



ALUMASC ROOFING

Roof Condition Report

Project:
Burnside Primary School

Project ID: SP123301-Rev2
Date of issue: 26/01/2023



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Project information

Project: Burnside Primary School
Location: Cramlington
Area 1: Roof 1a
Area 2: Roof 1b
Project ID: SP123301-Rev2
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Client information

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SURVEY INFORMATION

Alumasc has carried out a detailed survey to ascertain the existing roof structure and condition of the flat roof/s. This report identifies to what extent (if any) the roof is suffering from inherent system faults, and what remedial action is required to ensure the integrity of the building.

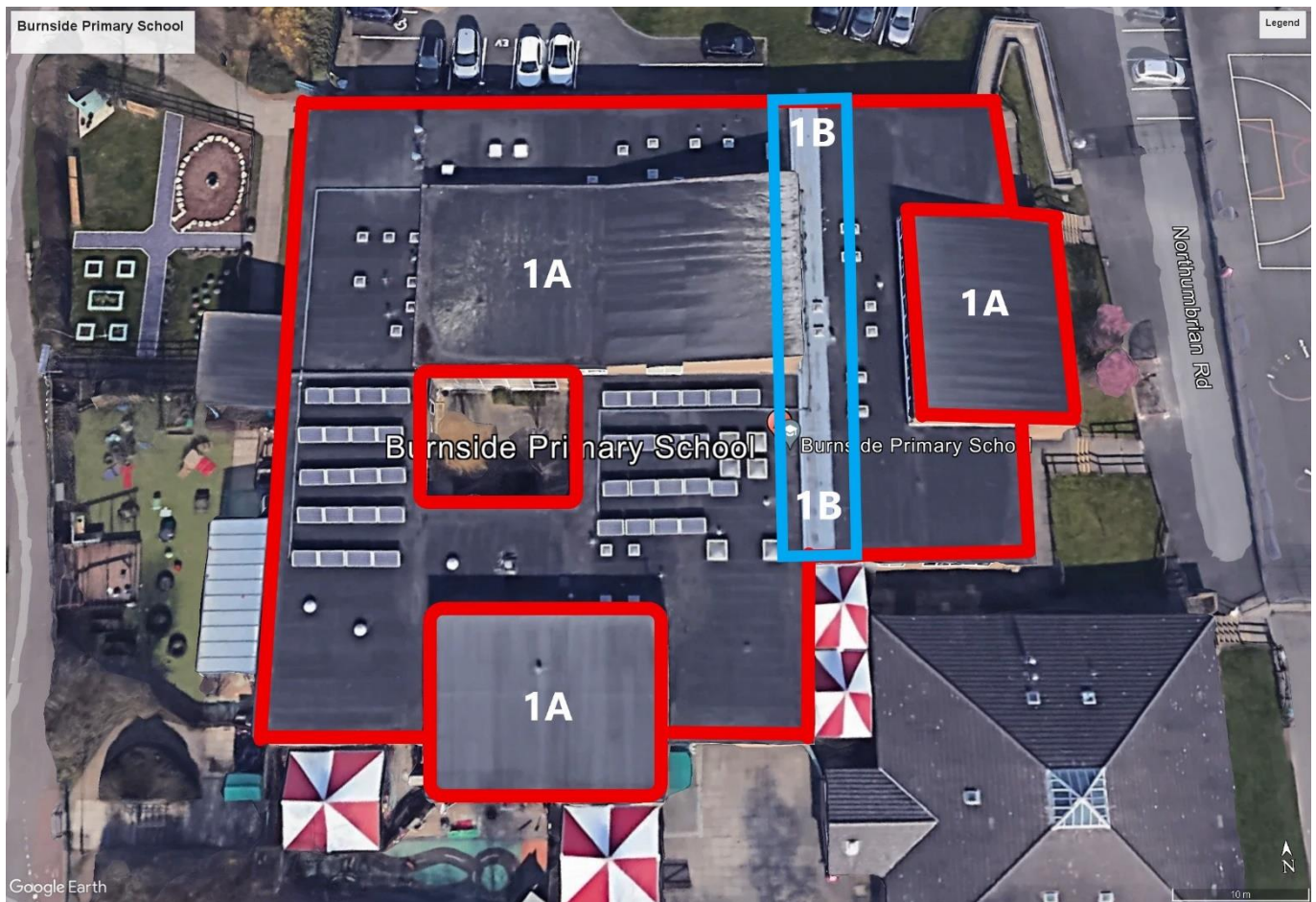
We were able to gain access to all areas for close inspection.

These proposals relate to the roof waterproofing area only. They do not include associated work to be carried out by other trades, which may be required to complete a satisfactory refurbishment.

It is recommended that the installing contractor is to conduct their own survey to confirm these findings and acquaint themselves with the extent of the works and the conditions under which they are to be executed to enable accurate estimation.

Date of survey:	7 th February 2022
Building type:	Education
Weather at time of survey:	Dry, Windy
Approx. area (m ²):	2,100

ROOF PLAN



GENERAL INFORMATION

Roof name:	Roof 1a Roof 1b (Area of Roof 1a that has been partially repaired)		
Approx. area (m ²):	2,100	Slope:	1:80
Height:	3 m	Exposure:	Medium
Roof access via:	Survey ladders from Internal courtyard	Ceiling type:	Ceiling Tiles

ROOF DETAIL/FINDINGS

System build-up type:	Warm Roof		
Existing build-up:	Roof 1a – 30mm polystyrene, 20mm fibreboard, 25mm rock asphalt, 2 layer felt Roof 1b – 30mm polystyrene, 20mm fibreboard, 25mm rock asphalt, 2 layer felt with additional liquid coating repair		
Substrate:	Metal Deck		
Perimeter detail type:	Welded drip, Check Kerb		
Drainage type:	Internal		
Existing to be retained:	Yes	Target u-value where applicable:	0.18 W/m ² K

Door threshold/s:	<input type="checkbox"/>	Window threshold/s:	<input checked="" type="checkbox"/>	Cladding abutment/s:	<input type="checkbox"/>
Render abutment/s:	<input type="checkbox"/>	Pitch roof abutments/s:	<input type="checkbox"/>	Change in level:	<input type="checkbox"/>
Verge detail/s:	<input checked="" type="checkbox"/>	Eave detail/s:	<input type="checkbox"/>	External gutter/s:	<input type="checkbox"/>
Internal gutter/s:	<input checked="" type="checkbox"/>	Pipe penetration/s:	<input checked="" type="checkbox"/>	Movement joint/s:	<input type="checkbox"/>
Rooflight/s:	<input checked="" type="checkbox"/>	Handrail/Fall arrest:	<input type="checkbox"/>	Services/Plant:	<input checked="" type="checkbox"/>
Miscellaneous:	State				
Safe2Torch Req.	State e.g., to cladding abutment				

CORE SAMPLE/S

Core samples taken identify the existing build-up and its condition at the sample locations only.

Core 1 - Location:	South side of Roof 1a (High Point)		
Core 1 - Condition:	Wet	Core 1 - Probe reading:	



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Core 2 - Location:	North side of Roof 1a (Low Point)		
Core 2 - Condition:	Wet	Core 2 - Probe reading:	



Core 3 - Location:	Roof 1b		
Core 3 - Condition:	Wet	Core 3 - Probe reading:	



GENERAL FINDINGS

Existing waterproofing type: Asphalt

- Our inspection indicates that the existing waterproofing system is in poor condition. Natural ageing has played a principal part in the deterioration of the bituminous membrane roofing system.
- The lack of regular maintenance has contributed to the condition of the roof coverings with a significant level of debris and silt present which has accumulated over several years.
- Blisters are evident which are a raised area where there is a loss of adhesion between layers caused by entrapped air and/or moisture within the existing system which expands as the temperature rises. If left undisturbed blisters do not necessarily indicate the failure of a system, however, they do present a greater risk of water ingress problems in the future and can also interfere with drainage.
- Evidence of surface crazing and flow marks caused by thermal movement were present. These are not uncharacteristic of this type of waterproofing and do not indicate an immediate breakdown in the waterproofing integrity.
- Cracks in the surface are apparent to areas, these are typically caused by thermal distortion and movement which if left unattended will get worse and increase the likelihood of water entry.
- Distortion/slumping of the asphalt has occurred to general detailing.
- The existing covering has been extensively repaired indicating a history of water penetration problems associated with the roof in recent years. These isolated repairs have not resolved the underlying issues as water ingress is widespread throughout.
- Numerous repairs have been carried out to areas of the roof. These have proved to be ineffective likely due to a combination of inadequate preparation, poor quality materials being used, and unsatisfactory application.
- Defects in the existing roofing system have been repaired using a liquid coating. In our experience, this type of remedial can only be considered a short-term solution.



Roof Drainage & Falls

- There are areas of standing water occurring above the existing roof covering which is a result of insufficient drainage capacity. Consideration should be made for the installation of additional drainage provision to improve overall performance and reduce the level of water present in accordance with BS EN 12056-3.

If left uncorrected water is likely to continue to hold in areas once refurbished. Whilst this will not adversely affect most new waterproofing systems good roofing practice dictates that roofs should be designed with adequate drainage capacity.

- The presence of continued standing water has facilitated a build-up of moss and vegetation to develop which if left untreated will continue to grow impeding drainage and encouraging deterioration of the existing covering.
- Existing falls are minimal but appear to be working sufficiently.
- Existing rainwater outlets were found to be blocked and in poor condition. Provision for the renewal of all outlets is required ensuring optimum drainage efficiency is achieved throughout the service life.
- The existing external gutters and fascia boards were found to be in a poor condition and will need to be replaced as part of the refurbishment works.

Upstands

- Codes of Practice dictates that the continuity of the waterproofing is to be maintained for a vertical height of 150mm above the finished roof level at all abutments. Where applicable appropriate rectification will need to be made. Care must be taken to ensure that the position of any DPC/cavity tray is not compromised.
- There are areas where the detailing has failed and is no longer adequate to provide waterproof protection. Cracking, blistering, distortion, or slumping are all signs that the waterproofing has deteriorated.
- Cracks and splits between the roof and wall are evident throughout.
- Existing flashings to the perimeter details are in poor condition and should be replaced and/or repaired.
- Existing lead flashings, which we assume were part of the original installation, have been removed from the perimeter detail thus leaving the detail exposed. To prevent a similar recurrence, we would advise that an alternative flashing to lead is utilised going forward.
- Where existing chases are to be utilised, they must be re-formed and cleaned.
- At the abutment to existing cladding, provision is to be made to loosen or temporarily remove it to facilitate the refurbishment works. Once the waterproofing is complete the cladding must be reinstated and/or replaced allowing for any modification that may be required.
- Existing low-level windows and frames are to be removed. Redundant openings are to be boarded over with 18mm exterior grade plywood to achieve a flush finish to the adjacent construction build-up. Allowances for internal adaptations and redecoration works should be made where applicable. Refer to photographic detail for examples of this.



Perimeter Check Kerb

- Cracks and splits in the existing roof covering are visible bridging the edge trim profile. This is a common occurrence caused by differential movement across this type of interface using traditional membranes.
- Movement in the existing aluminium trim has resulted in the breakdown of the waterproofing at the joints. It is recommended that the trim is removed and replaced with an alternative.

Penetrations

- Details are in poor condition with deterioration of the waterproofing evident.
- The increased thickness of system build-up will require the soil and vent pipe/s to be extended to achieve a 150mm upstand above the finished roof level and the fitting of any secondary weathering collars.

Rooflights

- Existing rooflights are in poor condition and are also non-compliant with current thermal and light transmittance standards. Our recommendation is to replace all units to meet current standards thus improving performance, light transmission into the premises and providing a service life that is aligned with the new roof covering.
- Detailing around the existing rooflights is in poor condition with deterioration of the waterproofing evident.
- Various rooflights are now deemed redundant. It is advised that these items are removed and that the existing openings are to be boarded over to achieve a flush finish to the adjacent construction build-up. Allowances for internal adaptations and redecoration works should be made where applicable.

Services

- All services including air conditioning units, plant, surface mounted equipment that will impede the works are to be set aside for the duration of the project by appropriately skilled labour.
- Where no longer required redundant or defective plant equipment should be removed prior to works.



Photographic Detail



Overview of part of Roof1a – as shown areas of ponding water and moss/vegetation are evident.



A second overview of Roof1a – Ponding water evident



Close-up on Roof1a of ponding water surrounding the existing penetrations and plant.



Part of Roof1b shows repair work evident along with ponding water and moss/vegetation



Existing outlets are blocked due to moss/vegetation



Existing Lead flashing is splitting away from the brickwork causing exposure to the building



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Existing rooflights are not in accordance with current regulations and will require replacement.



Repairs on Roof 1b upstand detail are evident and not sufficient



Existing fascias are also in poor condition and will require work



Check kerb detail shows signs of cracking and exposure. Poor condition of fascias also evident here



Existing penetration has been exposed and temporary coverings have been placed over and require immediate attention



Some outlets have been discarded, this has created ponding water in areas. These details need reinstated.



Conclusion / Recommendation

Following our roof inspection, the option/s for refurbishment are outlined below.

It is recommended that the building owner considers several other matters in parallel, including but not limited to:

- The practicality of the site works.
- The suggested timescale for remedial.
- The anticipated remaining life of the roof and what future effect any defect found may have.
- Whether taking the opportunity to introduce other improvements, such as upgrading the thermal performance, is a benefit that may provide future cost savings.
- Whether safe access, egress, and edge/fall protection which complies with the Workplace (Health, Safety and Welfare) Regulations are in place throughout its life cycle.
- The remounting and positioning of roof services/plant above the finished covering.
- The structural capacity of the roof to receive the imposed loading of the proposed works.
- The load-bearing capacity of the structure if the material is to be stored at roof level during the refurbishment.

Conclusion

Suggested Timescale for Remedial

Roof Name	Condition	Immediately	≤ 5 Years	> 5 Years
Roof 1a and 1b		Option 1		

Option 1

- From the inspection carried out the existing waterproofing system is in a poor condition and has exceeded its serviceable life and should be considered for immediate refurbishment.

Option 2

- From the inspection carried out the existing waterproofing system would appear to be reaching the end of its life and should be considered for refurbishment at the earliest opportunity to avoid any future problems from occurring.

Option 3

- From the inspection carried out the existing waterproofing system is in a reasonable condition. However, as identified in the report some localised patch repairs are to be carried out as a short term solution to prolong its service life and avoid the imminent risk of water entry.

Option 4

- From the inspection carried out the existing waterproofing system is currently in reasonable condition with minimal defects found. We suggest a planned maintenance schedule at this time would be a prudent course of action to extend its life. A further inspection should be made in approx. 5 Years to reexamine its condition.

Recommendations

Roof 1A & 1B - Overlay including insulation

- Based on our findings the existing was found to be in a suitable condition to receive an insulated overlay. The works would comprise removing all debris, preparing all surfaces to provide an acceptable base, apply a primer coat and overlaying with a new insulated waterproofing system. New upstands and flashings will be formed throughout and replacement of most, if not all ancillaries.

Our refurbishment specification proposal will be based on the use of our Euroroo Mono Olivine high-performance waterproofing solution installed exclusively by Registered Approved Contractors, underpinned by AlumasC's extensive project support service, and covered by a single-source warranty.

Our proposal will also include a thermal upgrade to achieve a u-value of 0.18 W/m²K.

Site inspections will be made by AlumasC during the works to ensure that the installation is executed in accordance with the AlumasC warranty requirements and current Codes of Practice.

A specification detailing the full extent of the waterproofing works is to be provided under separate cover.

Roof 1B – Saturated Area - Remove existing coverings and install new Warm Roof System

- Based on our findings because of the deteriorated condition of the existing the only course of action is to strip the existing layers back to the substrate and dispose of. Once cleared the works would comprise inspection and repair of the exposed substrate to provide an acceptable base, apply a primer coat and overlaying with a new insulated waterproofing system. New upstands and flashings will be formed throughout and replacement of most, if not all ancillaries.

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