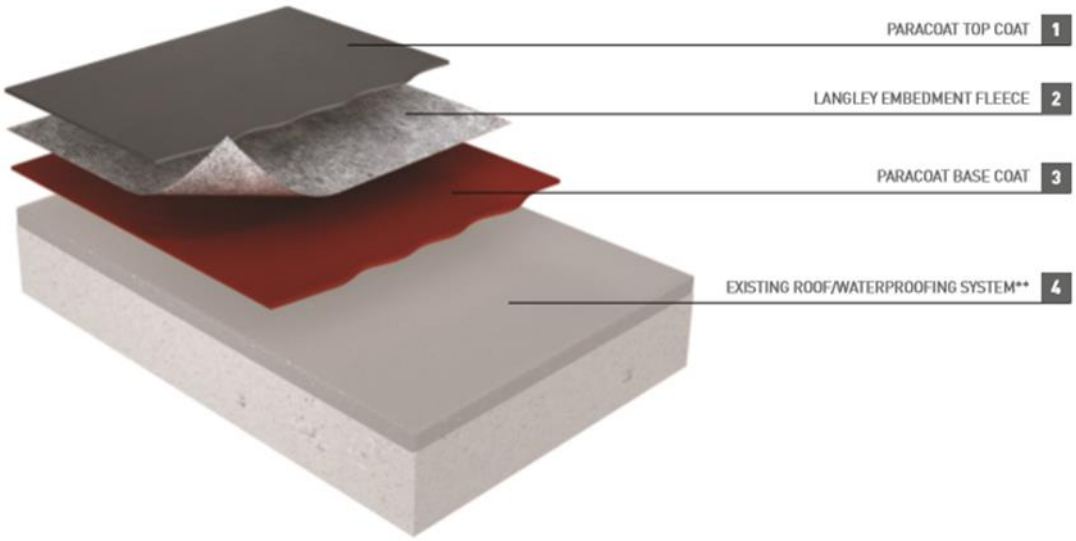
Remove the existing waterproofing system to the original concrete deck, complete the necessary preparatory works and prime.
On completion of the preparatory works, install Langley Waterproofing Systems Ltd, High Performance, Cold Applied Liquid, warm roof system, incorporating cut-to-falls insulation to achieve the average U-value of 0.18 W/m²K required under Part L of current Building Regulations.

PC – 25 – Paracoat Liquid System 25 year insurance backed guarantee.



Profiled Metal Extension Roof

On completion of the preparatory works overlay the existing waterproofing system with our Langley Waterproofing Systems Ltd, High Performance, Cold Applied Liquid, cold roof system.


PARACOAT TOP COAT 1
LANGLEY EMBEDMENT FLEECE 2
PARACOAT BASE COAT 3
EXISTING ROOF/WATERPROOFING SYSTEM** 4

Langley Waterproofing Systems Ltd Guarantee

All the specified systems come with Langley Waterproofing Systems Ltd, unique single premium, independent insurance-backed guarantee. The premium is pre-paid, in full, for the guarantee period stated in the specification and covers the following:

- ✓ **Materials**
- ✓ **Labour**
- ✓ **System Design**
- ✓ **Consequential Loss**

In addition:

- **The guarantee is transferable between building owners**
- **Cover increases in line with an approved construction price index**
- **Each project is covered for the full value of reinstatement of materials including installation**
- **Insurance cover automatically reverts to the building owner should Langley and the roofing contractor fail to rectify defects for whatever reason**

Langley Waterproofing Technical Support

The project/works will also be monitored by a Langley Technical Manager on a weekly basis, who will provide a written report on the progress and any issues arising. This monitoring service is provided to ensure full compliance with the specification and to approve the completed works for guarantee purposes and includes:

- A detailed final inspection highlighting any snagging items.
- A joint 6 or 12 month defects inspection.

Appendices

- Glossary of Terms
- Bibliography

GLOSSARY OF TERMS

A/C units	Air conditioning plant.
ACM	Asbestos Containing Material.
Attachment layer fixed/nailed)	An underlay used to isolate the new system from the substrate (usually mechanically.
Bunding	Internal waterproofing creating a 'tank' to contain potential leaks from water tanks.
BUR	Built-up felt roofing.
Cap sheet	Top layer of a built-up membrane system.
Cat ladder	Fixed (vertical) access ladder.
Cold roof	Roof structure designed with the insulation on the warm side (inside) of the roof deck.
Composite deck	A hybrid structural deck of rigid foam insulation with a factory bonded plywood top.
Cut-to-falls insulation	Insulation boards manufactured with a built-in fall.
Dew point (condensate).	Temperature at which moisture laden air releases the moisture as liquid water.
Free-draining edge	Roof perimeter that allows water to drain over, usually to an external gutter.
Free-standing	Not affixed to or through the structure.
Granule finish	Factory applied protective layer of fine granules to cap sheet.
Hard edge	A timber batten installed at exposed edges of insulation as a support to prevent damage to the insulation.
Hybrid deck	A structural deck that is also an insulant.
Inverted roof	A warm roof structure designed with the insulation placed over the waterproofing system.
LMR	Lift Motor Room.
Mushroom vent	Roof penetration used as a pressure release to the substrate.
OSB	Oriented Strand board.
Partial bonding layer	See venting layer.
Pour & Roll	Method of bonding of bituminous membranes using hot bitumen.
PIR	Rigid polyisocyanurate.
Protected membrane roof	See Inverted Roof.
PUR	Rigid polyurethane.
RWO	Rain water outlet.
Refurbidrain	A purpose made rainwater outlet designed to fit inside an existing outlet.
Sandwich construction	A warm roof configuration, where the insulation is sandwiched between a vapour control layer and the waterproofing.
Scupper	Low level over-flow outlet from a bunded area such as a tank room etc.
Stramit	Trade name for a 'hybrid' supporting deck of compressed straw board.
SVP	Soil vent pipe.
SBS	Styrene-Butadiene-Styrene.
Tapered insulation	Insulation boards manufactured with a built-in fall.
Temperature gradient	The path of temperature change through a (roof) structure from inside to outside, plotted on a graph.
Timber deck	Either close boarding or tongue and grooved boards. (Not panelled material such as plywood, OSB board etc).
Torching	Method of bonding of bituminous membranes using propane gas torches.
Vapour barrier	See Vapour Control Layer. Bituminous membrane designed to prevent the passage of moisture laden air. Usually with an aluminium core.
Vapour check	See Vapour Control Layer. Bituminous membrane designed to restrict the passage of moisture laden air.
Vapour control layer	Underlay used below insulation to control the passage of moisture laden air.
Vapour barrier	See Vapour Control Layer. Bituminous membrane designed to prevent the passage of moisture laden air. Usually with an aluminium core.
Venting layer	Bituminous felt underlay with regular holes at predetermined centres to allow partial bonding of membranes on certain types of substrate.
Underlay	Interim layer of a multi-layer built-up membrane system.
Upside-down roof	See Inverted roof.
WBP	Water and Boil Proof (plywood).
Warm roof	Roof structure designed with the insulation on the cold side (outside) of the roof deck.

Welted drip	Felt membrane edge detail.
Woodwool slab	Hybrid structural deck of cement coated wood shavings.

BIBLIOGRAPHY

The following British and European Standards and Codes of Practice are relevant to the installation of Langley roofing systems and products.

BS 6399 – 1: 1996	Loadings for Buildings. Code of Practice for dead and imposed loads.
BS 6399 - 2: 1997	Loadings for Buildings. Code of Practice for Wind Loads.
BS 8217 : 2005	Code of Practice for Built-up Felt Roofing.
BS EN 636 : 2003	Plywood, specifications.
BS 5268 – 2: 2002	Structural Use of Timber. Code of Practice for Permissible Stress Design, Materials and Workmanship.
BS EN 300 : 1997	Oriented Strand Boards (OSB). Definitions, Classifications and Specifications.
BS 747 : 2000	Reinforced bitumen sheets for roofing.
BS 6229 : 2018	Flat Roofs With Continuously Supported Roof Coverings – Code of Practice.
BS EN 12056 – 3: 2000	Gravity Drainage Systems Inside Buildings – Part 3 : Roof Drainage, layout and calculations.
BS EN 1253 – 1: 1999	Gullies for Buildings – Part 1 : Requirements.
BS 476 – 3 : 2004	Fire tests on building materials and structures. External fire exposure roof test.
BS 5250 : 2002	Code of Practice for the control of condensation in buildings.
BS 5950 – 6: 1995	Structural use of steelwork in buildings. Code of Practice for design of light gauge profiled steel sheeting.
BS EN ISO 6946 : 2007	Building components and building elements – Thermal resistance and thermal transmittance – Calculation method.
BR443:2002	Conventions for U-value calculations.
BS EN 13162: 2001	Thermal insulation products for buildings – Factory made mineral wool (MW) products – Specification.
BS EN 13163: 2001	Thermal insulation products for buildings – Factory made products of expanded polystyrene (EPS) - Specification.
BS EN 13164: 2001	Thermal insulation products for buildings – Factory made products of extruded polystyrene foam (XPS) - Specification.
BS EN 13165: 2001	Thermal insulation products for buildings – Factory made rigid polyurethane foam (PUR) products - Specification.
BS EN 13166: 2001	Thermal insulation products for buildings – Factory made products of phenolic foam (PF) - Specification.
BS EN 13168: 2001	Thermal insulation products for buildings – Factory made products of woodwool (WW) - Specification.
BS EN 13170: 2001	Thermal insulation products for buildings – Factory made products of expanded cork (CB) - Specification.
Approved Document L1A	Conservation of fuel and power in new dwellings 2013 Edition.
Approved Document L1B	Conservation of fuel and power in existing dwellings 2013 Edition.
Approved Document L2A	Conservation of fuel and power in new buildings other than dwellings 2013 Edition.
Approved Document L2B	Conservation of fuel and power in existing buildings other than dwellings 2013 Edition.
British Urethane Foam Manufacturers Association	(BRUFMA) Information Document 1/2001
BS 6651: 1999	Code of Practice for protection of structures against lightning.
BS 3837 – 2: 1990 (2002)	Expanded polystyrene boards. Specification for extruded boards.
BS 3837 – 1: 1986 (2002)	Expanded polystyrene boards. Specification for boards manufactured from expandable beads.
BS 1105: 1981 (1994)	Specification for woodwool cement slabs up to 125mm thick.
BS 8281: 1998	Code of practice for mastic asphalt roofing.
BS EN 795: 1997	Protection against falls from height. Anchor devices. Requirements and testing.