

04 / 09 / 23

Haringey Civic Centre

Additional Architectural Information
following LBH Carbon Management
Response

HCC-HBA-XX-XX-RP-A-081001

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Introduction

This document is provided following receipt of the LBH Carbon Management Response dated 18/8/23 and provides additional information to support the planning and listed building consent application for the proposed refurbishment and extension of the London Borough of Haringey Civic Centre.

Hawkins \ Brown and Buro Happold have provided comments direct within the LBH Carbon Management Reponse Word document (see separate document) - these comments signpost where additional information is provided within this document and within additional information provided by Buro Happold.

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Additional Information on Retrofit Strategy

- 1.1 Hybrid Insulation Approach
- 1.2 Comparison of internal and external insulation approach (brick walls)
- 1.3 Thermal Bridging / Condensation Analysis
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HCC-EOC-RP-002
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1 Retrofit strategy

1.1 Hybrid Insulation Approach

The existing building has two principal cladding materials - precast concrete (which is in poor condition) and brickwork (which is in good condition). In both cases there is a requirement to increase the thermal performance of the walls.

There are two potential approaches to upgrading thermal performance -

- adding insulation from the inside of the structure which leaves the external envelope intact but increases the technical challenges - such as cold bridging and condensation control
- integrating insulation in the external cladding which leads to fewer technical challenges but requires the external appearance of the building to be changed.

Pre-cast walls

The pre-cast concrete is at the end of life and needs to be replaced, so it is proposed to replace the pre-cast panels with GRC panels allowing insulation to be provided externally. The replacement strategy is supported by Historic England and the Twentieth Century Society because the existing fabric cannot be retained.

Brickwork walls

The drawings overleaf (Section 1.2) indicate two options for insulating the brickwork - internal insulation (the current proposal) and external insulation - which would require the brickwork to be dismantled and re-built with an insulated cavity. This would result in the existing fabric being lost or

substantially modified and therefore the external appearance would be substantially altered. Because the brickwork is in good condition and can be retained any significant loss of fabric runs counter to conservation guidance such as BS 7913:2013 - which requires the retention of existing significant fabric where possible to avoid 'harm' to the heritage asset. This position has now been confirmed by the Conservation Officer and the Twentieth Century Society.

Mitigation of adverse effects of the internal insulation strategy

The design of the internally insulated brickwork adopts design principles to improve fabric performance, minimize cold bridging and avoid condensation. Thermal and condensation risk analysis has been undertaken through key details. We provide overleaf evidence of the process the design team has undertaken to mitigate thermal bridging and the risk of condensation. Section 1.3

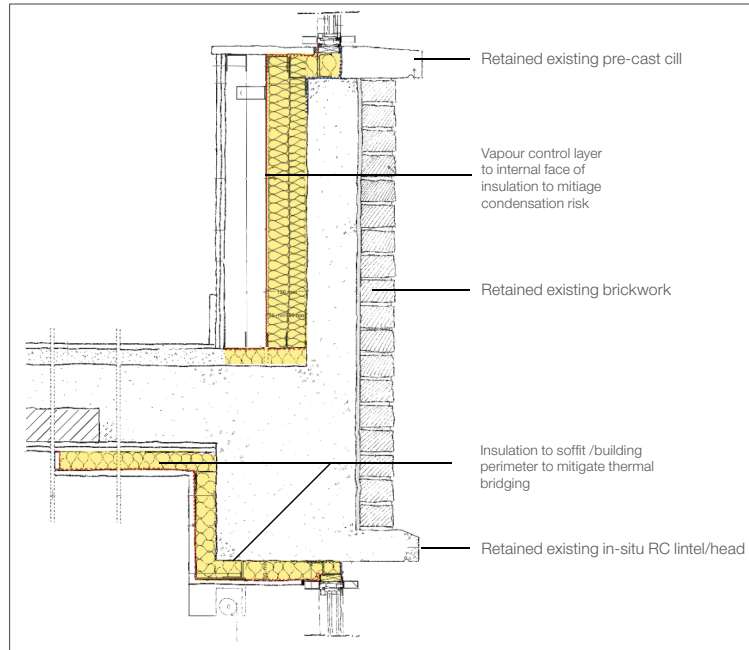
Further analysis will be required during future design stages to demonstrate the principles are being adopted throughout the building. If officers remain concerned, we suggest a condition requiring future submission of detailed design and analysis to ensure moisture control is considered throughout the design process.

Case Study

As requested, in Section 1.4 below, we provide a Case Study of a building recently retrofitted with a hybrid approach to insulation including the design analysis.

1 Retrofit strategy

1.2 Comparison of internal / external insulation solutions

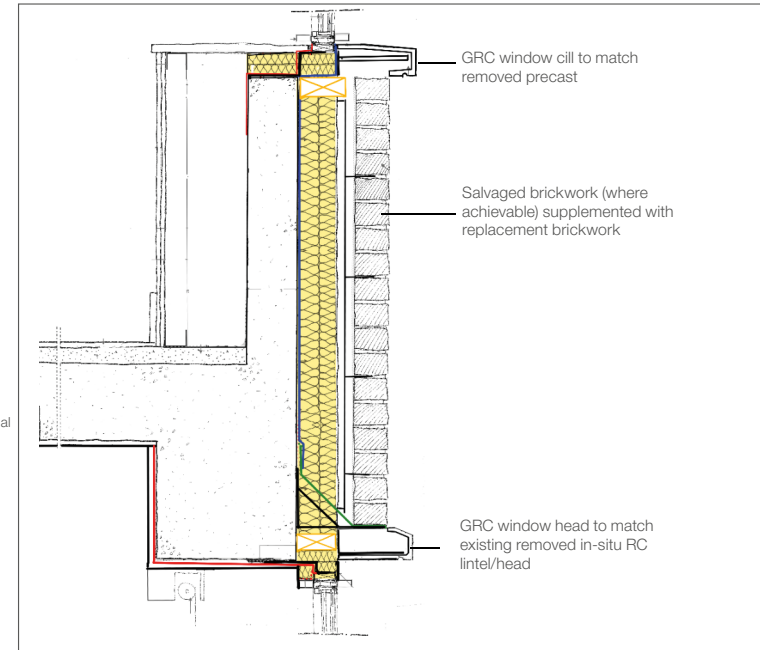


Internal Insulation (current proposal)

Typical detail (punched window)

- External appearance and fabric retained as far as reasonably practical & refurbished
- Embodied carbon reduced
- Thermal bridging mitigated through provision of insulation to structural soffits at perimeter of building
- Condensation risk mitigated through provision of control layer to inner face of insulations

Insulation to soffit / building perimeter to mitigate thermal bridging



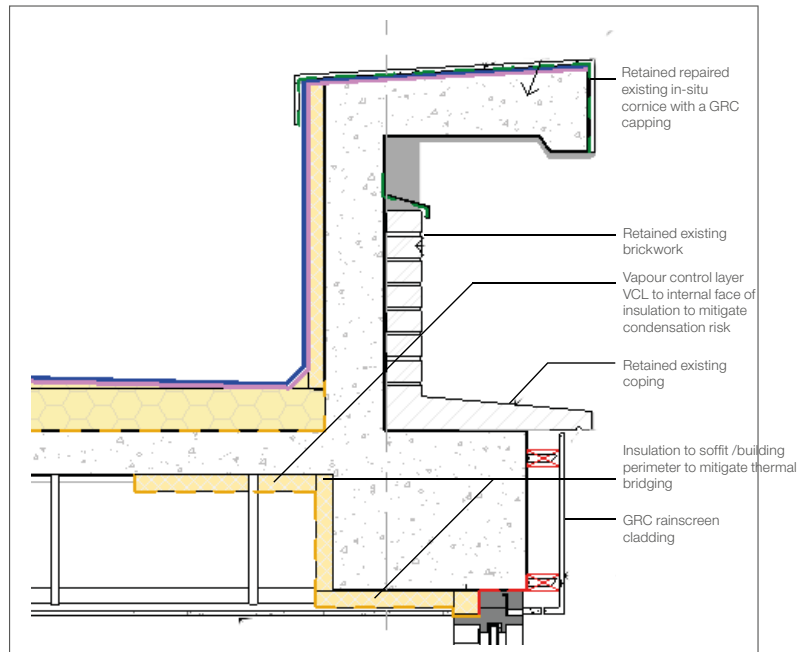
External Insulation

Typical detail (punched window)

- External appearance substantially altered
- Existing fabric lost or substantially modified (a significant proportion of the original bricks likely will be damaged during deconstruction due to high cement content of the mortar and window surrounds would have to be replaced - the option above proposes GRC to match the proposed adjacent panels)
- Additional overall wall build-up (thickness) would increase by 170mm minimum.

1 Retrofit strategy

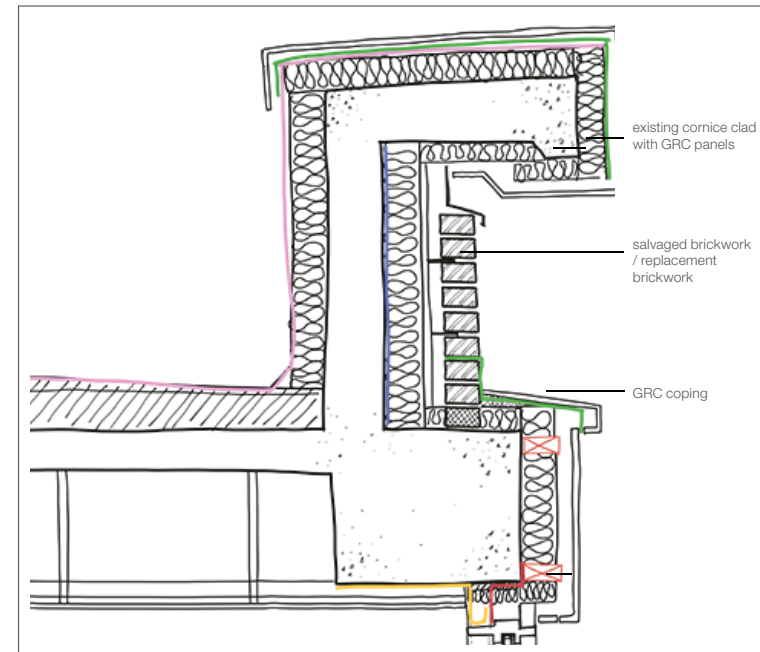
1.2 Comparison of internal / external insulation solutions



Internal Insulation (current proposal)

Cornice detail

- External appearance and fabric retained as far as reasonably practical & refurbished
- Embodied carbon reduced
- Thermal bridging mitigated through provision of insulation to structural soffits at perimeter of building
- Condensation risk mitigated through provision of control layer to inner face of insulation



External Insulation

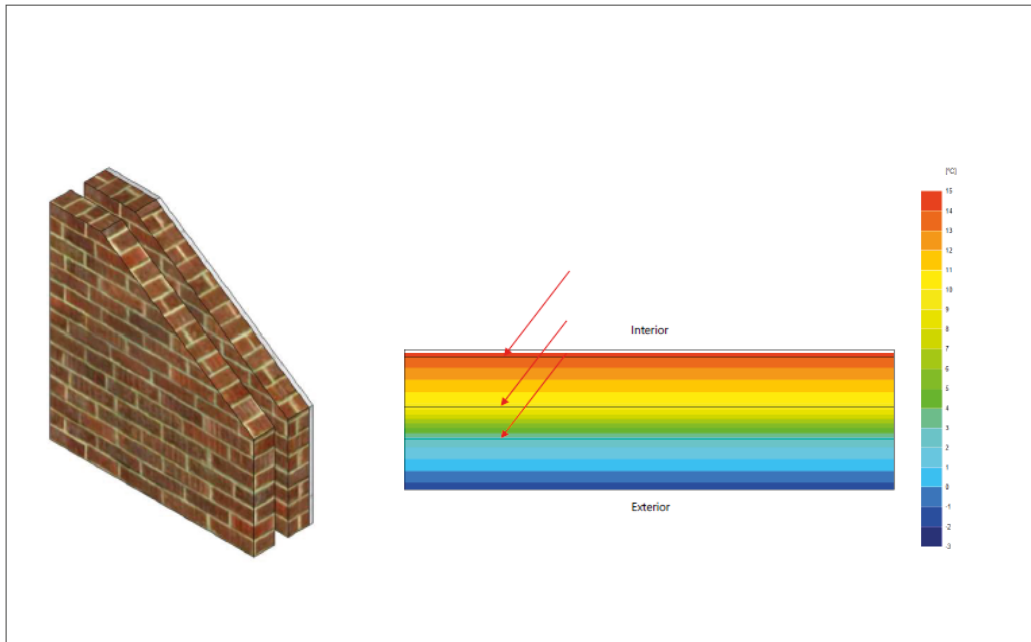
Cornice detail

- External appearance substantially altered
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- Additional overall wall build-up (thickness) would increase by 170mm minimum.

1 Retrofit strategy

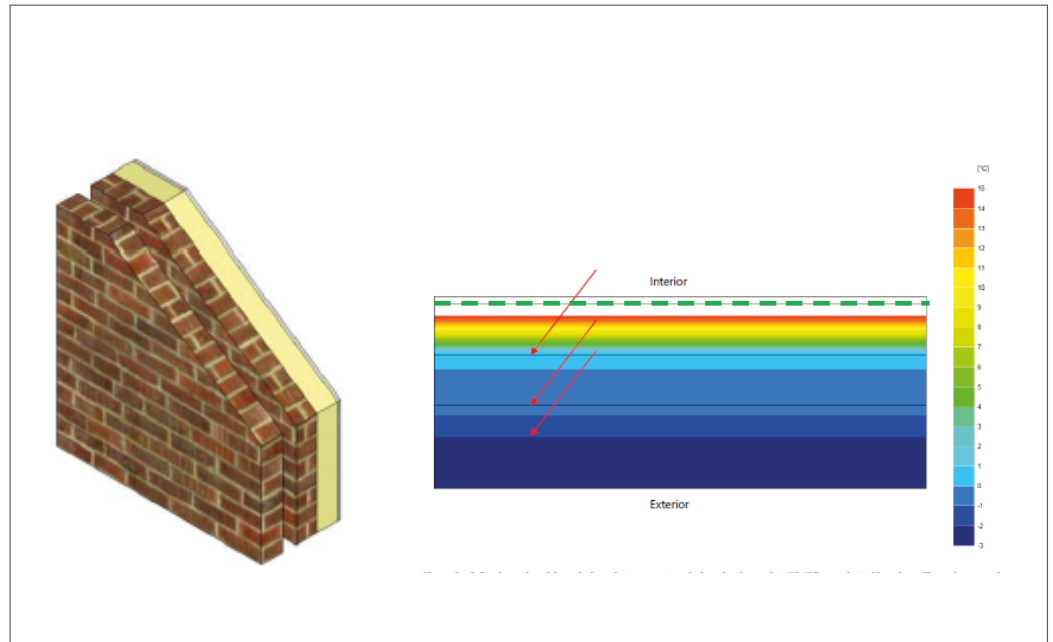
1.3 Initial Thermal Analysis and Upgrade (Stage 2)

The below analysis and proposal was undertaken at RIBA Stage 2, prior to intrusive investigations and was used to inform the detailed design.



Existing Uninsulated Cavity Wall

- Achieves U-Value c. 1.845 W/m²K
- Red arrows show the condensation risk

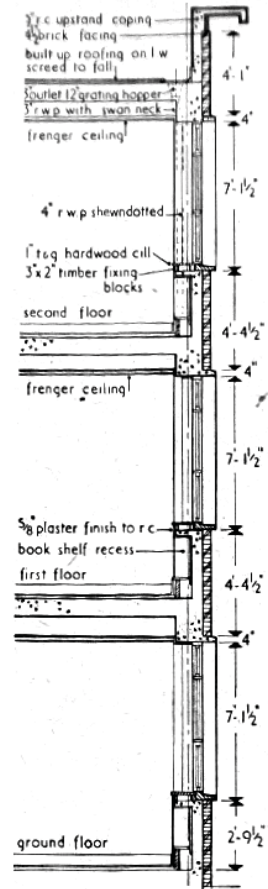


Proposed Internal Insulation

- Achieves U-Value c. 0.3 W/m²K
- Red arrows show the condensation risk
- VCL (green dashed line) implemented to mitigate condensation risk

1 Retrofit strategy

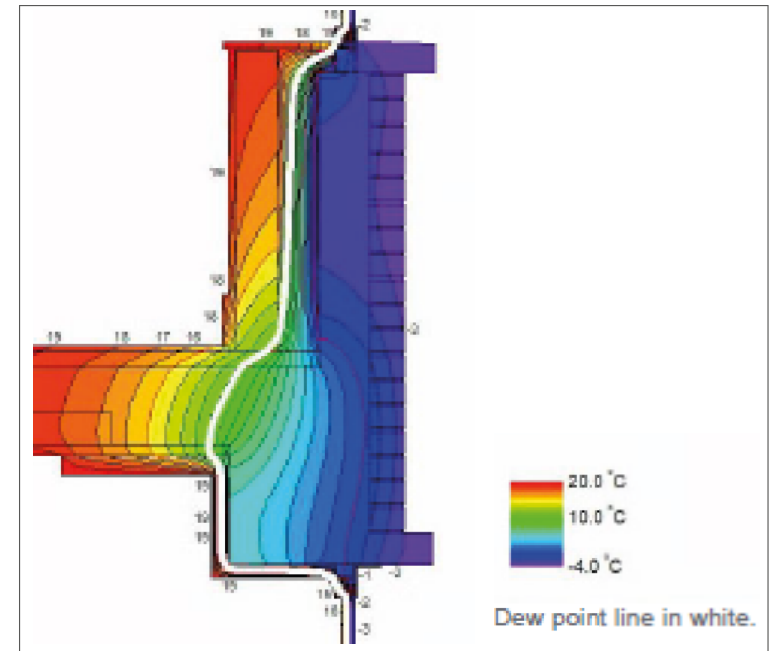
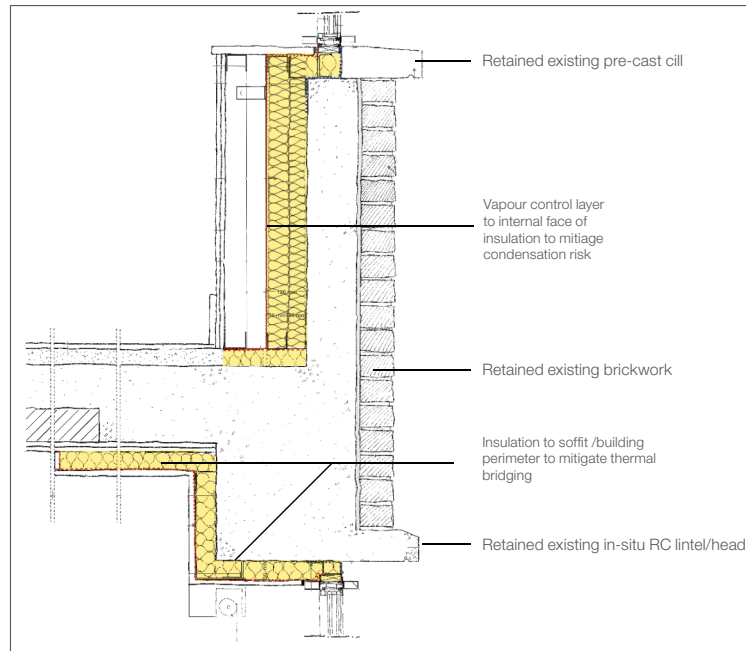
1.3 Thermal Bridging & Condensation Analysis



Initial Thermal Analysis / Dew Point Calculations

Intrusive investigations, facade surveys and historic drawings (left and Appendix A1) have allowed the design team to develop a good understanding of the existing building and this has informed the design. Thermal analysis / dew point analysis has been undertaken to assess the performance of the

proposals and demonstrates the required U-values can be achieved and the condensation risk can be controlled. It is a requirement of the tender documentation that the contractor develop the design and continue to demonstrate the performance targets are achieved and moisture control achieved to the satisfaction of the client and advisors.



1 Retrofit strategy

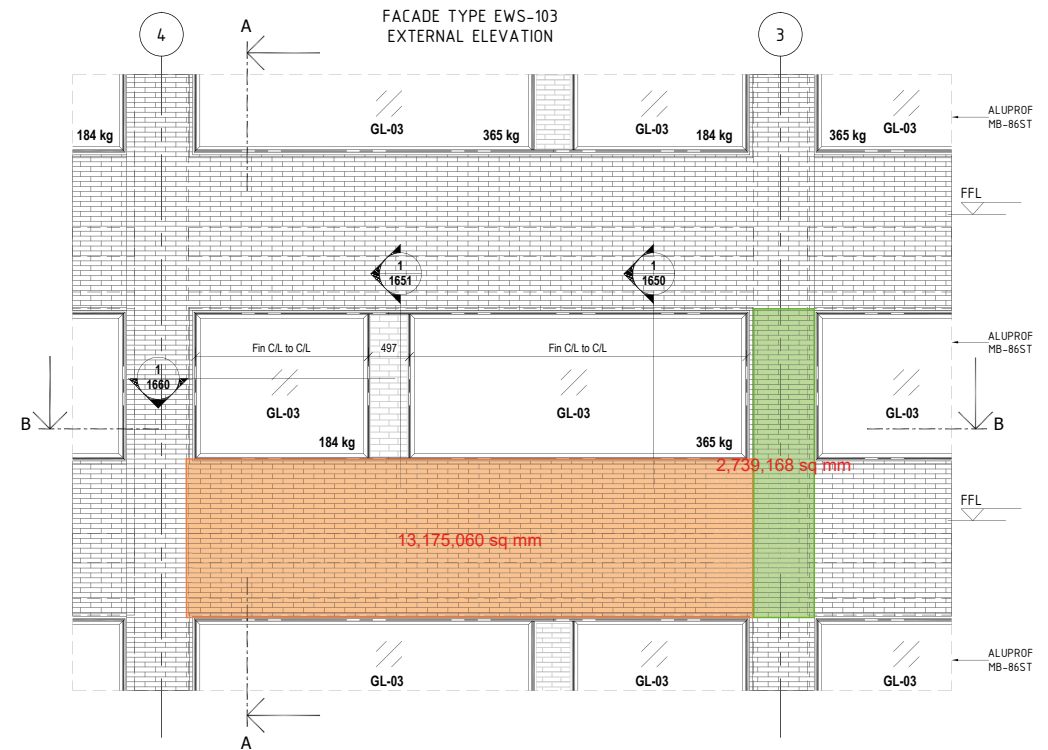
1.4 Case Study - Rose Court, Southwark Bridge Road



Existing Front Elevation

Built 1970 - Cladding replaced in the front elevation and brick wall, with internal insulation, on the west elevation.

Existing brickwork retained and insulated internally. Similar punch window detail to the Civic Centre within a brickwork facade



Area-weighted calculation:

Assuming thermal bridging at slab edge is accounted within the thermal bridging allowance.

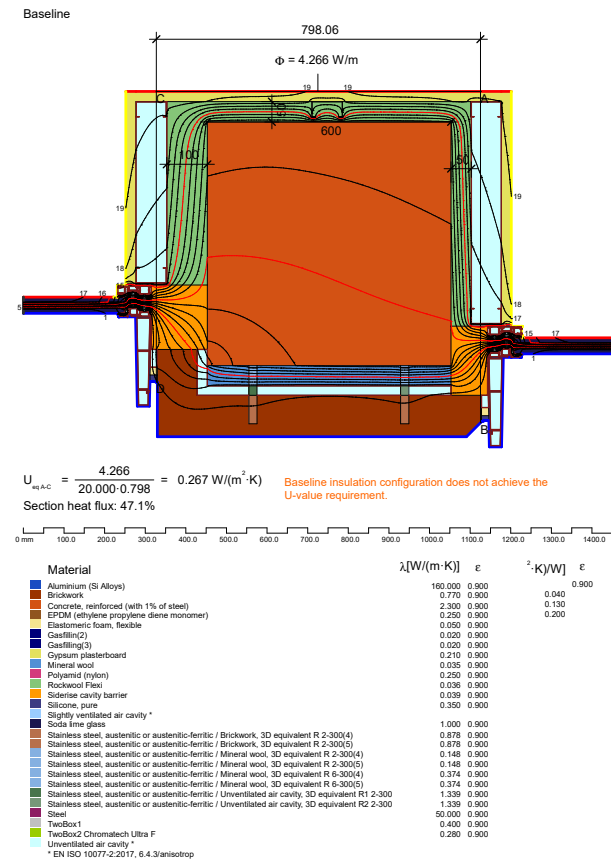
$$(0.213\text{W/m}^2\text{K} \times 2,739\text{mm}^2 + 0.20\text{W/m}^2\text{K} \times 13,175\text{mm}^2) / (2,739\text{mm}^2 + 13,175\text{mm}^2) = 0.20\text{W/m}^2\text{K}$$

1 Retrofit strategy

1.4 Case Study - Rose Court, Southwark Bridge Road



Existing photo showing, retained brickwork, window installation and internal insulation to concrete column.



Condensation analysis was undertaken on the typical details, detail above shows insulation wrapping the inside of the column.



The office is now complete with no defects

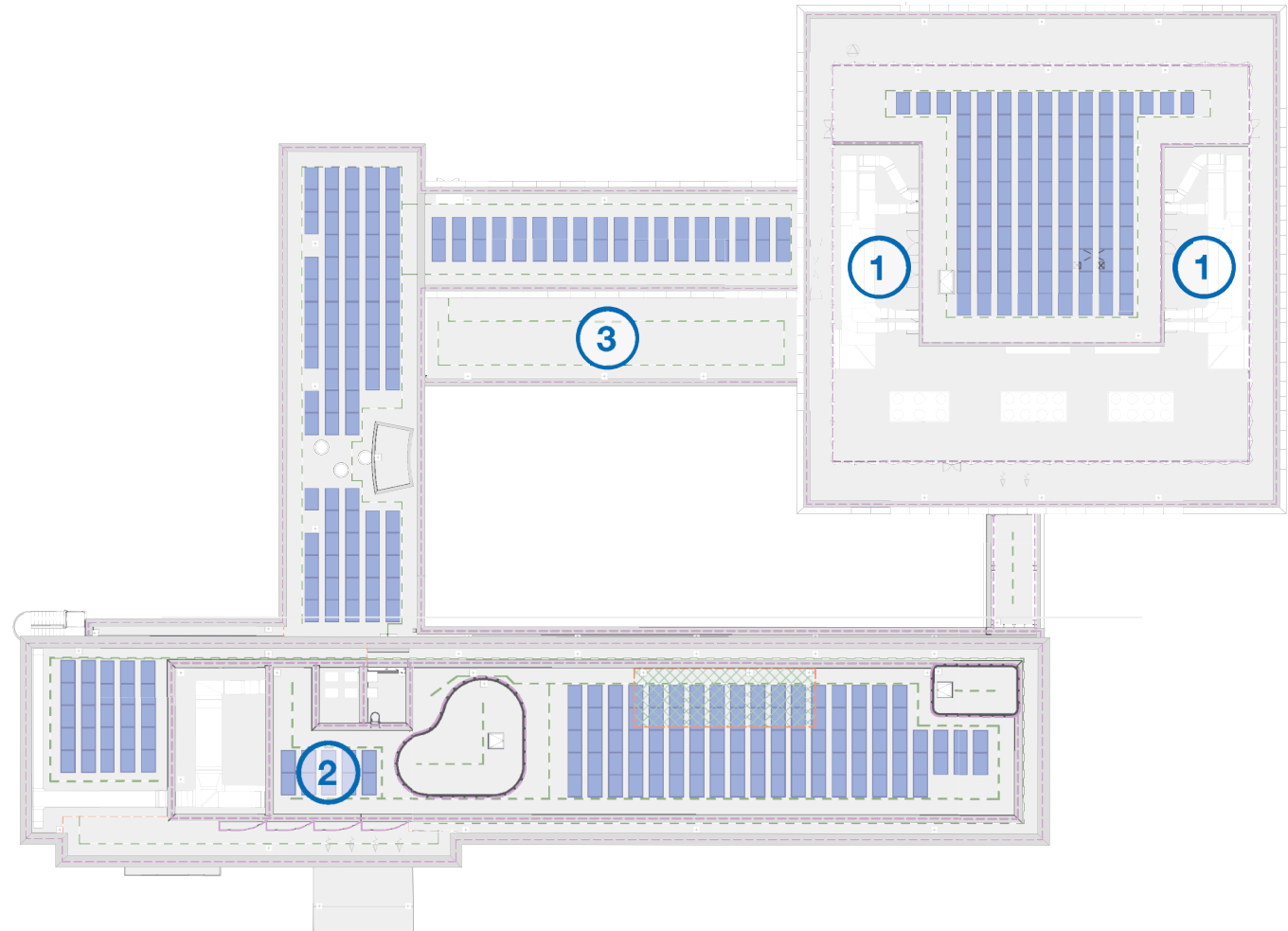
2 Indicative PV Layout

This plan layout shows the current proposal for PV panels on the building which has developed with a specialist following the planning submission.

Following design development since the submission, the panels have been redistributed slightly, however the proposal provides the equivalent quantity and output as the layout previously submitted.

Areas that have been updated are:

1. PVs omitted above open plant space canopy, due to the heat output of plant equipment below and buildability/sequencing issues.
2. 10 No. PV panels above the former plant space.
3. No PV panels located on the lower terrace of the west link block due to overshadowing.



A.1 Facade System Condition Survey

0049545-BHE-XX-XX-RP-Y-0001

Haringey Civic Centre

Facade System Condition Survey

0049545-BHE-XX-XX-RP-Y-0001

0049545

15 June 2021

Revision P01

Revision	Description	Issued by	Date	Checked
P01	Issue to Haringey Council	SB	15/06/21	MF

https://burohappold.sharepoint.com/sites/049545/02_Documents/04_Reports/0049545-BHE-XX-XX-RP-Y-0001 HCC Facade System Condition Survey P01.docx

This report has been prepared for the sole benefit, use and information of Haringey Council for the purposes set out in the report or instructions commissioning it. The liability of Buro Happold Limited in respect of the information contained in the report will not extend to any third party.

author **Simon Bate**

date **11/06/2021**

approved **Matteo Francini**

signature



date **15/06/2021**

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1 Introduction

Buro Happold Limited have been appointed by Haringey Council to undertake a detailed condition investigation of the façade of the Haringey Civic Centre, High Road, Wood Green, London, N22 8LE.

The Haringey Civic Centre, Figure 1—1, was originally constructed between 1955-1958, to provide civic services to the local community. In July 2018, the building became Grade II listed by Historic England. Subsequently, in 2020, the Civic Centre was closed for safety reasons (with the decision made to undertake a major refurbishment).



Figure 1—1 Haringey Civic Centre. Source: Google Earth.

The scope of this document is to report on the specialist façade consultancy services to assess the condition of the façade, through:

- An initial desktop review of available information (including but not limited to previous investigations undertaken on the façade systems by Martech Ltd. issued on February 2019 and the available structural drawings on file)
- Visual investigations of the condition of the façade systems (e.g. concrete deterioration, reinforcement bar condition, stone cladding condition, masonry cavity wall build-up and defects, issues with the window system, etc.) and the extent of issues around the building
- Intrusive investigation where deemed necessary to assess areas of concern which are hidden from view: the amount of intrusive investigation has been limited to the bare essential and the methodology and location planned to minimise the loss of original fabric in line with the conservation principles and best practice

This report also includes conclusions and recommendations into the repair/maintenance strategies associated with the different façade systems, alongside considerations on the current structural, thermal, acoustic and fire performance of

the façade systems and enhancement opportunities – to be developed further in the next stages of design. It should be noted that any repair recommendations has been offered bearing in mind the heritage status of the façade, and will need to be discussed and agreed with the Conservation Officers.

Please also refer to the Buro Happold Asset Consultancy report on the building fabric inspection undertaken at the same time which includes sampling and material testing of the precast concrete cladding.

2 Terms of Reference

It should be noted that the content of this report is based upon visual and limited non-intrusive investigations of the areas specifically identified within this report, in the photographs and descriptions. Buro Happold Façade Engineering (BHFE) therefore make no representation of the materiality, arrangement, and conditions of the innards of the systems or any other façade areas not included in the BH scope of services or areas which were concealed from view. The visual inspections were limited by time and access restrictions. As such it is not possible to confirm whether the arrangement or workmanship inspected during the visit is representative of the whole window and cladding system.

This report comments on the visual condition and characteristics of the façade generally. Considerations on the structural, thermal, acoustic, fire and waterproofing performances are included as general outline with the aim of directing further assessment by specialist consultants in each discipline.

This report advises on our findings from the inspections carried out on 6/21/25/28 May 2021 only, and we cannot be responsible for reporting on anything that may have occurred post inspection.

Details of site inspections:

- Date and time: 6th May 2021, 0930-1600
- Attendees: Matteo Francini (BHFE), Simon Bate (BHFE)
- Met on site: Ryan McDonnell (Haringey Council)
- Description: Internal and external (non-intrusive) visual inspection of the façade condition, also identifying areas for further inspection and/or intrusive testing
- Weather conditions: Variable (sun/cloud/heavy showers), $\approx 10^{\circ}\text{C}$

- Date and time: 21st May 2021, 0930-1600
- Attendees: Matteo Francini (BHFE), Simon Bate (BHFE)
- Met on site: Ryan McDonnell (Haringey Council)
- Description: Internal and external (non-intrusive) visual inspection of the façade condition in remaining locations, window survey
- Weather conditions: Variable (sun/cloud/heavy showers), $\approx 13^{\circ}\text{C}$

- Date and time: 25th May 2021, 1230-1600
- Attendees: Matteo Francini (BHFE)
- Description: Concrete cornice level 3 inspection via MEWP, intrusive investigation where pre-agreed
- Weather conditions: Overcast $\approx 15^{\circ}\text{C}$

- Date and time: 28th May 2021, 1030-1600
- Attendees: Simon Bate (BHFE)
- Description: Intrusive investigation where pre-agreed
- Weather conditions: Overcast $\approx 19^{\circ}\text{C}$

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3 Executive Summary

This document refers to the façade condition survey of the Haringey Civic Centre, High Road, Wood Green, London, N22 8LE, undertaken by Buro Happold Limited on behalf of Haringey Council. Key points to summarise the visual inspection conducted and potential recommendations are as follows:

- Brickwork
 - The brickwork façade is generally in fair condition.
 - Limited areas require further structural investigation for cracks and movements.
 - Cleaning, local repointing and minimal crack repairs required.
 - Concrete repairs to the concrete cills, jambs and feature lintels are required.
- Precast concrete panels
 - Panels at levels 1 and 2 in poor condition, however in-situ like-for-like repairs are deemed to be possible and panel replacement may not be needed except for small areas.
 - Panels at level 3 in much worse condition with concrete spalling and extensive reinforcement corrosion generally, replacement of a large number of panels at this level may be needed.
 - Further check of integrity of fixings is recommended.
- Stone cladding
 - Stone cladding in fair condition, appears to be soundly supported apart from the larger panels around the canopy columns which appear dislodged and will require refixing.
 - Some cracked tiles will require repair or replacement, cleaning is recommended.
- Render system
 - Render system appears to be at end of service life and extensive cracking is visible, will require removal and new render being applied.
 - Further structural investigations should be conducted in some locations identified in this report
- Windows and Curtain Walling
 - Aluminium window and curtain walling systems generally in poor condition, requiring general overhaul including recoating.
 - Steel windows also in poor condition and general refurbishment recommended.
 - Windows are generally single glazing units which beading is generally failed and should be replaced.
 - Opportunity to enhance the thermal and acoustic performances can be considered at the next design stages.
- Third floor projecting cornice
 - Cornice typically in poor/dangerous condition which constitutes a safety hazard.
 - Temporary protection works and access management are recommended to be put in place as soon as possible.
 - Concrete repairs to be extended to the whole feature (this is outside BHFE scope) and stone coping made good including removal of vegetation and sealing of joints, replacement of most decayed coping stones recommended.
 - Waterproofing detail should be considered to avoid water damage after refurbishment.

4 Review of Existing Information

4.1 Building condition survey

A Building Condition survey was prepared by Ridge and Partners LLP in October 2017 (Civic Hall Haringey - Condition Survey rev.1.2 issued 19/10/2017).

The surveyor observed that the building has exceeded its design life put at 50/60 years and significant disrepair is present to the precast concrete cladding, windows and curtain walling. The brickwork façade is assessed as in good condition save for some cracking observed.

The inspection was visual only and did not include intrusive investigation or material testing.

A budget for urgent repairs in a 10 years' period is estimated at £2.9 to £4.2m depending on exclusion or inclusion of cladding and curtain walling renewal works.

4.2 Concrete condition survey

A concrete Condition Survey was prepared by Martech in February 2019 (Haringey Civic Centre, London Concrete Condition Survey issued 07/02/2019).

The inspection was visual and concrete samples were taken for testing.

As far as the precast concrete cladding is concerned (which is the scope of BH report), significant carbonation was found which – combined with the low concrete cover – causes the reinforcement to corrode and dislodge the cementitious material (spalling). This is more severe at 3rd floor level of the office building – set back façade.

Generally, low risk of chloride of the reinforcement attack was found and no HAC (high alumina cement) was present.

In terms of recommendations, Martech provide three options (do nothing / do something temporary / effect a proper repair): the latter option is recommended which includes traditional repair of damaged concrete areas. Trial areas are recommended in line with the listed status of the building.

5 External Façade Systems

5.1 Brickwork

The brickwork façade was inspected externally from ground level and via MEWP access – where possible. Limited intrusive investigations were conducted internally to assess the cavity size and construction. The assumed build-up of the brickwork façade, based on the intrusive investigation described later in this section, is two layers of half-brick wall (100mm thick) separated by a 65mm deep cavity. No insulation was found in the cavity in the two areas inspected. Internal render at 15 mm is also generally present. The inner leaf is understood to be supported at each floor level by reinforced concrete edge beams whereas the outer leaf is assumed to be supported only at ground level and tied to the inner leaf – according to the archive structural drawings. We did not clearly identify shelf angles supporting the outer brickwork, however some evidence of horizontal cracking to parts of the building could be evidence of such angles being present and being decayed: further structural investigation is recommended. The windows are generally surrounded of precast concrete cornice formed of several parts joined together. Evidence of concrete decay and corroded reinforcement were observed via the MEWP access: a general review of these features and concrete repairs – including passivation of the reinforcement – is recommended.

Intrusive investigation in two locations were undertaken to assess whether the cavity is insulated and the number and condition of the wall ties. As mentioned above, no insulation was found within the cavity. As to the wall ties, these appear to be mild steel 25x5mm thick twisted and with dovetail ends bedded in the mortar joints at an approximate grid distance of 600x600mm. The ties were inspected appear to be in good condition and no corrosion or slipping out of their position was noted.

Overall, the condition of the brickwork façade is good, however, there are some areas of concern as highlighted below.

A significant crack in the brickwork (between 5-7 mm wide) is located on the South-West corner of the building in correspondence of the fire evacuation staircase. The staircase steelwork is bolted to the outer brickwork leaf in several locations, however, the bolts have failed and detached from the wall. The staircase itself appears to have settled vertically in correspondence of the central supporting column. As a consequence of this, fixings of the staircase into the façade have pulled out and cracked the outer brickwork. We recommend that this area is further investigated by the structural engineers, however, as a first safety measure, access to the staircase should be interdict and the ramps and landing should be propped to avoid collapse and further damage to the façade.

An articulated crack pattern is visible at the North-East corner of the building, alternating between the North and East elevations, and running from ground level vertically approximately one and a half storeys. A diagonal crack pattern is also visible internally at the same corner including cracking through internal finishes, handrails and floor finishes. A diagonal crack is also visible above the windows in this location. Assessment by the structural engineers is recommended as to the cause of the cracking and whether this is due to foundation settlement, thermal movements or other causes.

On the North elevation, the brickwork appears to be bulging outwards to the West side of the curtain walling at Level 2. An intrusive investigation was also conducted internally at this point, however, no evidence of corrosion of cavity ties or pull-out was noted. The same outward movement appears to involve the precast concrete fin column of the curtain walling at the same level, which would imply some general movement has occurred. Further investigation and assessment by the structural engineers are recommended.

At the South-East corner approx. first floor level a vertical crack and horizontal open joint with what appears to be rusted metal within was noted, suggesting potential corrosion of a shelf angle at this location. Presence and conditions of a shelf angle supporting the external brickwork should be assessed by the structural engineer. A minor and possibly aesthetic-only issue was observed in the same location: the brickwork appears of lighter colour than other areas with paint residues, suggesting that this area was previously painted or rendered. Cleaning of the brickwork to their original appearance should be considered.

Please refer to Appendix B for the condition survey mark-up and images.

5.2 Precast Concrete Cladding

The precast concrete cladding condition is poor throughout the building, however there are some differences depending on level and location.

The build-up of the precast concrete panels on the lower levels (ground to second floor) is unknown: there were no opportunities to undertake intrusive investigation at this level due to lack of access and to avoid damage to the existing panels, which are still all in place. Although the cladding appears to be generally in poor condition, in our opinion there might be scope for in-situ repairs as opposed to replacement. Panels at this level appear to have been refaced at some point with a thin layer of render, which is patchy and peeling off. Generally, cracking is more severe on the East elevation, however an exception is the series of panels above the curtain walling at the main entrance which show a horizontal crack pattern similar in adjacent panels, possibly caused by deflection or creep of the supporting concrete structure. These panels might require most substantial intervention up to full replacement with similar types in size and material.

At the South East corner, adjacent to the lighter area of brickwork mentioned in the Brickwork section, the precast concrete panels also appears to be of lighter colour as if the panels have been refaced. The joints in the render 'mimicking' the joints in the concrete panels behind are skewed.

The precast concrete cladding panels at Level 3, on the other hand, appear to be in more advanced state of disrepair. Many panels show evidence of significant spalling/cracking, with exposed corroded reinforcement. Some panels are missing and replaced with timber panels infilled with mineral wool insulation.

Intrusive investigation was conducted at lower roof level by removing some of the timber replacement panels and the mineral wool insulation behind. The build-up appears to typically include 60 mm thick precast concrete panels and 20 mm cavity and then brickwork backing wall. In some location at the same level, the cavity behind the precast concrete panels is filled with some sort of vermiculite insulation, and in other places with coarse concrete. With the exception of those above the openings, the precast concrete panels appear to be stacked on one another and supported on the third floor slab with lateral restraint provided by steel fixings into the backing wall (with cast-in anchors into concrete primary structure or within the mortar beds where brickwork construction). Where inspected, the fixing ties were found to be in fair condition, however, all the cast-in anchors inspected show evidence of advanced corrosion. During the intrusive inspection, the corner panel under the ones being investigated was assessed as loose and carefully removed and set aside.

In our opinion, the precast concrete panels at level 3 are a cause of concern for both their appearance and structural integrity. It appears that many of the panels at this level are beyond the point where a concrete repair cycle could be effective in the long term. The integrity of the fixings is also a cause of concern as the cast in channels to the concrete structure – where exposed – are heavily corroded and have possibly lost their restraint action. The panels are stacked with the exception of those above the windows for which it has not been possible to investigate the fixing method.

Our recommendation would be to replace the panels with new cladding panels as this would give a more uniform appearance and allow a revision of the fixing system throughout. The replacement panels should replicate the panelisation of the existing cladding. Use of a different material could be explored such as GRC to reduce the overall weight of the cladding and allowing the opportunity to include some insulation in the wall build-up.

Finally, there are a few areas (on the West elevation) with small punched windows embedded into grids of precast concrete panels. The concrete condition of this features is poor and there is evidence of spalling and corrosion of rebar which should be addressed. The glazing within was measured as 4 mm thick, however, some of the panels had been replaced with wooden sheets.

Please refer to Appendix B for the condition survey mark-up and images.

5.3 Stone Cladding

The stone cladding is limited to a strip above the curtain walling at ground floor level by the entrance, also running at the same height around the perimeter of the entrance 'canopy', and over-cladding the primary columns supporting this canopy. In general, the stone appears in good condition with the aluminium flashing above preventing water run-off directly onto these panels however, some panels are displaced relative to each other, with chips and cracks seen in a few of them.

A ladder was used to examine the horizontal strip more closely, and based on this inspection, it appears that the stone panels are supported by metal brackets, and the mineral wool insulation behind the flashing is assumed to continue behind these panels. In contrast, the panels cladding the columns are assumed to be fixed with adhesive to the concrete.

Please refer to Appendix B for the condition survey mark-up and images.

5.4 Render system

There are some areas of render wall finishes, on the North-West corner of the main building and on the North and West elevations of the Western wing. In both areas of render, cracks are visible which appear to be of different nature: the office building render appears to suffer from shrinkage and deterioration due to age. We recommend that the render is removed and redone. Consideration should be given to remove the render and leave the brickwork behind exposed as this appears to have been the original design of the building (from historic pictures). On the West elevation of the wing (back wall), cracking outlines the location of the primary structure suggesting some form of thermal effect. This is not deemed to be of concern and should be addressed by resurfacing the wall and providing a render mesh to avoid cracking to reoccur. Cracking on the North elevation of the Western wing shows both internally and externally and appears to be formed in correspondence of a vertical movement/expansion joint.

An intrusive investigation was carried out in this location in order to establish the build-up. Based on the findings from this investigation, it appears that the wall is formed of a one brick thick wall with no cavity (i.e. 215 mm wide) with both an internal and external painted layer of render. The intrusive investigation also highlighted the presence of a movement joint in the brickwork behind the render (along with some sort of bituminous membrane and compressible board), however, this movement joint was neither echoed on the internal or external render layers.

Outbuildings above the roof of the office building and western wing are built of concrete walls and rendered over. The render appears in generally poor condition and repairs will need to be planned in case these features remain in place.

The concrete circular flue to the south of the main building is in extremely poor condition and urgent concrete repairs are needed.

Please refer to Appendix B for the condition survey mark-up and images.

5.5 Aluminium Curtain Walling and Window Systems

Due to the similarity of the aluminium curtain walling and window systems, both are included in this section. These systems comprised the majority of glazing on the building, with curtain walling at the entrance and Western wing as well as the North and South elevations, and window systems on the remaining East and West elevations.

Overall, these window systems are in poor condition and appear to have reached the end of service life – it is assumed that these systems are original from the 1950's construction. The glazing is typically single ply measured as 4-6 mm (some of those measured as 6 mm were 3+3 mm and others 6 mm monolithic). The glazing forming the curtain walling on the East elevation adjacent to the entrance was identified as a double-glazed unit (7 mm + 5 mm cavity + 7 mm), and the curtain walling on the North elevation identified as a single-glazed unit (10 mm). The final exception to the typical glazing thickness is constituted by the two northernmost bays at ground level of the West elevation of the office building, where seemingly the windows had been replaced. Because of the railings that have also been installed in this area, which is next to the turning circle for goods vehicles, it is suggested that this was possibly prompted by an incident of damage to the façade from vehicle impact. Blast resistance concern could also be at the base of this change in typology. Some glass panels here were measured as much thicker, with multiple layers of glass without cavity (approx. 19-20 mm thick total). A number of panes were cracked– refer to the condition survey mark-up. It should also be noted that asides from the typical glass thicknesses identified in this paragraph, many of the aluminium windows/curtain walling presented variation in glazing configurations (i.e. lack of consistency in glass thicknesses/build-up between similar types).

The framing is generally in poor condition: externally the painting or coating applied at some point to the aluminium mullions and transoms is degraded and patchy in places. The sealant between the frame and glass is brittle and patchy.

It should also be noted that a solar coating was present internally on most of the glazing inspected, marked as 'SOLAR SHIELD BS 6206/B FILM', which could be evidence of a perceived discomfort with the original glazing specification. The majority of this film applied was in good condition, but in many locations was starting to peel at the edges. A few panels on the West elevation curtain walling had an additional film applied externally with a 'blue' appearance, possibly a privacy filter, which appears to be in bad condition.

Please refer to Appendix B for the condition survey mark-up and images.

5.6 Steel Windows

The steel windows are the smaller windows on the third floor (North, East, and West elevations), surrounded by precast concrete panels and typically alternated with concrete fins extending inside the building. Generally, the steel windows appear to be in poor condition and in need of a general refurbishment (removal of the peeling paint and recoating). Here, the glass was measured as a single glazed 4 mm pane.

In some locations, the concrete fins between the windows are also generally in poor condition and some of them have been repaired previously however with unsympathetic concrete patches. The sealant between the frame and glass has also become brittle and in need of general redoing.

Please refer to Appendix B for the condition survey mark-up and images.

5.7 Feature Cornice at Third Floor

The third floor cornice was inspected where accessible to provide considerations on the condition and possible temporary works associated with any immediate health and safety issues, as requested by Ryan McDonnell of Haringey Council. It was possible to access part of the cornice at the East, North, and West elevations within reach of the MEWP. No intrusive investigations were undertaken on the cornice at this stage (however samples of concrete were taken for further testing).

The top cornice of the office building is formed of a reinforced concrete L-shaped feature, clad with what appears to be in parts concrete and stone coping on the sky face. The concrete is exposed at the inner and outermost vertical faces of the cornice and its underside, whereas an assumed stone cladding is fitted to the vertical face above the brickwork. A lead flashing appears to be fixed behind the stone cladding and dressed above the top of the outer leaf of the cavity wall construction.

Part of the cornice was covered with Sterling boards on the vertical and bottom faces, and it understood that this has been provided where the cornice had degraded the most. Despite this, in one location where the board had come off the fixings, the soffit appeared in fair condition. Visually, there were many instances of spalled concrete where the corrosion of the reinforcement has caused the cover to be pushed out. The condition is currently under assessment – samples have been taken for carbonation and other tests. The spalling appears to occur more frequently at the tip of the cornice, however, the bottom face (where visible) appears to be generally in better condition. The effects of carbonation and corrosion of reinforcement are usually more evident at corners where the concrete cover is minimum on two sides.

During the MEWP inspection, some areas of concrete were carefully removed as the cover material was loose and in danger of falling spontaneously in high winds. BHFE believe that there is the risk of parts of concrete detaching and falling off the structure until a complete refurbishment of the feature is undertaken.

The lead flashing appeared to be in good condition and no evidence of decay was noted where access was possible. Hammer sounding tests were randomly carried out and no stones were found to be loose. However, issues with bird droppings on the ledge and water run-off on the face of the stone cladding were noted: the former, aside from aesthetical impact and possibly health hazard, can cause issues with durability of the lead material, and washing off onto the brickwork below; the latter causes staining of the cladding and potentially weakening of the bond between the stones and the concrete.

Several cracks affected the concrete cornice at seemingly regular intervals, which may lead to assume some sort of construction joints or phased concrete pouring operations were undertaken. It appears that these cold joints are not properly sealed, and water can penetrate through them, possibly initiating the reinforcement corrosion process. The top stone (or concrete) coping is in very bad condition throughout: cracking is visible with different magnitudes and efflorescence is growing in the cracks in many places, evidence of water ponding on the surface for long periods of time.

Please refer to Appendix D for this assessment issued in advance of this report.

6 Outline Performance Assessment

6.1 General

In this section we provide a high level outline assessment of the current performances of the façade systems.

This assessment is done considering the findings of the visual and limited intrusive investigation works and is included with the aim of supporting the design team in their energy assessment.

The performances considered for the main façade systems – both opaque walls and glazing areas – will be:

- Structural performance (as a cladding system, further structural investigations and assessment needed by the structural engineers as to global stability of the walls).
- Acoustic performance, based upon typical system performance (no specific tests done).
- Thermal performance, both current and with specific enhancement works undertaken, estimated via thermal calculations. Please note that that initial thermal calculations are carried out on a typical wall panel / window pane build-up without considering interfaces, thermal bridges etc. which should be assessed in detail through thermal imaging.
- Weatherproofing is commented on, however, given the current state of the building which is not occupied and maintained, it is not straightforward to identify any water ingress as caused by a system failure or other causes.
- Fire performance initial assessment will be comment upon referring to the current Building Regulations Part B, referring only to the typical system build-up and not including comments on fire stop, compartmentation, fire strategy or risk assessment which are not part of the current scope.

Considering that there is no material change of use and that the building is Grade II listed, there should be no requirements to enhance the wall performance, however, in Section 7 we include comments on possible enhancement opportunities in the following stages of the refurbishment project.

6.2 Outline structural performance assessment

Structurally, the opaque façade systems appear in good order for the brickwork and render facades – aside from specific areas as highlighted in this report, whereas the precast concrete cladding areas raise concern.

The areas of brickwork and render facades with cracks and defects should be investigated further by the structural engineers as it appears that the issue is with global building movements or expansion movements being restricted. However, some instances of possible corroded shelf angles in the cavity wall construction have been identified which should be revised: the external layer of brickwork in these locations should be opened up and the presence and condition of the shelf angles assessed. If corrosion is present which is not extended too much, say less than 10% of original metal section loss, the angle should be cleaned and painted with anticorrosion paint and kept in place. If on the other hand the section loss is more than 10%, consideration should be given to relacing the shelf angles with new stainless steel supports.

The precast concrete cladding appears to be in poor condition and the main concern is with the fixings back to the main structure which appears to be corroding where inspected. The decay is more advanced at third floor of the office building where several panels have been replaced with wooden boards: it is not known whether the panels were replaced for safety concern or fell off the façade on their own. In any case, in our opinion, consideration should be

given to replacing the cladding panel at this level including new stainless steel fixings. At lower levels (ground to second floor) the cladding panels appear visually in better condition and local concrete repair may suffice, however our recommendation would be to access each panel at close quarter and assess the conditions including fixing integrity: this might require the cladding to be taken off the façade in worst affected areas and refixed.

The glazing parts of the façade appear to be generally in good order as far as the structural integrity of the window and curtain walling framing is concerned. Recommendation has been made in other parts of this report as to a general overhaul of the systems as part of the refurbishment project, therefore in this occasion a review of the frames and possible replacement with similar products on the market today or bespoke replica profiles should be considered.

6.3 Outline thermal performance assessment

Preliminary thermal calculation of the thermal performances of the wall systems appear to confirm that each of them would be non compliant with the requirements of the current Building Regulation Part L.

The uninsulated cavity wall construction (two layers of 102.5mm thick bricks, one layer of 15mm cement render internally, 65mm uninsulated cavity) returns a U-value of 1.6 W/m²K, to be compared with a requirement from the current BRs Approved Document L2A of 0.35 W/m²K. Adding mineral wool within the cavity (fully filled) would take the U-value down to 0.5 W/m²K hence still outside the current BRs requirement, however within the target for refurbished walls 0.55 W/m²K (Approved Document L2B – cavity insulation).

The rendered areas (215mm thick brick wall with 20mm cement render on both sides) return a U-value estimate of 1.9 W/m²K. In this instance there is no opportunity of enhancing the thermal performances keeping the same wall thickness as no cavity is present, therefore any desired improvement should consider internal or external insulation, for which the U-value target, according to Approved Document L2B, should be 0.3 W/m²K.

Thermal performance of the precast concrete cladding walls (assumed construction: 215mm thick brick wall, 20mm air gap and 60mm concrete panel) is initially estimated around 1.5 W/m²K. This is again outside the current BRs requirements and consideration could be given to include insulation in the wall build up if this is changed for other reasons i.e. structural issues.

Thermal performance of the glazing areas will be extremely poor as generally a 4 or 6mm thick single ply glazing has been measured, which returns a U-value around 5.7 W/m²K. Thermal performance of the double glazing curtain walling would require further assessment for accurate performance estimate. Approved document L2A (new buildings other than dwellings) set the limit for the windows and curtain walling areas to 2.2 W/m²K. Approved Document L2B (existing buildings other than dwellings) recommends to replace window units which U-value is worse than 3.3 W/m²K and a consequential improvement is sought.

Please note that the above thermal calculations are to be considered preliminary and further details analysis should be undertaken to validate the advice provided.

Thermal enhancement options would inherently provide better acoustic performance as well, which for the current glazing systems will be poor.

6.4 Outline weatherproofing performance assessment

No evidence of water ingress was noted internally which could be linked to failure of one of the main wall systems inspected.

The cavity brickwork façade, where intrusively accessed, did not show evidence of water passing the first line of defence (external brickwork): note that the investigations were done during particularly wet days.

In some instances, the precast panel joints have been noted as open and some vegetation growth has been seen: this is evidence that water is penetrating the first line of defence, however, there was no evidence of water ingress inside the building.

Some evidence of moisture affecting the steel windows at third floor level has been noted which could be effect of the precast concrete cladding panels deteriorating and the weather seal being lost.

6.5 Outline fire performance assessment

In accordance with current recommendations (Approved Document B: 2019 for non-residential premises), cavity barriers should be provided around openings through brickwork cavity walls: this could not be ascertained on site.

Fire stopping to the back of the façade system should be provided in line with compartment walls and floors: this could also not be ascertained on site.

It is prudent to assume that no specific fire stopping or cavity barriers are fitted, however, no evidence of combustible material was found within any of the walls construction.

7 Conclusions and Recommendations

This section provides an overview of the condition of each of the façade types, along with recommendations for repair to be undertaken during the refurbishment works. Where appropriate, immediate health and safety concerns have been highlighted and temporary protection measures discussed.

In general, the facing brickwork façade appears in fair condition, and cleaning, local repointing and minimal crack repairs should suffice as part of the refurbishment works. Some locations as highlighted in the report and in the visual inspection mark-up would require further structural investigation to assess the cause of movements and cracks and propose remedial works.

The precast concrete panels cladding at levels 0 to 2 are generally in poor condition, however in-situ repair is deemed to be a possible solution. Concrete repairs should be carefully designed, detailed, tested (benchmark areas) and validated (conservation officers' sign-off) on a like-for-like basis to blend in with surrounding panels. In this respect, a standard concrete repair system could not be the best option in conservation practice terms: the repaired portions do not usually age like the original concrete mix and the appearance will be patchy in a few years. Reference can be made to English Heritage Practical Building Conservation Guidance on Concrete. Cleaning of the corroded reinforcement should be planned; passivation with specific products may or may not be needed depending on the repair solution adopted and whether this provides alkaline environment for the embedded bars. Resurfacing of the concrete panels to provide uniform appearance is not recommended: it has proved not successful as demonstrated by the evidence of patchy areas of different colours on the existing façade. Individual panel replacement might be required for the worst affected locations.

The cladding at level 3 appears to be in more advanced state of disrepair and – in our opinion – consideration should be given to a more extensive replacement of the precast concrete panels and general review of the fixing system. Given the listed status of the building, this should be carefully assessed and sympathetic replacement solution devised with the possibility of using more modern systems of construction e.g. GRC panels, with the added opportunity of introducing insulation within the wall build-up to reduce the energy consumption.

The small travertine stone cladding to the East elevation fascia and canopy appears in fair condition: some cracked tiles require replacement and a general cleaning is recommended as well as possible refixing of the larger cladding stones at the canopy columns which appear dislodged.

The render façade areas require further structural investigation in those locations identified in the previous sections as areas with significant levels of cracking. The condition of the render is poor and consideration should be given to renovation. New render should take into account any movement joints required in the façade of the West wing to minimise the risk of future cracking. Consideration should also be given to not replace the render at the north part of the West elevation of the office building which – from the historic pictures – appears to have originally been facing brickwork.

Both the aluminium curtain walling and windows, and steel windows were generally in poor condition and a complete refurbishment is recommended, including glazing. The glazing is generally single ply: glazed areas account for a large portion of the façade surface and therefore it is expected that the overall thermal performance of the building will be poor. Although there is no material change of use and the building is Grade II listed, which would negate the need for improvement from a regulatory perspective, there may be the opportunity of putting forward enhancement thermal (and acoustic as a consequence) performance proposal for consideration by the conservation officers. There are previous successful examples of similar projects with listed buildings in which a careful and well managed process has

achieved a great performance improvement and associated economy in the long term, minimally affecting the external appearance. In addition to this, there is evidence of previously perceived glare discomfort and heat gain (solar film was applied to the majority of the windows) which could also be addressed by a careful specification of refurbished or replica windows. This is particularly recommended for the aluminium windows, however, for the steel windows at level 3 there is likely to be little room for improvement because of the thermal bridging through the concrete fins between adjacent units. Further energy saving improvements could be achieved in the opaque parts of the façade such as the cavity wall and precast concrete cladding by filling the cavity with mineral wool insulation, although this would be a labour-intensive task. We would be happy to discuss this further with the client, architects and conservation officers at the next stages of design.

The reinforced concrete cornice at level 3 is in need of urgent concrete treatment including removal of stone cladding, removal of detached and loose portions of concrete, making good of the exposed reinforcement with anti corrosion treatment, refacing with thixotropic mortar products – refer to structural engineer's specification. Replacing of the stone coping should be accompanied by an adequate waterproofing detail. In the short term, temporary protection measures are recommended to be put in place to protect people accessing the building from falling debris, please refer to BHFE email of 27 May 2021 including recommendations and sketches (Appendix C).

Further services from Stage 2 onwards which BHFE would be able to provide should this be requested by the client, include:

- Discussion with architects and MEP team in relation to energy model and possible performance enhancement.
- Support the design team in liaising with conservation officers.
- Support with new/refurbished façade systems detailing and specification.
- Thermal calculations and condensation risk analysis.
- Review of tender submittals.
- On-site monitoring of remedial works.
- Façade access and maintenance (with Buro Happold A&M)
- In situ thermal assessment of existing and post refurbishment facades (with Buro Happold Sustainability).
- Fire Engineering Risk Assessment (with Buro Happold Fire Engineers).

Appendix A – EWS Mark-Up



Elevation 01



Elevation 02

External Wall Systems, Key:

This mark-up is based solely on internal/external visual inspections conducted by BHFE (05/2021).

- | | | | | | |
|---|---|---|-------------------------------|---|-----------------------------|
|  | Brickwork outer skin |  | 'Monolithic' Render |  | Aluminium Curtain Walling |
|  | Precast Concrete Panels |  | Stone Cladding |  | Aluminium Window System |
|  | Precast Concrete Panels + Render/Skim Layer with integrated glazing |  | Stone Coping |  | Steel Window System |
|  | Concrete Wall + Render/Skim Layer |  | Feature Cornice (Third Floor) |  | External Glazing at Terrace |



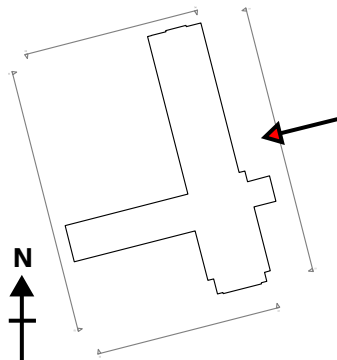
Elevation 03



Elevation 04



Appendix B – Visual Inspection: Mark-Up Elevations and Selected Photographs

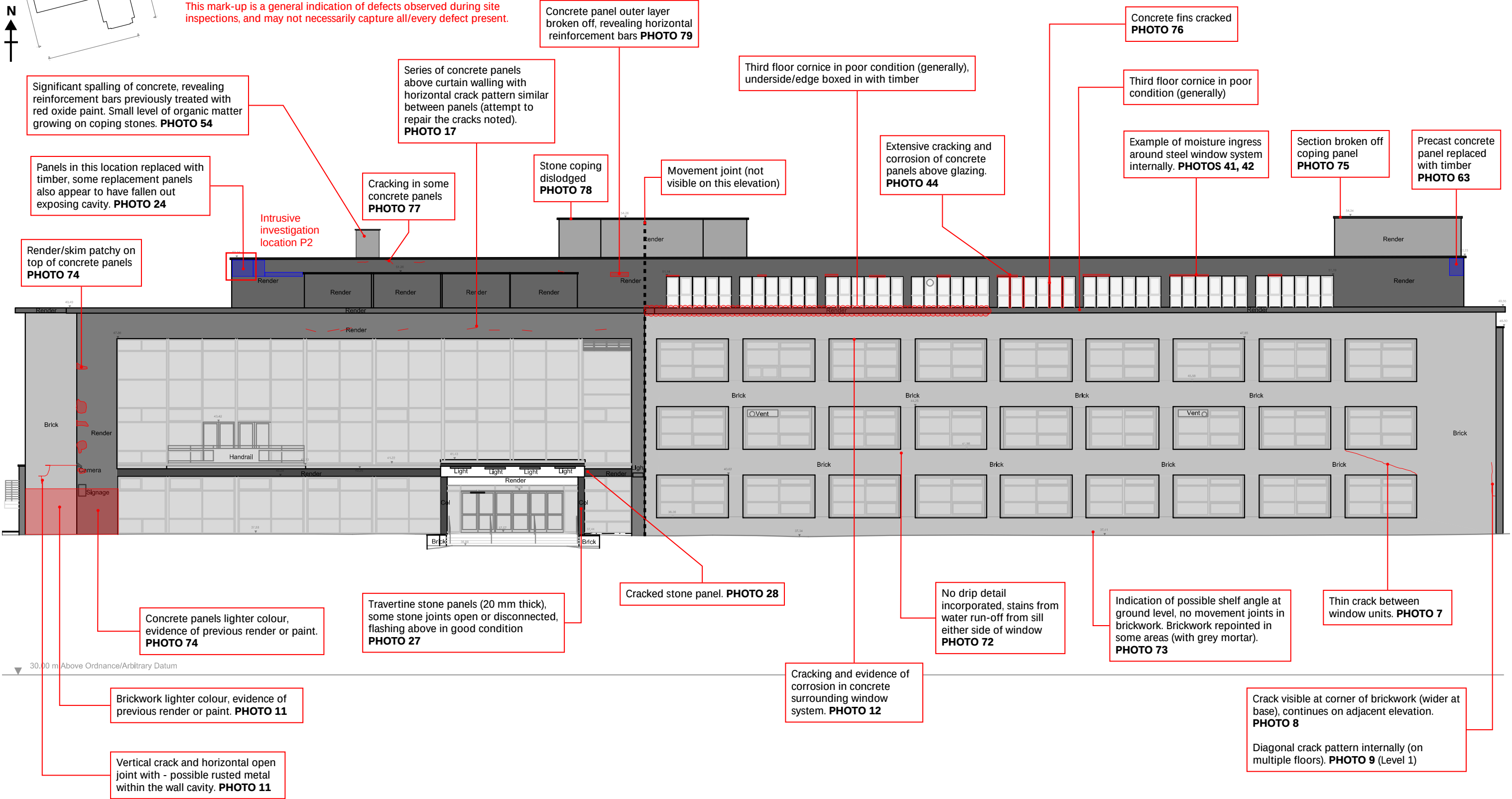


General Notes:

Where solar shield film has been applied to glazing internally, this has shrunk and in many places is peeling. Painting/coating applied to curtain walling and window systems is peeling.

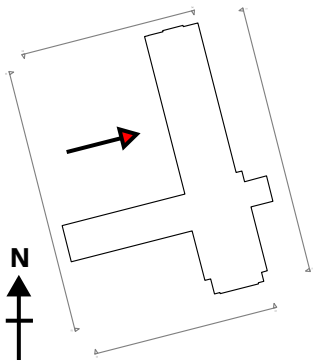
Where core samples have previously been taken for analysis, holes have been filled and are a different shade.

This mark-up is a general indication of defects observed during site inspections, and may not necessarily capture all/every defect present.



BURO HAPPOLD

Project:	Haringey Civic Centre	Project Number:	0044501		Status:	For Information				
Sketch Title:	Haringey Civic Centre: East Elevation Defect Mark-Up	Sketch Number:	SK-001 (1 of 4)		Date:	10.06.2021	Initials:	SB/MF	Revision:	00

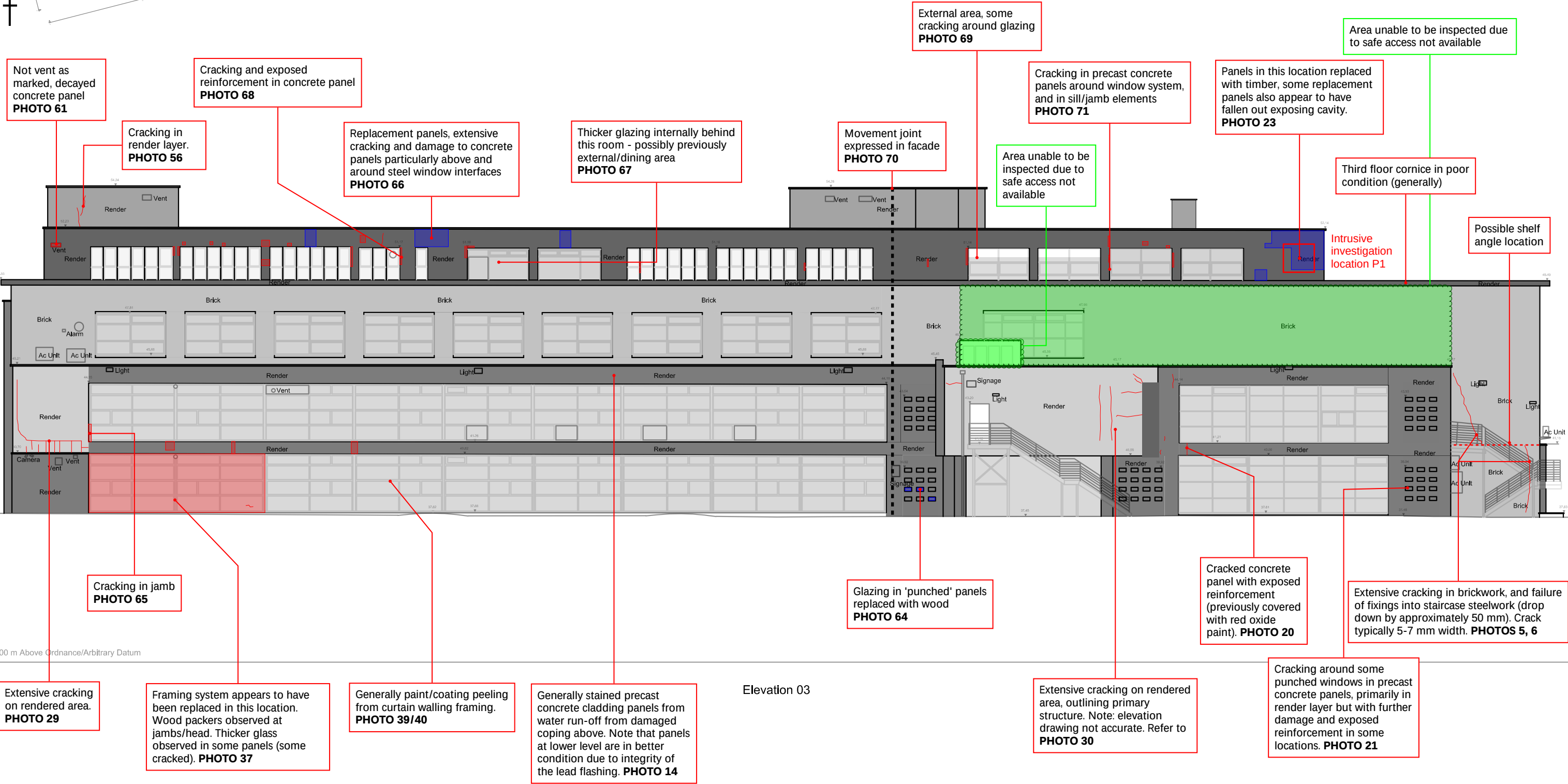


General Notes:

Where solar shield film has been applied to glazing internally, this has shrunk and in many places is peeling. Painting/coating applied to curtain walling and window systems is peeling.

Where core samples have previously been taken for analysis, holes have been filled and are a different shade.

This mark-up is a general indication of defects observed during site inspections, and may not necessarily capture all/every defect present.



BURO HAPPOLD

Project: Haringey Civic Centre

Sketch Title: Haringey Civic Centre: West Elevation Defect Mark-Up

Project Number: 0044501

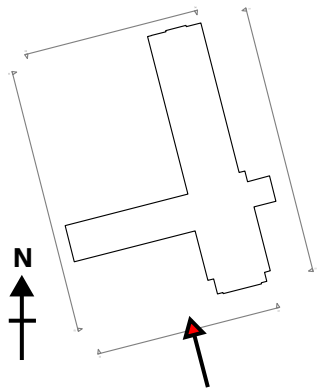
Sketch Number: SK-001 (2 of 4)

Status: For Information

Date: 10.06.2021

Initials: SB/MF

Revision: 00

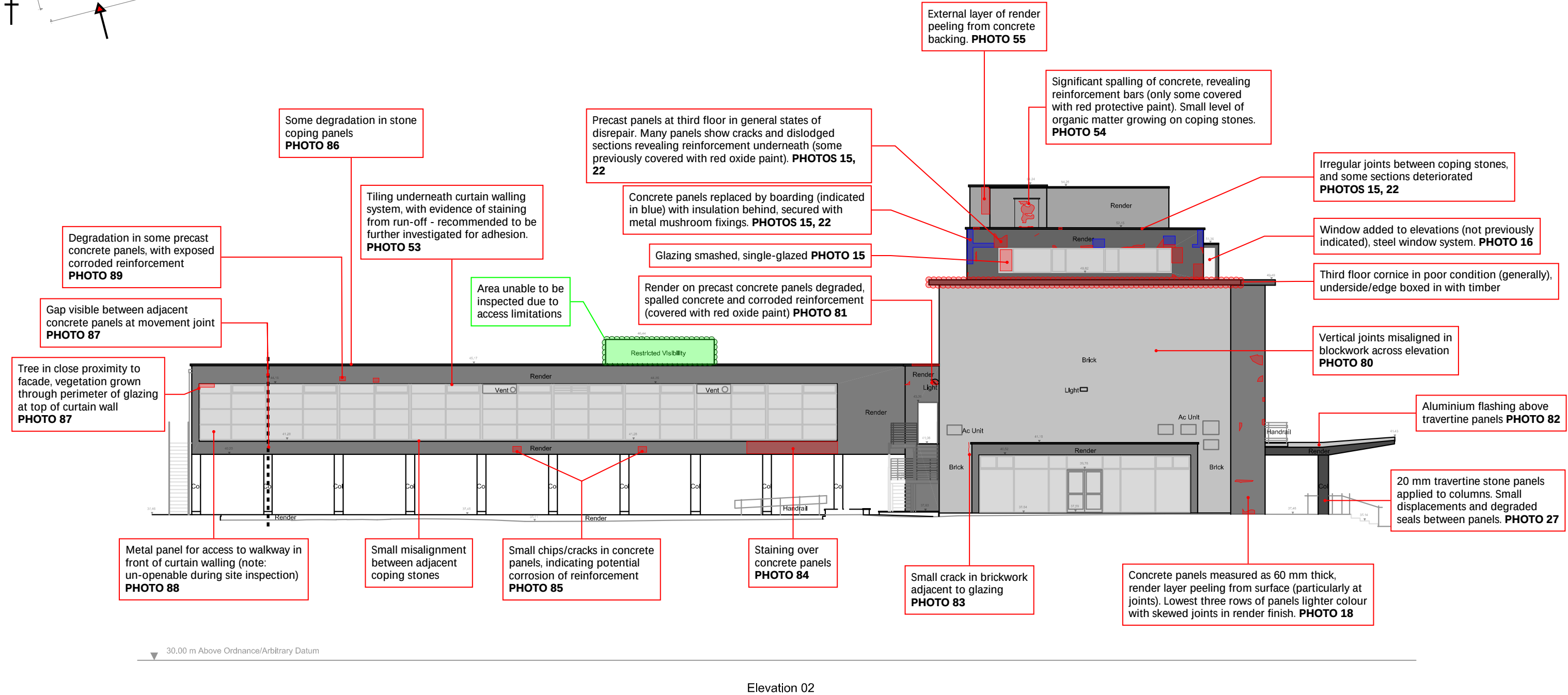


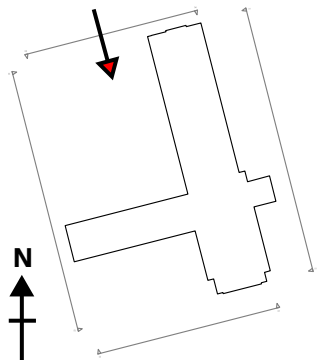
General Notes:

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Where core samples have previously been taken for analysis, holes have been filled and are a different shade.

This mark-up is a general indication of defects observed during site inspections, and may not necessarily capture all/every defect present.



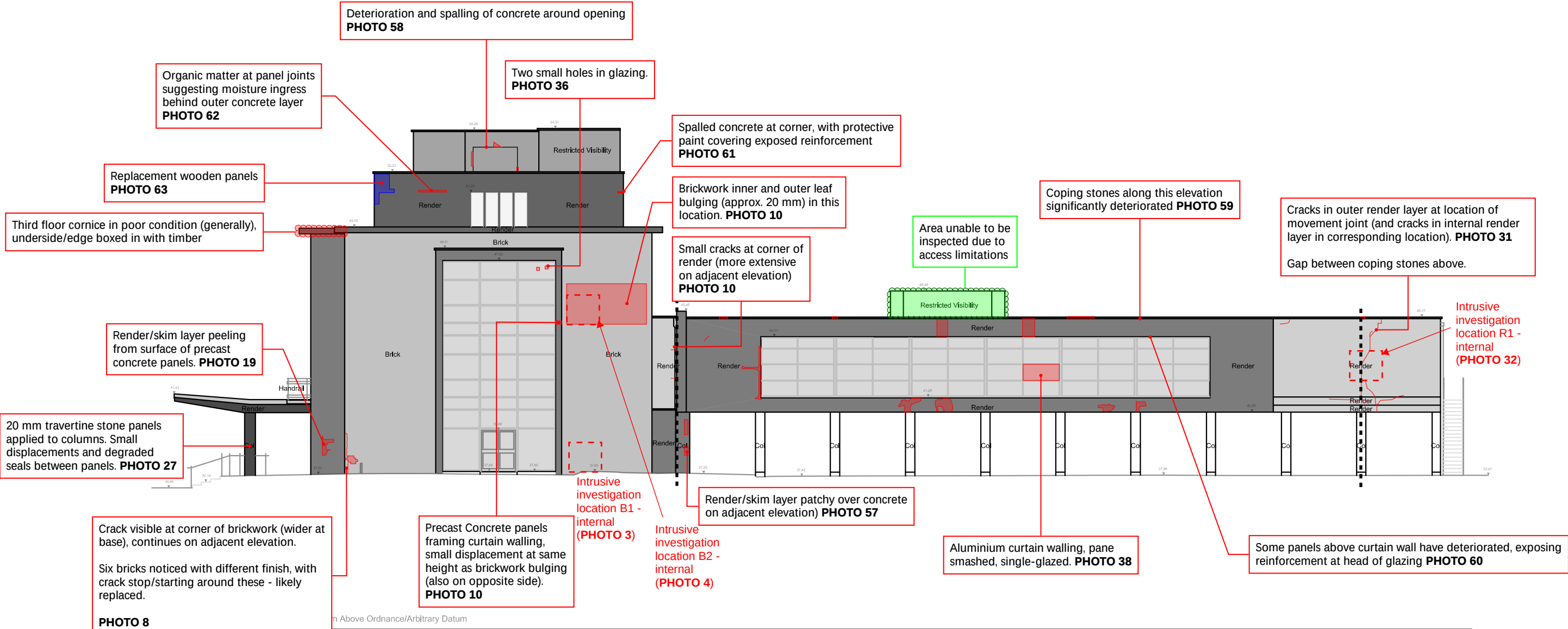


General Notes:

Where solar shield film has been applied to glazing internally, this has shrunk and in many places is peeling. Painting/coating applied to curtain walling and window systems is peeling.

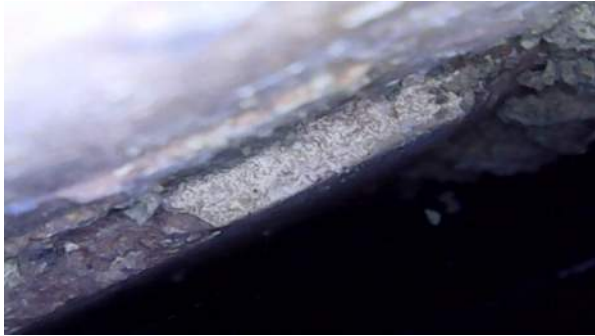
Where core samples have previously been taken for analysis, holes have been filled and are a different shade.

This mark-up is a general indication of defects observed during site inspections, and may not necessarily capture all/every defect present.



Elevation 04

	Project: Haringey Civic Centre		Project Number: 0044501		Status: For Information		
	Sketch Title: Haringey Civic Centre: North Elevation Defect Mark-Up		Sketch Number: SK-001 (4 of 4)		Date: 10.06.2021	Initials: SB/MF	Revision: 00

Selected Photos from Site Inspections Façade Type: Brickwork (1 of 3)	
	
Photo 1: East elevation brickwork façade	Photo 2: South elevation brickwork façade
	
Photo 3: Intrusive investigation at location B1, internal, exposing ties and rear face of external brickwork leaf	Photo 4: Intrusive investigation at location B2, internal, endoscope imaging, possible corroded metal shelf angle supporting external brickwork leaf

Selected Photos from Site Inspections Façade Type: Brickwork (2 of 3)	
	
Photo 5: Crack in brickwork on South-West corner of the building at fire evacuation staircase	Photo 6: Pull-out of fixings between the staircase and outer brickwork leaf
	
Photo 7: Diagonal crack running vertically between window units on North-East corner of the building	Photo 8: Articulated crack pattern at North-East corner (alternating between North and East elevations)

Selected Photos from Site Inspections Façade Type: Brickwork (3 of 3)	
	
Photo 9: Internal diagonal crack pattern at North-East corner	Photo 10: Bulging of brickwork on North elevation at Level 2
	
Photo 11: South-East corner vertical crack and open joint, brickwork of lighter colour below	Photo 12: Concrete surrounding windows deteriorated with some spalling and corroded rebar

Selected Photos from Site Inspections Façade Type: Precast Concrete Cladding (1 of 3)	
	
Photo 13: Precast concrete cladding at Level 1 on North elevation of 'Western wing'	Photo 14: Precast concrete cladding at Level 2 on West elevation
	
Photo 15: Precast concrete cladding at Level 3 on South elevation	Photo 16: Precast concrete cladding at Level 3 on West elevation

Selected Photos from Site Inspections
Façade Type: Precast Concrete Cladding (2 of 3)



Photo 17: Cracking in precast concrete panels above curtain walling (main entrance) on East elevation



Photo 18: Lighter colour concrete panels at South-East corner, with skewed joints in render



Photo 19: Patchy/peeling render on precast concrete panels adjacent to entrance



Photo 20: Cracking and exposed reinforcement (with red oxide paint) in precast concrete panels

Selected Photos from Site Inspections
Façade Type: Precast Concrete Cladding (3 of 3)



Photo 21: Punched windows in precast concrete panels on West elevation (with some glazing replaced with wooden sheets)



Photo 22: Extensive damage to precast panels at Level 3 (South elevation) with spalling/cracking and exposed corroded reinforcement



Photo 23: Intrusive investigation location P1, outer face of inner brickwork leaf, and steel fixings



Photo 24: Intrusive investigation location P2, concrete behind with cast-in channels and concrete fill in cavity

Selected Photos from Site Inspections Façade Type: Stone Cladding (1 of 1)	
	
Photo 25: Stone cladding strip around entrance on East elevation	Photo 26: Stone cladding on 'canopy' columns
	
Photo 27: Small displacements between adjacent stone panels, and degraded seals between panels	Photo 28: Chips and cracks observed in some stone cladding panels

Selected Photos from Site Inspections
Façade Type: Render (1 of 1)



Photo 29: Render on North-West corner, with extensive cracking



Photo 30: Render on West elevation of 'West wing', with extensive cracking, locations of primary structure highlighted through cracking



Photo 31: Cracking on North elevation of 'West Wing', at movement joint location



Photo 32: Intrusive investigation R1 at movement joint internally with bituminous membrane and compressible board

Selected Photos from Site Inspections	
Façade Type: Aluminium Curtain Walling and Window Systems (1 of 2)	
	
Photo 33: Aluminium curtain walling above entrance, East elevation	Photo 34: Aluminium window system, West elevation, Level 2
	
Photo 35: Internal solar shield film label	Photo 36: Glass damage to curtain walling at Level 2 on North elevation

Selected Photos from Site Inspections	
Façade Type: Aluminium Curtain Walling and Window Systems (2 of 2)	
	
Photo 37: Cracking in 'thick' glazing build-up on West elevation at ground level (Northern end)	Photo 38: Cracked glass panel on 'West wing' (North Elevation)
	
Photo 39: Aluminium curtain walling on West elevation (ground level)	Photo 40: Example of peeling coating on aluminium finish (West elevation)

Selected Photos from Site Inspections
Façade Type: Steel Window Systems (1 of 1)



Photo 41: Steel window system, East elevation, level 3, showing significant moisture ingress



Photo 42: Enlarged view of Photo 41, moisture ingress around steel window system



Photo 43: Peeling paint/coating on steel window system internally



Photo 44: Damage to precast concrete panels around perimeter of window system, and degradation of concrete 'fins'

Selected Photos from Site Inspections
Façade Type: Feature Cornice at Third Floor (1 of 2)



Photo 45: Cornice at third floor showing exposed vertical concrete face, and lead flashing above brickwork (1)



Photo 46: Cornice at third floor showing exposed vertical concrete face, and lead flashing above brickwork (2)



Photo 47: Example of failed fixing in Sterling boards installed



Photo 48: Water run-off on stone cladding above brickwork

Selected Photos from Site Inspections
Façade Type: Feature Cornice at Third Floor (2 of 2)



Photo 49: Degradation of concrete cornice above brickwork



Photo 50: Degradation of stone coping above precast concrete cladding (with peeling render layer)



Photo 51: Example of failed cornice panels, with exposed corroded rebar (with red oxide paint previously applied)



Photo 52: Degradation of stone coping on sky face

Selected Photos from Site Inspections
Façade Type: Other Items (1 of 7)



Photo 53: Tiled area at West wing building – not accessible for close inspection



Photo 54: Boiler flue with extremely decayed concrete



Photo 55: Render layer peeling off concrete wall



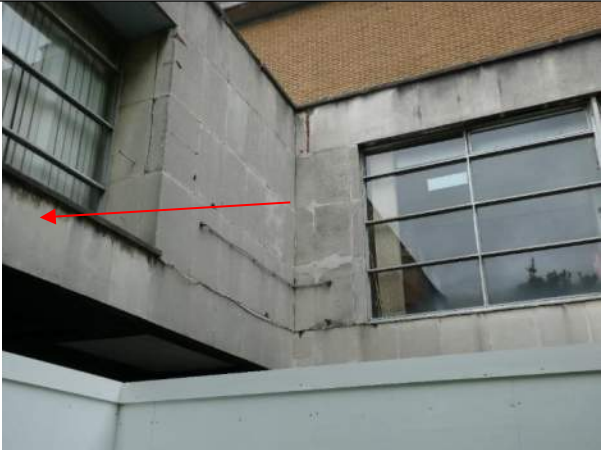
Photo 56: Crack in render on roof outbuilding

Selected Photos from Site Inspections Façade Type: Other Items (2 of 7)	
	
Photo 57: Concrete skim patchy	Photo 58: Spalling of concrete around opening
	
Photo 59: Decayed coping stones	Photo 60: Concrete decayed above windows, reinforcement exposed
	
Photo 61: Spalled concrete at corner	Photo 62: Evidence of water ingress through panel joints

Selected Photos from Site Inspections Façade Type: Other Items (3 of 7)	
	
Photo 63: Wood panels replacing missing precast concrete cladding elements	Photo 64: Glazing in punched concrete panels replaced with wood
	
Photo 65: Cracking in jamb	Photo 66: Wood panels replacing missing precast concrete cladding elements
	
Photo 67: Possible previous external glazing, now internal	Photo 68: Cracking and exposed reinforcement in concrete panel

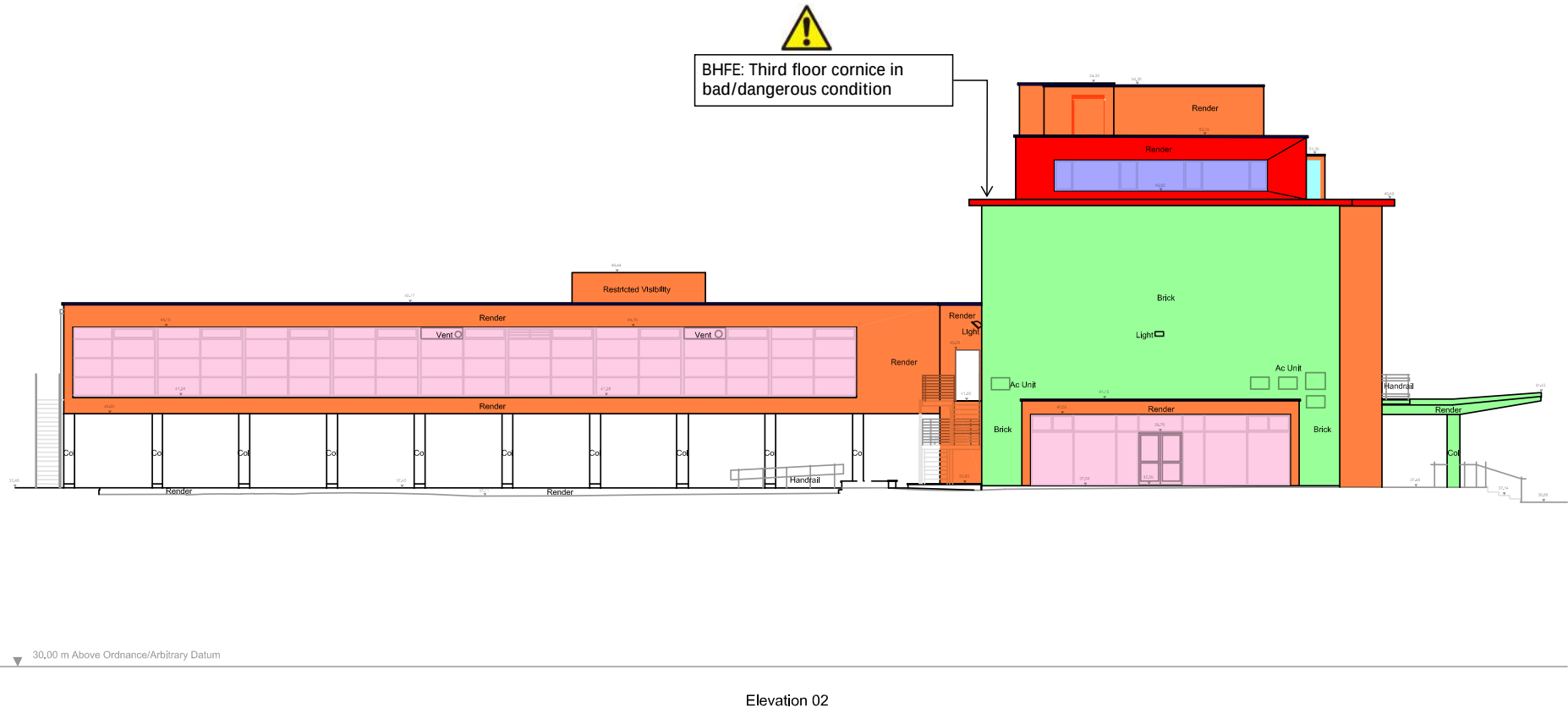
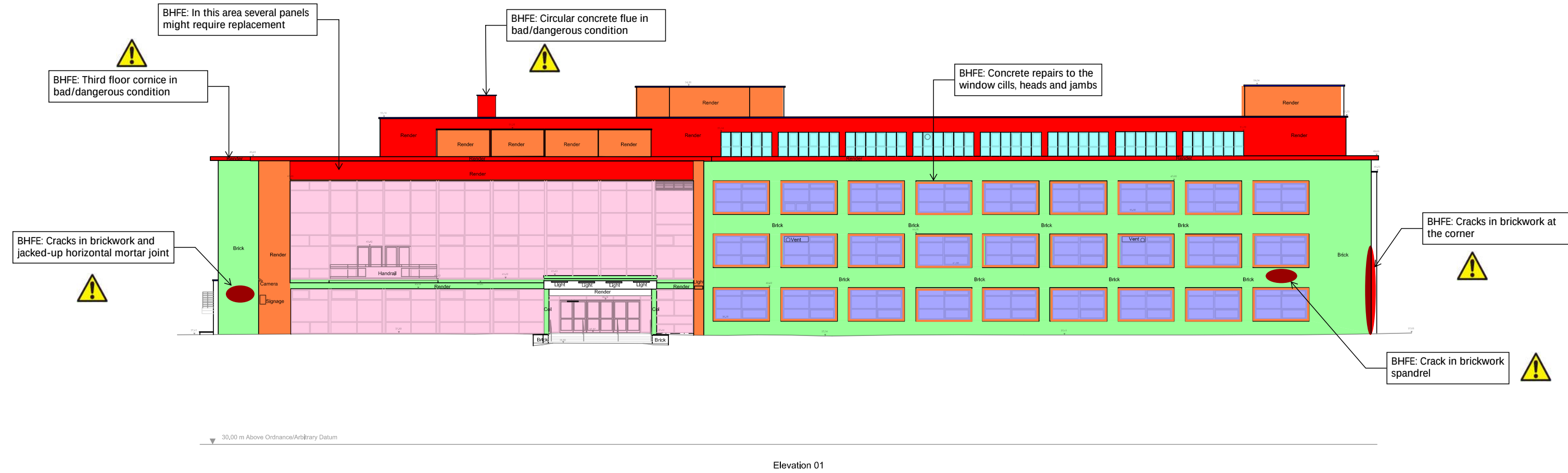
Selected Photos from Site Inspections Façade Type: Other Items (4 of 7)	
	
Photo 69: Cracks in concrete	Photo 70: Movement joint in brickwork façade
	
Photo 71: Decayed concrete at window details	Photo 72: Water run-off at window cill
	
Photo 73: Possible location of supporting shelf angle at ground floor	Photo 74: Concrete panels of lighter colour at the bottom

Selected Photos from Site Inspections Façade Type: Other Items (5 of 7)	
	
Photo 75: Broken coping	Photo 76: Cracks in concrete fins
	
Photo 77: Cracks in concrete panels	Photo 78: Stone coping dislodged
	
Photo 79: spalled concrete, exposed reinforcement (note: no evidence of red oxide paint / possible recent event)	Photo 80: Vertical mortar joints misaligned in brickwork

Selected Photos from Site Inspections Façade Type: Other Items (6 of 7)	
	
Photo 81: spalled concrete and exposed reinforcement	Photo 82: Aluminium flashing above travertine panels
	
Photo 83: Crack in brickwork	Photo 84: Stained concrete panels
	
Photo 85: Start of spalling in concrete	Photo 86: Decayed/broken coping stones

Selected Photos from Site Inspections Façade Type: Other Items (7 of 7)	
	
Photo 87: Open gap between panels, possibly expression of the movement joint / tree branches in close proximity of glazing	Photo 88: Metal panel to access the external walkway
	
Photo 89: Degraded concrete panels	

Appendix C – Summary of repair recommendations

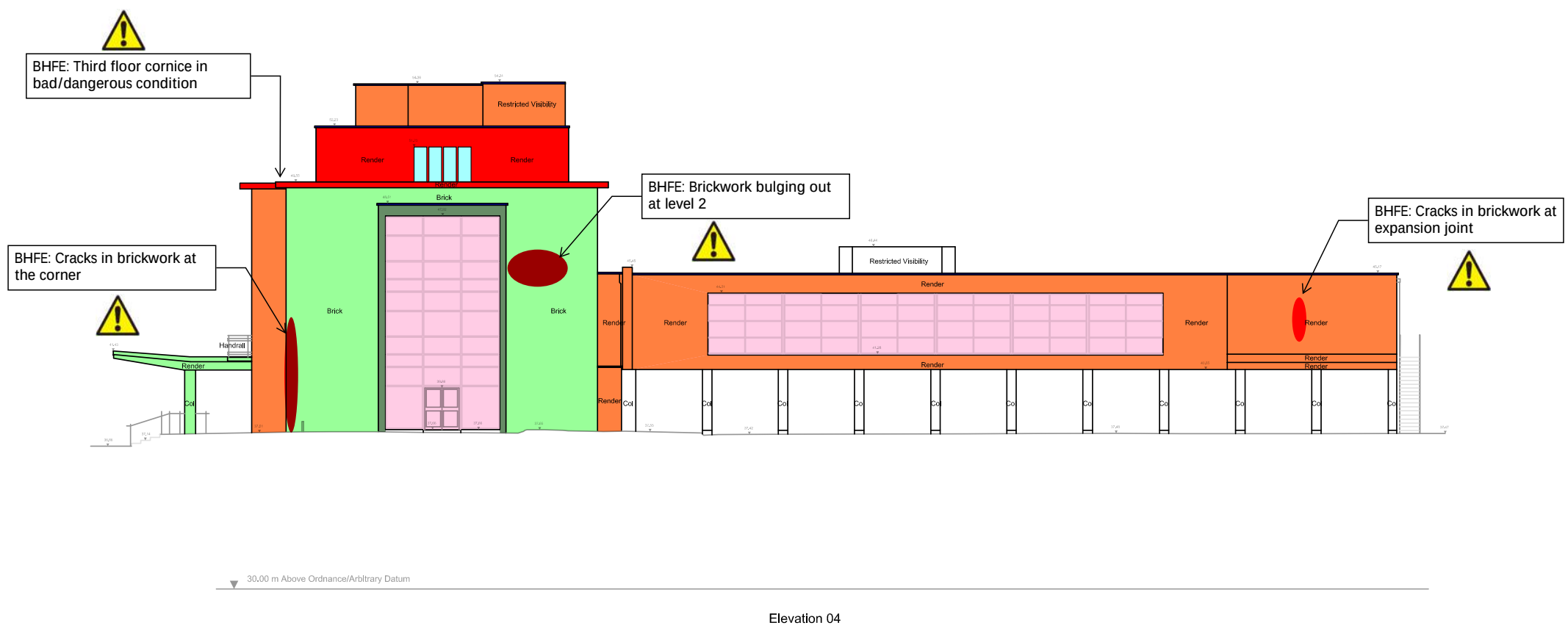
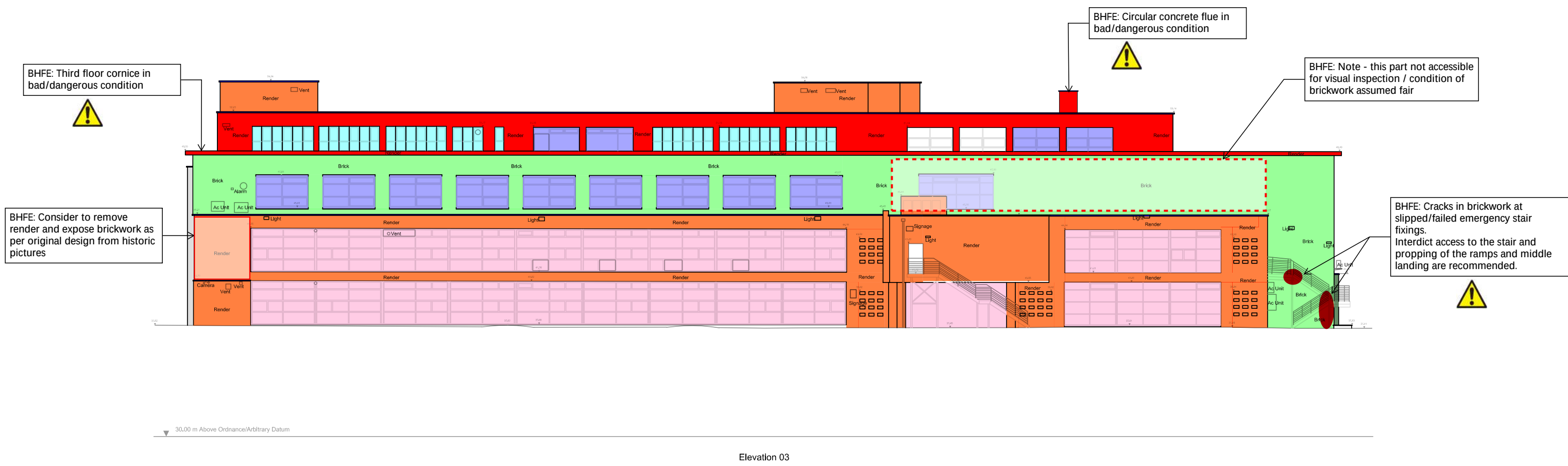


Repair Recommendation Summary, Key:

Please refer to the main body of the report for further information on the recommended repairs

 Area of concern - immediate action / further structural investigation recommended

 Fair condition, localised repairs	 Window system - general refurbishment recommended / good opportunities for performance enhancement
 Poor condition, in-situ repairs generally deemed possible	 Steel window system - general refurbishment recommended / limited opportunities for performance enhancement
 Disrepair, in-situ repairs deemed not sufficient, replacement may be needed	 Curtain walling - general refurbishment recommended / good opportunities for performance enhancement



Appendix D – Third Floor projecting cornice: temporary protection advice (issued 27 May 2021)

Matteo Francini

From: Matteo Francini
Sent: 27 May 2021 08:52
To: McDonnell Ryan
Cc: Julian McFarland; Henrietta Horton; Andy Severn; Jason Martin; Simon Bate
Subject: Haringey Civic Centre - Facade Survey - Initial notes on concrete cornice at level three
Attachments: 0049545 MF SK-001 Third Floor top cornice inspected.pdf; 0049545 MF SK-002 Third Floor top cornice as built.pdf; 0049545 MF SK-003 Third Floor top cornice netting.pdf; 0049545 Pictures.zip

Dear Ryan,

On Tuesday 25th May we inspected part of the third floor projecting cornice at the Haringey Civic Centre as part of Buro Happold façade and fabric investigation.

It was possible to access part of the cornice at the East, North and West elevations compatibly with the reach of the MEWP.

Please see attached a mark-up of the areas which was possible to access (SK-001). No intrusive investigation was undertaken at this stage but samples of concrete were taken for further testing.

You asked us to anticipate our considerations on the condition of the cornice and possible temporary works associated with H&S from our main report, please see below our initial thoughts:

1. The top cornice at third floor of the Office building of the Haringey Civic Centre is formed of a reinforced concrete L shaped feature. The concrete feature is clad with what appears to be in parts concrete and in parts stone coping on the sky face. The concrete is exposed at the inner and outermost vertical faces of the cornice and its underside, whereas an assumed stone cladding is fitted to the vertical face above the brickwork. There is a lead flashing which appears to be fixed behind the stone cladding and dressed above the top of the outer leaf of the cavity wall construction. Please refer to the attached sketch SK-002 and Photo 01.
2. Part of the cornice has been covered with Sterling boards fixed on the vertical and bottom face of the cornice – East elevation above the main entrance (Photo 02).
3. The condition of the reinforced concrete is currently under assessment: samples have been taken for carbonation and other tests. However, visually there are many instances of spalled concrete where the corrosion of the reinforcement has caused the cover to be pushed out (example in Photo 03).
4. This seems to happen more frequently at the tip of the cornice, whereas the bottom face (where exposed) appears to be in better condition: effects of carbonation and corrosion of reinforcement are usually more evident at corners where the concrete cover is minimum on two sides (Photo 04).
5. It is not possible to tell the condition of the bottom face of the projecting concrete where the Sterling board protection has been fitted. Where one board has come off the fixings, the soffit appears in fair condition (Photo 05).
6. Some areas of the concrete have been carefully removed whilst inspecting from the MEWP as the cover material was loose and in danger of falling spontaneously in high winds. In our opinion there is the risk of parts of concrete detaching and falling off the structure until a complete refurbishment of the feature is undertaken (Photo 06).
7. The lead flashing to the brickwork and the (assumed) stone cladding on top of it appears to be in good condition and no evidence of decay was noted where access was possible. Hammer sounding test was randomly carried out and no stones were found to be loose. However, issues with bird droppings on the ledge and water run-off on the face of the stone cladding were noted: the former, aside from aesthetical impact and possibly health hazard, can cause issues with durability of the lead material and washing off onto the brickwork below; the latter causes staining of the cladding and potentially weakening of the bond between the stones and the concrete (Photo 07).
8. It has been noted that several cracks affect the concrete cornice at seemingly regular intervals, which may lead to assume some sort of construction joints or phased concrete pouring operation were undertaken. It

appears that these cold joints are not properly sealed and water can penetrate through them, possibly initiating the reinforcement corrosion process (Photo 08).

9. The top stone (or concrete) coping is in very bad condition throughout: cracking is visible with different magnitude and efflorescence is growing in the cracks in many places, evidence of water ponding on the surface for long period of time (example in Photo 09).
10. The top cornice complete refurbishment should be factored in the main project, however as to your question on whether there is an immediate hazard for people frequenting the building, our considerations are as follows:
 - a. There is evidence of portions of concrete spalling and falling off the cornice due to corrosion of the reinforcement. This is more likely in extreme weather conditions.
 - b. This process is progressive and will continue until a thorough refurbishment of the feature is completed including refacing of the concrete.
 - c. Temporary protection to part of the East elevation cornice has been fitted to avoid detaching parts of material falling down to the pavement: in our opinion this form of protection is not the most effective: the Sterling board panels are not durable if exposed to the weather, and in fact evidence of deterioration is visible especially on the panels fitted to the outermost vertical face of the concrete. Also, the panels are fixed to concrete with shallow screws which are prone to failure especially in highly carbonated and cracked concrete – a panel is already detaching from the bottom face of the cornice (Photo 10c). Furthermore, the boards do not allow the water to run-off the concrete surface thus aggravating the whole corrosion issue. Finally, there is the added risk of detached material accumulating behind the boards and falling all at once.
 - d. For the reasons listed above, it is our opinion that a different system should be used to protect the people accessing the building: we are not able to provide a design for it as this is outside our scope, but in principle our recommendation would be to provide a safety mesh fixed to sound parts of concrete to the inside of the building and to the brickwork on the outside. The mesh should be able to retain the larger pieces of concrete which should detach from the main structure and at the same time allow water to run-off the concrete surface. Please see sketch SK-003.
 - e. The mesh will also be effective against bird perching on the brick ledge in the temporary situation.
 - f. It is our opinion that the Sterling boards fitted to part of the cornice should be carefully removed to allow visual inspection of the hidden parts, however it is your decision as to whether to maintain this type of protection in place. In this case, the detached board should be fixed back to the concrete soffit.
 - g. We also recommend that a sounding test is extended to the whole of the cornice to detect de-bonded parts of concrete to be safely taken down in advance of any temporary works being undertaken.
 - h. There will remain a risk of smaller portion of concrete falling through the mesh, therefore our recommendation is to enforce obligation to wear PPEs including hard hat to all visitors and contractors accessing the building – including the guardians when they walk around the perimeter.

I trust the above makes sense and will help you with your discussion with the stakeholders of this project. Please do not hesitate to contact should you have any queries.

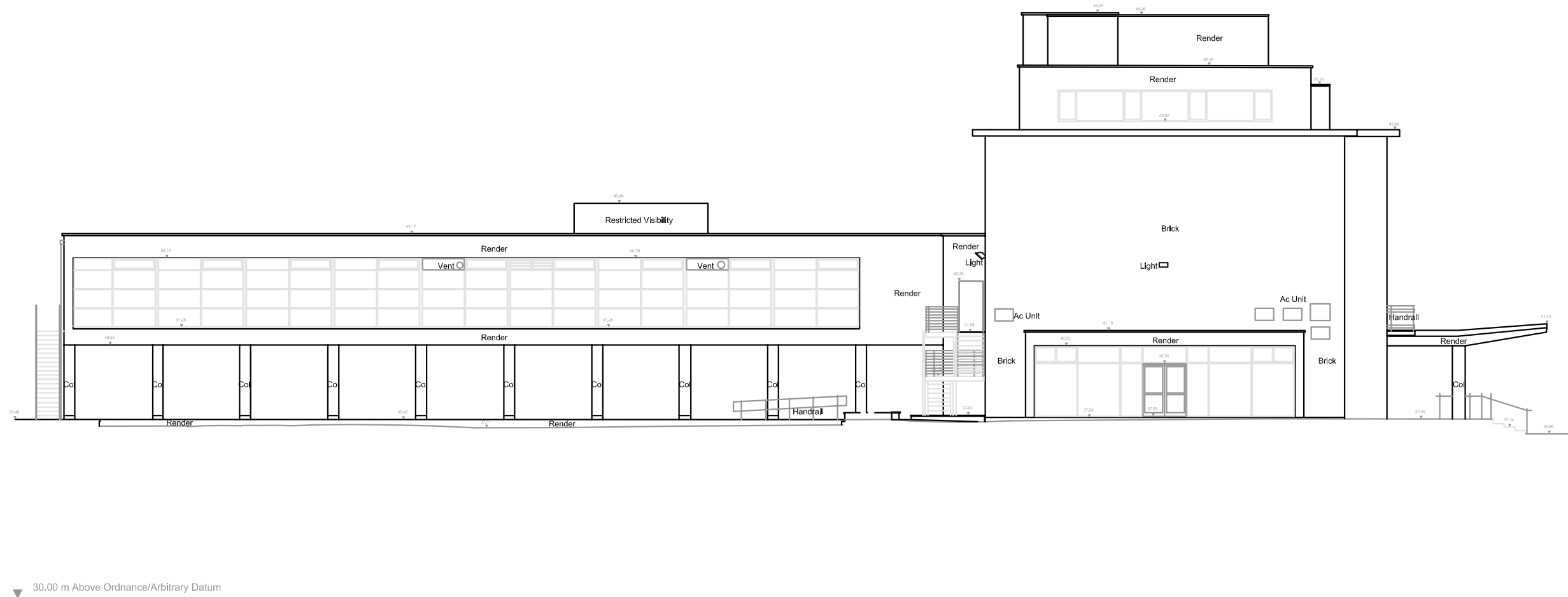
Kind Regards,

Matteo Francini
MEng CEng MICE APAEWE
Conservation Accredited Engineer
Associate - Conservation
BuroHappold Engineering | Façade Diagnostic, Inspection & Remediation
T: +44 (0) 20 7927 9700
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Matteo.Francini@BuroHappold.com
www.burohappold.com | [@burohappold](https://www.instagram.com/burohappold)

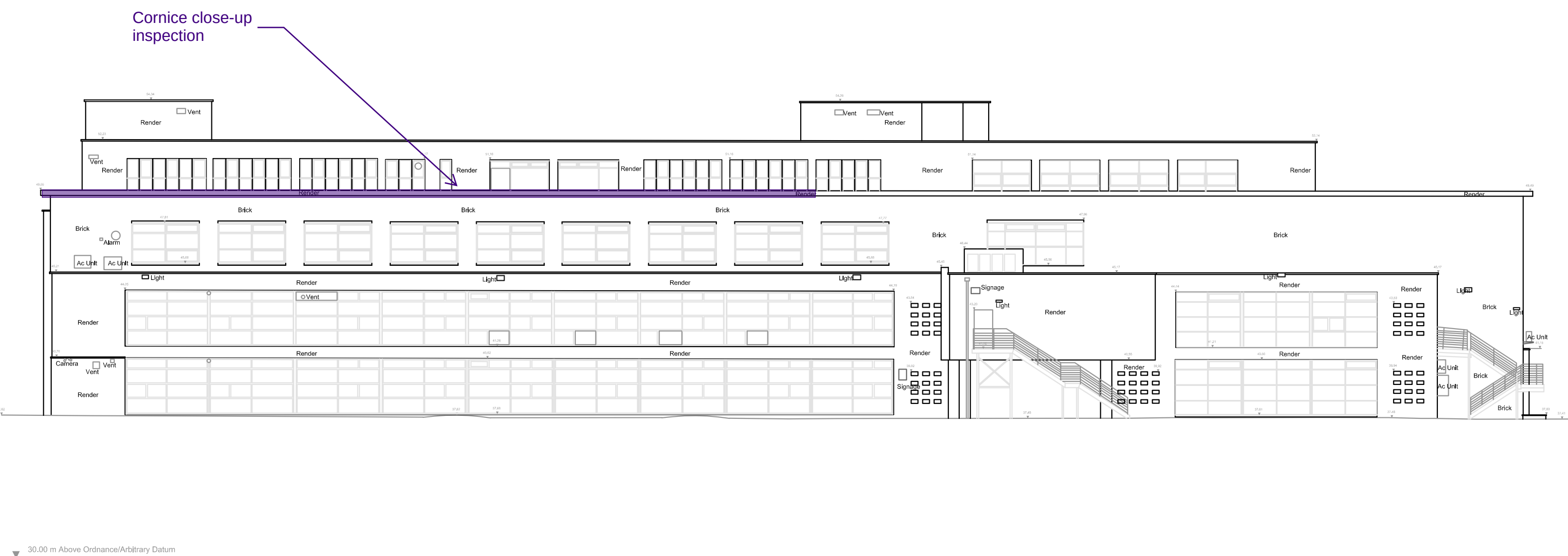
BURO HAPPOLD



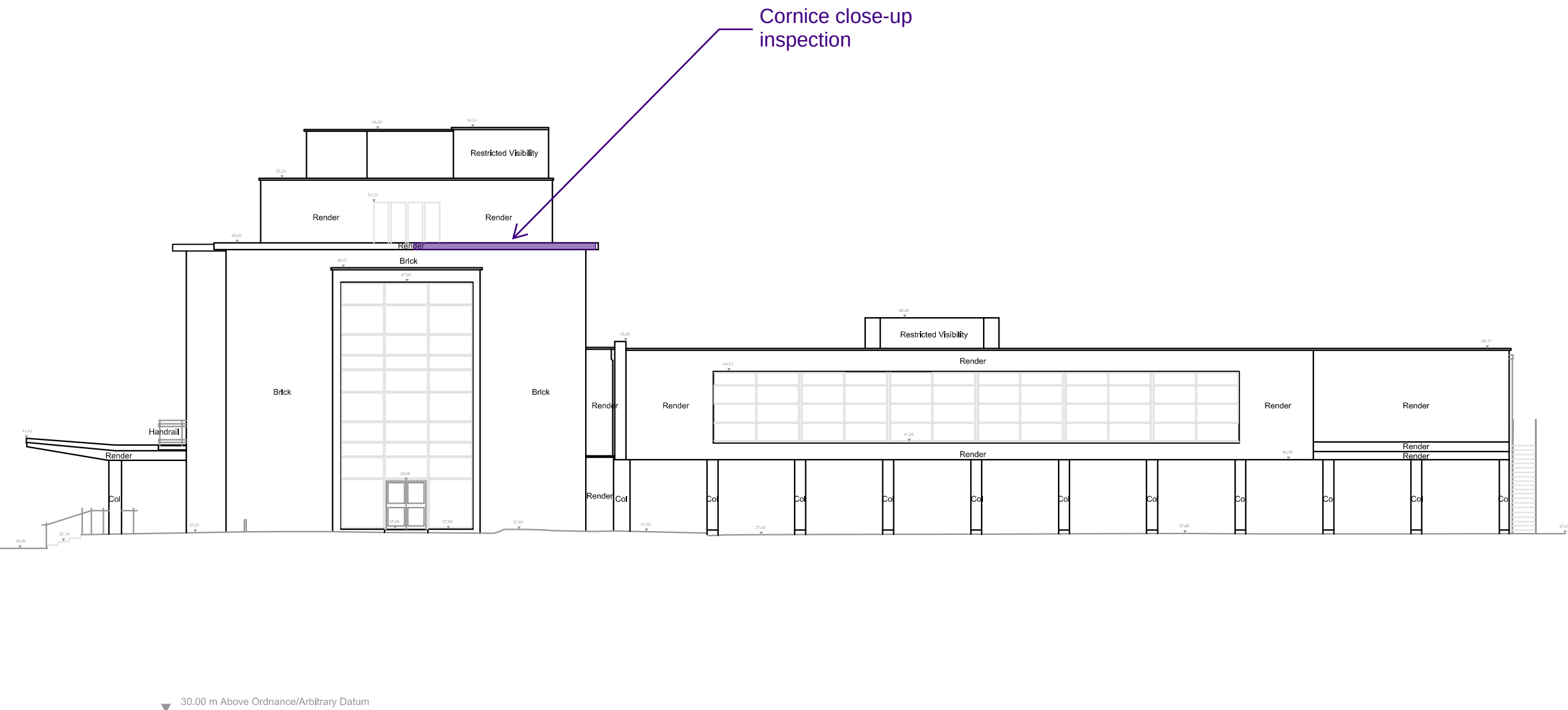
Elevation 01



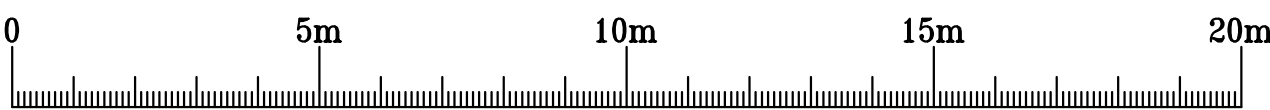
Elevation 02



Elevation 03



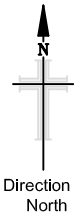
Elevation 04



Control & Datum Information

All levels shown on this drawing are related to Ordnance Survey Datum by means of multiple network GNSS observations taken at Station SX.

The grid shown on this survey is based on Ordnance Survey Grid (OSGB36) using OSTN02. These co-ordinates have been derived from multiple network GNSS observations taken at Station SX. All other works are related to this in plane projection and their datum conversion is from SX for one point localisation with a scale factor equal to 1.



Abbreviation Key, Building

AB	Air Brick	GEA	Gross External Area
A/C	Air Conditioning Unit	GIA	Gross Internal Area
AH	Access Hatch	H	Height
AH	Apex Height	HR	Handrail
AHU	Air Handling Unit	HR	Howe Reel
AL	Apex Level	IC	Inspection Cover
BH	Beam Height	INA	Not Internal Area
BSL	Beam Soffit Level	RAD	Radiator
C/H	Cill to Head Height	RDM	Recessed Door Mat
CH	Ceiling Height	RL	Roof Level
CL	Ceiling Level	RWP	Rain Water Pipe
C/S	Cill to Spring Height	S	Skylight
DH	Door Height	SPH	Springer Height
F-C	Floor to Cill Height	SPL	Springer Level
FCH	False Ceiling Height	THL	Threshold Level
FCL	False Ceiling Level	VP	Vent Pipe
FL	Floor Level	WCL	Window Cill Level
G	Gully	WHL	Window Head Level

General

This survey has been carried out in accordance with RICS accuracy band D, as described in RICS guidance note Measured surveys of land, buildings and utilities (2nd Edn).

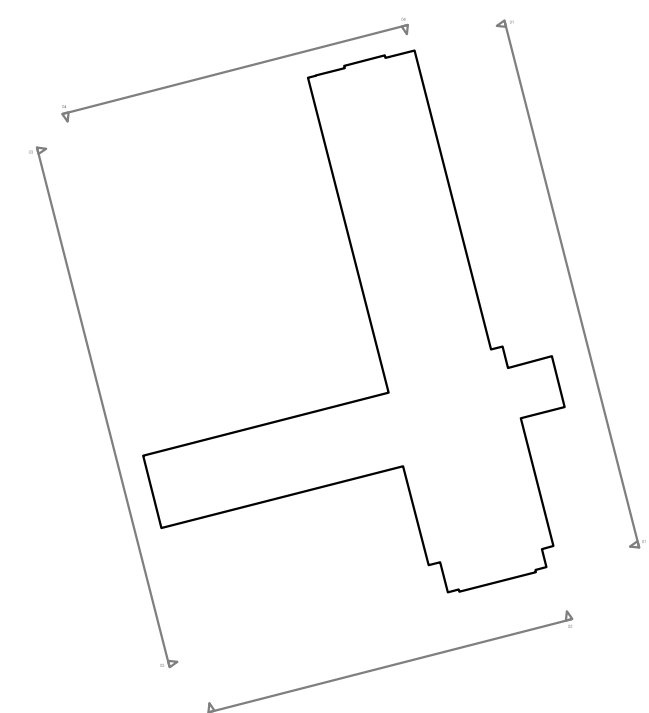
Drawing units are metres, quoted units are metres.

Grid ticks should be used to check for plotting distortions.

Details or services hidden or obscured by vegetation, debris or vehicles at survey dates may be omitted, Hedge & Vegetation details are outline.

Any assumed details are shown in DASHDOT linetype

All arrows point up unless otherwise stated



Revision History

Rev	Description	By	Date
0	Original Issue	PLD	21/01/19

Client

Haringey Council
London borough of Haringey/HFH
STATION ROAD, ALEXANDRA HOUSE, LONDON
N22 7TR UNITED KINGDOM

Title

Elevations
Civic Centre, High Rd, Wood Green
London
N22 8LE, UK

gleeds^{GF}

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Dwg No. **LNBS0717_E01**

Sheet No. **1 of 1**

Scale 1:50 @ A0 Rev. 0

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ENGINEERING

Project

HARINGEY CIVIC CENTRE

Number

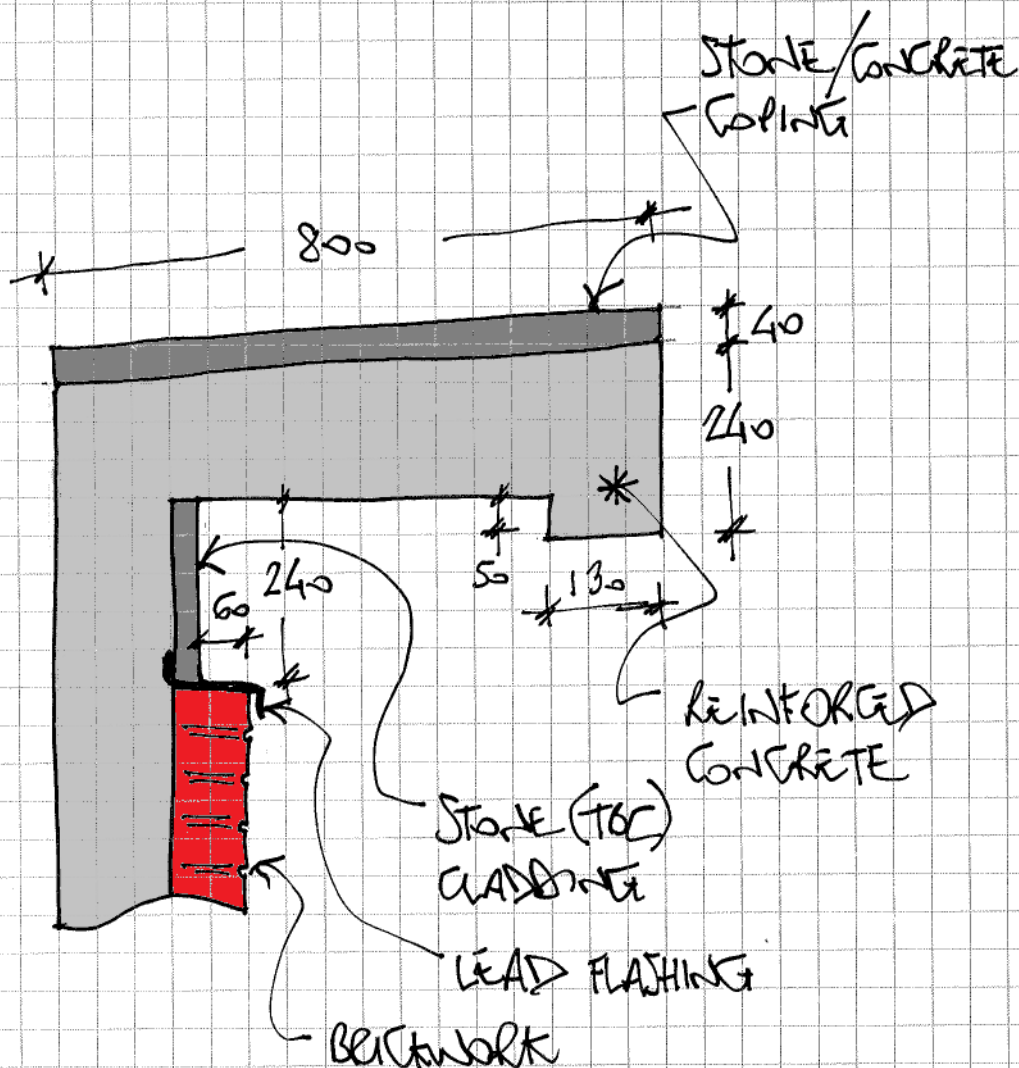
0049545

Made by/Date

MF/25.5.21

Checked/Date

THIRD FLOOR TOP CORNICE



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ENGINEERING

Project

HARINGEY CIVIC CENTRE

Number

0049545

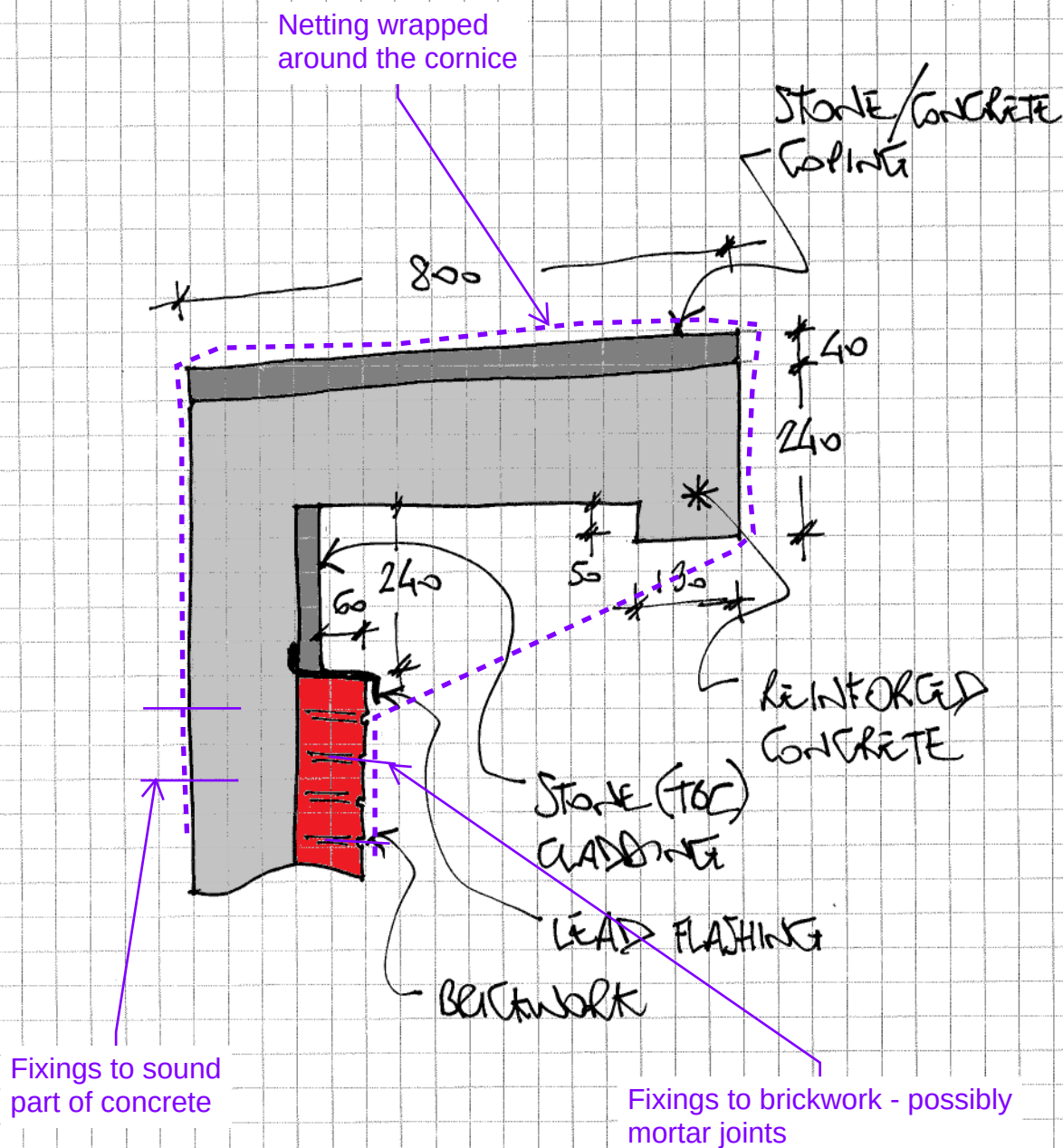
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MF/25.5.21

Checked/Date

THIRD FLOOR TOP CORNICE

POSSIBLE TEMPORARY PROTECTION
NOTE: TO BE DESIGNED BY OTHERS



NOTE:
WEARING PPEs INCLUDING HARD HAT TO BE
MADE MANDATORY TO ACCESS THE BUILDING



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10

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A.2 Existing building thermal performance enhancement Option Report

0044501-BHE-XX-XX-RP-Y-0002

Haringey Civic Centre

Existing building thermal performance enhancement - Option Report

0044501-BHE-XX-XX-RP-Y-0002

0044501

15 July 2022

Revision P02

Revision	Description	Issued by	Date	Checked
P01	DRAFT For Information – Existing condition only	MF	29.04.22	-
P02	Final Issue	MF/TL	15.07.22	AA

[https://burohappold.sharepoint.com/sites/044501/05_Discipline/11_Facade Engineering/03_Reports/0044501-BHE-XX-XX-RP-Y-0002.docx](https://burohappold.sharepoint.com/sites/044501/05_Discipline/11_Facade%20Engineering/03_Reports/0044501-BHE-XX-XX-RP-Y-0002.docx)

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authors **Matteo Francini / Teni
Ladipo**

date **30 June 2022**

approved **Ana Araujo**

signature



date **15 July 2022**

1 Introduction

Buro Happold Limited have been appointed by Haringey Council to provide Building Physics support for the refurbishment of the existing building called Haringey Civic Centre, High Road, Wood Green, London, N22 8LE.

The Haringey Civic Centre, Figure 1—1, was originally constructed between 1955-1958, to provide civic services to the local community. In July 2018, the building became Grade II listed by Historic England. Subsequently, in 2020, the Civic Centre was closed for safety reasons (with the decision made to undertake a major refurbishment).

The refurbishment project is now ongoing with Hawkins Brown Architects (HB) and support from Buro Happold including Structures, MEP and Sustainability Teams. The plan is to refurbish for re-use the existing Civic Centre and build a new office block in the car park. The project is at end of RIBA Stage 2 at the time of issuing this report.

This report refers to the existing Civic Centre building only.



Figure 1—1 Haringey Civic Centre existing building. Source: Google Earth.

The scope of this document is to provide Building Physics support to the Design Team in general and specifically to BH Sustainability and MEP Teams, who are providing the energy model for the existing building, as well as to discuss possible options to enhance the thermal performance of the existing façade types thus reducing the overall energy consumption of the building services, whilst maintaining internal comfort in terms of ventilation, moisture level, condensation etc.

The above scope builds on from BHFE Façade System Condition Report 0049545-BHE-XX-XX-RP-Y-0001 issued 15/06/2021, expanded with the following activities:

- Façade Systems visual data gathering: site visit and measured survey focussing on specific parameters of the façade elements for U-value estimate and condensation risk analysis of the existing systems. Parameters measured included but were not limited to: glass thickness and composition, mullion/transom size, window dimensions, concrete fins details etc.

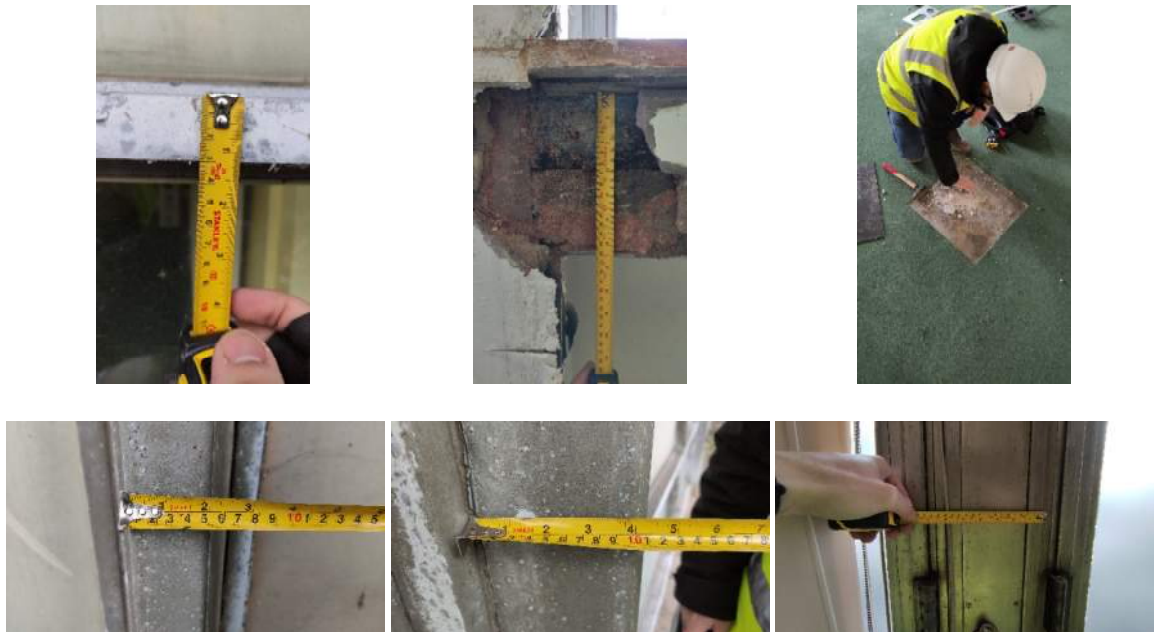


Figure 1—2 Visual data gathering

- Façade Systems current U-value estimate and condensation risk analysis: a range of U-value is estimated for the façade systems in their current status including consideration as to condensation risk under the proposed internal conditions from BH MEP and Sustainability Teams advice.

Facade Key:		Sustainability Key:			
EWS-01		Purple/ Blue			
Uninsulated cavity wall - Brickwork		STD_WAL2			
Layer Name	Material	Thickness [mm]	Thermal Conductivity λ [W/mK]	Resistance [m ² K/W]	
OUT					
External surface resistance				0.04	
Half-brick wall	Masonry (heavyweight)	102.5	0.90	0.11	
Non-ventilated Air cavity	Air	65	0.62	0.18	
Half-brick wall	Masonry (heavyweight)	102.5	0.90	0.11	
Internal plaster	Gypsum plaster, sand aggregate	15	0.81	0.02	
Internal surface resistance				0.13	
IN					
Totals:		285 mm		0.60 m ² K/W	
U-Value:	Centre pane U-Value - no thermal bridging included:			1.677 W/m ² K	
	Safety factor:			0%	
	Centre pane U-value			1.677 W/m ² K	
	Allowance for non-repetitive thermal bridging:			10%	
	Centre pane U-value including thermal bridging			1.843 W/m ² K	

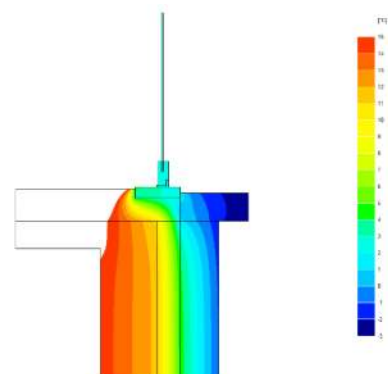


Figure 1—3 Current U-value estimate and condensation risk analysis

- Discussion of options for thermal performance enhancement: an optioneering exercise is included with the aim to offer the Client the tools to make an informed decision as to the refurbishment of the existing Civic

A.3 EOC Condensation Analysis Note

HCC-EOC-RP-002

Haringey Civic Centre

Facade Engineering
Condensation analysis summary
note

Issue P01

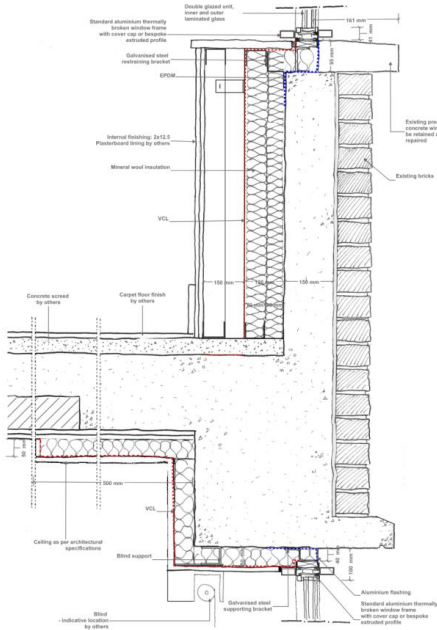
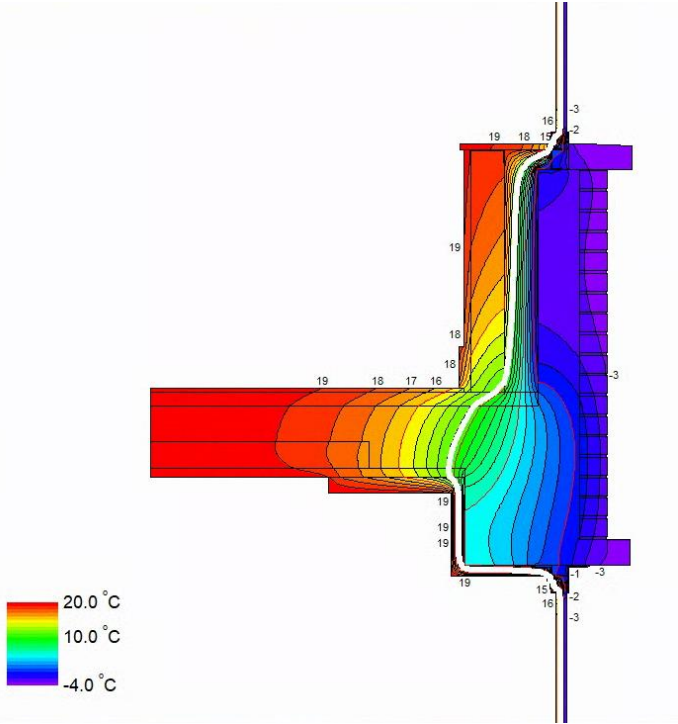
Project Number:	823309
Prepared by:	LC
Checked by:	CT/SM

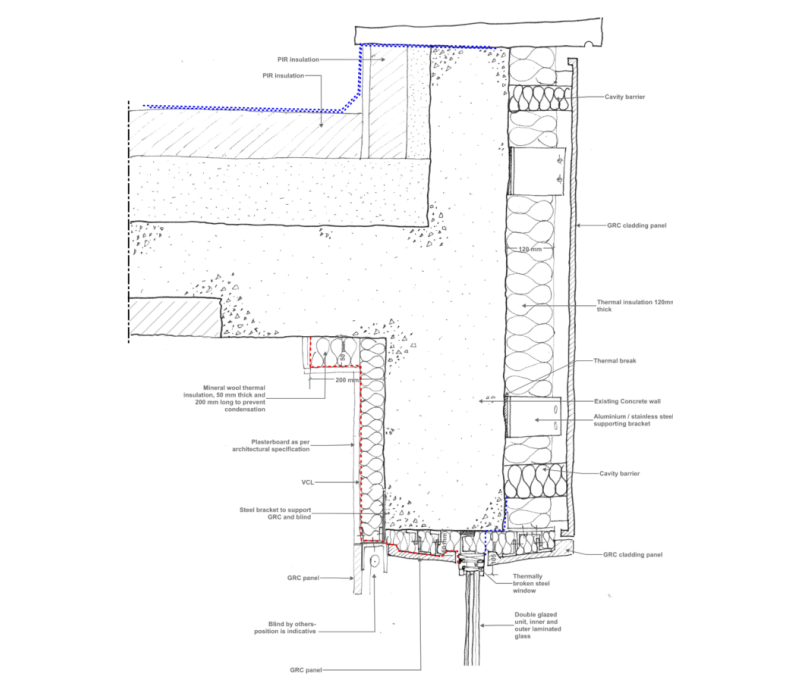
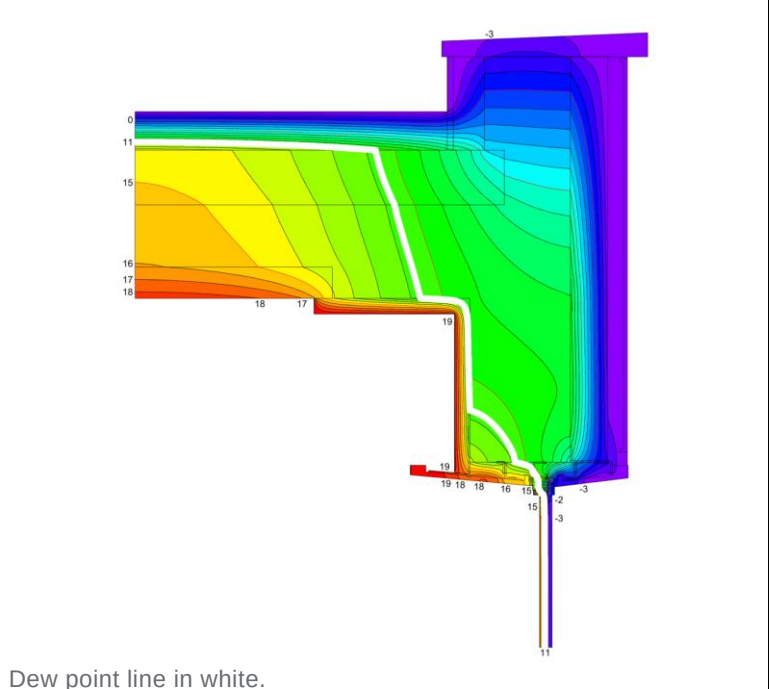
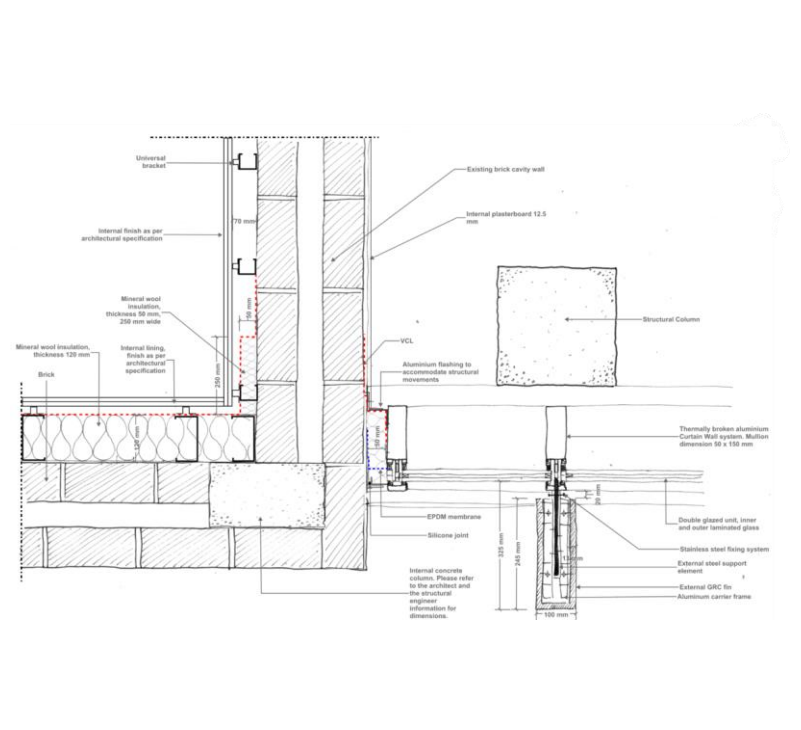
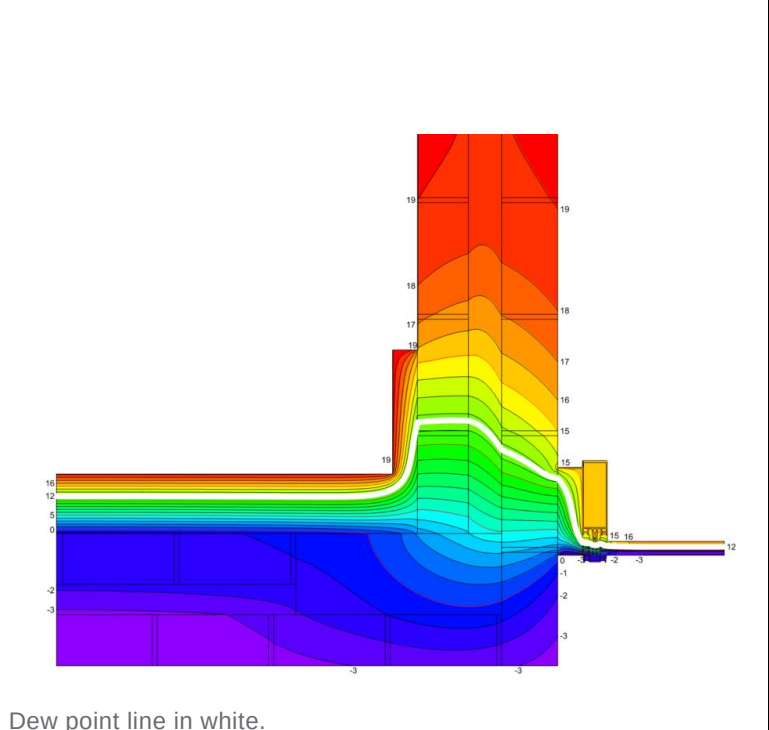
Document History

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Date	Issue	Reason for Issue	Prepared by	Checked by
11.08.2023	P02	For Information	LC	CT
19.07.2023	P01	For Information	LC	SM



Boundary conditions		Detail	Condensation analysis results	Comments
Internal Temperature: 21° as per MEP Engineer report. External Temperature: -4° as CWCT standard for condensation analysis Relative humidity (RH): RH=55%, considered as a conservative assumption for office buildings. The value indicated in the MEP report is 70% / uncontrolled which is not applicable for an office building. Dew point: 11.6°C, calculated considering the RH and the Internal temperature indicated.	D01		 Dew point line in white.	All the section parts analysed were considered 1000mm wide as the standard suggests and to show a better distribution of the thermal lines. Insulation is positioned to the inner face of the existing wall, to achieve the required thermal performance and leave the outer finishing layer visible. Additional ceiling insulation was considered to avoid thermal bridges. VCL is required between the insulation and plasterboard layer to prevent possible condensation phenomena.

Boundary conditions		Detail	Condensation analysis results	Comments
Internal Temperature: 21° as per MEP Engineer report. External Temperature: -4° as CWCT standard for condensation analysis Relative humidity (RH): RH=55%, considered as a conservative assumption for office buildings. The value indicated in the MEP report is 70% / uncontrolled which is not applicable for an office building. Dew point: 11.6°C, calculated considering the RH and the Internal temperature indicated.	D08		 Dew point line in white.	Insulation is placed outside the structural wall to achieve the required façade thermal performances. Brackets and cavity barrier are placed between the wall and GRC rainscreen. Additional internal soffit insulation was required to avoid thermal bridges. VCL is required between the insulation and plasterboard layer to prevent possible condensation phenomena.
	D21		 Dew point line in white.	Insulation is placed to the inner face of the existing civic centre north brick wall to achieve the required façade thermal performances. The façade of the north link consists of an insulated curtain wall. An insulation panel 250mm wide and 50 mm thick is placed to the left side of the internal wall to avoid thermal bridge due to the existing west brickwork wall penetrating the thermal line. VCL is required between the insulation and plasterboard layer to prevent possible condensation phenomena.

A.4 C20 Society Report



By Email: planning@haringey.gov.uk

30 August 2023

Dear Samuel Uff

APPLICATION REF: HGY/2023/1043

SITE: Civic Centre, High Road, London, N22 8ZW

The Twentieth Century Society acknowledge receipt of comments made on behalf of the applicant by Montagu Evans responding to our letter dated 21 June 2023. The Society has since been offered the opportunity of a site visit to discuss the proposals, which we undertook on 24 August 2023. Following the site visit, we would like to offer some revised comments in relation to this application.

We would like to reiterate our enthusiasm for the proposed use of the site, and for it to regain its original function. This is an exceptional building, and a return to its original use is entirely appropriate for the long-term future of the historic site. While we were on site, however, we were disturbed to learn of a suggested proposal to rebuild the elevations to improve their energy efficiency. The Twentieth Century Society would object strongly to any attempt to rebuild the elevations of this building which would result in **substantial harm** to the listed building and the loss of the original brickwork, window surrounds and cornicing, all of which are of high significance. Apart from the harm caused to the listed building, the loss of embodied carbon in any rebuilding scheme would far outweigh any occupational benefits achieved and we would caution against such an approach as deleterious to the sustainability of the building.

In connection with the comments made in our letter in the curtain walling replacement, the Society has now had sight of further reports on the condition of the glazing and having had the opportunity to examine the windows on site, we consider that sufficient evidence has been provided to that they are beyond repair. We therefore conclude that their removal and replacement is justified. However, we would request that the design of the replacement glazing and window units is conditioned by the

The Twentieth Century Society is a company limited by guarantee, registered in England no 05330664

Registered office: 70 Cowcross Street, London EC1M 6EJ
Registered Charity no 1110244
Tel. 020 7250 3857

council to ensure that the replacement scheme is as close in appearance to the original curtain walling as possible.

The pre-cast concrete panels were also a cause for concern for the Society when considering the impact of the proposals on the appearance of the listed building. Again, the site visit has provided further information on the condition of these panels and the feasibility for their retention. We are now satisfied that their replacement here is unavoidable. However, we again request that the replacement GRP panels be conditioned if the council are minded to consent to this application, to ensure that they are specified to give a like-for-like appearance thus minimising the harm caused to the listed building.

We were pleased to be made aware that the application of colour to the glazing on the flying bridge in the entrance foyer is to be achieved through the use of coloured film, a reversible change which will not adversely affect this area permanently. Similarly, we received assurances that the council chamber ceiling will be replaced with a like-for-like copy of the original.

Turning to the civil defence suite in the basement, we were satisfied from our visit that little physical evidence remains of this facility. We were encouraged by the proposal to add an interpretation board to the external exit of the bunker detailing its history. Although we regret the stripping out of the basement areas, and continue to maintain that they are of some historic significance, we appreciate the need to house plant in this area and that this location is preferable to other potential sites which would cause greater harm to the listed building.

We trust that our revised comments are useful in your determination of this application.

Yours sincerely

A handwritten signature in dark ink, reading 'Clare Price', with a long horizontal flourish extending to the right.

Clare Price

Head of Casework
The Twentieth Century Society
70 Cowcross Street
London EC1M 6EJ
Tel 020 7250 3857

The Twentieth Century Society, 70 Cowcross Street, London EC1M 6EJ – Tel 020 7250 3857

clare@c20society.org.uk
www.c20society.org.uk

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Clare@c20society.org.uk

Remit: The Twentieth Century Society was founded in 1979 and is the national amenity society concerned with the protection, appreciation, and study of post-1914 architecture, townscape and design. The Society is acknowledged in national planning guidance as the key organisation concerned with the modern period and is a constituent member of the Joint Committee of the National Amenity Societies. Under the procedures set out in *ODPM Circular 09/2005*, all English local planning authorities must inform the Twentieth Century Society when an application for listed building consent involving partial or total demolition is received, and they must notify us of the decisions taken on these applications.

The Twentieth Century Society, 70 Cowcross Street, London EC1M 6EJ – Tel 020 7250 3857

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