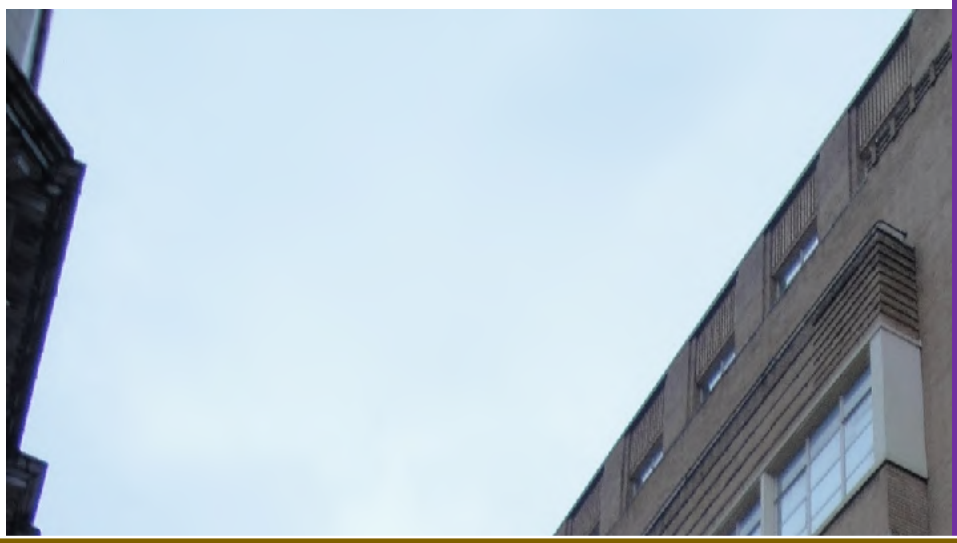


NOMA: The Dantzic Building

Conservation strategy – Repair and Cleaning of Externals: Roof coverings and Features; Parapets; Masonry Cladding



Supplementary information in support of a planning application for the proposed refurbishment and reuse of the Dantzic Building

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REV C 3rd May 2018

NOMA - The Dantzic Building – Conservation strategy – Repair and Cleaning of elevations

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1 Introduction

1.1 Aim of this report

i) This document sets out to provide a guiding methodology and outline specifications for the conservation, restoration and cleaning works to the historic fabric of the Grade II listed Dantzic Building, formerly part of the Cooperative Estate and now forming part of the NOMA campus in central Manchester. The purpose of the document is to outline specifications which will inform the proposed repair and conservation works necessary to retain the building's significant historic fabric. The proposed development refurbishes the historic building while restoring the key historic features.

ii) Reference should be made to the Sheppard Robson Architects drawings submitted with the present application:

General Arrangment Plans:

5814-20- 801 / 802 / 803 / 804 / 805 / 806 / 807 / 808 / 809 / 810

External refurbishments and alterations:

5814-01-825 / 826 / 827 / 828

5814-20-825 / 826 / 827 / 828 / 841 / 842

iii) This report provides guidelines on the specifications for the masonry repair and cleaning works to the external envelope of the building. In particular, the conservation repair and cleaning strategies for the following:

- **Roof coverings (where the repairs have conservation implications)**
- **The lift overrun tower**
- **The rear (west) tower**
- **Roof level parapets**
- **Sixth and fifth floor level parapets**
- **External white glazed brickwork within the courtyard, and associated repairs**
- **External facing brickwork generally**
- **External facing engineering brickwork to basement plinth level**
- **High level brickwork repairs following specific defects inspection and full access**
- **Rainwater goods**

iv) The development will retain the architectural features as identified in the proposed scheme and aims to guide the implementation of the proposed scheme. The report should be read in conjunction with the approved Sheppard Robson Architects drawings and schedules of work.

v) The fundamental requirement is that the proposed conservation repair and cleaning works are carried out according to good conservation methods and practice as outlined by Historic England's guidelines.

vi) The key purpose of this **Conservation Method Statement** Report is, therefore, to clarify the appropriate work methodology and specifications to guide the intervention in the identified historic fabric components, according to the accepted best standards.

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vii) This document informs the National Building Specification (NBS) **General Reference Specification** for the refurbishment of the Dantzic Building prepared by Sheppard Robson Architects and submitted with this application, to which reference should be made and which remains the principal specification document.

viii) This report has been updated in February 2018 and in particular **Strategy 7: External Facing Brickwork** and **Strategy 8: Basement Plinth** have been amended to reflect the availability of suitable replacement brickwork. Sheppard Robson sketch drawing 5814-SK-121 has been appended as Appendix 4 in order to illustrate this revised proposed approach.

ix) The report has been further updated in May 2018, during the consented works on site. Amendments have been made to **Strategy 1 – Lift overrun tower to roof; Strategy 2 – Rear (west) tower to roof;** and **Strategy 3 – Parapet walls to roof.** Two new strategies, **Strategy 9 – High level brickwork repairs adjacent to plant deck,** and **Strategy 10 – High level brickwork repairs to window heads** have been added.

1.2 Authorship

This report has been prepared by Stephen Levrant Heritage Architecture Ltd., a practice of conservation architects, chartered building surveyors and historic building consultants specialising exclusively in the historic cultural environment. The authors were:

- Nick Grimshaw [BA (Hons), BPL, MA, PgDipBldgCons, MRTPI, IHBC] – Senior Associate
- Matthew Williams [MA MSc PgDipSurv MRICS] Senior Conservation Surveyor

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2 CONSERVATION PRINCIPLES AND GUIDANCE

2.1 Introduction – the purpose of conservation

i) The over-arching policy which defines the proposed development is one of **minimum intervention** in the repair and/or replacement of the significant components of the historic building. This principle applies across the individual items of fabric, with the important caveat that the objective is to achieve a long-term, sustainable preservation of the individual components and the building as a whole.

ii) When assessing individual components it is important to look beyond the immediate need for action, to understand the reasons for the need for repair. The objective to make useable and habitable the historic building's fabric and spaces needs to be considered as the basis for all interventions. Therefore, it is necessary to plan for the long-term consequences of inevitable change and decay. While sufficient work should be undertaken to achieve a lasting repair, the extent of the repair should normally be limited to that necessary to make failing elements sound and capable of continuing to fulfil their intended functions.

iii) However, the requirement for long-term repair means that severely damaged or decayed components should be subject to authentic and faithful replacement rather than consolidation and repair. This principle will be applied in respect of the glazed white brickwork sections where the facings of individual bricks have been significantly compromised by redundant fixings or mechanical impact damage.

iv) This specification is based upon the format of the NBS Specification, but should be read as an additional informative to the detailed specification prepared by the Project Architects, Sheppard Robson, which will act as the over-arching specification document.

v) The following specifications have been adopted by Stephen Levrant Heritage Architecture Ltd for use only in this project. This Specification must be read in conjunction with the detailed Specification, Schedules of Works and Drawings prepared by Sheppard Robson Architects.

2.2 Definitions of terms used in the repair/refurbishment

i) ***REMOVE*** means disconnect, dismantle as necessary and remove the stated element, work or component and all associated accessories, fastenings, supports, linings and bedding materials, and dispose of unwanted materials. It does not include removing associated pipework, wiring, ductwork or other services.

ii) ***KEEP FOR REUSE*** means, during removal, prevent damage to the stated components or materials, and clean off bedding and jointing materials. Then stack neatly, adequately protect and store until required by the Employer or for use in the Works as instructed.

iii) ***REPLACE*** means carefully remove the stated existing components, features and finishes, and hand to the Employer for their records. Provide and fit in lieu new components, features or finishes which, unless specified otherwise, must match those which have been removed. Make good as necessary.

iv) ***REPAIR*** means carry out local remedial work to components, features and finishes as found in the existing building. Re-secure or re-fix as necessary and leave in a sound and neat condition. It does not include the replacement of components or parts of components or redecoration.

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v) ***MAKE GOOD*** means carry out local remedial work to components, features and finishes which have been disturbed by other, previous work under the Contract and leave in a sound and neat condition. It does not include replacement of components or parts of components or redecoration. The meaning of the term shall not be limited by this definition where used in connection with the defects liability provisions of the Contract.

vi) ***TO MATCH EXISTING*** means use products, materials and methods to match closely all visual characteristics and features of the existing work, with joints between existing and new work as inconspicuous as possible, all to approval of appearance.

2.3 Necessary approvals

i) The proposed cleaning and repair works have been devised to be the minimum necessary in extent, and specified to ensure that they do not result in any harm to the building's significance, or cause any irreversible alteration of the historic fabric.

ii) It is a criminal offence under the Planning Acts if any person executes:

> *"any work for the demolition of a listed building or for its alteration or extension in any manner which would affect its character as a building of special architectural or historic interest unless the works are authorised"*.

Consequently, it is essential to ensure that any scheduled works are confirmed as signed off by the Project Architect, Sheppard Robson Architects.

iii) However, the repair and cleaning works to be undertaken to the elevations do not fall under the definition of *demolition*, *alteration* or *extension*, in terms of Section 7 of the Planning (Listed Buildings and Conservation Areas) Act 1990, as they will not affect the character, architectural or historic interest of the listed building.

iv) Nevertheless, given the building's status and role in NOMA, individual task sheets will need to be carefully detailed by the contractor using a standard ***task method statement*****.** This will enable the cumulative impact of the cleaning and repair works to be easily recorded, and understood by all stakeholders.

v) Written confirmation of consent to proceed with the specific tasks, on the basis of the specific task method statements, must be secured from the Project Architect before starting on site.

vi) The individual task method statements shall be of sufficient clarity to fully inform the Project Architect, Client and other relevant parties of the extent of the required works. This is necessary to confirm that the works are appropriately authorised and that they do not fall within the scope of Section 7, of the Planning (LB&CA) Act 1990.

vii) Once authorised the collection of **task method statements** will be appended to the site documentation to provide a detailed, accessible record of the works undertaken during this development project.

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3 STANDARD GUIDELINES FOR HERITAGE ITEMS

3.1 Limitations

i) The following applies to the conservation repair and cleaning of the external features of the Dantzic Building including roof coverings and features, parapet walls and external masonry walls and to works of conservation cleaning and repair to the white glazed brickwork facings of the internal courtyard.

ii) Products or services referred to within the specification advice are included as indicative and it is the intention that either these products or services or an equal approved product or service should be used in the actual works, subject to the approval of the project architect and conservation consultant.

iii) Reference should be made to the drawings prepared by Sheppard Robson Architects listed above and submitted with the present application for planning permission and listed building consent.

3.2 Survey and task method statements

i) Before starting work, examine all available information, carry out a detailed survey of the external masonry areas, and submit a survey report and a brief but detailed **task method statement** to the Project Architect (as noted above 2.3 iv).

ii) The task method statement should define the extent of cleaning and any repair interventions to white glazed brickwork areas and cover all relevant matters listed below and in the Health and Safety Executive Guidance Notes provided by Sheppard Robson Architects.

iii) The survey and method statement should detail:

- The exact areas proposed to be repaired and / or cleaned.
- The form, condition and any repair and or replacement methods to be used on the white glazed brick areas.
- The form, location and removal methods of any toxic or hazardous materials.
- The identification and location of services.
- The management of health and safety of operatives and the public during the works.

3.3 Workmanship generally

i) All cleaning, repair and replacement works shall be completed in the most careful manner preventing unnecessary damage or destruction of adjacent surfaces and materials.

ii) The site staff responsible for carrying out conservation cleaning works are to be suitably trained and evidence of training is to be available on request. Where Stonehealth DOFF and TORC conservation cleaning systems are in use the operatives are to be specialist sub-contractors trained, approved and recommended by Stonehealth whose contact details follow in the general Preamble below.

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iii) The site staff responsible for carrying out any repair / replacement works to white glazed brickwork sections shall be suitably trained and experienced and under the supervision of a suitably experienced foreman / supervisor. Evidence of credentials and CSCS cards shall be available for inspection.

iv) On completion of the works all areas shall be left thoroughly clean and free of debris, builder's rubble, dust, grime and dirt to the entire satisfaction of the project architect and Conservation Consultant (CC).

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4 ROOF COVERINGS

4.1 General comments and heritage significance

The building is of flat roof construction and the existing roof coverings comprise a single skin poured membrane which is laid to falls on a 20mm insulation above a screed. There is an upstand membrane to the surrounding brick parapet walls. The parapet walls have been painted however the brick courses are still clearly visible. The parapet is capped with a concrete or reconstituted stone capping, also painted.

The roof covering is a modern form of construction which is not in itself considered to be of any heritage significance or to make a contribution to the special architectural and historical interest of the building, therefore no conservation repairs as such are proposed in this area and the scope of interest for this document is therefore limited.

4.2 Proposed approach

The proposed approach to the refurbishment of the roof coverings comprises the installation of new single poured membrane above the existing coverings continuing to fall to meet existing drainage. A new insulated upstand will be formed against each parapet / edge. The proposed approach is fully detailed in the Sheppard Robson drawings and project specifications. This approach has very limited conservation implications as such and will lead to greatly improved thermal performance within the building.

4.2 Conservation considerations and proposed approach

The proposed approach has very little impact upon fabric of any significance and therefore has limited impact in conservation terms.

The principal requirement in respect of conservation is that the new upstand detail will neatly join the existing parapet, and the lift overrun and west roof towers where it meets these. The line of the upstand will follow the brick coursing throughout and no splashes / irregularities above the agreed line of the upstand will be accepted. Workmanship will be tightly controlled by experienced personnel and the works will be subject of frequent inspections by the design team.

A secondary conservation matter raised by the configuration of the roof is the liability of flat roofs to failure due to a lack of maintenance of drainage outlets and other problems. This can then have a severe impact upon other more significant parts of the structure. This will be addressed by the provision of a robust maintenance strategy allowing for frequent cleaning of all hoppers, sumps, downpipes and related installations and their frequent preventative inspection.

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Figure 1: Typical flat roof area to Dantzic Building with single membrane roof covering

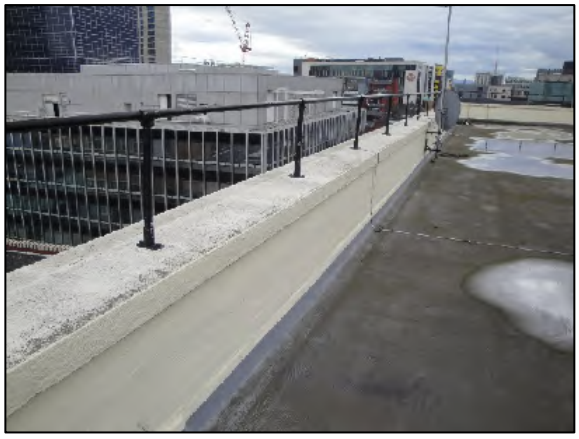


Figure 2: Parapet detail to roof showing single membrane roof covering upstand onto parapet



Figure 3: Lift overrun tower showing single membrane roof covering upstand into brickwork



Figure 4: Rear (west) tower showing single membrane roof covering upstand into brickwork

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5 REPAIR AND REPOINTING OF BRICKWORK - GENERAL GUIDELINES

5.1 General

i) Reclaimed bricks: facing bricks reclaimed from demolitions and cutting away on the site will be approved for re-use only if they are free from fungus, have no deep or extensive cracks, or damaged corners or arrisses, and are free from old mortar.

ii) Fletton bricks are not to be used in any circumstances. Their different movement characteristics can lead to cracking in walls where they are mixed with other brick types.

iii) Pointing: The original pattern of the pointing should be carefully determined and the new pointing carried out to match.

iv) Mortar: Conventional cement based mortar should generally be used in brickwork repairs. This is proposed in light of the relatively late age of the building (1937) post-dating the use of lime.

5.2 Materials Samples

i) Bricks generally: Samples must be presented for approval to match characteristics of original brickwork.

ii) Obtain samples of facing bricks and voussoirs to be used in external brickwork to CC's approval; keep samples on site.

iii) Control Sample Panels: prepare sample panels of brickwork and pointing to match existing, for approval by the CC. Give notice to CC of the removal of any sample panels.

iv) Existing Mortar Samples: in cases of fine brickwork, take samples of mortar for analysis by others; record positions of each sample.

v) Bond samples: Samples of the non-standard brickwork bonds seen in the engineering brick sections of the basement level plinth must be prepared and agreed prior to any works of repair or reconstruction in this area.

5.3 Brickwork Repair

i) Agree the extent of all brickwork repairs with the CC before starting any cutting out or repointing.

ii) Surface repair: comply with the general requirements of BS 6270 and use the particular method of repair specified in the Part 1, Section 3, paragraph 13 of BS 6270 for mortar joints and Part 1, Section 3, paragraph 14.3 for brickwork.

iii) Brick Ties: Where relevant, ensure that the inner and outer skins of brickwork are properly bonded together; carry out remedial work as necessary using a suitable method of non-ferrous ties. Agree method with CC.

iv) Accuracy: keep courses level and perpends vertical and in line with existing courses; plumb all wall faces, angles and features. Adjust joint thicknesses to match the existing.

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v) Set out repairs carefully to achieve satisfactory junctions with existing brickwork / elements.

vi) Bond: repairs are to match the existing bond. Additional stainless steel ties / reinforcement are to be inserted to ensure patched brickwork is securely integrated.

vii) Backing brickwork to faced walls is to be in the same bond as the facework.

viii) Lay facing brickwork to be pointed later on a full bed of mortar and fill all frogs and joints;

ix) Lay facing brickwork on a full bed of mortar and fill all frogs and joints; strike off joints as the work proceeds; tamp lightly with a stiff bristle brush when nearly dry to match weathered pointing.

x) Lay general walling brickwork on a full bed of mortar and fill all frogs and joints; strike off joints with a trowel as the work proceeds.

xi) Frogs: lay single frogged bricks frog uppermost and double frogged bricks with the deeper frog uppermost.

xii) Stitching: carefully cut out bricks as agreed with CA/SE/CC:

- remove all mortar from all faces of the hole. Do not damage the arrisses of the retained brickwork
- install reinforcement / ties in accordance with Particular Specification
- fill hole with facing brickwork to match existing
- point to match in with the wall

xiii) Facing Brickwork: for new external work and brickwork repairs: Bricks: To comply with BS 3921 except for sizes and tolerances

xiv) Second hand Facing Brickwork for brickwork repairs: Second hand bricks free from deleterious matter such as mortar, plaster, paint, bituminous materials and organic growths. Bricks to be sound, clean and reasonably free from cracks and chipped arrisses.

xv) Workmanship generally: Comply with NBS clauses regarding workmanship.

5.5 Pointing

i) Unnecessary re-pointing must be avoided. Re-pointing is necessary only where mortar has receded, leaving open joints, or has become very lose. The general rule is that re-pointing becomes desirable when mortar has weathered back behind the wall face to a depth equal to the joint width.

ii) Mortar that is simply soft and crumbly or that can be damaged with a knife blade does not need to be replaced.

iii) Mortar: Ensure that the mortar for the repair is the same strength or weaker than the existing. Final selection of colour and mix to match existing and to be based on analysis of existing mortar.

Fine pointing: (all elevations where required)

- Lay a strip of carpet tape over the joint to be pointed

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- Slit the tape into the joint with a sharp knife, and press the edges of the tape into the cut
- Point with mortar mix to match existing (based on mortar analysis)
- Press the mortar home with a pointing key until the joint is full
- Strike off and peel off the tape

Re-pointing:

- Clean out joints to a minimum of 25 mm using hand, not power tools
- Do not use angle grinders for cutting back joints
- Tamp or hand grout empty joints with mortar to a depth of 25 mm from the face of the masonry
- Clean the prepared face using a bristle brush
- Flush the joint out thoroughly with clean water, taking care to avoid saturation
- Remove all dust and loose material working from the top to the bottom of the wall
- Lightly wet the joints and point neatly in the appropriate mortar mix
- Brush over lightly with a stiff bristle brush or dab with a piece of coarse sacking after the initial set has taken to leave a slightly textured finish

5.6 Mortars

i) Cement for Mortar:

Generally not recommended for conservation work but accepted in this instance due to the building's relatively late date of 1937, post-dating the widespread use of lime. Cement mortars to match the relevant section of the Sheppard Robson NBS Schedule.

ii) Admixtures: Do not use in mortar unless specified or approved. Do not use calcium chloride or any admixtures containing calcium chloride. Admixtures, if specified, to be to BS 4887.

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6 CLEANING OF MASONRY – GENERAL GUIDELINES

i) The method of cleaning brickwork and stonework depends upon the degree and cause of the soiling. Cleaning should only be undertaken having determined the cause and implementation of a method appropriate to the particular material. In addition:

- Contractors must be experienced in cleaning historic buildings.
- Present details of soiling and proposals for cleaning to CC for approval before commencing any work.
- Proposals must include details of collection of run-off and disposal/recycling of dirty water.

ii) All cleaning methods should comply with section 1 of BS 6270: Parts 1 and 2 in respect of:

- Means of access;
- Protection of building fabric, external and decorative fixtures;
- Protection of operatives, building users and public.

iii) Algae and Lichens: Following cleaning of algae or lichens treat worst affected areas using an approved biocide following the manufacturer's recommendations.

iv) Plant growth: Following removal of plant growth treat former root locations using an approved biocide following the manufacturer's recommendations.

v) In severe cases of root infestation, carefully remove root systems and reconstruct brickwork as specified elsewhere in relation to brickwork repairs.

vi) Biocide for Algae and Lichen and for plant growth: apply a biocide as approved by the Advisory Committee on Pesticides following Health and Safety Executive guidelines and COSHH Regulations.

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7 STRATEGIES FOR MASONRY REPAIR AND CLEANING

7.1 Introduction

i) The following is intended to provide cleaning strategies in relation to both internal and external masonry facings within the Dantzic Building, with particular attention to the white glazed brickwork within the courtyard and the engineering brickwork plinths. In places repairs will be required to each of these areas and strategies for such repairs are also outlined.

ii) The following Repair Strategies do not attempt to provide a measured quantum for the area of each scenario, but are intended to indicate appropriate methodologies in each of the areas identified for cleaning and repair on the making good elevations drawings in order to guide the task and enable an estimate of the extent of work required. Reference should be made to the general specification guidance above. The making good elevations drawings are listed above and submitted with the present applications for planning permission and listed building consent.

7.2 Masonry repair and cleaning strategies: general comments

i) Externally, scaffold access arrangements should be designed to protect masonry features from accidental damage especially during set up and strike. Scaffold caps to be used throughout and direct contact between scaffold structure (especially ends of scaffold poles) and masonry to be kept to a minimum.

ii) Scaffolding is to be designed to safely accept the use of the Stonehealth DOFF cleaning system including appropriate hoist mechanisms to allow the cleaning unit to be brought to each level, suitable platform loading strength to support the unit whilst in use, and sheeting / temporary drainage arrangements to contain and dispose of surplus water without allowing runoff back into the masonry walls.

iii) External cleaning is to be undertaken using the Stonehealth DOFF high temperature conservation steam cleaning system operated by an approved specialist sub-contractor. The operator is to be instructed to begin using the system at the lowest temperature / pressure settings, increasing both gradually – and only as required to remove the deposits – so as to avoid unnecessary damage to the substrate and saturation of the wall behind.

iv) When using the DOFF system it is advised to clean each area of masonry twice, moving the cleaning nozzle once in the vertical plane and once in the horizontal plane, in order to fully clean both horizontal and vertical joints.

v) In the event that small areas of hardened atmospheric pollution deposits are encountered the DOFF system may not be sufficiently rigorous and localised cleaning with the Stonehealth TORC system may also be required in addition. TORC is a water based conservation cleaning system with a mild abrasive effect used for removal of hardened deposits from masonry.

vi) The DOFF system data sheet is attached as Appendix 2 and the equivalent material for the TORC system as Appendix 3. General enquiries relating to the use of the two systems and regarding local approved specialist sub-contractors may be directed as follows:

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Stonehealth Ltd
G4/5, Draycott Business Park
Cam, Dursley
GL11 5DQ

Tel: 01453 540600
Fax: 01453 540609

Email: rebecca@stonehealth.com
Web: www.stonehealth.com

vii) Replacement white glazed bricks should closely resemble the retained existing bricks in colour, texture and overall form, and be of exactly the same dimensions. A sample should be agreed on site by the architect and CC.

viii) Reclaimed glazed white bricks may be obtained from the following:

Cawarden Brick & Tile Co. Ltd
Cawarden Springs Farm, Blithbury Road, Rugeley,
Staffordshire
WS15 3HL
Tel: 01889 574066
Web: http://www.cawardenreclaim.co.uk/bricks

ix) In the event that such reclaimed white glazed bricks are not available, new white glazed bricks should be commissioned from an architectural ceramicist or specialist brick factor with suitable experience of producing replacement glazed bricks for buildings of this age and type. The replacements should closely resemble the retained existing bricks in colour, texture and overall form, and be of exactly the same dimensions. A sample should be agreed on site by the architect and CC and, if new glazed bricks are required, the ceramicist or brick factor's credentials should be made available for inspection upon request.

x) The profile of any re-pointing within the glazed white brickwork areas is to be agreed on site to match that of the existing retained brickwork. Pointing should generally be in a cement based mortar in a precise mix to be agreed in response to mortar analysis of the existing mortar and to match the existing mortar in respect of colour.

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Repair and cleaning strategy 1 – Lift overrun tower to roof

The lift overrun tower is constructed of solid slim buff coloured brickwork laid in Flemish bond as seen elsewhere. It is deemed to be an area of considerable significance, an original part of the build which does make a contribution to the special architectural and historical interest of the building.

In terms of condition, the tower is in an exposed location and has suffered notable water igress at the head of the walls where these meet the battered roof membrance upstand above. This detail is inherently vulnerable to water ingress and the entry of water has caused / exacerbated biological and chemical staining and plant growth, and loss of pointing. The tower has conventional rainwater goods with a hopper and downpipe which are now at the end of their working life.

The proposed approach to the necessary conservation repairs is as follows:

i) Remove all vegetation by hand removing all attached roots etc. left within the structure, and treat the affected areas with an approved herbicide to prevent recurrence.
ii) Carry out local cleaning (notably to the top ten courses of bricks throughout) using the Stonehealth DOFF system detailed above to carefully remove biological staining residues.
iii) Carry out local cleaning (again especially to the top ten courses of bricks throughout) using the Stonehealth TORC system detailed above to carefully remove chemical / carbonation staining residues.
iv) Remove redundant ferrous fixings and carefully make good in a cement / stone dust mortar coloured and textured to match the existing brickwork.
v) Carry out local re-pointing to the brickwork in a cement based mortar – as noted above despite the listed status of the building its relatively late date makes it unsuited to conservation repairs in lime based mortar. Repointing should nevertheless carefully match the existing style and finish of pointing and should be subject to agreement of a sample on site by the project architect, conservation consultant and local authority.
vi) Replace all rainwater goods in new treated and painted cast iron.
vii) Maintain this part of the building with ongoing cleaning and repointing regieme on the same basis as that outlined above, to prevent recurrence of the problems identified.

Note that repairs to the glazed brick areas enclosing the lift shaft itself in the courtyard between the Dantzic and Federation Buildings are covered in Strategy 6 below.



Figure 5: Lift overrun tower showing water ingress and biological / chemical staining



Figure 6: Second view of lift overrun tower showing further examples of the issues identified.

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Repair and cleaning strategy 2 – Rear (west) tower to roof

Similarly to the lift overrun tower, the rear (west) tower is constructed of solid slim buff coloured brickwork laid in Flemish bond as seen elsewhere. It is deemed to be an area of considerable significance, an original part of the build which does make a contribution to the special architectural and historical interest of the building.

In terms of condition, the tower is in an exposed location, although less exposed than that of the lift overrun tower, and has suffered notable water igress at the head of the walls where these meet the battered roof membrance upstand above. This detail is inherently vulnerable to water ingress and the entry of water has caused / exacerbated biological and chemical staining and plant growth, and loss of pointing, although again this is less severe than that observed at the lift overrun tower. The tower has conventional rainwater goods with a hopper and downpipe which are now at the end of their working life.

The proposed approach to the necessary conservation repairs is as follows:

i) Remove all vegetation by hand removing all attached roots etc. left within the structure, and treat the affected areas with an approved herbicide to prevent recurrence.
ii) Carry out local cleaning (notably to the top ten courses of bricks throughout) using the Stonehealth DOFF system detailed above to carefully remove biological staining residues.
iii) Carry out local cleaning (again especially to the top ten courses of bricks throughout) using the Stonehealth TORC system detailed above to carefully remove chemical / carbonation staining residues.
iv) Remove redundant ferrous fixings and carefully make good in a cement / stone dust mortar coloured and textured to match the existing brickwork.
v) Carry out local re-pointing to the brickwork in a cement based mortar – as noted above despite the listed status of the building its relatively late date makes it unsuited to conservation repairs in lime based mortar. Repointing should nevertheless carefully match the existing style and finish of pointing and should be subject to agreement of a sample on site by the project architect, conservation consultant and local authority.
vi) Replace all rainwater goods in new treated and painted cast iron.
vii) Maintain this part of the building with ongoing cleaning and repointing regieme on the same basis as that outlined above, to prevent recurrence of the problems identified.



Figure 7: Rear (west) tower showing water ingress and biological / chemical staining



Figure 8: Second view of rear (west) tower showing further examples of the issues identified.

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Repair and cleaning strategy 3 – Parapet walls to roof

The roof area is enclosed by a brick parapet wall which as elsewhere is of solid brick construction. Whilst the buff bricks are left exposed on the external face, on the internal face the parapet has been painted as has the reconstituted stone or concrete parapet capping above. Above this is a plain painted metal railing. The parapet is deemed to be an area of considerable significance, an original part of the build which does make a contribution to the special architectural and historical interest of the building.

In terms of condition, the parapets are in fair condition although the decorations to both the brickwork and the railings are faded. The external face of the parapet could not be observed at the time of writing and allowance must therefore be made for possible additional defects / repairs in this area.

On completion of access works it has been confirmed (May 2018) that the parapet capping in this area has, in some areas, a fibreglass capping. In both these areas and the original unchanged areas the detail is not effective and there is a risk of water penetrating the building.

The proposed approach to the necessary conservation repairs is as follows:

i) Strip, treat, prepare and redecorate the metal railings in a suitable metal paint system to be agreed with the project architect.
ii) Add an additional mid rail to the railings, matching the existing in dimensions, style and materials and decorated to match, to improve safety during roof access.
iii) A new parapet capping detail is required to the architect's requirements, to prevent water entering the masonry.
iv) Similarly the interior face of the parapet and entirety of the capping are to be prepared and redecorated using a suitable external masonry paint system to be agreed with the project architect.
v) The external brickwork facings to the parapet walls should be treated as per the external facing brickwork generally, as detailed in Strategy 7 below.

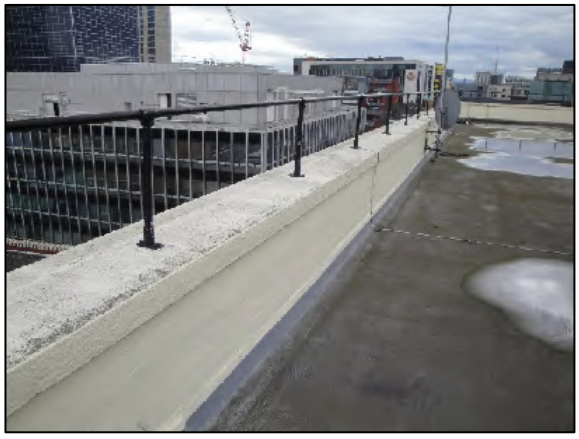


Figure 9: Typical roof level parapet detail showing brick parapet, concrete or reconstituted stone capping, and metal railings



Figure 10: Second view of typical parapet arrangement. Decorations are now faded to painted areas.

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Repair and cleaning strategy 4 – Parapet walls to sixth floor

The sixth floor of the Dantzic Building steps back leaving an open drained space with a single membrane roof covering, and a freestanding parapet wall. The parapet wall is of solid brickwork elsewhere with the single membrane roof covering forming an upstand above which the wall is painted. Above this there is a concrete or reconstituted stone parapet capping which appears formerly to have been decorated. Externally the buff facing brick is exposed as elsewhere. The parapet is deemed to be an area of considerable significance, an original part of the build which does make a contribution to the special architectural and historical interest of the building.

In terms of condition, the decorated areas have faded and it is likely that the single membrane roof covering will have wholly or partially failed. The external face of the parapet could not be observed at the time of writing and allowance must therefore be made for possible additional defects / repairs in this area.

The proposed approach to the necessary conservation repairs is as follows:

i) Replace the single membrane roof covering to the architect's specification.
ii) The parapet and capping are to be prepared and redecorated using a suitable external masonry paint system to be agreed with the project architect.
iii) A man safe access system should be provided and installed to facilitate occasional access.
iv) The external brickwork facings to the parapet walls should be treated as per the external facing brickwork generally, as detailed in Strategy 7 below.



Figure 11: Typical view of parapet detail to sixth floor set back showing single membrane roof covering, painted brick parapet and formerly painted concrete or reconstituted stone capping.

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Repair and cleaning strategy 5 – Parapet walls to fifth floor

The fifth floor of the Dantzic Building steps back leaving an open drained space with a single membrane roof covering, and a freestanding parapet wall with metal railings matching those seen at roof level. The parapet wall is of solid brickwork elsewhere with the single membrane roof covering forming an upstand above which the fairfaced brickwork is exposed.

Above this there is a concrete or reconstituted stone parapet capping which appears formerly to have been decorated, with metal railings. Externally the buff facing brick is exposed as elsewhere. The parapet is deemed to be an area of considerable significance, an original part of the build which does make a contribution to the special architectural and historical interest of the building.

In terms of condition, there has been extensive water ingress and this has caused / contributed to significant biological and chemical / carbonation staining and loss of pointing. It is likely that the single membrane roof covering will have wholly or partially failed. The external face of the parapet could not be observed at the time of writing and allowance must therefore be made for possible additional defects / repairs in this area.

The proposed approach to the necessary conservation repairs is as follows:

i) Strip, treat, prepare and redecorate the metal railings in a suitable metal paint system to be agreed with the project architect.
ii) Add an additional mid rail to the railings, matching the existing in dimensions, style and materials and decorated to match, to improve safety during roof access.
iii) Replace the single membrane roof covering. The parapet capping is to be prepared and redecorated using a suitable external masonry paint system to be agreed with the project architect.
iv) Carry out local cleaning (notably to the top ten courses of bricks throughout) using the Stonehealth DOFF system detailed above to carefully remove biological staining residues.
v) Carry out local cleaning (again especially to the top ten courses of bricks throughout) using the Stonehealth TORC system detailed above to carefully remove chemical / carbonation staining residues.
vi) Carry out local re-pointing to the brickwork in a cement based mortar – as noted above despite the listed status of the building its relatively late date makes it unsuited to conservation repairs in lime based mortar. Repointing should nevertheless carefully match the existing style and finish of pointing and should be subject to agreement of a sample on site by the project architect, conservation consultant and local authority.
vii) The external brickwork facings to the parapet walls should be treated as per the external facing brickwork generally, as detailed in Strategy 7 below.

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Figure 12: Typical view of parapet at fifth floor set back with exposed brickwork construction showing significant water ingress, biological and chemical staining.

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Repair and cleaning strategy 6 – External white glazed brickwork to courtyard

The courtyard (south) façade of the Dantzic Building, facing the adjacent Federation Building, is entirely faced in glazed white brickwork. The brickwork is deemed to be of high significance in light of its forming a principal component of the external design scheme for the original building.

In terms of condition, the glazed white brickwork has experienced local cracking, water ingress, biological and chemical / carbonation staining. The area of glazed brickwork which encloses the lift tower of the Dantzic Building has significant cracking arising from corrosion of structural steel principals caused by water ingress and consequent expansion.

The proposed approach to the necessary conservation repairs is as follows:

i) Remove plant growths prior to cleaning, grub out root systems and treat as specified to prevent recurrence.

ii) Where significant root systems have developed damage may have occurred to the inner skin of the brickwork walls and making good may be required. In the event that such areas are revealed on removal of plant growth these should be inspected by the project architect and CC prior to further works.

iii) In the event that the inner skin of the brickwork wall requires local rebuilding the bricks used should be a close match in respect of texture and physical properties and an exact match in respect of their dimensions, agreed by the project architect and CC. The bond should match the existing bond within the retained areas. Replacement brickwork should be laid in cement based mortar and no voids should be left. Bricks must be laid in regular level courses and the the use of rubble and brick fragments shall not be permitted.

iv) Cleaning is required to remove both algal growth and staining as well as atmospheric pollution.

v) Treat areas of severe algal staining as specified to prevent recurrence.

vi) Cleaning of external white glazed brickwork should be carried out selectively rather than indiscriminately across the entire façade. Cleaning will be required where algal deposits are present, where salt effloresence have emerged, and where pollution staining is such that the underlying brickwork cannot be seen clearly. Where the brickwork evidences a natural patina of age or very mild staining from atmospheric pollution, no cleaning intervention should be required.

vii) Architect and CC to inspect cleaned areas on completion of cleaning process and establish precise extent of further repairs required.

viii) Following inspsection of the façade, opening up of areas around cracked sections of wall may be required prior to the insertion of strengthening stainless steel helibars and making good on completion, if so directed by the project architect and engineer.

ix) Where individual white glazed bricks have lost their glazed facings either as a result of the removal of redundant rainwater goods fixings, cracking or impact damage, these should be replaced as specified in the Preamble above.

x) Care should be taken when cutting out glazed bricks not to damage the arises or fire faces of adjacent glazed bricks which are to be retained.

xi) Where several glazed bricks are to be replaced in a given area they should be replaced sequentially rather than in batches so as to preserve the integrity of the façade as a whole.

xii) Replacement glazed bricks should be bedded and pointed in a cement based mortar as specified in the general specification sections above.

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xiii) The pointing style is to match the existing and a sample is to be agreed by the project architect and CC on site.

xiv) Where the glazed white brick walls are capped with parapet coping stones these may require re-pointing to prevent recurring water ingress. Re-pointing should be carried out in cement mortar as elsewhere, to match the existing style.

xv) Tests on similar buildings within the NOMA regeneration area have found conventional conservation cleaning systems such as DOFF to be ineffective or even destructive when applied to glazed white brickwork.

xvi) It is therefore proposed to use water and a plain detergent to a method statement which is to be submitted for approval by the architect, conservation consultant and planning authority. This is to be presented with a sample patch in an inconspicuous location for agreement.

Note that additional structural works may be required by the project structural engineer in relation to the above, specifically concerning the repairs to the facing of the lift tower. Such proposals will be put forward for agreement by the project architect, conservation consultant and the local authority. The intention is that the new face of the lift tower will be clad in glazed white brick slips to match the existing, and details of the arrangement will be presented as a detailed proposal method statement from the project structural engineer for approval by the planning authority.

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Repair and cleaning strategy 7 – External facing brickwork generally

The Dantzic Building is faced in a slim buff coloured brick laid in Flemish bond. Window cills and other details such as the external returns to windows are of concrete or reconstituted stone and have been decorated a light cream colour. The brickwork facings and the concrete or reconstituted stone features form key parts of the original external design scheme for the Dantzic Building and as such are considered to be of High Significance.

In terms of condition the brickwork facings and concrete / reconstituted stone elements have weathered well, there are however areas of biological and chemical / carbonation staining and loss of pointing. Decorations have also faded over time. Access for inspection of high level areas may reveal further necessary areas of work.

Where mechanical or other damage to brickwork is significant and repairs are required, different approaches are proposed to Levels 1-4 and Levels 5-9 as per (xiii) and (ix) below and as detailed in Sheppard Robson sketch drawing 5814-SK-121 appended as Appendix 4. This approach has been proposed (February 2018) in response to difficulties procuring an exact brickwork match for repairs as a result of the unusual nature of the brickwork construction.

The proposed approach to the necessary conservation repairs is as follows:

i) Algal and salt deposits, and atmospheric pollution staining, to be removed from the brick wall, glazed brick attached pilasters and stone window surrounds using the DOFF steam cleaning system.
ii) Where hardened deposits of atmospheric pollution staining have accumulated, use of the TORC cleaning system may also be required in some localised areas, to be agreed with the CC and project architect.
iii) Refer to the general guidance in the Preamble above in relation to the use of the DOFF and TORC systems.
iv) Cleaning of external facing brickwork generally should be carried out selectively rather than indiscriminately across the entire façade. Cleaning will be required where algal deposits are present, where salt effloresences have emerged, and where pollution staining is such that the underlying brickwork cannot be seen clearly. Where the brickwork evidences a natural patina of age or very mild staining from atmospheric pollution, no cleaning intervention should be required.
v) Architect and CC to inspect cleaned areas on completion of cleaning process and establish precise extent of further repairs required.
vi) Carry out local re-pointing to the brickwork in a cement based mortar – as noted above despite the listed status of the building its relatively late date makes it unsuited to conservation repairs in lime based mortar. Repointing should nevertheless carefully match the existing style and finish of pointing and should be subject to agreement of a sample on site by the project architect, conservation consultant and local authority.
vii) Decorated cills and other features are to be prepared and redecorated using a suitable external paint system.
viii) Where mechanical or other damage has occurred to brickwork to Levels 1-4 this should be repaired using a coloured mortar repair following the agreement of a proposed sample by the architect and conservation consultant.

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ix) Where mechanical or other damage has occurred to Levels 5-9 this should be repaired by replacement with a closely matched brick sample to the agreement of the architect and conservation consultant.



Figure 13: Typical area of external buff brickwork showing chemical / carbonation staining



Figure 14: Second typical area of external buff brickwork showing chemical / carbonation staining

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Repair and cleaning strategy 8 – External basement level engineering brickwork plinth

The basement level and the plinth level of the ground floor of the Dantzic Building are clad in a decorative and intricate pattern of blue engineering bricks laid in a special or non-standard bond. This is a key part of the original design scheme of the building and as such is considered to be of High Significance.

In terms of condition the brickwork facings and concrete / reconstituted stone elements have weathered well, there are however areas of biological and chemical / carbonation staining and loss of pointing. There are also minor areas of mechanical damage and chipping.

The engineering brick plinth is one of the very few areas of the external masonry envelope where changes are proposed as part of the refurbishment which forms the basis of the present applications for Planning Permission and Listed Building Consent. The proposed alterations comprise the reinstatement of the ground floor plinth to the entrance areas onto Dantzic Street, where this was formerly removed to accommodate larger windows, and the removal of some areas within a single bay onto Federation Street to accommodate a new means of access stair. These proposed alterations are reflected in the proposed strategy approach.

The proposed approach to the necessary conservation repairs is as follows:

i) Cleaning is required using the DOFF system to remove both algal growth from the cornices and pollution arising from atmospheric staining to the stone cappings, friezes, window heads etc., as well as salt deposits in some areas.

ii) Where hardened deposits of atmospheric staining have accumulated, cleaning using the TORC system may be required in localised areas in addition, by agreement with the CC and project architect.

iii) Refer to the general guidance in the Preamble above in relation to the use of the DOFF and TORC systems.

iv) Cleaning of external facing sandstone details generally should be carried out selectively rather than indiscriminately across the entire façade. Cleaning will be required where algal deposits are present, where salt effloresences have emerged, and where pollution staining is such that the underlying brickwork cannot be seen clearly. Where the stonework evidences a natural patina of age or very mild staining from atmospheric pollution, no cleaning intervention should be required.

v) Architect and CC to inspect cleaned areas on completion of DOFF cleaning process and establish precise extent of further repairs required.

vi) Carry out local re-pointing to the brickwork in a cement based mortar – as noted above despite the listed status of the building its relatively late date makes it unsuited to conservation repairs in lime based mortar. Repointing should nevertheless carefully match the existing style and finish of pointing and should be subject to agreement of a sample on site by the project architect, conservation consultant and local authority.

vii) Where areas of the plinth are proposed to be reconstructed as part of the proposals the new sections should match the existing exactly in respect of brick dimensions, colour and texture, in relation to the bond used, and in relation to the pointing style. This is to be agreed by means of sample on site with the project architect, conservation consultant and the local authority.

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viii) Similarly where areas of the plinth are proposed to be removed as part of the proposals, including above the new proposed fire escape door to Federation Street, the surrounding areas should be made good to match the existing in all of the above respects and should again be the subject of an agreed sample on site before work commences.

ix) Where chipped or otherwise mechanically damaged bricks are identified these should be replaced on a strictly like for like basis with samples agreed on site by the project architect, conservation consultant and the local authority.

x) Where existing grilles to the Federation Street elevation are proposed for removal and reinstatement these should be carefully removed using hand tools only. The grilles should then be fully stripped of paint and any corrosion before being treated, primed and redecorated in a suitable metal paint system.

xi) Where dog tooth buff brick sections are required to be replaced, these are proposed to be in panel facing brick form provided by a specialist subcontractor with a sample agreed by the architect and conservation consultant prior to the completion of any works.



Figure 15: Typical area of engineering brick plinth to Dantzic Street showing biological and chemical (carbonation) staining.



Figure 16: Second typical area of engineering brick plinth to Hanover Street showing biological and chemical (carbonation) staining.



Figure 17: Further typical area of engineering brick plinth to Hanover Street showing biological and chemical (carbonation) staining, and mechanical damage / chipping.

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Repair strategy 9 – High level brickwork repairs adjacent to plant deck

High level access provided during the consented works (April 2018) has allowed a more detailed inspection of the high level external brickwork at roof parapet level which has identified a specific local defect to the north (Federation Street) elevation. Here there is a pattern of local cracking to brickwork panels (see Figures 18 and 19 below).

The pattern of cracking follows the locations of fixings serving the adjacent steel plant deck on the roof behind. It is considered likely that the cracking has therefore been caused by differential movement between the steel and the adjacent masonry, as the former will tend to expand rapidly under increased temperatures by contrast with the latter. Refer to Appendix 5, structural enginnering report.

The proposed approach to the defect is as follows:

i) The contractor is to carry out opening up works to the affected brickwork to establish the exact cause of the cracking, working closely with the structural engineer.
ii) If the cause is confirmed as differential thermal movement, the architect will propose remediation to the steel plant deck in the first instance.
iii) This is likely to comprise temporary propping of the plant deck followed by removal of the parapet wall fixings and installation of new fixings for the deck directly on to the roof.
iv) On completion of these works the damaged brickwork will be repaired as per Strategy 7 above, and the problem should not recur.

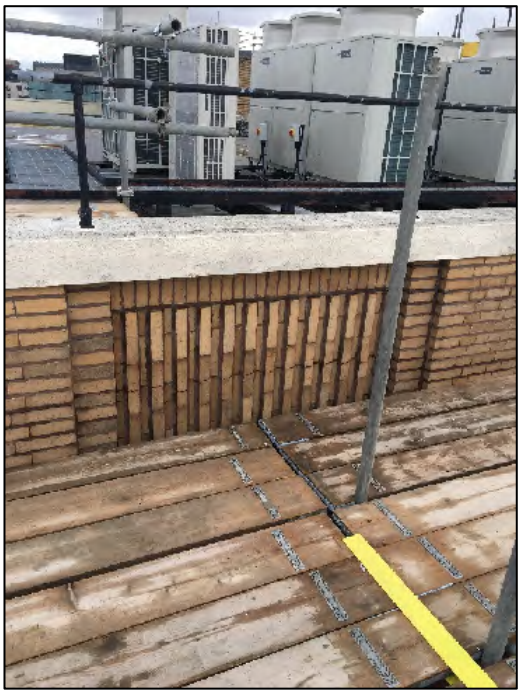


Figure 18: Typical pattern of brickwork cracking to Federation Street elevation at high level, plant deck steelwork visible behind.



Figure 19: Typical pattern of brickwork cracking to Federation Street elevation, detail.

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Repair strategy 10 – High level brickwork repairs to window heads

High level access provided during the consented works (April 2018) has also allowed more detailed investigation of the high level brickwork at other levels and has identified severe damage to window head brickwork at level 9 (see Figures 20 and 21 below).

The affected brickwork has been damaged by corroded steel window lintels which have expanded beyond their original size. Refer to Appendix 5, structural engineering report.

The proposed approach to the defect is as follows:

i) The contractor is to replace the corroded original lintels with galvanized steel lintels resistant to corrosion, to the engineer's specification.
ii) Brickwork repairs will then be undertaken in accordance with Strategy 7 above.



Figure 20: Brickwork damage to Level 9 window lintel following corrosion of steel lintel



Figure 21: Brickwork damage to Level 9 window lintel following corrosion of steel lintel (Detail)

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8 CONCLUSION

The foregoing Conservation Strategies have:

i) Identified the principal components of the masonry envelope of the Dantzic Building and confirmed their status in terms of significance and the contribution which they make to the overall importance and interest of the Grade II listed building.

ii) Proposed robust outline conservation strategies for the treatment of each area, identifying the key conservation concerns in each instance and providing a suitable approach.

iii) Confirmed that conservation repairs to the external envelope of the building wil be carried out with suitable sensitivity and in accordance with conservation best practice.

iv) Identified those areas where the repairs will differ from standard conservation practice (notably the use of cement based rather than lime based products) and explained and justified this in terms of the age and technical characteristics of the building.

v) Made provision for the external envelope of the building to be suitably conserved to enable sustainable reuse in line with national and local planning policies.

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APPENDIX 1 – STATUTORY LISTING ENTRY

COOPERATIVE SOCIETY BUILDING

List Entry Summary

This building is listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 as amended for its special architectural or historic interest.

Name: COOPERATIVE SOCIETY BUILDING

List entry Number: 1200849

Location

COOPERATIVE SOCIETY BUILDING, 29, DANTZIC STREET

The building may lie within the boundary of more than one authority.

County:

District: Manchester

District Type: Metropolitan Authority

Parish:

National Park: Not applicable to this List entry.

Grade: II

Date first listed: 06-Jun-1994

Date of most recent amendment: Not applicable to this List entry.

Legacy System Information

The contents of this record have been generated from a legacy data system.

Legacy System: LBS

UID: 388083

Asset Groupings

This list entry does not comprise part of an Asset Grouping. Asset Groupings are not part of the official record but are added later for information.

List entry Description

Summary of Building

Legacy Record - This information may be included in the List Entry Details.

Reasons for Designation

Legacy Record - This information may be included in the List Entry Details.

History

Legacy Record - This information may be included in the List Entry Details.

Details

MANCHESTER

SJ8498 DANTZIC STREET 698-1/17/872 (West side) No.29 Co-operative Society Building

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GV II

Offices. 1937-42. By W.A.Johnson, Chief Architect to CWS. Buff and blue/purple brick with stone dressings and flat roof. 7 storeys. Continuous window range to Dantzic Street of metal-framed casements in a slightly projecting front for 5 storeys, the front, including windows, curving at the corners. 5th floor has decorative cornice band and 6th floor is recessed and has vertical bands. Above is a small sevices block. Ground floor has entrance and windows separated by piers.

Listing NGR: SJ8419398865

Selected Sources

Legacy Record - This information may be included in the List Entry Details

National Grid Reference: SJ 84193 98865

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APPENDIX 2 – DOFF SYSTEM DATA SHEET

The following is referred to in the above report as an appropriate cleaning method but is included for information only.

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STONEHEALTH LTD
01453 540 600
info@stonehealth.com
stonehealth.com
Bowers Court • The Broadwell
Dursley • Gloucestershire
GL11 4JE

DOFF
INTEGRA

The method of cleaning using superheated water/steam in a unique way - chemical free

Will Remove:

Most types of paint
Algae, Moss & Lichens
Moulds & Fungi etc
Bitumen, Oil & Grease
Chewing Gum
Grime
Asbestos Preparation
And many other problems solved
… without damage



Use DOFF on:-
Most surfaces e.g. brick, stone, concrete, tiles (glazed, encaustic etc), faience, roof tiles, slates, terracotta, wood, stucco, cast stone, and render etc. Removal of soiling from floors, walls, machinery, appliances etc. Removal of barnacles from boat hulls. Cleaning and sterilising kitchens, toilets, wash-rooms, swimming pools, abattoirs, factories, asbestos and roofing, pigeon lofts, farm buildings, drains etc.

For use in:- Building restoration, Industry, Food production, Hygiene control, Hospitals, Factories, Transport & vehicle depots, Workshops etc.

How the DOFF works: A normal water supply is taken through the pump into the Hotbox, where a range of temperatures of up to 150º C can be achieved. The low volume of super heated water and steam (5 litres per minute) is then fed through heat resistant hoses to special nozzles where a genuine 150º C is delivered. The surface being cleaned does not suffer any damaging pressure, thermal shock or deep saturation and dries within minutes. A range of different lances and nozzles are available. Please ask for advice on specific applications.

Technical Specification	**DOFF Integra**
Power supply consumption	230 volt 50 hz 13 amp or 6.0 Kva (generator) 50 hz 30 amp or 6.0 Kva (generator) 115 volt 60 hz 30 amp or 6.0 Kva (generator)
Water Consumption	Min 3, max 5 litres per minute Use only clean water supply – if bowser or other, consult our technical team for advice
Maximum operating pressure	100 bar 1450 psi
Temperature range	30ºC to 150 ºC
Maximum water input temp.	30 ºC
Dry Weight Kg.	89 (hotbox) + 34.5 (pump) = when loaded 123.5
Measurement mm	length width height
Pump	500 282 310
Hotbox	680 630 1030
	When pump loaded length = 960
Export packing:	1020 820 1150





APPENDIX 3 – TORC SYSTEM DATA SHEET

The following is referred to in the above report as an appropriate cleaning method but is included for information only.

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STONEHEALTH Ltd
01453 540 600
info@stonehealth.com
stonehealth.com
Bowers Court • The Broadwell
Dursley • Gloucestershire
GL11 4JE

TORC System

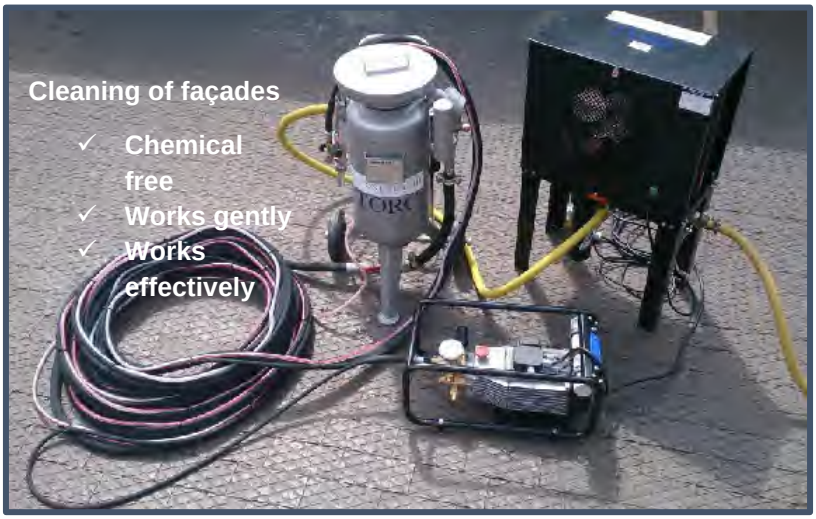
The Unique TORC formula = Low Pressure + Rotational Vortex

Use TORC on:

- ✓ Stone
- ✓ Brick
- ✓ Terracotta
- ✓ Ceramic Tiles
- ✓ Concrete
- ✓ Glass
- ✓ Bronze
- ✓ Brass
- ✓ Copper
- ✓ Anodised Aluminium & many other materials

Will Remove:

- ✓ Carbon sulphation
- ✓ Lime & Cement based paints
- ✓ Paint residues
- ✓ Some old Oil based paints
- ✓ Bitumen
- ✓ Lime scale







The **TORC** system being used to remove carbon sulphation from Canterbury Cathedral.

How the TORC works:

The **TORC** is supplied in the basic sizes: '**TORC**' and the '**TORC** Studio'. The **TORC** Head is modularised into separate components which results in an efficient and gentle swirling vortex using less water and granulate. The **TORC** has a removable nose section allowing choice of 5, 7, 9, 11 or 13mm apertures.

Some of the notable buildings where the TORC system has been used within the UK

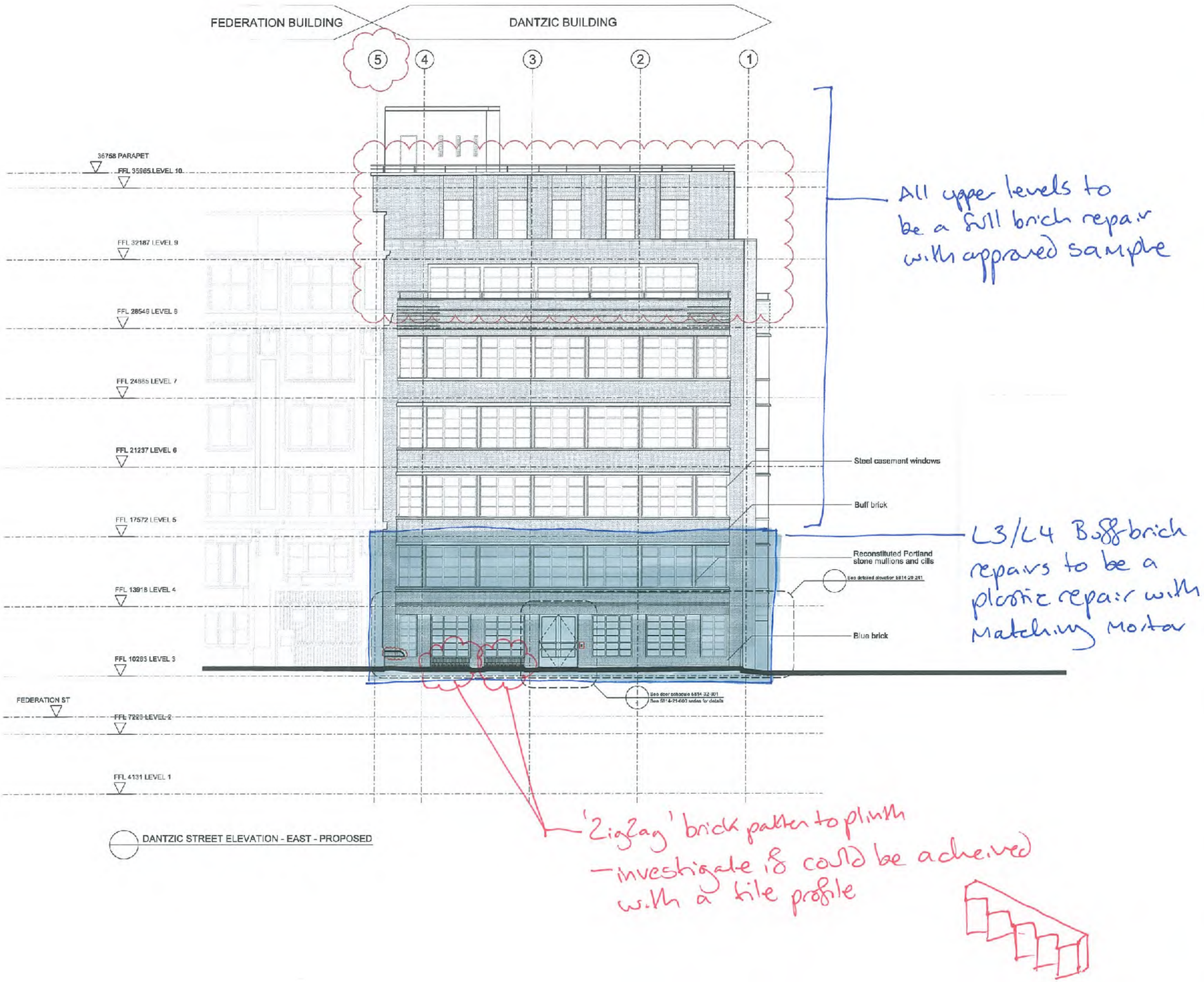
- ❖ Buckingham Palace, London
- ❖ Canterbury Cathedral
- ❖ Harrods Store, Knightsbridge, London
- ❖ Marine Barracks, Portsmouth
- ❖ Norwich Castle
- ❖ Royal Court Theatre, Sloane Square, London
- ❖ Turnpike Lane Underground Station & other London Underground Stations



The **TORC** being used to remove many layers of paint from inside Paddington Station

APPENDIX 4 – SHEPPARD ROBSON SKETCH DRAWING 5814-SK-121

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DANTZIC STREET ELEVATION - EAST - PROPOSED

All upper levels to be a full brick repair with approved sample

L3/L4 Buff brick repairs to be a plastic repair with Matching Mortar

'Zigzag' brick pattern to plinth
- investigate if could be achieved with a tile profile

A1

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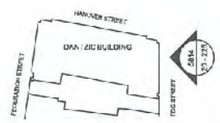
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GENERAL NOTES:
To be read in conjunction with Steven Lennard Heritage Architecture's "Conservation Strategy - Repair and Cleaning of Externals; Roof Coverings and Externals; Parapets; Masonry Cladding" and "Heritage Statement - Significance and Impact"

REV.	DATE	AMENDMENT
-	09/03/2017	First Issue
A	29/08/2017	General update to reflect planning submission, including Door screen added
B	15/01/2018	Level 8 railings added, gridline 5 added, Level 3 railings added, access control added, Kee Klamp mid rail added to Level 10 non original pavacer railings. General Notes Added. Issued for Contract

KEYPLAN

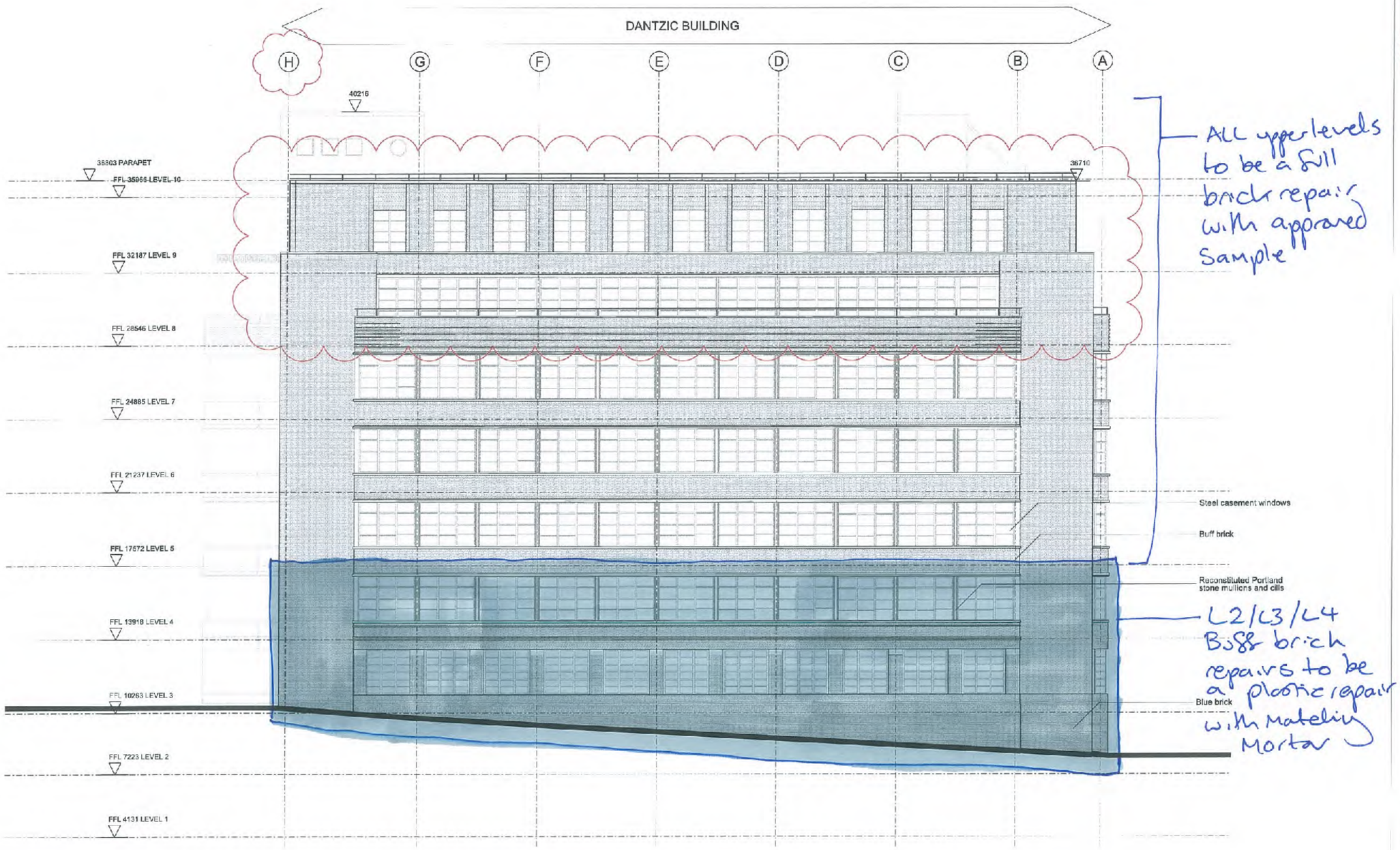


CLIENT

SHEPPARD ROBSON

Project : 5814 – Dantzic Building
Drawing : Buff brick Repair Options
Scale : 1:25
Date : 13.02.18
Drawing No. : 5814-5H121
Revision : B

Rhetted 15/02/2018
R:\name A\Projects\5809_arc5814\CAD\arch\2D_GA\5814_2D_225 Proposed East Elevation.dgn



HANOVER STREET ELEVATION - NORTH - PROPOSED

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GENERAL NOTES:
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REV.	DATE	AMENDMENT
-	09/06/2017	First issue
A	29/08/2017	General update to reflect planning submission, including plant screen added
B	15/01/2018	Level 8 railings added, gridline H amended, new stamp mid rail added to Level 10 non original parapet railings. General Notes Added. Issued for Contract

KEY PLAN



CLIENT

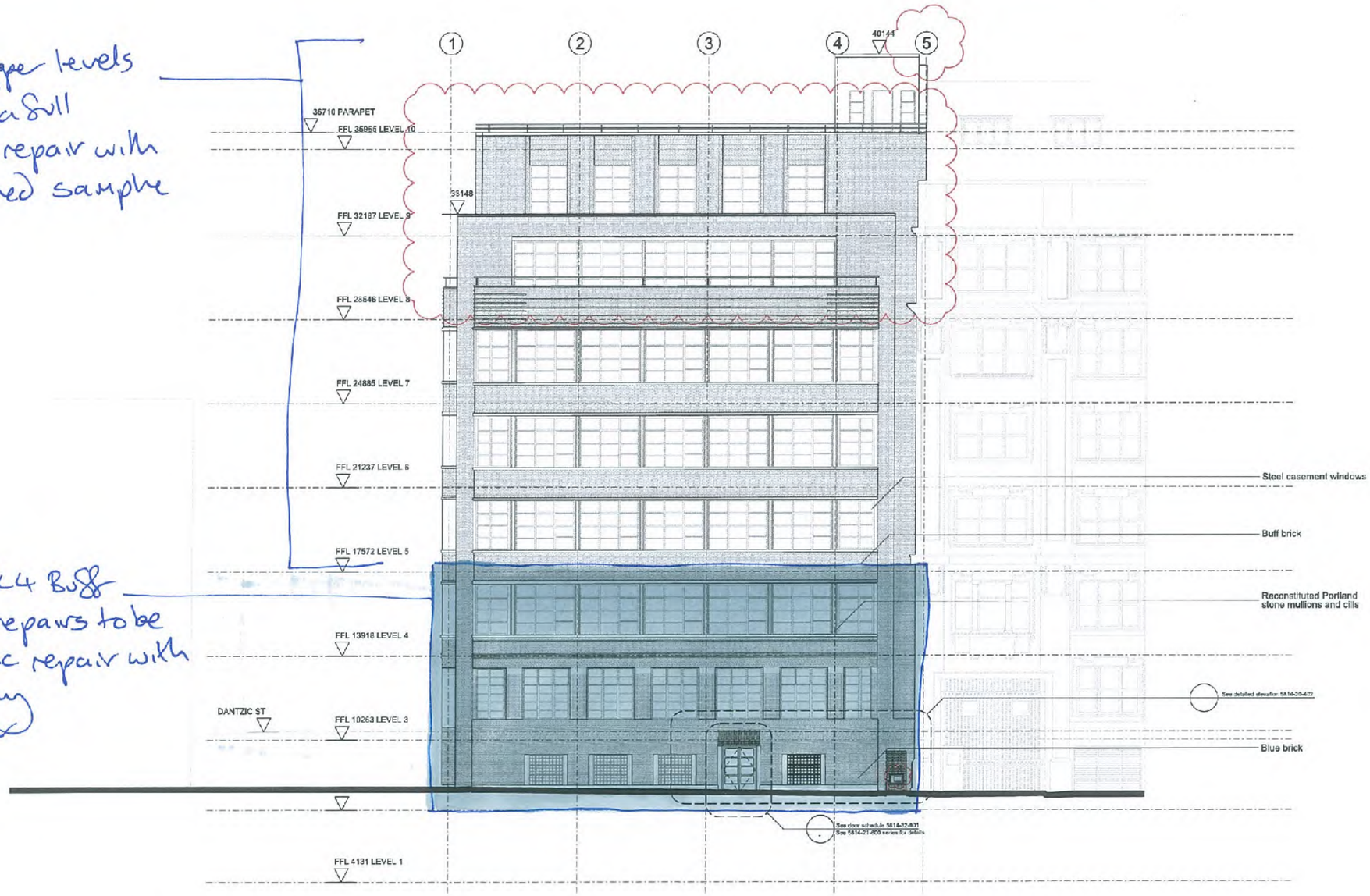
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Project : 5814 – Dantzic Building
Drawing : B.S.B brick repair strategy
Scale : 1:25
Date : 13.02.18
Drawing No. : 5h-121
Revision : -

Plotted 15/01/2018 Filename P:\Projects\5814\CAD\Sheets\5814_CAD_SHEET_20-225 Proposed North Elevation.dgn

All upper levels to be a full brick repair with approved sample

DANTZIC BUILDING | FEDERATION BUILDING



L2/L3/L4 Buff brick repairs to be a plastic repair with matching mortar

FEDERATION STREET ELEVATION - WEST - PROPOSED

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GENERAL NOTES:
"To be read in connection with Steven Lawson Heritage Architecture's "Conservation Strategy - Repair and Cleaning of Materials; Roof Coverings and Externals; Parapets; Masonary Cladding" and "Heritage Statement - Significance and Impact"

REV.	DATE	AMENDMENT
-	06/08/2017	First issue
A	23/08/2017	General update to reflect planning submission, including DEMZ screen added
B	16/01/2018	Level 6 railings added, gridline 5 added, dry riser inlet added, new stone mid rail added to Level 10 non original parapet railings. General Notes Added. Issued for Comment

KEYPLAN



CLIENT

SHEPPARD ROBSON

Project : 5814 – Dantzic Building
Drawing : Buff brick repair Strategy
Scale : NTS
Drawing No. : SK-121
Date : 13.02.18
Revision : —

Plotted:16/09/2018 Filename:P:\Projects\5800 dat\5814\CAD\dat\2D_CAD\5814-20-227 Proposed West Elevation.dgn

APPENDIX 5 – HEALEYS ENGINEERING REPORT ON HIGH LEVEL BRICKWORK DEFECTS

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HEALEY consulting

structural engineering consultants

REPORT ON STRUCTURE

17211 DANTZIC BUILDING – MANCHESTER

JUNE 2017

Brunel House Milnrow Rochdale OL16 3NJ

t: 01706 343961 e: office@healeyconsulting.co.uk

CONTENTS

1.00 INTRODUCTION

2.00 DESCRIPTION

3.00 METHOD OF INSPECTION

4.00 DISCUSSION OF OBSERVATIONS

5.00 CONCLUSIONS & RECOMMENDATIONS

1.00 INTRODUCTION

1.01 We were requested by Russell's Construction to carry out a condition survey of the external elevations known as Dantzic Building. The report is required by the building contract to establish the condition of the external facades / including that forming the atrium.

The report will also provide recommendations for the rectification of any structural defects that would affect the ongoing serviceability of the building.

Our inspection was carried out over a number of days in May 2017.

1.02 For the purposes of this report all references to left, right, front and rear should be taken as viewing the property from Dantzic Street.

1.03 This report has been carried out on a purely visual basis. We have not inspected parts of the property which are covered, unexposed or inaccessible and such parts are assumed to be in good repair and condition.

The report does not purport to express an opinion about or to advise upon the condition of any uninspected parts, and should not be taken as making any implied representation or statement about such parts.

We have not inspected nor tested the drains and other services and are therefore not in a position to advise upon any defects.

1.04 This report has been carried out for guidance of the person named overleaf and where recommendations are made these should not be used as a specification for carrying out the works.

1.05 This report has been carried out for the person named overleaf to be used in connection with their purchase, selling or repair of the property and should not be copied or sold to any other persons without the agreement of Healey Consulting.

This report remains the property of Healey Consulting and is copyright.

1.06 Limitations of the Report.

The contents of this report are strictly confined to comments concerning those terms outlined in the clients brief above.

We have not inspected the building services (gas, water, electrics, heating) manholes, drainage systems, joinery elements, rain water goods or internal finishes.

This report should not be construed as an inventory of every single defect, most would not significantly affect the use of the property or provide a danger to the public or users of the building.

We did not expose any other part of the property that was covered, unexposed or inaccessible and are therefore unable to report that any such part is free from any defect.

2.00 DESCRIPTION

2.01 The Dantzic building is a Grade II listed building constructed in an Art Deco style.

We understand that construction was started in the mid 1930's and finished around 1938.

The property was purpose built for the co-operative movement and in particular, its wholesale business the CWS.

2.02 The building was constructed adjacent to an earlier building named the Federation Building such that the two buildings now enclose an internal light well that has been covered above ground floor. Figure 1 is of the site plan and has been extracted from a recent Architects Report.

2.03 The Dantzic Building has a sub-basement, basement, ground floor and five further floors plus a flat roof. For the purposes of this report, each level has been designated a number, sub-basement being level 1, and the roof level 9.

2.04 When viewed from Dantzic Street – photograph 1, levels 3, 4, 5, 6, 7, 8 & 9 are visible.

2.05 The property appears to be steel framed, concrete encased. The internal floors are pre cast concrete. The external elevations are fronting Dantzic Street, Hanover Street and Federation Street.

The street elevations are faced with a buff coloured brick with a number of feature panels. The window openings to levels 4, 5, 6, 7 & 8 are spanned by concrete boot lintels, whilst external openings at levels 3 and 9, are spanned by steel lintels.

2.06 The atrium elevation is faced with a white glazed brick.

2.07 The building is on a sloping site falling away from Dantzic Street towards Federation Street. The external elevation to level 2 is exposed on Federation Street.

2.08 The roof is a flat construction, pre cast concrete and a waterproof membrane. There are two masonry structures on the roof each originally serving as lift motor rooms. The motor room adjacent to Dantzic Street still functions as original but that adjacent to Federation Street is redundant with the lift shaft now being used as a service riser.

3.00 METHOD OF INSPECTION

The visual inspection of the external elevations was carried out by a drone providing photographic evidence of the condition of each elevation, including that within the atrium. Each was traversed at all levels.

The survey photographs and video were then inspected within the office.

Areas of interest were identified and followed up by a further visit.

We are of the opinion that the survey is as thorough as can be expected by visual means.

4.00 DISCUSSION OF OBSERVATIONS

4.01 At roof level each of the lift motor rooms were noted to have plant growth on each elevation. This was generally at the underside of the roof flashing where it was also recorded that the top six or seven courses need to be raked out and repointed.

Photographs 2 to 6 are of the lift motor room adjacent to Dantzic Street.

Photographs 7 & 8 are of the motor room adjacent to Federation Street.

4.02 On Dantzic Street the level 9 window openings are spanned with steel lintels with feature masonry panels over. Photographs 9, 10 & 11 are typical. In this area and at the time of the survey, the lintels are generally satisfactory with no cause for concern and no remedial action is required. Photograph 12 is taken along the line of the parapet above these windows. This is considered satisfactory in respect of line and level. Again no remedial action is required.

4.03 The Hanover Street elevation is also considered to be satisfactory.

4.04 On level 9 of the Federation Street elevation, the steel lintels over the openings are showing signs of rusting causing lifting and cracking of the masonry over. Photographs 13 and 14 are typical results of this defect.

Ideally the lintels should be replaced. This will involve careful removal of the brickwork locally.

Our survey did not establish whether the steel lintels were independent or fixed to the inner lintels. If the latter proves to be the case it may be necessary to treat / repair the steel lintels insitu.

This defect applies at level 9 for the full length of Hanover Street.

4.05 On each of the three street elevations, the brickwork above the level 8 windows is generally considered to be satisfactory. Photographs 15 – 20 are typical.

The feature brickwork, immediately under the coping is however in need of repointing – photograph 21 shows open joints and the start of plant growth. Photographs 22 & 23 are also typical. This applies to the full perimeter of the three street side elevations.

4.06 The level 8 balcony also comprises of feature brick facings – photographs 24 – 28 are typical.

The brickwork, particularly immediately under the flashings is stained and it is highly likely that the pointing to these areas will have a limited life expectancy. Raking out and repointing is recommended for these areas.

4.07 On each of the external elevations as one progresses down the building from level 7 to 4, the external masonry becomes plain with significantly less features. Photographs 29 – 40 inclusive are typical of this. The masonry and the pointing in these areas is generally considered to be satisfactory throughout. The concrete lintels and framing to the windows are generally in a good condition.

4.08 Above the windows at level 3 (ground), there are steel lintels supporting soldier course brickwork. These lintels have started to rust in a small number of areas.

Photograph 42 is an example of such rusting.

Local repair / refurbishment is required. This will again involve the careful removal of masonry.

4.09 The atrium elevation is of a glazed brick generally in long panels above the head and below the cill of "ribbon" windows. The windows are nominally separated by buff coloured brick piers. See photographs 41, 42 & 43.

The lift shafts are also faced with a glazed brick – see photograph 44. The lift shaft defined the limit of our survey. See photographs 44 & 45.

Photographs 46 & 47 identify the roof covering over the lightwell above level 3. These were deemed satisfactory at the time of the survey.

Above the upper level windows – photographs 48 to 53, it can be seen that there are a number of lead flashings that have been used to cover the concrete boot lintel. We suspect that beneath these flashings there are areas of spalled concrete – further investigations are required.

Typically, above these flashings there are wider open joints which suggest a deflection of the lintel. Helical bars carefully inserted into the bed joints can be designed to act as a lintel should the intrusive investigations prove there is a need.

4.10 The lower levels of glazed masonry, photographs 54-67, show that the elevation masonry and the concrete lintels and cills are generally satisfactory.

4.11 The lift shafts within the atrium consist of a steel frame clad in brickwork.

Invariably, the brickwork has been built tight to the steel.

Over the years, moisture has penetrated the brick and has caused the steel to rust.

When steels rusts it expands up to 7 times the thickness of the "lost" steel. The resultant expansion has caused serious cracking to the glazed masonry on both lift shafts.

Photographs 68, 69 & 70 are close ups of the cracked masonry. Photograph 44 of the Dantzic Street lift shaft and 45 is of the Federation Street shaft. The former is the worst of the two.

There is a dilemma of facilitating a repair. We understand that the repair will need to satisfy Listed Building criteria. However it is unwise to replace bricks tight to the steel and to do so would simply create the same issues in the future.

Further intrusive investigations are required, however it is highly likely that the loss of steel due to rust is not detrimental to the structure and that following cleaning and protective coating the steel should continue to serve its intended purpose. We assume that some local repair will be required, but that this will be minimal.

The worst of the rusting is usually found at the base, and although this area was beyond the scope of this report, it is an area that will be investigated further.

When replacing the brick, if the desired finish is glazed as per the existing, then this will need to be done with brick slips which brings its own difficulties of fixing. The slips would probably need to be fixed to a board which in turn would be fixed to the steel leaving as large a gap between the board and the steel as possible.

Alternatively, the damaged brick could be cut away and the area covered with a pressed metal flashing. In either case, access is extremely difficult.

Given the condition of the Dantzic Street shaft there is a current danger of falling masonry and steps should be taken to address this as soon as possible.

5.00 CONCLUSIONS & RECOMMENDATIONS

5.01 On each of the lift shaft overruns, remove plant growth and treat to prevent return. Rake out and repoint the top 6 or 7 courses and make good the flashing.

5.02 The steel lintels over the level 9 and level 3 need to be treated or replaced. Careful consideration and further intrusive investigations will be necessary to determine the extent of the repairs necessary.

5.03 Local repointing at the underside of the coping to level 8 balcony will be required to each street elevation.

5.04 In the atrium the upper concrete boot lintel needs further investigation. Helical bar may be required to supplement the lintel. This is an accepted method within listed buildings and provides minimal intervention.

5.05 The glazed masonry to each of the lift shafts is severely damaged due to the expansion of rusting steel. The damaged brickwork will need to be carefully removed and replaced with a brick slip system or a flashing.

5.06 **There is a real danger of falling masonry which cannot and should not be ignored.**

SIGNED..... P Healey .....

PAUL MICHAEL HEALEY
BSc (Hons) C.Eng M.I. Struct.E. M.a.P.S.

DATED..... 12.06.17 .....



SHEPPARD ROBSON

Figure 1



Photograph 1



Photograph 2



Photograph 3



Photograph 4



Photograph 5



Photograph 6



Photograph 7



Photograph 8



Photograph 9



Photograph 10



Photograph 11



Photograph 12



Photograph 13



Photograph 14



Photograph 15



Photograph 16



Photograph 17



Photograph 18



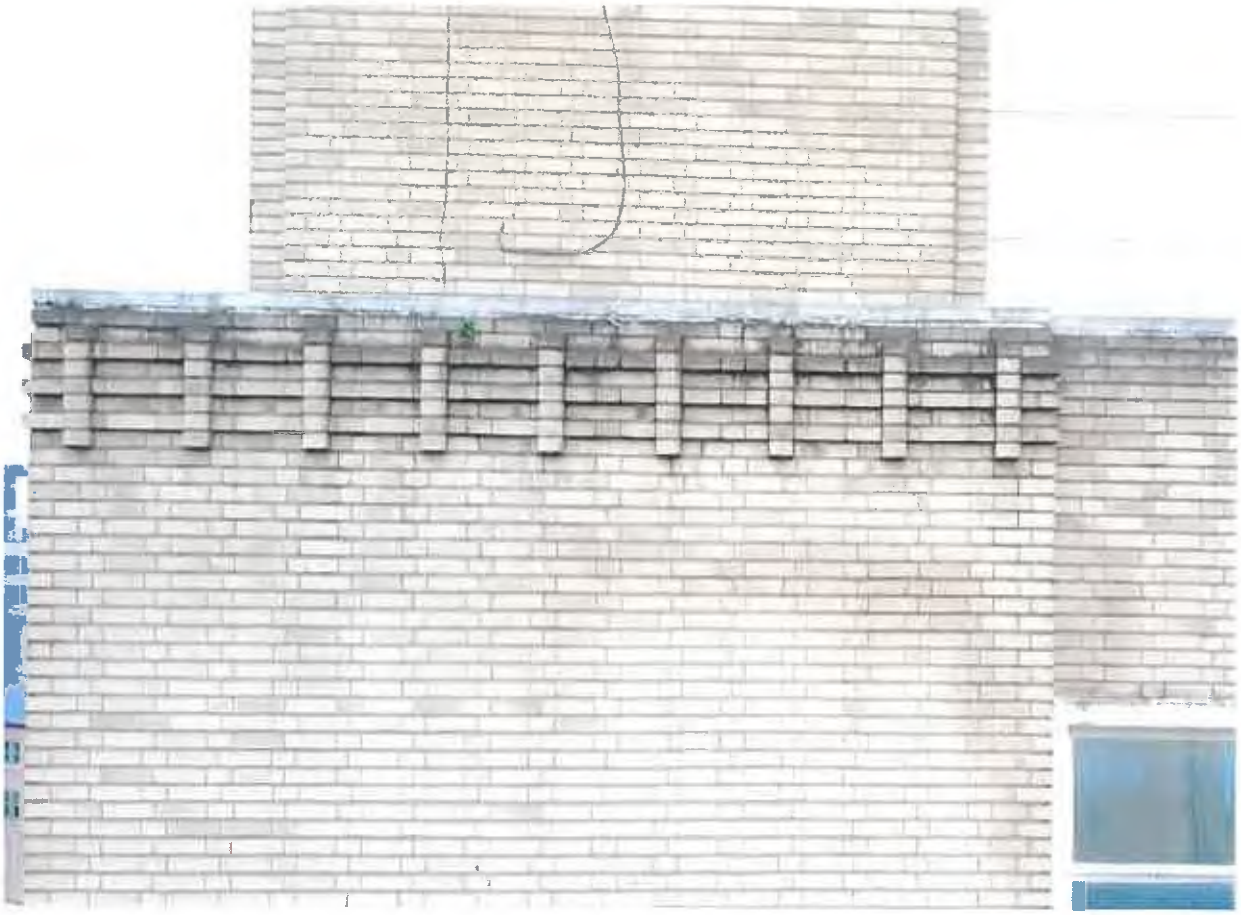
Photograph 19



Photograph 20



Photograph 21



Photograph 22



Photograph 23



Photograph 24



Photograph 25



Photograph 26



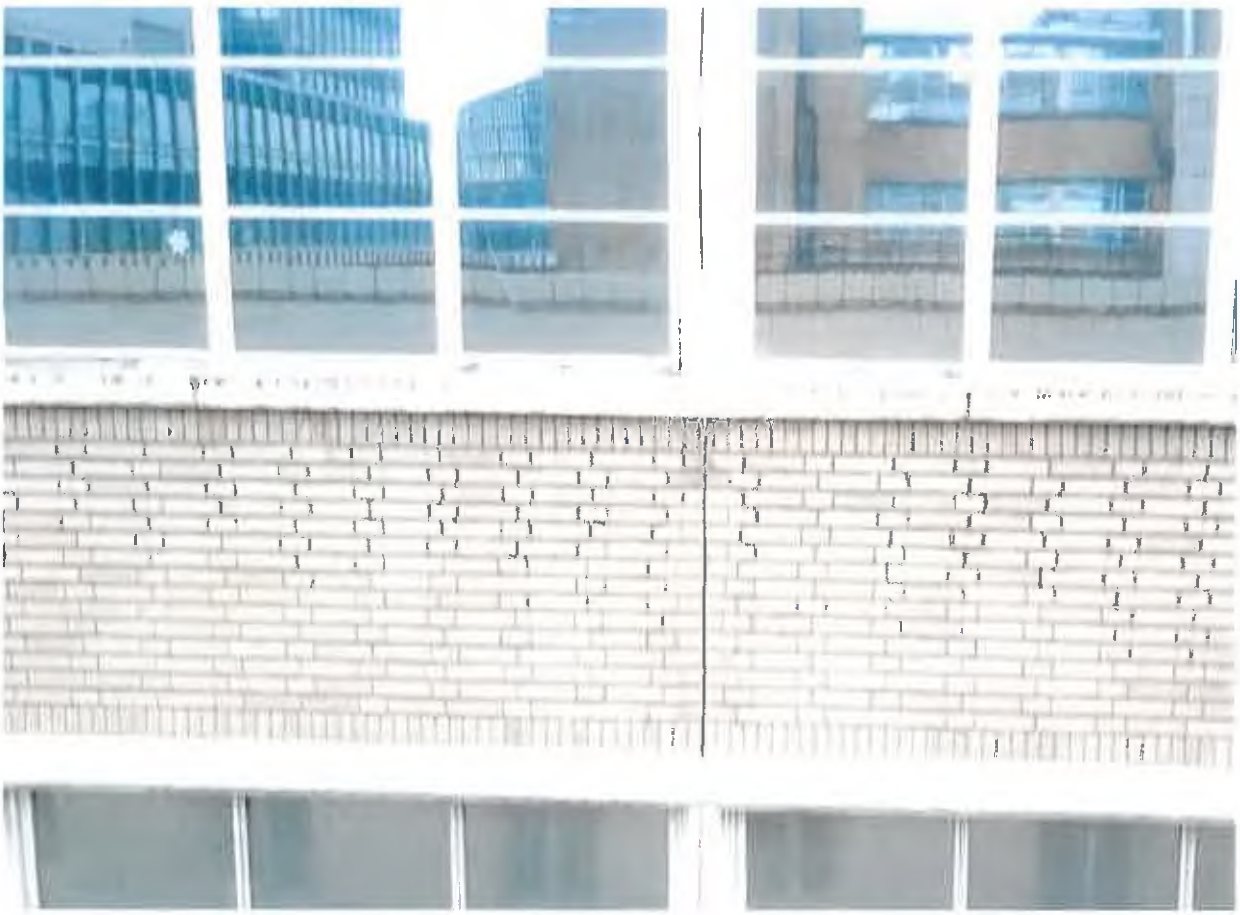
Photograph 27



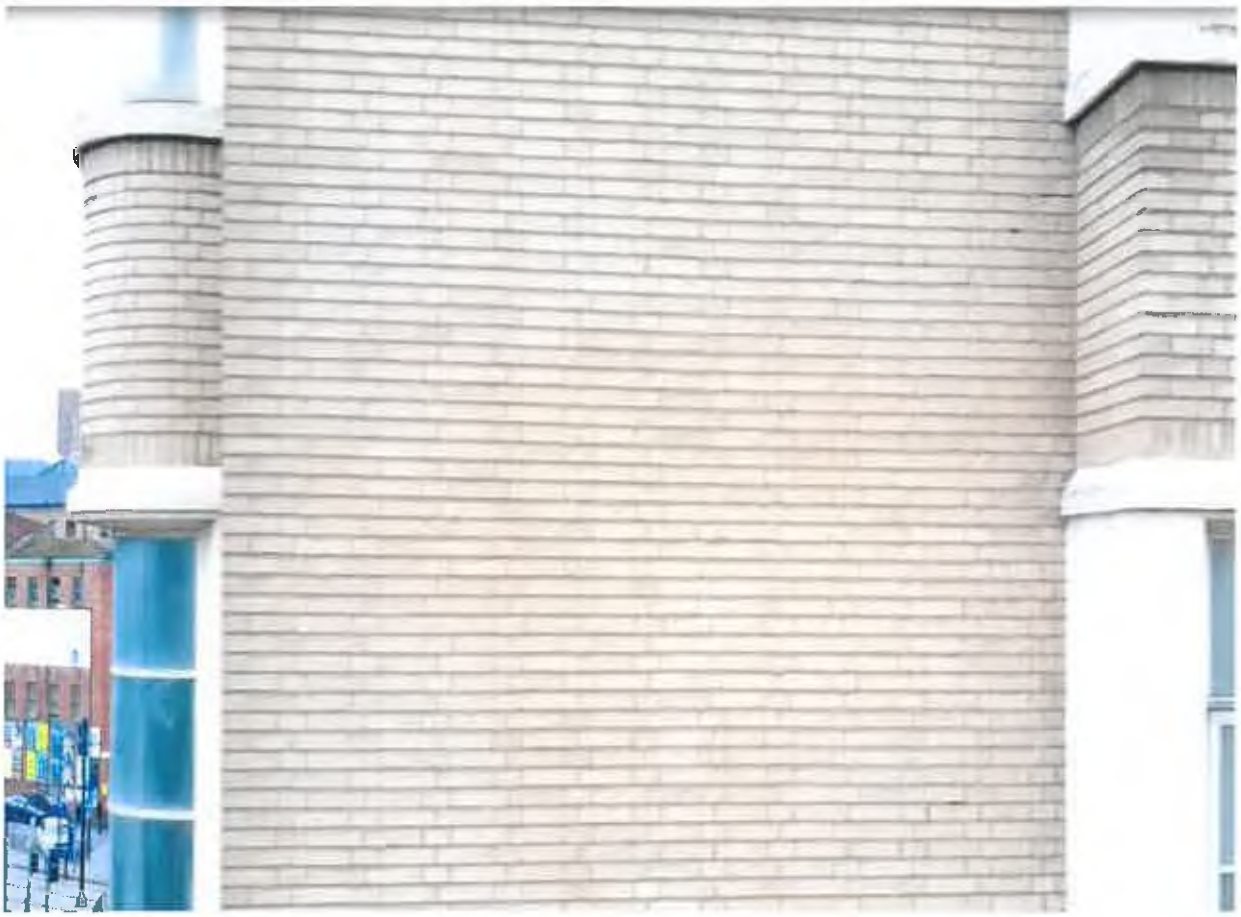
Photograph 28



Photograph 29



Photograph 30



Photograph 31



Photograph 32



Photograph 33



Photograph 34



Photograph 35



Photograph 36



Photograph 37



Photograph 38



Photograph 39



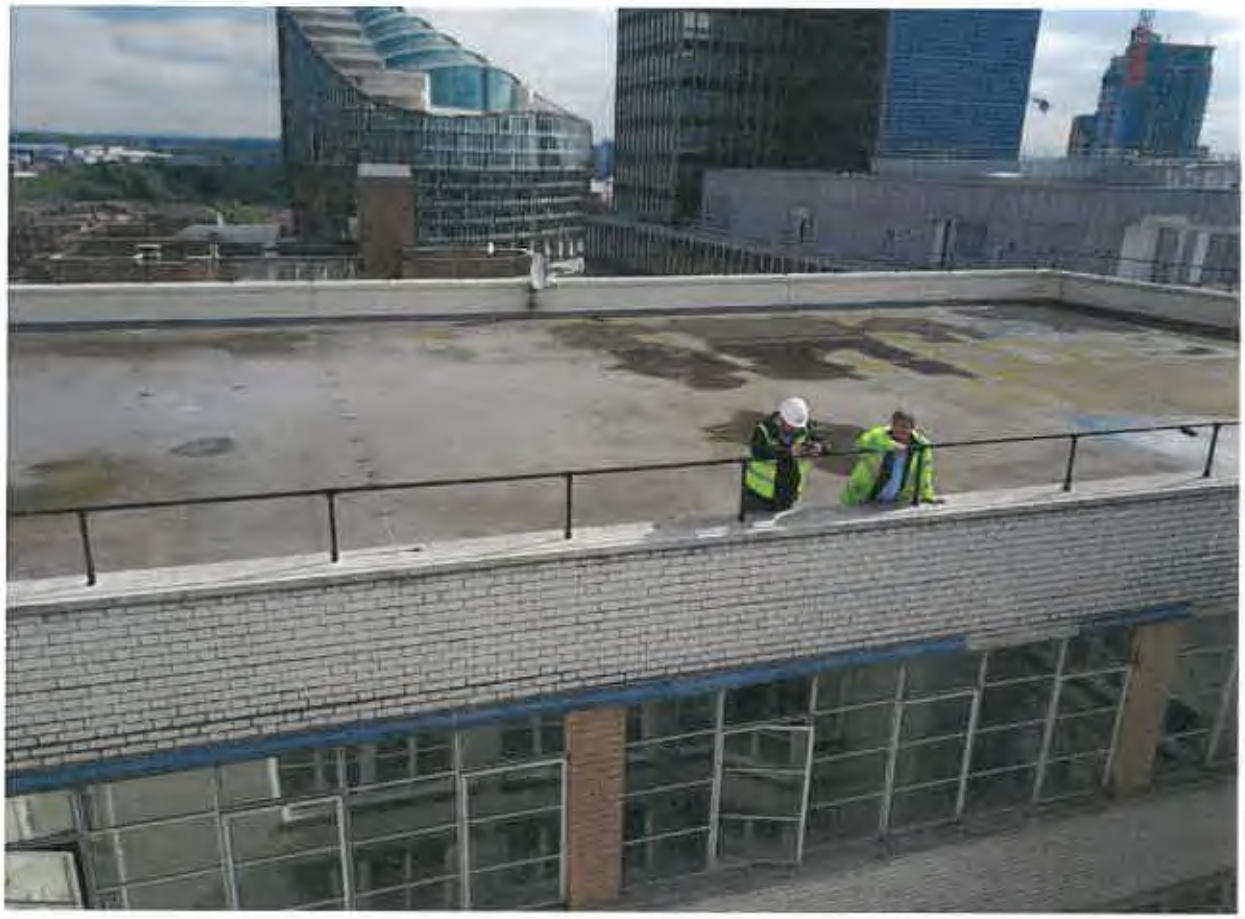
Photograph 40



Photograph 41



Photograph 42



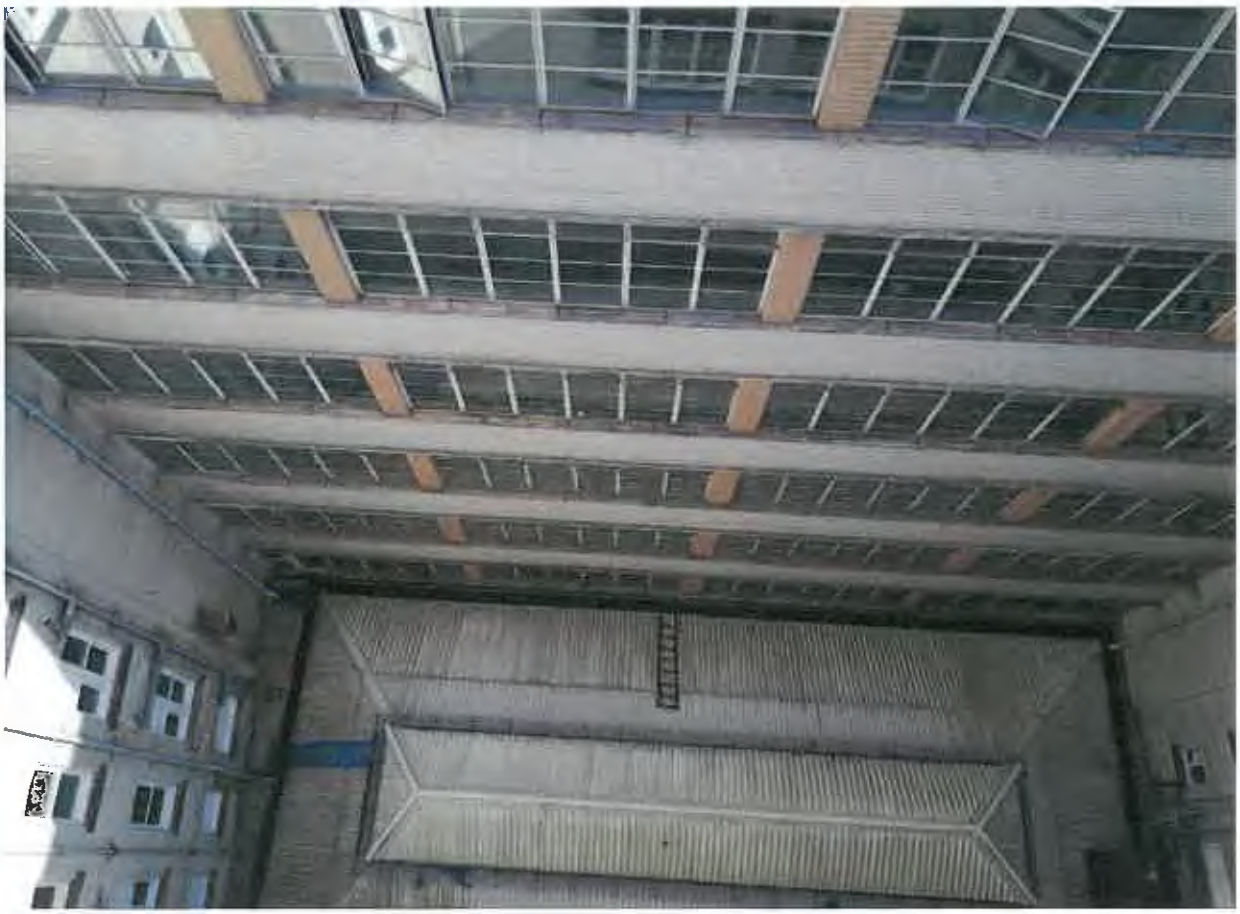
Photograph 43



Photograph 44



Photograph 45



Photograph 46



Photograph 47



Photograph 48



Photograph 49



Photograph 50



Photograph 51



Photograph 52



Photograph 53



Photograph 54



Photograph 55



Photograph 56



Photograph 57



Photograph 58



Photograph 59



Photograph 60



Photograph 61



Photograph 62



Photograph 63



Photograph 64



Photograph 65



Photograph 66



Photograph 67



Photograph 68



Photograph 69



Photograph 70

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