



# Roof Survey Report

Sullivan House  
Churchill Gardens, LONDON  
SW1V 3BP, England

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## 1 Introduction

Further to our site inspection we have prepared the following survey report based on the current condition of the existing roof/s. This survey report is based on our visual inspection of the roof/s together with our exploratory core test samples. It should be noted that core test samples are taken to identify the existing roof construction to deck level and to provide an indication of the roof condition. Due to the limited number of core samples that can be practically taken on a roof, Bauder Ltd cannot be held responsible for any changes in roof build-up in areas where core samples have not been taken.

### 1.1 Description of Building and Weather Conditions

Building use - Residential

Height in Storeys: 9

The weather conditions at the time of our survey inspection were dry and sunny.  
The Roof surface at the time of our survey was dry.

### 1.2 Roof Access

Roof access was gained internally, with a door access to the roof.

### 1.3 Confirmation of Client brief

To carry out an evaluation and produce a condition report for the roof areas concerned, together with specification proposals for renewing the waterproofing system.

# Introduction

## 1.4 Roof Plan

### 1.4.1 Main & Tank Roofs



Any measurements displayed on the map above are approximated and are therefore not to be used in tenders.

## 2 Existing Roof Construction

### 2.1 Core Sample Analysis

Core samples are taken as a method of confirming the existing deck and waterproofing system construction and provide indicative feedback regarding general condition. Please note that the findings are representative only of the particular location tested and this is used to give general guidance as to the likely overall condition and deck construction.

#### 2.1.1 Main Roof

<b>No. of core samples taken:</b>	4
<b>Construction Type:</b>	Warm Roof
<b>Surfacing:</b>	Various Repairs
<b>Waterproofing:</b>	Mastic Asphalt
<b>Insulation:</b>	Tapered Cork/PIR board
<b>Vapour Control:</b>	Aluminium lined bituminous vapour barrier
<b>Screed:</b>	Sand/cement screed
<b>Roof Deck:</b>	Concrete
<b>Condition of core sample:</b>	Insulation is wet.



# Existing Roof Construction



Core Sample - Wet



Core Sample - Wet



Existing insulation cut-to-falls.

## 3 Issues and Considerations

### 3.1 Main Roof

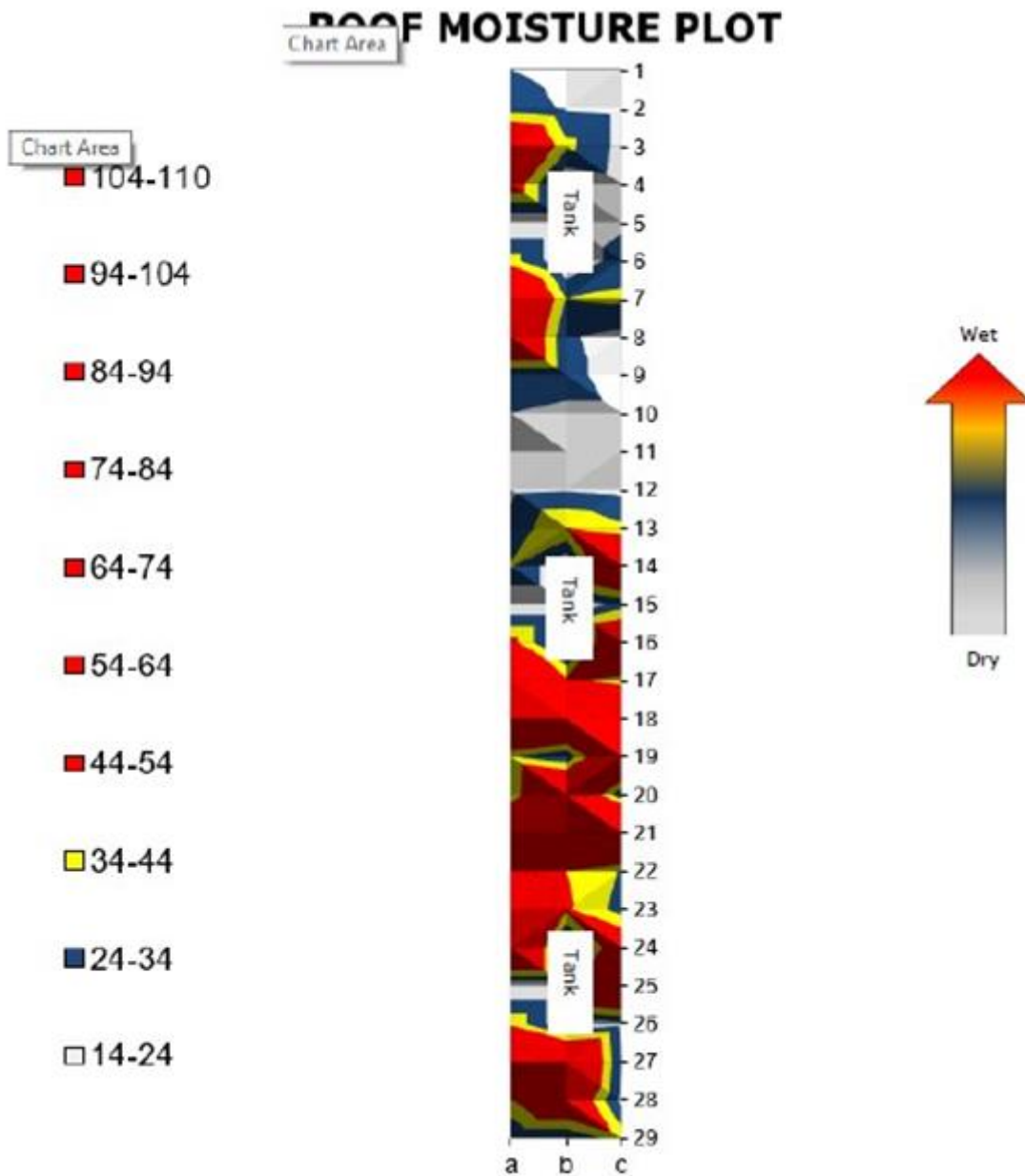
#### 3.1.1 Existing Waterproofing

The existing waterproofing system is constructed as a warm roof, comprising of mastic asphalt, on a loose laid sheathing layer over tapered Cork/PIR insulation and a vapour control layer, installed to the deck.

The asphalt is showing all the typical defects consistent with a covering of this age including; surface oxidation, cracks, splits, blows, slumping and signs of repair.

Bauder's moisture mapping nuclear density gauge survey provides evidence of water ingress that has contaminated and degraded the existing insulation. This will impact upon the thermal performance of the system and potentially the resistance to wind uplift if the adhesion between the waterproofing and insulation components have become impaired.

# Issues and Considerations



Roof Moisture Plot demonstrates extent of water ingress into existing build-up. A large proportion of the insulation is wet and compromised.



# Issues and Considerations



**Overview of main roof.**



**Cracks and splits are occurring in the asphalt.**



**Further evidence of defects in the existing asphalt.**



**Defects in the asphalt will let water by.**



**The asphalt is rippled and slumped, it has reached the end of its life.**



**Evidence of previous repair suggests historic issues and reports of water ingress.**

The condition of the existing waterproofing is extremely poor and is worthy of concern. There is extensive evidence of water ingress, due to advanced deterioration. As such, the existing system is beyond salvage and should be removed and replaced, using this opportunity to thermally upgrade the replacement system to comply with current Building Regulations.

## 3.1.2 Associated works

Considerations for enabling works to the main roof include, not exclusively:

- Discard Existing Handrail
- Install New Free Standing Guardrail
- Site fabricated code 4 lead collars and sleeves to all vertical and horizontal pipe penetrations.
- Remove fixed pipe supports and replace with freestanding, bigfoot or similar.
- New Chase & suitable flashing to Concrete Upstands
- Raise Door sill
- New GRP Trims
- Capsheet Walkway
- Refurbishment Warm Roof Outlet
- New Lead Liner to Chute Outlets Through Perimeter Detail
- Lead Sleeve To SVP's
- Raise perimeter kerbs
- New GRP trim
- Modify tank overflows
- Re-route cables using conduit
- Modify cat ladders



# Issues and Considerations



**Consideration to replacing fixed handrail with freestanding unit to eliminate penetrations. Internal outlets to be replaced with refurbishment units.**



**Vertical and horizontal pipe penetrations to be weathered with site fabricated code 4 lead collars and sleeves. Some pipework may require modification / repair - M&E to confirm.**



**Consideration to be given to replacing fixed pipework supports with freestanding units to design out penetrations.**



**Consideration to be given to terminating perimeter edge with GRP Trim.**

## 3.2 Tank Roofs

### 3.2.1 Existing Waterproofing

The existing waterproofing system is constructed as a cold roof, comprising of mastic asphalt, on a loose laid sheathing applied directly to the deck.

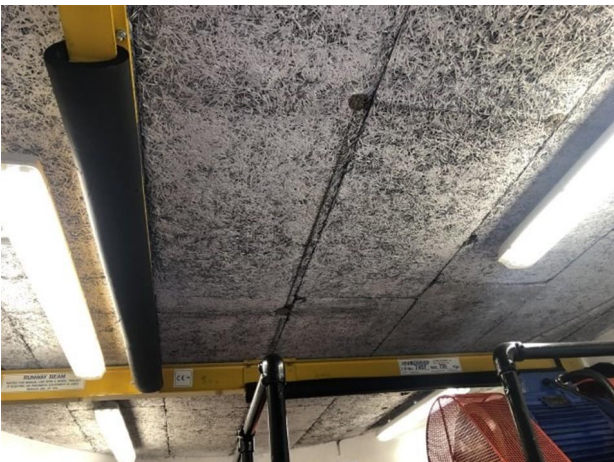
# Issues and Considerations



**Overview of tank roof. Safety line fixings will be difficult to weather in situ, consideration should be given to renewing the post with a Latchways or similar unit with a base and flange that can be robustly waterproofed.**



**The existing asphalt waterproofing has defects and is reaching the end of its serviceable life. It is currently considered to be in a suitable condition to overlay. There is some evidence of standing water, this will not be detrimental to the system performance or guarantee.**



**The tank house deck is woodwool which is assumed to be finished with a screed. Overlaying the asphalt will mitigate risks associated to stripping up in this area.**



**Fixings will be difficult to weather.**

The condition of the existing waterproofing is of concern. The material covering is coming to the end of its serviceable life and demonstrating signs of age, fatigue and fragility that could lead to serious failure.

Any water ingress would affect the upgrade potential of retaining the current system as part of an overlay solution. Investing in refurbishment works now offers the opportunity of minimising costs by using the existing waterproofing as a component of an overlay system.

## 4 Proposals

### 4.1 Main Roof

- Due to its condition, the existing waterproofing system should be completely removed and replaced.

Note - an adequate provisional sum should be set aside to cover for any unforeseen issues related to the removal of the existing waterproof covering that may necessitate localised repairs to the existing deck

- The waterproofing upstand is to be raised to achieve the minimum required height of 150mm. Counter-flashings are to be positioned to suit.
- Once the new waterproofing upstands have been formed against the abutment wall a 25mm deep chase is to be cut into the wall and new counter flashings are to be fixed and sealed into the chase.
- The existing door and frame are to be removed to allow access to raise the upstand kerb in preparation for re-waterproofing. The door and frame are to be either modified or replaced, these works need to be included within the main client specification/ schedule of works.
- Provision should be made for extending the existing soil vent pipes in order to accommodate the increase in the finished surface level resulting from the thickness of the new waterproofing system.
- The existing overflow pipes must be repositioned a minimum of 150mm above the new roof surface level, without impeding or penetrating the waterproof upstand detailing.
- We propose that a new free-standing guard rail system is installed to provide and meet safe access and egress requirements for this roof. We would suggest specialist advice is obtained to provide a suitable specification for these items.

### 4.2 Tank Roofs

- The condition of the existing waterproofing is considered suitable for receiving an overlay system.



## 4.3 Proposed Waterproofing System

### Main & Tank Roofs

#### Bauder Total Roof System (BTRS PLUS)

The Bauder Total Roof System PLUS (BTRS PLUS) utilises the latest manufacturing technology for Bauder's first dual formulation capping sheet, uniting both APP and SBS polymer bitumen modifications to create Bauder KARAT. The system also incorporates KSA DUO 35 self-adhesive SBS modified underlay which, when combined with the Bauder KARAT cap sheet, jointly provides a formidable waterproofing solution with exceptional durability and system longevity.

The complete system is manufactured to exacting specifications and is applied within cold, warm or inverted roof constructions with a choice of Bauder insulations.

Where required the system will include BauderPIR insulations with a choice of either flatboard (FA-TE) or tapered (FA Tapered) with aluminium facing offering versatility in installation methods for both the insulation and the membranes. For inverted applications Bauder offers its JFRI inverted insulation. Bauder also offers non-combustible warm roof insulation where required.

Bauder insulation provides excellent thermal performance and has outstanding dimensional stability and compressive strength, achieving an "A" rating in the BRE Green Guide.

BTRS PLUS is designed for use in both refurbishment and new build projects particularly when long life-span and high durability are required.

#### Guarantee Information

This system is supplied with a 30 year guarantee that covers products, workmanship, design, consequential damage and financial loss. Full terms and conditions are available by request.

#### Key Features

- Insulation and waterproofing products are all manufactured by Bauder resulting in complete system compatibility and single source responsibility.
- Robust and extremely durable waterproofing that minimises the risk of physical damage and is capable of withstanding foot traffic.
- These products are BBA certified with a Broof(t4) fire rating and has been extensively used in mainland Europe for over 20 years with proven durability in service. This provides complete peace of mind to specifiers.
- 5.2mm cap sheet with high tensile strength – 1450N/50mm. 40% stronger than our K5K capsheet.
- Bauder site technicians monitor and sign off each installation and provide up-to-date inspection reports directly to our clients via email.
- Bauder provides installation training for our approved company operatives ensuring the highest quality of workmanship is maintained.
- Reliable application in both high and low ambient temperatures – enables all year round installation.

# Proposals

- Reduced rain noise to gain an extra credit under point 5 of section 4 of BREEAM education 2008 for most projects (dependent upon insulation used).

## 5 Health & Safety and Construction Design Management

Bauder believes in promoting a strong safety culture at all times. Our Staff will adhere to the appropriate risk assessments and method statements as required under the Health and Safety at Work Act 1974 and Work at Height Regulations 2005. It is the client's duty of care to advise of any specific health and safety issues pertaining to the project as required under the Work at Height Regulations 2005.

As part of our duty of care we would like to draw attention to the following information:

The HSE Guide H&S in Roof Work (HSG33) states that **all** roofs should be treated as fragile unless declared otherwise by a competent person. Please refer to the Work at Height Regulations 2005 provision 9 for information on working with fragile/suspected fragile roof areas. Under the Health and Safety at Work Act 1974 Sections 3 and 4, it is the responsibility of employers and anyone who controls the work of others to ensure so far as it is reasonably practicable that persons are not exposed to risks that impact on their health and safety. Appropriate control measures must be in place before any work or contact with a fragile/suspected fragile roof area commences.

Safe access and egress to a roof is a major risk and requires careful planning. In particular, the following are likely to be fragile:

- Non reinforced fibre cement sheets e.g. asbestos
- Corroded metal decking
- Woodwool slabs
- Rotten chipboard or similar
- Stramit
- Slates or tiles
- Old roof lights
- Glass (including wired)

Specifying non fragile rooflights will help reduce the risk of falls from height. A non-fragility rating is required by the HSE (Health and Safety Executive) in order to comply with CDM (Construction Design and Management) Regulations 2015.

We draw your attention to your duties under the Construction (Design and Management) Regulations 2015. Regulation 4, Client's duties in relation to managing projects states that the client must make suitable arrangements for managing a project, including the allocation of sufficient time and other resources. Regulation 5, Appointment of the Principal Designer and the Principal Contractor states that where more than one contractor will be working on a project at any time, the client must appoint a Principal Designer and a Principal Contractor.

Please note that although Bauder will assist with the roof waterproofing system design, we will

not undertake the role of Principal Designer.

It is always the responsibility of the contractor to carry out a risk assessment on all aspects of the contract. The 'Safe2Torch' checklist is solely for guidance for the safe installation of torch-on reinforced bitumen membranes and use of gas torches in the workplace.