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# THE GEORGE HOTEL, HUDDERSFIELD
# STRUCTURAL CONDITION SURVEY

RAMBOLL

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# STRUCTURAL CONDITION SURVEY

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## CONTENTS



## APPENDICES

# 1. INTRODUCTION

## 1.1 Purpose of Inspection and Report

To carry out a structural visual inspection and report on the current condition of the Grade II* Listed George Hotel,Huddersfield. The defects identified and recorded will focus areas and locations for further investigations and inform proposals for future remedial measures

## 1.2 Inspection date and conditions

The inspection of The George Hotel building was undertaken at the following times and conditions:

| Area | Date | Time | Conditions |
|---|---|---|---|
| Basement, Ground & First Floors | 27.07.21 | 8.30am – 5pm | Dry, mild and sunny |
| Second, Third, Fourth and Roof Floors | 28.07.21 | 8.30am – 5pm | Raining, mild |
| Exterior Facades | 12.08.21 | 3pm-4pm | Dry, mild and overcast |

The inspection was undertaken by Paul Maddison (CEng, CARE) and Stephen Twentyman (MEng)

## 1.3 Limitations and exclusions

This report has been produced for Bowman Riley, architects, solely for the benefit of Bowman Riley and Kirklees Council. It shall not be relied upon or transferred to any third party, without the prior written authorisation of Ramboll.

The scope of the report is confined to the areas of the building which are commented upon herein and does not cover any unexposed parts of those areas.

The inspection was carried out under the terms and conditions contained in the appointment document sent from Ramboll to Bowman Riley, dated 23/06/21

The inspection was visual only, from external ground level, or internal floor level, with closer inspection of the external high-level parapets from scaffolding. No opening up or testing was carried out and only defects in the structural parts of the building have been considered. Defects in the architectural fabric or services are not included.

Areas obscured/unavailable for access could not be inspected. Specifically, access was not possible to:

- Areas with known asbestos in the basement
- Areas deemed unsafe for access due to visible structural defects. This included but is not limited to, the stairs at high level, a number of the hotel rooms and the northern escape stairs.

Area not accessed are shown on the inspection reference plans, Appendix A.

## 1.4 Previous Reports

No previous structural reports have been made available; however, the following has been provided to give assistance:

- Background information/photographs relating to the current, general condition of the building, provided by Bowman Riley in the project briefing document

- Outline floor plans (taken from the asbestos survey), provided by Bowman Riley in the briefing document
- Scaffolding Approach document (dated 13.07.21) by Bowman Riley, giving an overview of the history of the building and phasing, including historic floor plans

## 1.5 Reporting Method

The George Hotel Building has been separated into three components for the purpose of this report. These three components are based on the assumed construction period of each section of the building and allow us to break down the observations. These are:

- Block A: 1850s building – includes main entrance, foyer and hotel rooms
- Block B: 1930s/60s extension building – includes ballroom, kitchen and hotel rooms
- Block C: 1870s building – includes museum, restaurant and hotel rooms

Each building component is then referenced by level and area on plan to help locate the observations. These area references are shown in Appendix A. Photographic records are cross referenced to the area reference and level and shown in Appendix B.

The reference system has been determined to allow for easy location of the area on the plans and consists of a 5-digit reference e.g., 99A-01. The first two digits refer to the level (99-basement, 00-ground, 01-first etc), the third digit refers to the building 'block' and the last two digits refer to the specific room/rooms in which the observation was made.

A full description/record of each and every defect (or absence of any defect) has not been included within this report; the report focusses on the structural defects but has also noted visible defects that may impact on the structure (such as water ingress, vegetation growth or cracking in finishes).

# 2. GENERAL DESCRIPTION

## 2.1 Location

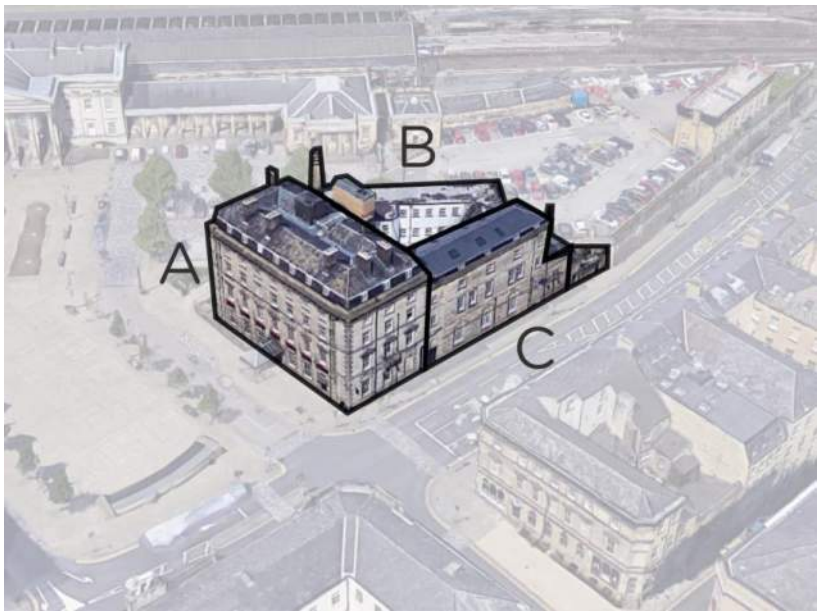
The George Hotel building is located on the corner of Railway Street and John William Street in the centre of Huddersfield on St George Square.


## 2.2 Layout

The building is Grade II* listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 (list entry number: 1277386). The original building dates from the 1850s and was designed by architects William Wallen and Charles Child.

The building consists of three blocks dating from different construction periods, built around a central ballroom space with an internal light well above. The three blocks of the building are:

- A: 1850s building – includes main entrance, foyer, and hotel rooms
- B: 1930s/60s extension building – includes ballroom, kitchen, and hotel rooms
- C: 1870s building – includes museum, restaurant, and hotel rooms




## 2.3 Structural Arrangement

The structural arrangement has been determined from the condition survey, via non-intrusive means. Where the structure is not visible, assumptions about the structural arrangement are based on the observations made of exposed structure from isolated areas of previous opening up works and/or locations where collapsed finishes have exposed the structure beneath. No existing structural drawings were made available to Ramboll for this review.

Based on these limited observations it has been assumed that the main structure of the 1850s block (A) is timber suspended floors on masonry load-bearing walls with a masonry basement retaining wall. In corridor areas it is believed that the floor structure may be spanning stone slabs. In addition to this there are steel or iron beams and columns present in the First Floor Level structure to open up spaces at Ground Floor Level;  it is not know if these are original or modifications to the building's original structure.

The structure in the 1930s and 1960s block (B) is a combination of steel beams encased in concrete with concrete slabs, supported on load-bearing masonry walls. This structure is the same from basement up to L03. The top floor of this block was built later (1960s) and is assumed to be a timber and straw infill panel roof deck supported on load-bearing masonry walls.

The Block C structure, understood to be built in the 1850's, is generally assumed to be load bearing masonry with a timber floor. There have been a number of interventions and structural strengthening to this block including the opening up and strengthening of the roof space. These interventions include hanger tie rods to support the L02 floor structure, steel or iron beams present in the L02 floor structure and a new steel roof structure at roof level to replace existing timber trusses with a steel frame. Refer to Appendix C for indicative sketch of the roof structure and strengthening detail as currently understood.

# 3. BLOCK A

## 3.1 Basement

The structure is generally assumed to be masonry retaining structures and masonry load bearing walls with the basement floor being ground bearing stone slabs/flags. The foundations are unknown.

The basement of Block A was generally considered to be in reasonable structural condition. Areas with signs of water ingress and damp to the rear of the block were showing signs of dry rot, surface corrosion to beams and exposed reinforcement, and damage to finishes. Areas with improved ventilation were noted as having less problems with damp.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **99A-01 Basement Stores** | Area not directly accessible due to limitations as identified in the asbestos survey. Area could be viewed from doorway. Generally noted to have no visible structural defects, or signs of damp. |
| **99A-02 Basement Stores** | Area not directly accessible due to limitations as identified in the asbestos survey. Area could be viewed from doorway. Generally noted to have some areas of visible water ingress/damp with existing metal fittings starting to corrode. |
| **99A-03 Corridor space** | Corridor area generally noted to feel drier than adjacent spaces, likely due to position in building (i.e., away from perimeter retaining walls). Some areas of rising damp visible. |
| **99A-04 Basement Stores** | Storeroom has existing drainage outlet in floor, generally noted to feel damp but timber ceiling appears dry and in good structural condition. |
| **99A-05 Basement Stores** | Area not accessible due to limitations as identified in the asbestos survey. |
| **99A-06 Corridor space** | Generally damp at centre of building, visible corrosion on newly painted steel or iron beams suggesting recent water ingress. Origin of water presence is unknown. |
| **99A-07 Corridor space** | Area very damp, water ponding on the floor. Recently applied paint has started to peel (informed that paint was applied 3-4 months prior to inspection), visible corrosion on painted steel or iron beams. Salt stains on brick visible at low level and high-level suggesting moisture in the brick, large areas of dry rot at high level and exposed reinforcement corroding in the soffit of the slab above. Air bricks and openings appear blocked, reducing passive ventilation. |
| **99A-08 Basement store** | Area not directly accessible due to limitations as identified in the asbestos survey. Area could be viewed from doorway. Generally noted to have no visible damp. |

| | |
|---|---|
| **99A-09 Basement store** | Area well ventilated (vents open), exposed timber floor structure above is visible and appears in good condition. |
| **99A-10 Toilets** | Area well ventilated (vents open), exposed timber floor structure above is visible and appears in good condition and dry. |

## 3.2 Ground Floor

The floor structure is thought to be a combination of vaulted floors above basement storage rooms, and timber joist floors elsewhere. The corridor space appears to have a solid stone floor. steel or iron structural elements are present in the structure to enable the open areas of the ground floor plan, it is not known if these are original.

The Ground Floor of Block A was generally considered to be of good structural condition. Areas of water ingress were noted to the rear of this building where it interfaces with the 1930s ballroom of Block B.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **00A-01 Charter Suite** | Signs of water ingress by bay window of Charter Suite, due to staining. Structural beam noted in internal wall with minor surface corrosion. Lath and plaster to ceiling appears dry so water ingress may be historic. Floor appears to be raised or suspended timber structure, probably supported by brick piers, with ventilation panels set into floor. |
| **00A-02 Reception and entrance foyer** | Generally good condition, some signs of historic water ingress adjacent internal drainage down pipe. Steel or iron columns beneath finish appear in good condition where visible. |
| **00A-03 Bar area** | Generally good condition, staining in ceiling finishes near bar area suggesting historic water ingress. |
| **00A-04 Back of house corridor** | No structural comments, additional low ceiling installed in area, obscuring original finishes a high level. |

| | |
|---|---|
| **00A-05 Storage space** | Significant water ingress in space, walls damp, steel or iron elements showing signs of corrosion on the surface, and finishes have peeled away. This is at the interface with the Ballroom in Block B and suggests water originates from the drainage in the internal courtyard above. |
| **00A-06 Corridor space** | Wall adjacent to storage space (00A-05) shows signs of damp. |

### 3.3 First Floor

Structure is thought to be a timber joisted floors supported off masonry load bearing walls. Steel or iron beams are present in the floor structure to enable the longer span areas of the ground floor plan, it is not known if these are original.

The First Floor of Block A was generally considered to be reasonable condition structurally. It is understood that much of this level has been re-plastered in the last 10 years. Areas of water ingress were noted in the stair core structure and the rooms adjacent.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **01A-01 Hotel rooms** | Historic damp patches on floor below window and finishes in bathroom have peeled. Floor structure visible in bathroom and appears to show structure is timber joists with a rubble infill in some areas. The rubble infill is thought to provide fire compartmentation. |
| **01A-02 Hotel rooms** | Ceiling plaster peeled/failed under bay window with signs of historic water ingress on floor finishes directly beneath. |
| **01A-03 Corridor** | Small inaccessible services vent provides natural ventilation to space, generally in good condition. Floor appears solid. |
| **01A-04 Stairs** | Visible areas of damp patches to wall finishes, timber floor boarding sagging on landing. |
| **01A-05 Main corridor** | Generally noted to be in reasonable condition, water staining visible around lift opening and previously filled wide crack by staircase with additional hairline cracks visible in plaster finish. Infilled crack showing no signs of further opening up. |
| **01A-06 Hotel rooms** | Damp staining in south-western corner of room with hairline cracks in ceiling finishes |
| **01A-07 Hotel rooms** | Area not directly accessible due to significant deterioration, but area could be viewed from doorway. Generally noted to have some areas of visible water ingress/damp with mould visible on the wall surfaces adjacent to the staircase. |
| **01A-08 Hotel rooms** | Generally noted to be dry and in good condition. Vertical hairline cracks are visible in new plaster in northern wall. |

### 3.4 Second Floor

Structure is thought to be timber joisted floors supported by masonry load bearing walls.
The Second Floor of Block A was generally considered to be in a reasonable structural condition. It is understood that much of this level has been re-plastered within the last 10 years, but it has been noted that hairline cracks have formed in the plaster in the return walls to the main façade. Areas of water ingress noted in the stair core structure and the rooms adjacent.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **02A-01 Hotel rooms** | Diagonal crack visible in plaster finishes and cornice adjacent to external wall in both rooms. Western façade wall has a damp patch in southern room with areas of mould and signs of the timber floor sagging. Pattern of cracking and gaps in finishes, suggests slight outwards lean of western external wall. |
| **02A-02 Corridor** | No comments |
| **02A-03 Hotel rooms** | Rooms in good condition, some diagonal hairline cracks visible in plaster finishes in walls. Timber joists visible above, appear in good condition. A partition wall has been installed on the timber floor above with, what is understood to be, a breeze block masonry infill. , Heavy partition does not align with the timber joists below and should be provided with additional support. |
| **02A-04 Stairs** | Clear signs of historic damp and recent damp in stairwell, suggesting water ingress in this area is a long-term problem. Large cracks in finishes to door lintel with paint and plaster peeling away from wall. Additional crack to the top of the arched feature window. Plaster ceiling in stair landing above has failed and fallen. |
| **02A-05 Hotel rooms** | Area not directly accessible due to significant deterioration, but area could be viewed from doorway. Generally noted to have some areas of visible water ingress/damp with finishes peeling away from wall and windows. |
| **02A-06 Hotel rooms** | Reasonable condition, hairline diagonal cracks in return wall plaster finishes. |

### 3.5 Third Floor

Structure is thought to be timber joisted floors supported by masonry load bearing walls.
The Third Floor of Block A, similarly to the second and first floor was generally considered to be in a reasonable structural condition. It is understood that much of this level has been re-plastered in what is believed to be the last 10 years but it was noted that hairline cracks have formed in the plaster in return walls to the main façade. Areas of water ingress were noted in the stair core structure and the rooms adjacent as well as large areas of damp in the finishes to the majority of the external walls.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **03A-01 Hotel rooms** | Diagonal and vertical hairline cracks visible in plaster finishes in return walls. Internal face of external wall shows signs of damp in the finishes. Pattern of cracking and gaps in finishes similar at this level and levels above, suggests slight outwards lean of western external wall. |
| **03A-02 Corridor** | Clear signs of water ingress into cupboard space with dry rot in corridor at high level. Ceiling finishes have failed and structure above exposed. |
| **03A-03 Hotel rooms** | Visible damp at high level in all spaces on internal face of external wall. Hairline cracks visible in plaster finish. Masonry partition within space, possible later addition; this wall does not have any supporting structure beneath. Finishes have debonded from internal partition wall, possible sign of historic water ingress. |
| **03A-04 Corridor** | Damp at high level in corridor space, finishes are peeling extensively from ceiling and cracking apparent in finishes. |
| **03A-05 Stairs** | Area not directly accessible due to significant deterioration, but area could be viewed from doorway. Clear signs of historic and current damp in stairwell. Decorative plaster arch finishes beneath beam have collapsed, signs of water ingress to timber beam structure above. Finishes at apex of arched window also failed. Wide cracks visible in wall finishes. Fine cracks run diagonally from door opening to wall corner with large sections of render debonding from masonry wall and failing. Masonry wall beyond finishes appears in generally reasonable condition. Damp visible on most surfaces. |
| **03A-06 Hotel rooms** | Area not directly accessible due to significant deterioration. Area could be viewed from doorway. Generally noted to have some areas of visible water ingress/damp with finishes peeling away from wall and windows in corner of room adjacent to stair core. |
| **03A-06 Hotel rooms** | Visible damp at a high level, large patches of mould on external walls. Vertical hairline crack in northern room that aligns with similar crack noted on levels below. |

### 3.6 Fourth Floor

Structure is thought to be timber joisted floors supported by masonry load bearing walls. The Fourth Floor of Block A showed significant areas of water ingress at window locations set within the mansard roof, with existing finishes having failed in many spaces. Additional water ingress was noted in the stair core and the rooms adjacent.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **04A-01 Hotel rooms** | Damp by window opening and plaster finish has collapsed leaving lath and timber mansard roof beneath exposed. Hairline crack in new plaster finishes in walls. |
| **04A-02 Hotel rooms** | Visible damp at high level in all spaces on exterior wall, worst affected areas are directly adjacent to existing window openings. Hairline cracks visible in plaster finish at high level. |
| **04A-03 Corridor** | Ceiling sagging and visible damp in corridor spaces. Temporary water collection butt located adjacent to the stairs in the corridor, clear sign of ongoing water ingress. Damp patches across ceiling finishes with some finishes fallen away from the ceiling. |
| **04A-04 Stairs** | Area not directly accessible due to significant deterioration. Visible damp and failed finishes. Rooflight above assumed to be source of water ingress. |
| **04A-05 Hotel rooms** | Area not directly accessible due to significant deterioration. Area could be viewed from doorway. Generally noted to have some areas of visible water ingress/damp with finishes peeling away from wall and windows. |
| **04A-06 Hotel rooms** | Rooms damp with plaster failed locally around window openings. Small crack visible in back wall adjacent to Block C that aligns with noted cracks on levels below. |

### 3.7 Roof

Direct access to the roof of block A was not available. Access via scaffolding was available on the 12/08/21. From the scaffolding a limited inspection of the existing parapet and gutter was carried out to observe any obvious points of water ingress.

It was noted that the existing flashing detail seemed in good condition with suitable falls to drainage points on the western, southern, and eastern facades. The northern façade was unavailable for access for inspection but is understood to have an inferior flashing detail compared to the other facades. This is based on views from the Level 4 windows. This inferior flashing detail correlates with the water ingress visible on levels below in the staircase and adjacent rooms on the northern façade of Block A.

It was noted that large parts of the stonework parapet had delaminated in the exposed environment and one large parapet stone was unrestrained laterally and had been tilted towards the building (with temporary packs/shims) to reduce the risk of it falling outwards. Additionally, stonework was noted to be cracking and deteriorating, potentially due to corroded fixings.

# 4. BLOCK B

## 4.1 Basement

The structure is generally assumed to be masonry retaining structures and masonry load bearing walls. The foundations and base slab construction are unknown.

The basement of Block B was generally considered to be in reasonable structural condition. Areas with signs of water ingress and damp to the rear wall of the block were showing signs of dry rot, surface corrosion to beams, and damage to finishes. Areas with improved ventilation were noted as having few problems with damp.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **99B-01 Plant Room** | Plant room has visible damp patches on walls. Recently applied paint has run from walls at foot of masonry retaining wall, assumed to be related to rising damp in the masonry. Structure exposed above with assumed steel or iron beams encased in concrete, exposed elements show signs of corrosion. Steel reinforcement in slab above also exposed locally in the ceiling soffit. |
| **99B-02 Plant Room** | Area very damp, water ponding on the floor. Recently applied paint has started to come off with water, visible corrosion on painted steelwork also noted. Salt stains visible at low level and high level, large areas of dry rot at high level and exposed reinforcement corroding in slab above. Air bricks and openings appear blocked, reducing passive ventilation. |
| **99B-03 Corridor space** | Damp space with ponding water on floor, patches of dry rot and mould at high level and in cupboard spaces. Rebar visible above and exhibiting signs of corrosion. |
| **99B-04 Corridor Space** | End corridor space has improved ventilation and timber exposed in ceiling structure appear dry on the day of visit. |

## 4.2 Ground Floor

The visible structure was understood to be a concrete encased steel or fully concrete framed structure on a combination of load bearing masonry walls and steel columns. The floor structure is understood to be concrete in areas visible.
The ground floor level of block B had areas of significant water ingress, structure at high level appeared generally in reasonable condition but due to limited access this was difficult to review.




| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **00B-01 Chair storage** | Area generally dry. Large hole in floor in the northern corner of the room, with a crack leading from the hole, suggesting movement and weakness in the floor structure. |
| **00B-02 Ballroom** | Area not directly accessible due to significant deterioration. Area could be viewed from doorway. The area has a large area of mould growth adjacent to largely damp areas in Block A. The former timber floor has been removed due to its deterioration from water ingress from above, exposing dwarf masonry piers. Additionally, finishes in the ceiling are noted to have collapsed. The ballroom is susceptible to water ingress due to location below internal courtyard and position between interfaces of different blocks of the building. |
| **00B-03 Kitchen** | There are large areas of significant water ingress and failure of finishes in the kitchen. Ceiling finish has failed, exposing the steel beams above that appear to be showing signs of corrosion. There is the presence of mould and damp surfaces throughout. Above the existing cold store the ceiling finishes have collapsed, revealing the timber joists above, these appear dry and reasonable condition. Kitchen area is adjacent to the susceptible ball room area (as referenced above) and is at the interface with Block C and the escape stairs. Therefore based on observations elsewhere, these are weak points for water ingress. |

## 4.3 First Floor

The structure is thought to be concrete framed or steel encased concrete with a reinforced concrete slab, this slab is assumed to be supported by load-bearing masonry walls. It appears a non-structural screed is present above the existing structural slab. The first-floor level of Block B appeared in good condition structurally; previous opening up works revealed beam locations above and there were some localised areas of water ingress and significant signs of ingress towards the northern corridor end.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **01B-01 Hotel Rooms** | Area noted to be generally dry. Cracks noted in floor, but likely to be in the screed finish rather than in the structure. Some mould noted locally on cornices and ceiling finishes at a high-level. |
| **01B-02 Hotel Rooms** | Mould and damp towards end of the corridor, noted locally on cornices and ceiling finishes at a high-level in hotel rooms and bathroom. Ceiling finishes have collapsed and finishes starting to detach from structure above at the end of the corridor at interface with external escape stairs . |

## 4.4 Second Floor

The floor structure is assumed to be concrete framed or steel encased concrete with a concrete slab and a non-structural screed above. This structure is thought to be supported by load bearing masonry.

The second-floor level of block B appeared in good structural condition; previous opening up works have exposed some beam locations above and it was generally noted that this area was not damp.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **02B-01 Hotel Rooms** | Area noted to be generally dry. No structural defects identified. |
| **02B-02 Hotel Rooms** | Area noted to be generally dry, wide cracks present in floor. Suspected to be cracks in a non-structural screed finish above the structural slab and therefore are assumed to be non-structural |

## 4.5 Third Floor

The third-floor level of Block B is a later addition to the original 1930s block. The floor structure is assumed to be concrete framed or steel encased concrete with a reinforced concrete slab, this slab is assumed to be supported by load-bearing masonry walls. It appears a non-structural screed is present above the existing structural slab.
This level appeared in reasonable structural condition, there were some areas of damp and one area that was dripping during the site visit.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **03B-01 Hotel Rooms** | Area of roof dripping in corridor onto floor finishes below (this started during the inspections). Ceiling finishes have collapsed locally, and the straw panel roof above has been exposed. This suggests ponding of water above and possible failure of finishes. |
| **03B-02 Hotel Rooms** | Large patches of damp in this area with ceiling finishes peeling from the ceiling and staining on the floor and external walls, indicating historic issues with water ingress. |

## 4.6 Roof

Direct access to the roof of block B was available from the internal courtyard. Large areas of the existing roof had standing water present that was unable to drain properly due to a blocked outfall on the eastern elevation. Standing water was present at both the northern and southern ends of the roof and in some locations around rooflights (potential weak points in the finishes). The drainage outlets to the roof appeared to be blocked and/or not functioning which would explain the actively dripping water directly below, noted during the inspection. It was also noted that any water that does discharge from this roof, is discharged onto the roof below, directly above the ballroom; this has already been identified as susceptible to water ingress

The photograph also shows that an attempt has been made to direct water from other roof areas through a hopper and to the outfall, off the roof. However this water is being discharged directly onto the flat roof and the arrangement of hopper and pipe is redundant and is actually blocking the outfall from the flat roof, exacerbating the ponding of water. This area of ponding correlates with dripping water on the level below.

# 5. BLOCK C

## 5.1 Basement

Visible elements of the structure suggest it is a masonry retaining wall with a timber floor structure at ground floor level above, the foundation and base slab structure is unknown but there were areas of timber suspended flooring.

The basement of Block C was generally considered to be in a reasonable structural condition, but there were clear signs of water ingress.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **99C-01 Museum** | This space is noted to be generally damp. Salt stains visible on masonry retaining structure suggesting leeching of salts due to water ingress. Rising damp visible around columns and mould has grown on remaining museum cabinets. |
| **99C-02 Plant** | Area by door very damp with timber structure directly above visibly wet and finishes have collapsed to the floor. Timber step on floor below has rotted and collapsed. |
| **99C-03 Basement Stores** | Room noted to have damp ceiling finishes with ceiling sagging. Unknown condition of structure above. Water ponding on floor in space and above doorway a large fruiting body is present. |
| **99C-04 Basement Stores** | Space drier than adjacent spaces and nearer end of corridor ventilation. |

## 5.2 Ground Floor

The Ground Floor of Block C appeared to be in a reasonable structural condition, but there were clear areas of water ingress. The structure of the area is not known.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **00C-01 Restaurant** | There are two large areas of damp in this space. Located at the two internal corners of the space, notably these are the junctions with the two other blocks. This damp runs for the height of the space, at both high level and low level. Cracks are visible in the finishes to the north of the space and a localised area of the ceiling finishes is starting to crack. |

## 5.3 First Floor

The visible structure suggests it is a timber floor structure supported on steel/iron beams with load bearing masonry walls.

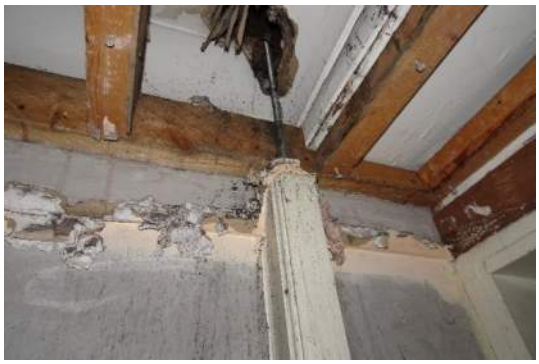
The structure of the first floor of Block C showed large areas of historic water ingress. The structure shows signs of movement in the finishes with gaps forming and cracks in masonry walls.

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **01C-01 Corridor** | Corridor shows signs of significant water ingress and staining. Internal wall appears to be locally bowing. Water noted to be ponding on flat roof above. |
| **01C-02 Hotel Rooms** | Staining in rooms on wall adjacent to main corridor, finishes in ceiling have failed and you can see up to floor above. Steel beams visible in ceiling that span across the building. Wide cracks and sign of movement in three walls of room, large diagonal crack above doorway lintel and external wall finishes have moved away from internal partitions to form gap. Signs of water ingress in stained floor. Pattern of cracking and gaps in finishes, suggests outer lean of wall and may be related to previous strengthening works or changes to the roof structure. |
| **01C-03 Hotel Rooms** | Main rooms are generally in reasonable condition. Wide vertical crack on internal wall opposite diagonal crack noted in 01C-02. Strengthening detail visible above, understood to provide structural support to existing beams in the L02 floor structure. The reason for strengthening is not fully understood; may be due to fatigue or movement of structure over time. Refer to Appendix C for indicative sketch of the understood roof structure and strengthening detail. Wall at end of corridor by escape door shows signs of significant water ingress with finishes peeling and large areas of staining. |

## 5.4 Second Floor

The visible structure suggests it is load bearing masonry walls with a timber and steel floor structure. Due to the supposed construction date of this block the steelwork seen in the floor above may be a later addition to the structure.

The Second Floor of Block C was generally considered to be in a reasonable structural condition, but there were clear areas of water ingress.



| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **02C-01 Corridor and rooms** | Corridor shows signs of significant water ingress and staining. Main areas of water ingress are adjacent to the internal courtyard doorway. Here there are multiple wide cracks in the finishes and fine cracks in the window lintel. Water collection tank located on by door, clear sign of ongoing water ingress. At this level tie bars are visible that are understood to support the floor below. These appear in good condition, but care needs to be taken to ensure these are not damaged in any ongoing works. Refer to Appendix C for indicative sketch of the roof structure and strengthening detail as currently understood. |

## 5.5 Roof

. The roof structure is relatively new, to replace the function of the original timber truss. The visible structure suggests it is a steel portal frame structure supported on steel beams below that span between the masonry load-bearing walls. These frames are positioned either side of existing timber trusses to relieve load from them and allow openings to be introduced in the truss, creating a more open attic space. Steel purlins running along the roof support the existing and new timber rafters, minimal connection noted between purlins and rafters. Refer to Appendix C for indicative sketch of the roof structure and floor strengthening detail as currently understood.

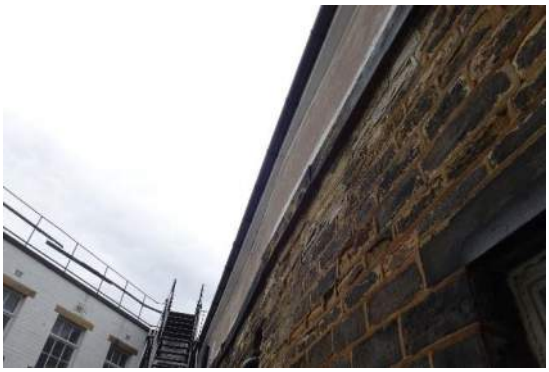
The stability of the new roof structure is assumed to be achieved with portal action (although it is noted that the portal connections look nominal rather than fixed). The longitudinal stability system is unclear it is assumed that infill panels are required to provide rigidity to the structure, although these appear incomplete. Rafters do not appear to be connected to purlins or the perimeter wall plate. These observations suggest that the construction of the roof structure is incomplete.

The roof structure of Block C was generally considered to be in a good structural condition with no signs of water ingress

| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **03C-01 Roof Internal** | Roof structure is in good condition. New parapet wall made of blockwork also appears in good condition, although it appears to have been built following the existing wall position below and therefore has not been formed straight and plumb. |
| **03C-01 Roof External** | The roof externally appears in good condition, it was noted that there is vegetation growth and a visibly damp patch of stonework at the most northern extent of the John William Street Façade. Access was not available to this section of the roof externally. |

# 6. INTERNAL COURTYARD ELEVATIONS

The internal courtyard of The George Hotel is a key cause of potential water ingress to internal spaces. The review of the internal courtyard tried to identify signs of historic damp and/or ponding externally to help inform the review of internal areas. The key observations were generally of vegetation growth, minor cracks in brickwork and ponding of water on flat roofs.



| LOCATION | DESCRIPTION OF CONDITION |
|---|---|
| **Eastern Elevation** | Signs of damp on eastern façade. White paint has run from the masonry surface, vegetation is growing from ledges across elevation and fine cracks in the brickwork mortar joints are present. Main areas of vegetation, ponding in southern end of elevation correlate with water ingress in internal spaces below and adjacent, as referenced in earlier sections of this report. |
| **Western Elevation** | Elevation generally in good condition, two hairline cracks beneath the second-floor window and some signs of staining at the parapet |
| **Southern Elevation** | Elevation is visibly damp with algal and vegetation growth across wall. Areas behind southern elevations noted to in earlier sections of the report to show signs of water ingress. |

# 7. CONCLUSIONS AND RECOMMENDATIONS

Please see below for conclusions identified from our observations and recommendations for further works/investigations to the George Hotel. Further works are recommended to allow further investigation of the underlying structure in key areas of potential damage.

## 7.1 Inaccessible areas

Due to deterioration, there were a number of areas where access was not possible. To enable safe access for inspection and potential repair, temporary propping is required to the underside of the following areas. These are identified on the drawings in appendix A:

- 99A-01 (Basement Store)
- 99A-02 (Basement Store)
- 99A-05 (Basement Store)
- 99B-03 (Basement Store)
- 00B-02 (Ballroom)
- 01A-01 (Hotel Rooms/Toilets)
- 01A-07 (Hotel Room)
- 02A-04 (Stair core)
- 02A-05 (Hotel Room)
- 03A-05 (Stair core)
- 03A-06 (Hotel Room)
- 04A-04 (Stair core)
- 04A-05 (Hotel Room)

## 7.2 General Water Ingress

Generally, the structure was considered to be in a reasonable condition, however areas of water ingress and associated corrosion, mould and/or dry rot were identified throughout the building. If these areas of water ingress are not halted, then there may be impact on the structure on a wider scale over time. Some key areas of water ingress identified are:

- At the northern extent of the building, adjacent to the escape stairs in Block B and C and in the Block B kitchen at Ground Floor.
- At the fourth floor of Block A water ingress occurred generally adjacent to the mansard roof windows
- In the stair core of Block A including areas directly beneath such as ballroom and basement areas
- On the roof of Block B there were large areas of standing water and active dripping of water directly beneath
- At the external door interface in the internal courtyard of Block C.

The defects caused by this water ingress are currently non-structural but temporary protection of the relevant openings or roof structure may help in the short term to prevent continual water ingress. Temporary protection could be provided as part of the existing external elevation access scaffold and integrated with any future proposals for a temporary roof and/or weather protection. Areas of damp timbers have been identified in the Appendix A plans and areas of damp should be inspected at the next stage to identify the underlying extent of water ingress in the structure. The recommended process to review underlying damage at the next stage is:

- Identify areas of water ingress on the plan drawings and confirm on site
- Organise suitable safe access to review area of structure
- Remove finishes from affected area to open up structure beneath
- Identify extent of damp in structure and undertake decay survey
- Structure with a significant loss of capacity may require strengthening or replacement. In the short term, propping may be required below these areas

### 7.3 Water ingress in basement areas

It is obvious that where there are areas of basement ventilation, the condition of the structure and the general condition of the fabric is good. Where there is no ventilation, damp is an issue, leading to saturation of load bearing masonry, corrosion of metalwork (albeit surface corrosion currently), corroding reinforcement and dry rot spreading

Ramboll identified 3 causes of damp basement conditions:

1. Water ingress for high level (mainly at interfaces between the phases of construction) making its way through the structure, into the basement with limited drainage/ventilation to remove the moisture
2. Rising damp
3. Masonry retaining walls saturated from surrounding ground. It is noted that there is significant water that does run towards the George Hotel from the water fountain on George Square. There will be a drainage system in place, but there may be defects below ground resulting in saturated ground adjacent to the George Hotel basement.

It is also noted that existing vents in the basement have been blocked and therefore it is recommended that a review of the basement ventilation strategy should be undertaken to reduce the risk of moisture build-up and the continual spread of dry rot and corrosion of metal work.

Areas where reinforcement has been exposed to the underside of the slab and is starting to corrode have been identified on the drawings in Appendix A In these areas/rooms it is recommended to undertake a Schmidt hammer test of the surrounding concrete (to locate hollowness/hidden corrosion and the extent of deterioration). A cover meter survey would also be recommended to confirm whether any areas of reinforced slabs have insufficient cover. Depending on the outcome, it is likely that local removal of loose/spalling concrete will be required, and suitable concrete repairs specified. This will be developed during the next stage.

To maintain and reduce potential water ingress it is recommended that:

- The ventilation strategy is reviewed and clarified (as above)
- Any surface salts on brickwork are cleaned off and any friable brick/mortar is removed back to the solid face and repointed
- Any damp proofing, or external repair to be considered in conjunction with a moisture control strategy for basement
- A desktop investigation of existing design drawings and a CCTV survey is to be undertaken to identify and review the external drainage strategy for the George Square.

### 7.4 Excessive loading from contained water

In addition to the effect of water ingress on structural elements due to damp, areas of structure were identified where continual water ingress was being captured/isolated in buckets, supported off existing structures that may be defective due to historic water ingress.

The large water storage vats/buckets utilised across the building to catch active dripping into the building apply a large load locally to the floor. The condition of the supporting floor is unknown and likely to be defective due to historic water ingress It is recommended that all storage buckets/vats are drained and removed as soon as possible and water shed temporarily by other means (eg temporary roof structure)

Additionally, the ponding of water at roof level of Block B due to outfall blockages and the continued backing up of water, may be applying excessive loading to the roof structure. It is recommended that the drainage outfalls are unblocked, as described in Section 7.5.

## 7.5 Roof Level Drainage

The roof drainage is a key area of potential water ingress; more understanding is required of the existing water drainage layout and details in order to determine the extent of remedial works required. Roof drainage outfalls around the perimeter of the blocks and into the internal courtyard of the building appear to be insufficient in area for the existing roof areas; this could be reviewed around the full perimeter to assess if further drainage interventions are required.

Existing outfalls are blocked on the Block B roof. it is recommended to unblock down pipes and outfalls and remove debris that may be creating blockages to immediately relieve some of the water ponding. Ponding water can apply excessive loads to the structure and may exceed the capacity.

Additionally, the roof is recommended to be protected by a temporary scaffold roof structure and stripped (Blocks A and B) to assess the condition of the roof timbers beneath and establish the extent of structural defects and locations of water ingress in the roof. Once the extent of potential defective timbers has been identified in each area, then it is recommended that a specialist timber decay survey is undertaken to inform any future roof repairs

## 7.6 Cracking and movement of structure

It is noted that a number of areas have patterns of cracking in the plaster finishes (to varying degrees of severity) It is proposed to monitor areas of any cracking for further movement. The main areas of cracks and/or movement in the finishes noted are as follows.

### 7.6.1 Stair core of Block A at L01 & L02

As discussed further in Section 7.7, large cracks have formed in the finishes in the stair core of Block A. It is recommended that safe access is established, and the finishes are removed to assess the damage to the structure beneath.

### 7.6.2 Centre of Block C L01

It was noted that cracks and gaps in the finishes in Block C suggested movement of the eastern wall. This area was previous strengthened and altered at roof level to create a new attic space (with floor strengthening structures hung from the new attic structure). It is recommended that in the areas of cracking, as identified on the First Floor Plan in Appendix A, the finishes are to be removed to establish if cracking is present in the underlying structure. It is also recommended to check the interface of the floor with the walls to see if there is sufficient bearing of the timber joists with any outward movement of the existing wall. Floor/ceiling finishes above and below this floor structure are to be removed local to the cracking to assess floor/wall interfaces

### 7.6.3 Block A return walls L02/L03/L04

Diagonal hairline cracks are visible in the plaster at a high level in Block A, as identified on the Second, Third and Fourth Floor Plans in Appendix A, suggesting minor movement of the western wall. It is recommended that the finishes are removed locally to identify if the cracking continues into the structure below and if so, crack width monitors be installed in-situ to assess if any movement is ongoing or historic. If movement is discovered, then strengthening and tying of the structure may be required in the permanent condition.

### 7.6.4 Block B ground floor concrete slab

It was noted that in area reference 00B-01, which was utilised as a chair store, there were fine cracks in the concrete floor structure, radiating from a rough penetration in the existing slab. It is recommended in the short term that this area of slab is propped. Once the propping is established, it would be recommended that safe access is gained from below to assess the requirement for strengthening/repairing of this section of slab

### 7.7 Stair core in Block A

This area has shown quite severe deterioration over time and due to the lack of safe access currently the exact causes of this are not yet understood. Water ingress is visible across the stair core which appears to have been occurring over a long time period with rooms adjacent to stair core also showing signs of water ingress. There are large cracks in the finishes adjacent to window and door openings at upper levels in the external façade as well as in the stair structure itself. Additionally, finishes have collapsed below the soffit of some landings.

Possible routes for the water are the inferior flashing detail at Roof Level on the northern elevation of Block A, rooflight detailing at the top of the stair core or through the cracked finishes and window openings.

It is recommended that initially safe access to review the structure is established, with scaffold or temporary supporting structures, allowing removal of the existing finishes for review of the structure beneath. The finishes with large cracks visible in them are to be removed to allow review of the masonry wall beneath for cracking and high-level beams are to be reviewed to establish extent of timber decay or degradation from water ingress ( from a timber decay survey). Areas of possible water ingress are to be reviewed to establish cause of degradation and allow for remedial works.

### 7.8 Exposed reinforcement

Areas were noted throughout the building of exposed reinforcement in concrete slabs (as generally indicated on the plans in appendix A). It is recommended that to check the extent of corrosion a tap test is undertaken in all areas of exposed reinforcement and a suitable remedial concrete repair is completed to protect the reinforcement. (as described in section 7.2)

### 7.9 Parapet stonework

Some exposed high level stone parapets showing signs of delamination due to the bedding of the stone and also cracking/deterioration probably due to corroded fixings.

Now that the external perimeter is fully accessible it would be recommended to Ferroscan the parapets, to identify any ferrous dowels/cramps in the stonework between parapets, and between the parapet and wall below. If there are ferrous dowels, and deterioration and/or delamination in some of these stones, it is likely that water may penetrate through and corrode the dowels, which in turn can split the stone. A detailed stone by stone survey may be required to identify which parapet stones are adequate, which may require an in-situ repair and which may require replacement

### 7.10 Block C Roof Structure

The stability and robustness of the new roof structure in Block C is unknown and suspected to be insufficient due to limited connections between the purlins and the timber joists. It is recommended that a more detailed structural review is completed to identify any required remedial works. It is also recommended to check if the Building Regulation submission for the Block C roof amendments/strengthening is available so the original design intent can be understood.

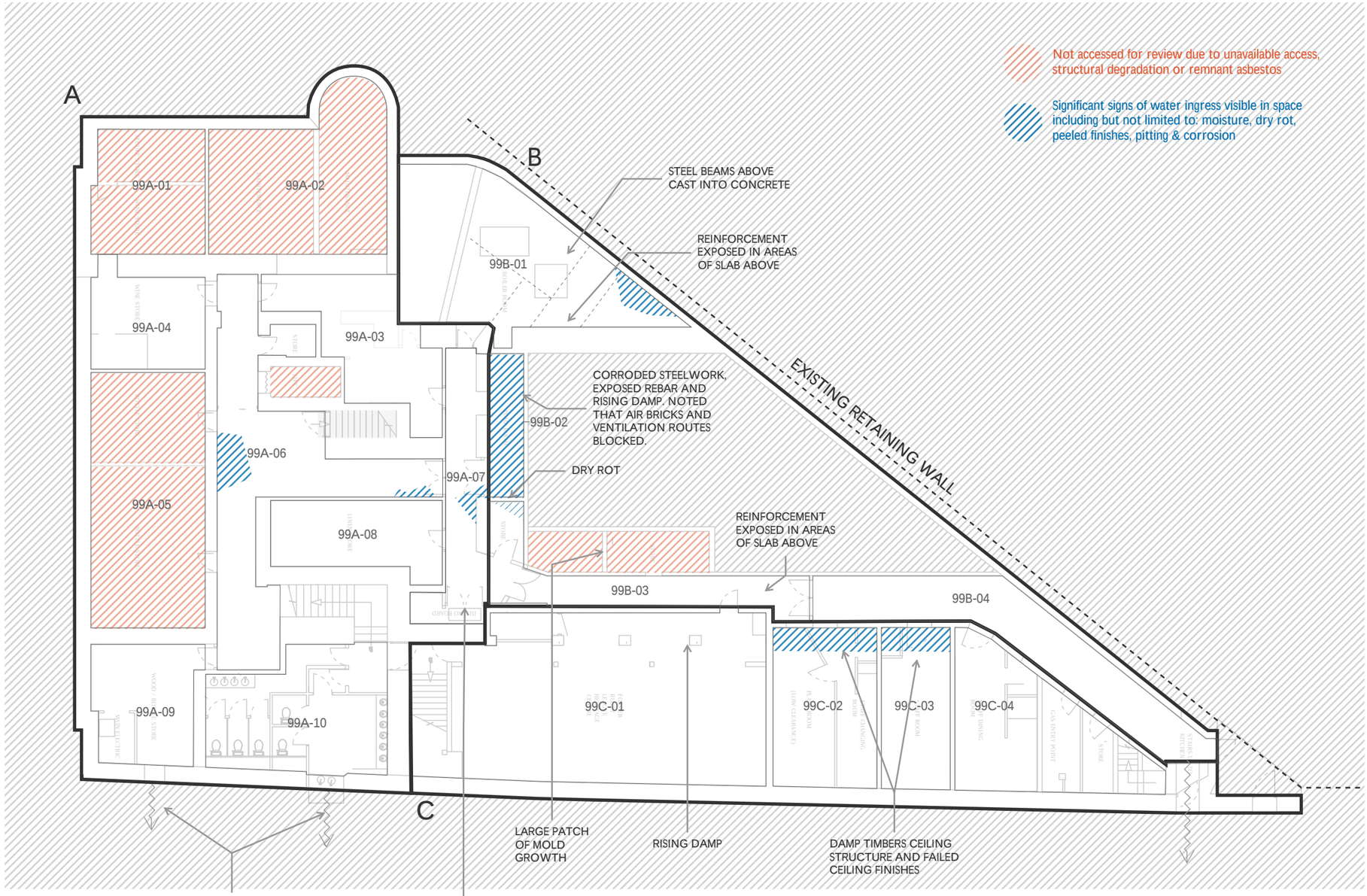
### 7.11 Support of Partitions

In one of the hotel rooms in Block A, area refence 03A-05, there is a heavy partition without direct support beneath (the partition is built directly off floorboards). In this instance a suitable support beam would be required to be integrated into the floor structure (e.g. pair of floor joists, same depth/thickness as surrounding floor joists, strapped together) It is recommended that the support condition for all partitions should be assessed and any that do not currently have a line of structural support directly beneath should be assessed and support beams/joists incorporated as necessary

# APPENDIX A – REFERENCE PLAN

# STRUCTURAL INSPECTION REPORT

THE GEORGE HOTEL




BASEMENT

N

RAMBOLL

STATION GATEWAY

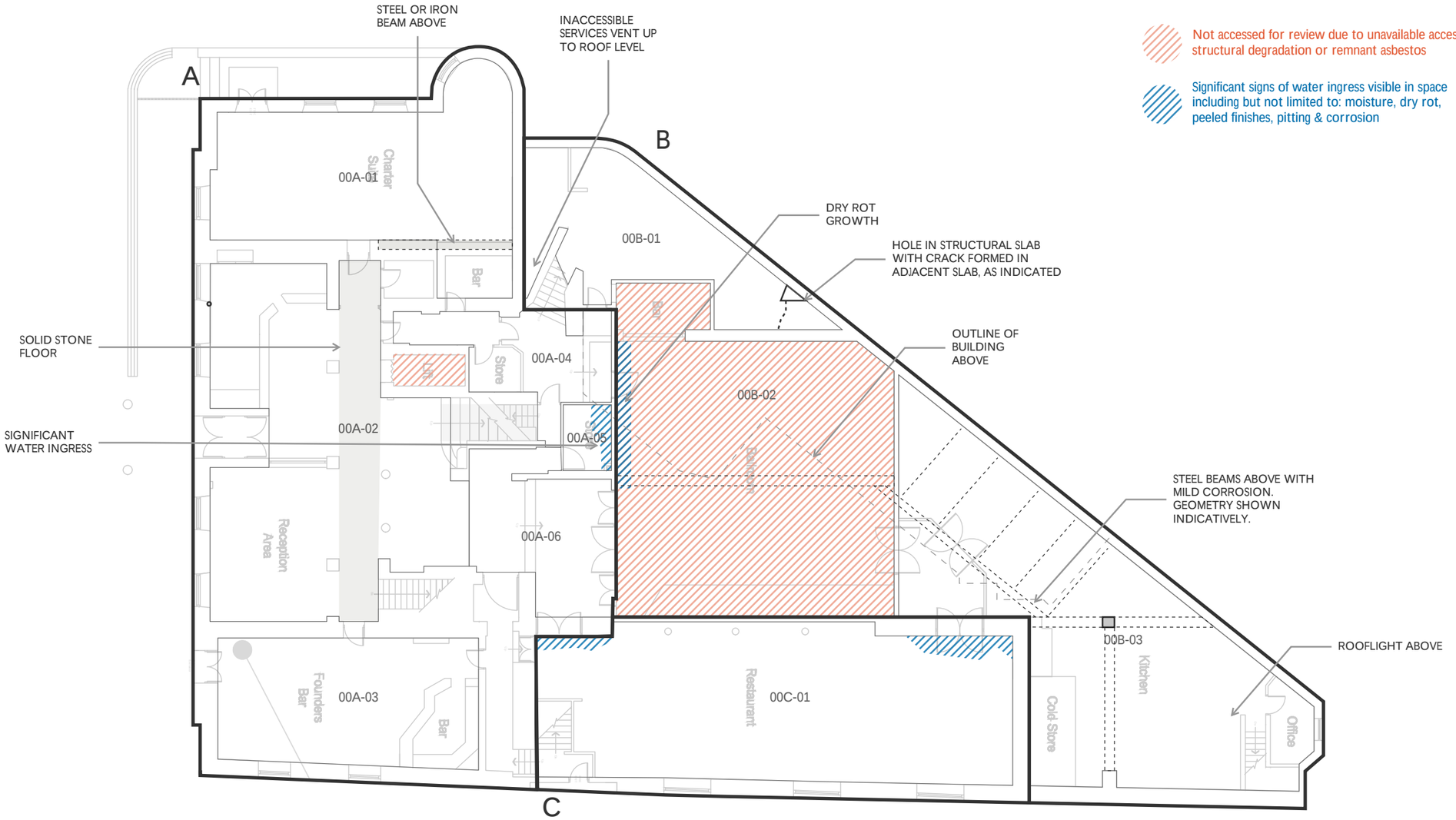
1620012540 ENG: ST

SK001 P01 CHK: PM

28/09/21 APP: FN

# STRUCTURAL INSPECTION REPORT

THE GEORGE HOTEL




GROUND

N

RAMBOLL

STATION GATEWAY

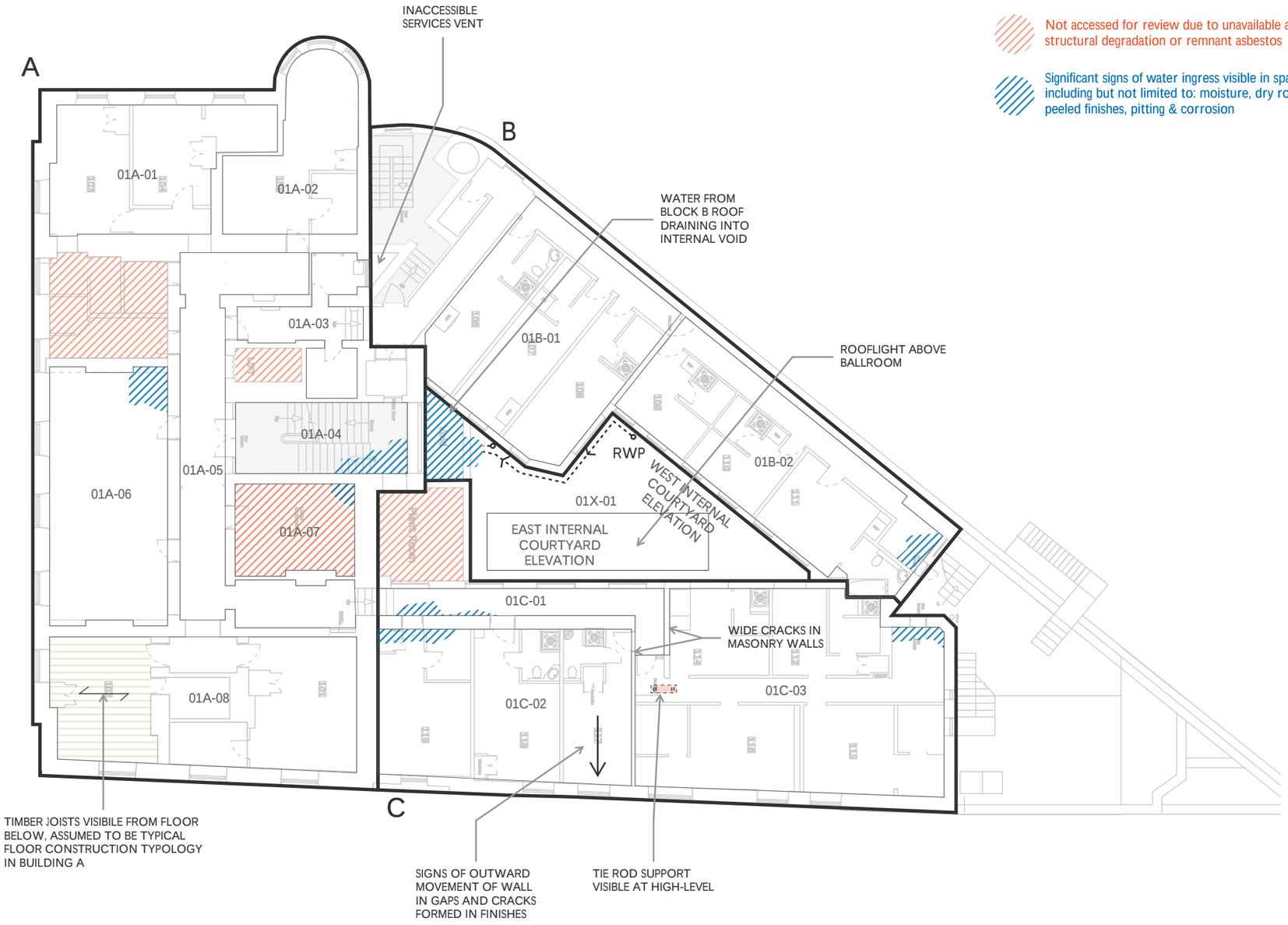
1620012540 ENG: ST

SK001 P01 CHK: PM

28/09/21 APP: FN

# STRUCTURAL INSPECTION REPORT

THE GEORGE HOTEL




Not accessed for review due to unavailable access, structural degradation or remnant asbestos

Significant signs of water ingress visible in space including but not limited to: moisture, dry rot, peeled finishes, pitting & corrosion

FIRST FLOOR

N

RAMBØLL

STATION GATEWAY

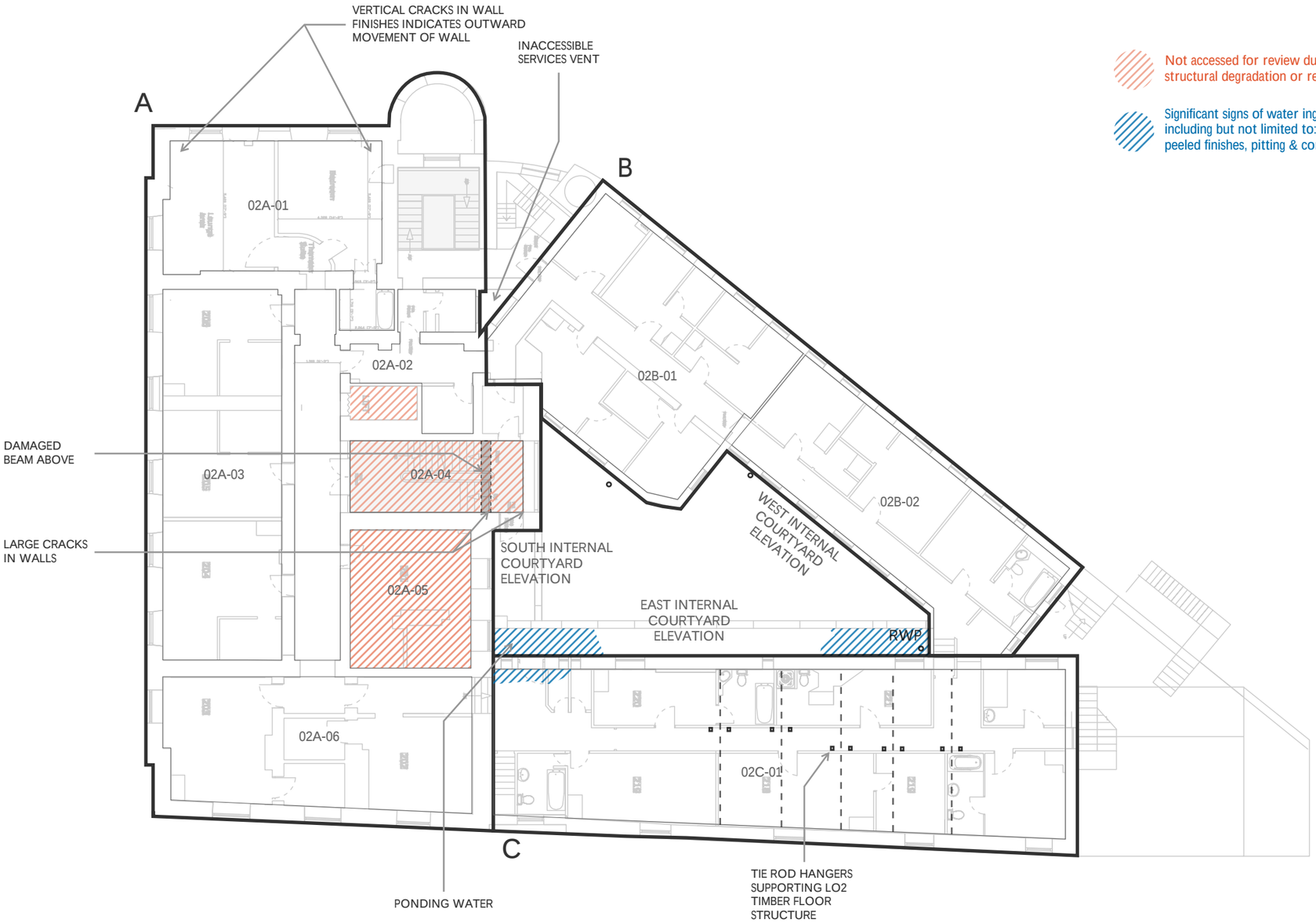
1620012540 ENG: ST

SK001 P01 CHK: PM

28/09/21 APP: FN

# STRUCTURAL INSPECTION REPORT

THE GEORGE HOTEL




Not accessed for review due to unavailable access, structural degradation or remnant asbestos

Significant signs of water ingress visible in space including but not limited to: moisture, dry rot, peeled finishes, pitting & corrosion

SECOND FLOOR

N

RAMBØLL

STATION GATEWAY

1620012540

SK001 P01

28/09/21

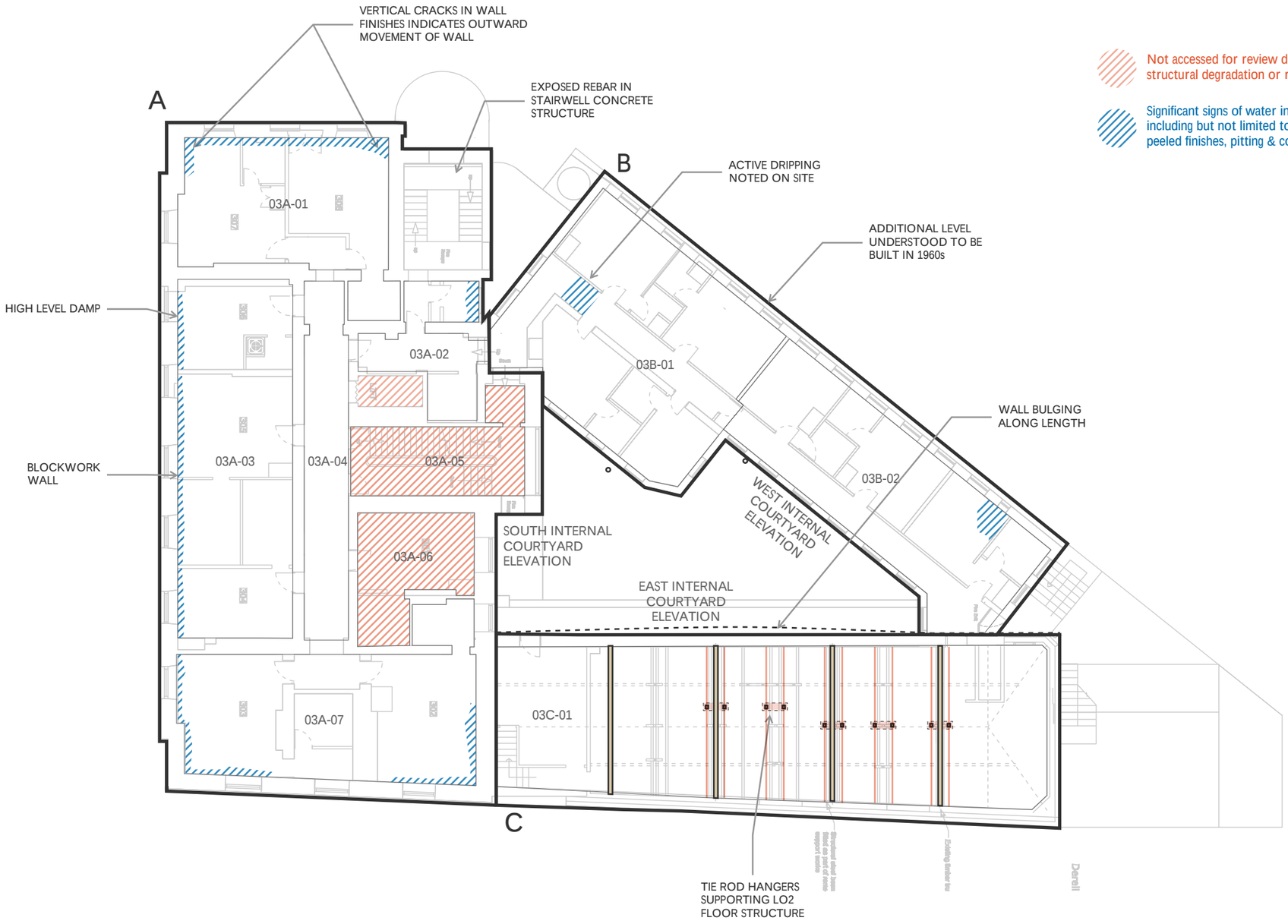
ENG: ST

CHK: PM

APP: FN

# STRUCTURAL INSPECTION REPORT

THE GEORGE HOTEL




THIRD FLOOR

N

RAMBOLL

STATION GATEWAY

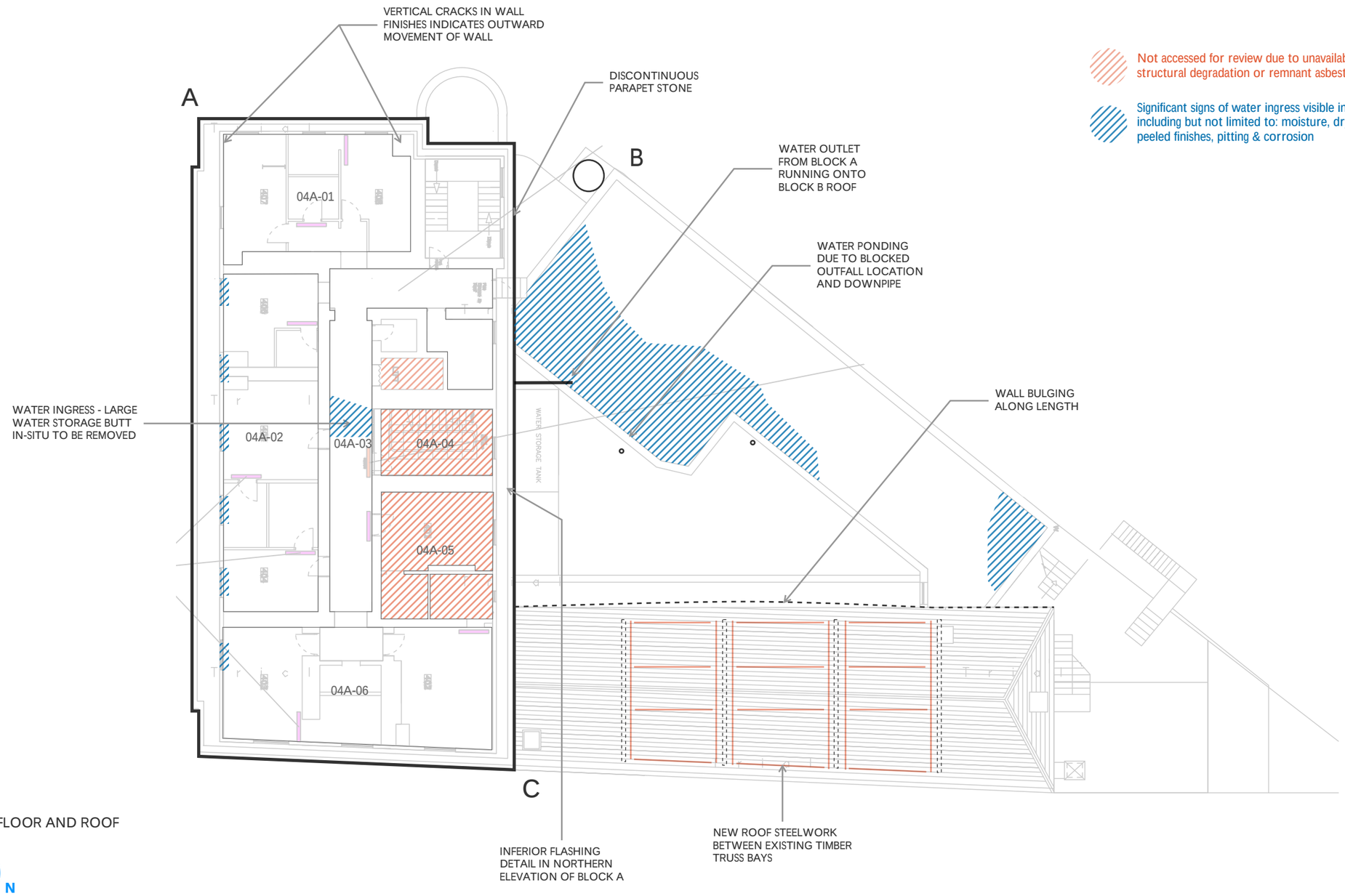
1620012540 ENG: ST

SK001 P01 CHK: PM

28/09/21 APP: FN

# STRUCTURAL INSPECTION REPORT

THE GEORGE HOTEL




FOURTH FLOOR AND ROOF

N

RAMBØLL

STATION GATEWAY

1620012540 ENG: ST

SK001 P01 CHK: PM

28/09/21 APP: FN

# APPENDIX B – PHOTOGRAPHIC RECORD

# APPENDIX B – PHOTOGRAPHIC RECORDS

# 1. BUILDING A

## 1.1 BASEMENT

| LOCATION REFERENCE & DESCRIPTION | |
|---|---|
| **99A-01**<br>**General space**<br>**(inaccessible)** |  |
| **99A-02**<br>**General space 1**<br>**(inaccessible)** |  |

**99A-02**
**General space 2 (inaccessible)**

**99A-03**
**Rising damp**

**99A-04**
**Drain at centre of floor**

**99A-05**

Not accessible

**99A-06**
**General photo**

**99A-06**
**Corrosion on recently painted beam**

**99A-07**
**Dry rot and exposed reinforcement**

**99A-08**

Not accessible

**99A-09**
**Timber floor exposed**

**99A-10** No photos of space

## 1.2 GROUND

| LOCATION REFERENCE | |
|---|---|
| **00A-01**<br>**General photograph of space** |  |
| **00A-01**<br>**Signs of water staining at low-level in bay window** |  |
| **00A-01**<br>**Existing steel beam with signs of corrosion** |  |

**00A-02**
**General photograph of space**

**00A-02**
**Water ingress by drainage run**

**00A-03**
**Water staining in ceiling finishes**

**00A-05**
**Water ingress in storage cupboard**

**00A-05**
**Water ingress in storage cupboard**

**00A-06**
**Damp wall**

## 1.3 FIRST FLOOR

| LOCATION REFERENCE | |
|---|---|
| **01A-01**<br>**Bathroom floor exposed** |  |
| **01A-02**<br>**Ceiling plaster failed** |  |
| **01A-03**<br>**Storage room adjacent to small courtyard** |  |

**01A-04**
**Finishes peeling**

**01A-04**
**Floor boarding bowing**

**01A-05**
**Infilled large crack in wall finishes adjacent to stair core**

**01A-06**
**Damp staining and hairline cracks in ceiling finishes**

**01A-07**
**General photograph of space (not accessible)**

**01A-08**
**General photograph of space**

**01A-08**
**Crack in wall**

## 1.4 SECOND FLOOR

**LOCATION**
**REFERENCE**

**02A-01**
**Cracks and mould in cornice finishes**

**02A-01**
**Diagonal hairlinecrack in plaster finishes**

**02A-03**
**Timbers visible above. Cinder filled partition (heavy construction) built directly off timbers above**

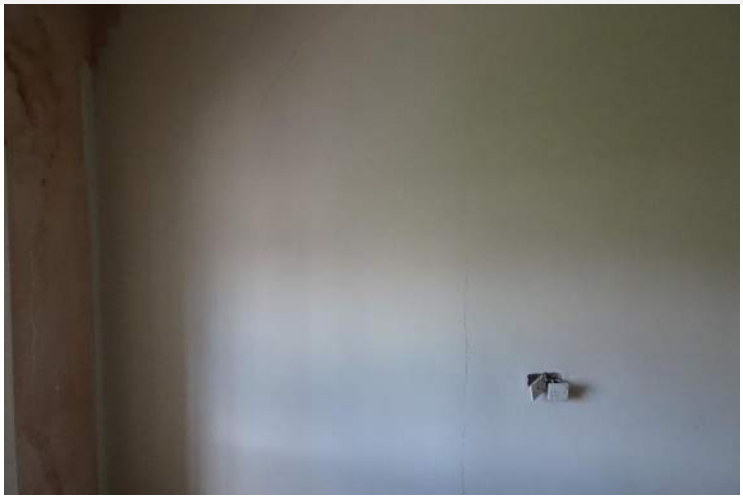
**02A-04**
**Stairs arched window**

**02A-04**
**Large cracks in wall finishes**

**02A-05**
**General**

**02A-06**
**Diagonal hairline cracks in plaster finishes**

## 1.5 THIRD FLOOR

| LOCATION REFERENCE | |
|---|---|
| **03A-01**<br>**Damp in exterior wall finishes** |  |
| **03A-01**<br>**Vertical crack in plaster finish** |  |
| **03A-01**<br>**Damp in exterior wall finishes** |  |

**03A-02**
**Water ingress in cupboard**

**03A-02**
**Dry rot and water ingress in corridor**

**03A-03**
**Damp in exterior wall finishes**

**03A-03**
**Masonry wall with finishes removed**

**03A-04**
**Damp and cracked ceiling finishes in main corridor**

**03A-05**
**Failed finishes beneath structural beam**

**03A-05**
**Cracks and failed plaster in staircase walls**

**03A-06**
**Failed finishes in corner of room adjacent to stair core**

**03A-07**
**Damps patches in ceiling and wall finishes at high level**

## 1.6 FOUTH FLOOR

| LOCATION REFERENCE | |
|---|---|
| **04A-01**<br>**Damp internal partition** |  |
| **04A-01**<br>**Collapsed plaster finish by window opening** |  |
| **04A-02**<br>**Collapsed plaster finish by window opening** |  |

**04A-03**
**Sagging ceiling**

**04A-03**
**Cracking, peeling and collapsed finishes**

**04A-05**
**Water ingress and failed plaster finishes**

## 1.7 ROOF

**Unrestrained parapet stone**

**Drainage gutter on southern facade**

**Drainage gutter on Northern facade**

**Stonework detailing deterioration**

# 2. BUILDING B

## 2.1 Basement Floor

**99B-01**
**Dry rot growth and corrosion at a high level**

**99B-01**
**Paint washed from wall surface, presumed to be related to damp in lower wall.**

**99B-02**
**Dry rot growth**

**99B-03**
**Steel/cast iron beam showing signs of corrosion**

**99B-03**
**Mould growth in cupboard space**

**99B-04**
**General Photograph of space**

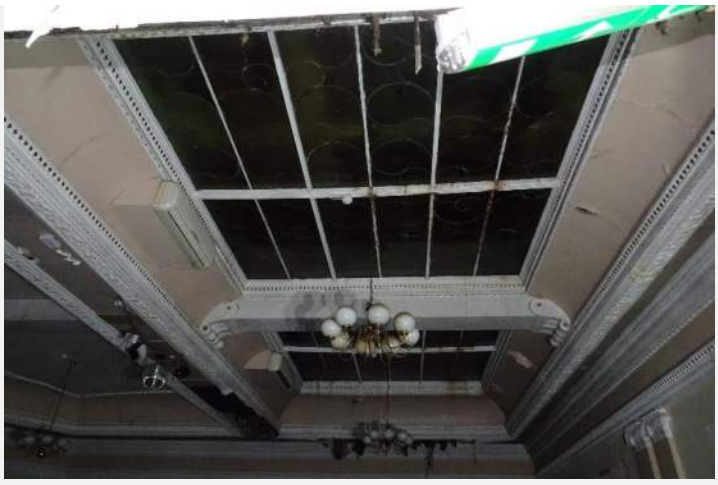
## 2.2 Ground Floor

**00B-01**
**Hole in slab**

**00B-01**
**Cracked slab adjacent to existing hole**

**00B-02**
**Mould growth**

**00B-02**
**Ceiling finishes partially collapsed**



**00B-02**
**Remnant floor structure**

**00B-03**
**Concrete slab rebar visible above, plaster finishes collapsed, and steel beams exposed**

**00B-03**
**Further collapse of ceiling finishes and exposed timber structure above**

## 2.3 First Floor

**01B-01**
**Fine crack in floor, possibly just screed finish**

**01B-02**
**Mould growth**

**01B-02**
**Mould growth**

## 2.4 Second Floor

**02B-01**
**Corridor**

**02B-02**
**Large rack in presumed screed**

**02B-02**
**Beam visible with screed**

## 2.5 Third Floor

**03B-01**
**Corridor**

**03B-02**
**Corridor general photograph**

**03B-02**
**Historic water ingress**

**03B-02**
**Ceiling finishes peeling**

## 2.6 Roof

**Ponding Water adjacent to Block A**

**Ponding water at northern extent of roof**

# 3. BUILDING C

## 3.1 Basement Floor

**99C-01**
**General room photograph**


**99C-01**
**Rising Damp on columns**

**99C-01**
**Mould growth**

**99C-02**
**Damp floor**

**99C-02**
**Damp floor structure above and collapsed finishes**

**99C-03**
**Sagging ceiling finishes**

**99C-03**
**Large mould growth in ceiling cavity**

## 3.2 Ground Floor

**00C-01**
**Damp area to north of space, adjacent to Block C**

**00C-01**
**Damp area and peeling finishes adjacent to Block A**

## 3.3 First Floor

**01C-01**
**Peeled finishes and stained wall. Wall appears to be bowing locally.**

**01C-01**
**Peeled finishes and staining**

**01C-02**
**Steel beam in ceiling above**

**01C-02**
**Collapsed finishes up to next floor above**

**01C-02**
**Wide diagonal crack in finishes above door opening**

**01C-02**
**Finishes separating**

**01C-03**
**Wide vertical crack visible in finishes**

**01C-03**
**Significant water ingress and cracking of finishes at end of corridor doorway**

## 3.4 Second Floor

**02C-01**
**Tie rods in corridor space**

**02C-01**
**Tie rods running up to level above**

**02C-01**
**Water ingress I toilet with cracked lintel**

**02C-01**
**Water ingress, staining and cracks adjacent to internal courtyard door.**

## 3.5 Roof

**03C-01**
**General photograph**

**03C-01**
**Internal double structure around existing trusses**

**03C-01**
**Roof Externally**

## 3.6 Internal Courtyard

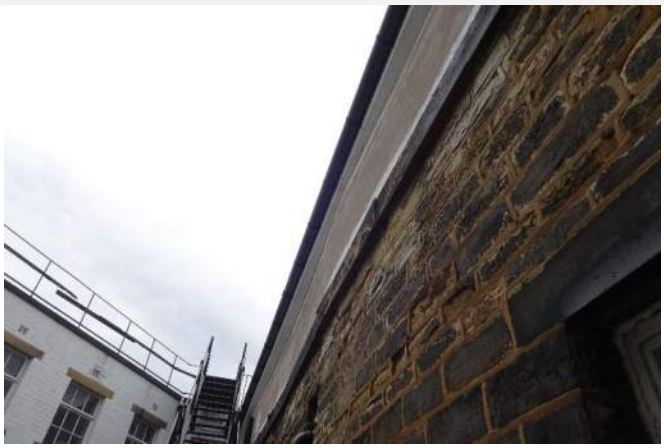
**West and east facade**
**General photograph – paint finish peeling from masonry on eastern facade**

**<u>Western Elevation</u>**
**General photograph**

**Eastern Elevation**
**Vegetation and algal growth in damp areas, some cracks forming in masonry mortar joints**

**Eastern Elevation**
**Damp external wall on eastern elevation**

**Eastern Elevation**
**Bowing external wall on eastern facade**



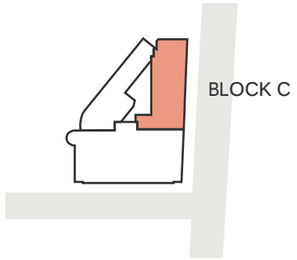
**Eastern Elevation**
**Water pooling on flat roof**

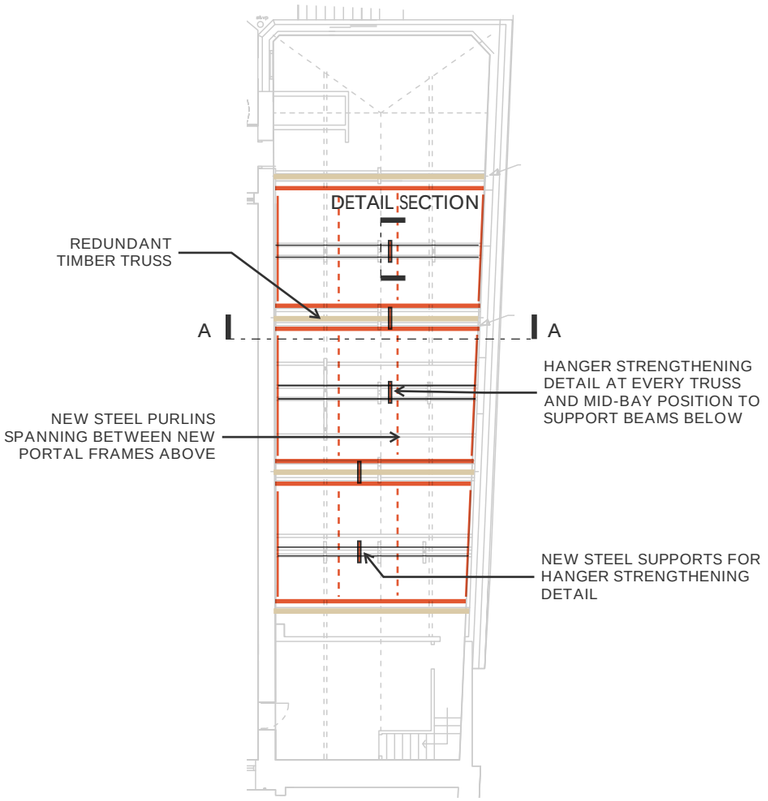
**Eastern Elevation**
**Water pooling in gutter**

**Eastern Elevation**
**Hairline crack in plaster finish**

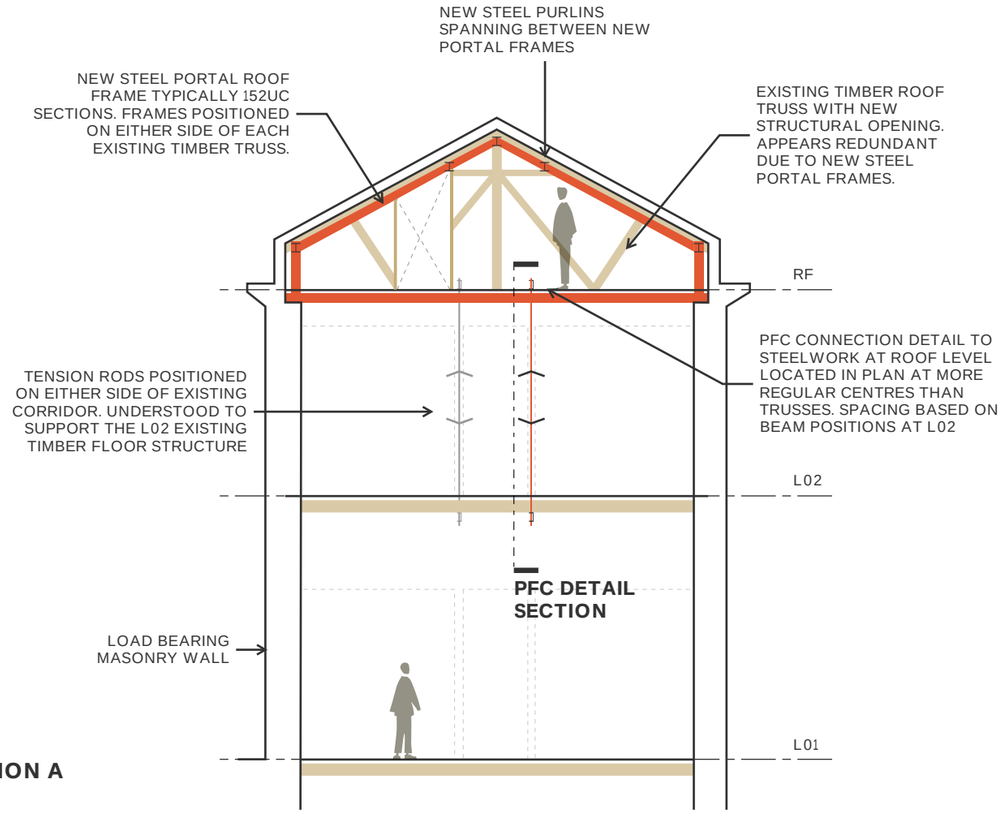
# APPENDIX C – BLOCK C ROOF STRUCTURE

# INDICATIVE ROOF STRUCTURE
## BLOCK C

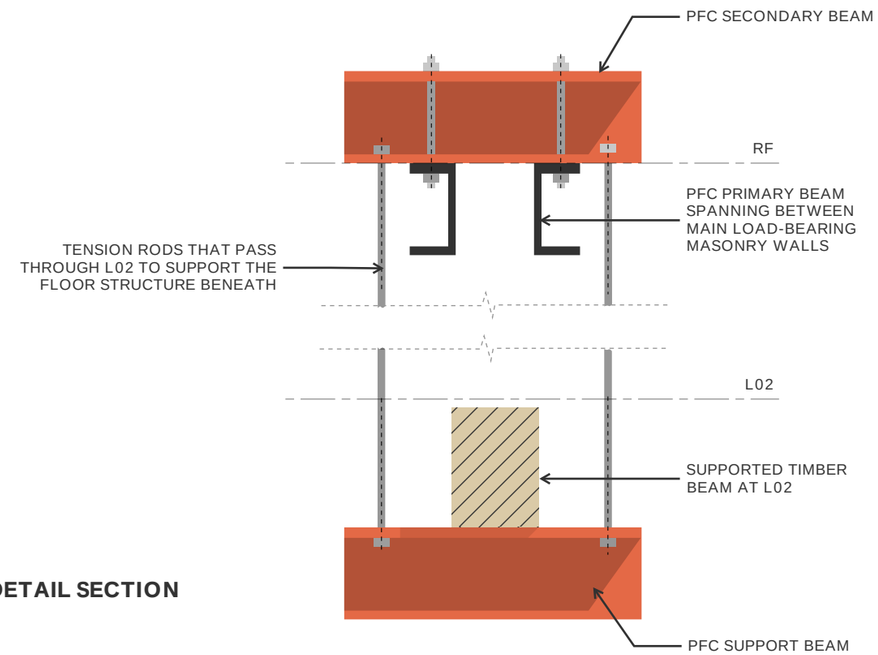



**PLAN VIEW OF ROOF STRUCTURE**
NTS




**SECTION A**
NTS




**PFC DETAIL SECTION**
NTS

RAMBOLL

STATION GATEWAY - GEORGE HOTEL
1620012540 ENG: ST
SK003 P01 CHK: PM
16/09/21 APP: --

Details shown are indicative only and based on limited site observations with no opening up works on site. Sketch for discussion purposes only.