
Report Document

Project: 40204

Parnell House
Camden
London
WC1A 1JB

Client:

Peabody

Report written by:

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Roof Survey Report & Recommendations

Roof areas covered by this report: Roof 1, 2 & Walkways.




[A] - As new, no works required.

[B] - Functional: The waterproofing is performing as intended and should not require any works within 5-10 years.

[C] - Requires attention: The roof is showing signs of failure and budget should be set aside for refurbishment as soon as possible.

[D] - In need of urgent refurbishment: The roof areas should be refurbished or replaced as a matter of urgency.

 - Identified Fire Risk Area.

1.0 Outline Description

This report has been produced for Peabody 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 Parnell House and should be read in conjunction with the enclosed photographs.

Core Samples: These are taken for guidance purposes and indicate the construction only at the sample locations/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.

2.0 Scope

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.

3.0 Existing Construction

3.1 Roof 1 High & Low

- Structural Deck – Concrete
- Waterproofing – Asphalt (30mm approx.)
- Waterproofing – Liquid Overlay

3.2 Roof 2 High & Low

- Structural Deck – Concrete
- VCL – Bituminous Membrane
- Insulation (20mm Approx)
- Waterproofing – Asphalt (30mm approx.)
- Surface Protection – Promenade Tiles

3.3 Stair Roof & Walkways (SR)

- Structural Deck – Concrete
- Waterproofing – Asphalt (30mm approx.)

4.0 Drainage/Falls

4.01 Roof 1, 2, Stair Roof and Walkways

- Falls have been created within the build-up of the roof system.
- Drainage is via internal outlets and chute outlets

5.0 Thermal Properties

U-value calculations are carried out in accordance with BS EN ISO 6946: 2007.

Condensation calculations performed in accordance with BS5250.

5.01 Roof 1

- The calculated (when dry) U-value is 1.50 W/m²K.

5.02 Roof 2

- The calculated (when dry) U-value is 0.90 W/m²K.

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 dry 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.

6.0 Roof Observations and Defects

6.01 Roof 1 & 2

- The existing asphalt covering is failing in multiple areas and has been subject to multiple repairs.
- The roof areas have been subject to a felt and liquid overlays which indicates a history of ingress, there are cracks around the perimeters that have been subject to further repairs.
- There are multiple redundant penetrations that will be contributing to ingress.
- All penetrations have been repaired indicating a history of ingress.
- All upstands to abutments are low lying and will need to be raised to facilitate the roofing works.
- The door threshold is low and should be raised.
- The building is listed so the parapets cannot be encapsulated within the proposed system. Failing pointing and moss growth indicates the parapets require attention.

- Roof 2 has promenade tiles and an access point indicating it is highly trafficked.
- Failing upstands will be allowing ingress to penetrate the system.

6.02 Stair Roof

- There was no safe access to the tank house roofs.
- The structural deck was visible from below and appeared to be concrete.

6.03 Walkways

- The existing asphalt covering is failing in multiple areas and has been subject to multiple repairs.
- The roof areas have been subject to a felt and liquid overlays which indicates a history of ingress; there are cracks around the perimeters that have been subject to further repairs.
- There are multiple redundant penetrations that will be contributing to ingress.
- All penetrations have been repaired indicating a history of ingress.
- Residual rust lines can be seen to the underside of the walkways indicating the metal within has been exposed to ingress.

7.0 Photographic Record



Photograph No. 1

Roof 1 – the original asphalt covering has been overlaid multiple times indicating it is beyond economical repair.



Photograph No. 2

Core sample revealed a concrete deck beneath the asphalt.



Photograph No. 3

Multiple failed repairs indicate a history of ingress.



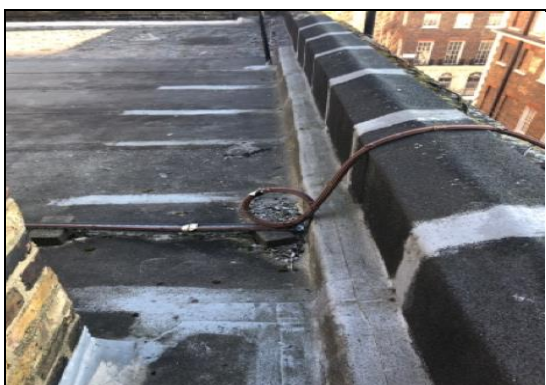
Photograph No. 4

There are multiple penetrations that are redundant, are contributing to ingress and have been repaired.



Photograph No. 5

Failing upstands will be allowing ingress to penetrate the system.



Photograph No. 6

The building has listed status so the parapets cannot be changed aesthetically. The parapets have been subject to multiple repairs and require attention.



Photograph No. 7

Roof 2 – promenade tiles suggest the area is used by the tenants. The asphalt roof covering also has some insulation within the build-up.



Photograph No. 8

Splits have formed in the main roof covering indicating issues within the build-up. Railings will have to be raised to facilitate works.



Photograph No. 9
Trees have taken root in the upstands.



Photograph No. 10
Walkways – the original asphalt covering has been overlaid with a liquid covering indicating a history of ingress.



Photograph No. 11
Plants have taken root in the splits and penetrations of the asphalt.



Photograph No. 12
Ingress can be seen on the lower floors indicating the walkways require attention.



Photograph No. 13

Roof 1 & 2 – significant staining to the walls indicated the roof areas are failing.

8.0 Summary

- Roof 1 is beyond economical repair and requires replacement.
- Roofs 1 & 2 has insufficient insulation and should be upgraded.
- The parapets are showing signs of failure but the building has listed status so they cannot be encapsulated within the proposed system.
- The walkways have failed and ingress / staining can be seen on the lower levels indicating they require re-coating.

9.0 Recommendations

9.01 Roof 1 & 2

- We recommend stripping the existing system back to the asphalt covering and installing a new bituminous membrane system.
- We recommend installing the Langley TA-30-W system including bituminous vapour barrier, flatboard insulation (to achieve the required U-value 0.18 W/²K) with underlay and mineralised cap sheet to achieve a 30-year insurance backed guarantee.
- The system should be continued up the parapet but terminated to the upstand and weathered with Paraflash lead free system.
- All cables and plant should be removed to facilitate works, all redundant plant and penetrations should be identified and removed.
- All upstand details should receive a new chase and terminated with Paraflash and Langley Gapseal. Cavity trays will need to be raised to account for the height of the new system.
- New Parafurb outlets should be installed to the internal outlets to prevent the system flooding in the event the down pipes back up.
- New code 5 lead chutes should be installed.

9.02 Stairwell Roof

- We recommend installing the Langley TA-30-C system including underlay and mineralised cap sheet to achieve a 30-year insurance backed guarantee.
- We recommend stripping the existing system back to the asphalt covering and installing a new bituminous membrane system.
- The system should be terminated into a grp trim to the perimeter where necessary.

9.03 Walkways

- We recommend stripping the existing system back to the asphalt covering and installing a new PMMA fast curing system.
- We recommend installing the Langley PR-15 with slip-inhibiting finish to achieve a 15-year insurance backed guarantee.
- The system should be continued up the parapet but terminated to the upstand and sealed with Langley Gapseal.
- All cables and plant should be removed to facilitate works, all redundant plant and penetrations should be identified and removed.
- The system should be sealed to the existing outlets.
- The system should be terminated to the underside of the door thresholds.

10.0 Flame-free Zones – Identified Risk Areas

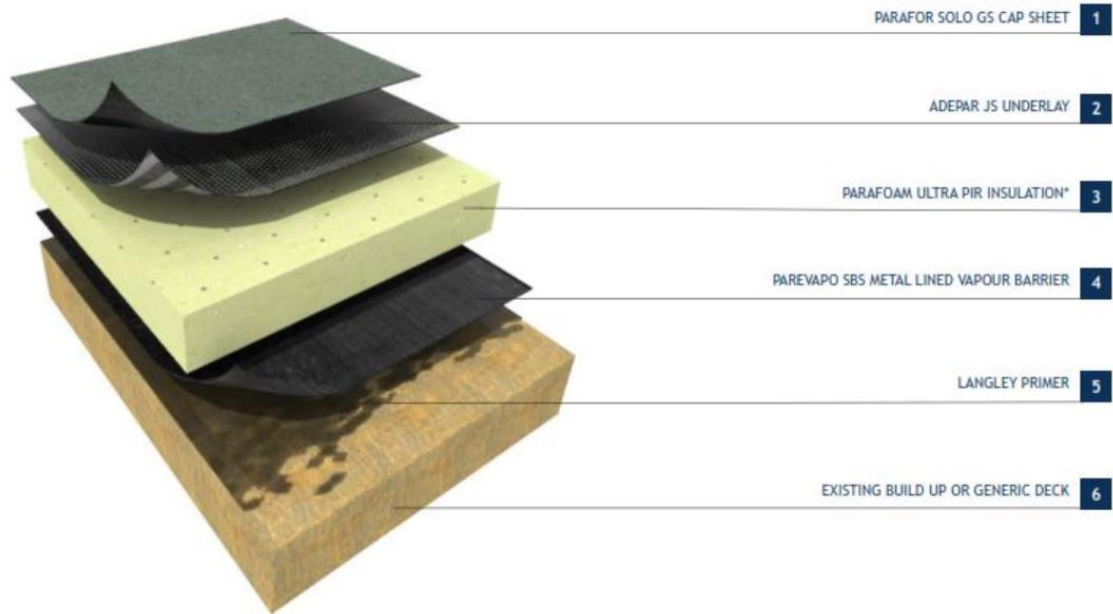
In accordance with Safe2Torch guidance the following area/s have been designated as 'flame-free' zone/s:

- **Doors, Frames and Thresholds**

Whilst these area/s have been identified, they may not be definitive. Due allowance must be made so that at any stage of this project, should any additional areas be designated a fire risk by any of the parties involved, they must be logged, all parties informed, and the appropriate measures employed.

11.0 Example of Proposed System

11.1 TA-30-W



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.
Bundling	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	Rainwater 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.
Wetted 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 : 2003	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.
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BS 476 – 3 : 2004	Fire tests on building materials and structures. External fire exposure roof test.
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BS 5950 – 6: 1995	Structural use of steelwork in buildings. Code of Practice for design of light gauge profiled steel sheeting.
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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.
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BS EN 13168: 2001	Thermal insulation products for buildings – Factory made products of woodwool (WW) - Specification.
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Approved Document L1A	Conservation of fuel and power in new dwellings 2006 Edition.
Approved Document L1B	Conservation of fuel and power in existing dwellings 2006 Edition.
Approved Document L2A	Conservation of fuel and power in new buildings other than dwellings 2006 Edition.
Approved Document L2B	Conservation of fuel and power in existing buildings other than dwellings 2006 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.