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Project:	
117-119 Portland Street Manchester Structural Report for Planning	
Client:	
Bruntwood AV Limited	

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Appendix A DW Consulting Standard Terms of Reference

1.0 Introduction

- 1.1 We received instructions from Mr James Moulton on behalf of Bruntwood to carry out a structural inspection of 117-119 Portland Street, Manchester. The inspection is required as part of the Planning submission and to assist with the planned refurbishment of the building.
- 1.2 The building is located on the corner of Portland Street and Dickinson Street, Manchester.



Aerial view



View from West

2.0 Description of the Building

2.1 117-119 Portland Street was originally part of the full 113-119 Portland Street group of buildings which we understand were 'split up' in the distant past. 117-119 Portland Street are total 6 storeys comprising Lower Ground, Ground Floor, First, Second, Third & Fourth Floor levels. In addition, there is a very small basement area, below the Lower Ground Floor, off Dickinson Street.

2.2 The main building structure comprises:-

- Large timber trussed roof structure supporting, mainly, a pitched slate covered roof.
- Floors comprise 'typically' 70mm thick boards, overlain with a sand:cement / concrete screed supported on 220x75 timber joists at approx. 400c/c; the joists span typically 3.5m to 3.6m although some localised areas have longer spans.
- Floor joists span onto large timber beams, approx. 330 deep x 290 wide in size, which are supported on the perimeter walls and internally on cast iron columns spaced at approx. 4.9m centres.
- Perimeter and internal walls are generally of solid brickwork except the rear (East) elevation which is formed with a cast iron frame.
- Foundations are not known but are assumed to be founded directly into the underlying rock strata which is typically found at between 4m to 6m in this area.

2.3 The building is Grade II Listed, listing no 1246957, first listed 28th February 1989 and is part of the listing named 113-119 Portland Street.

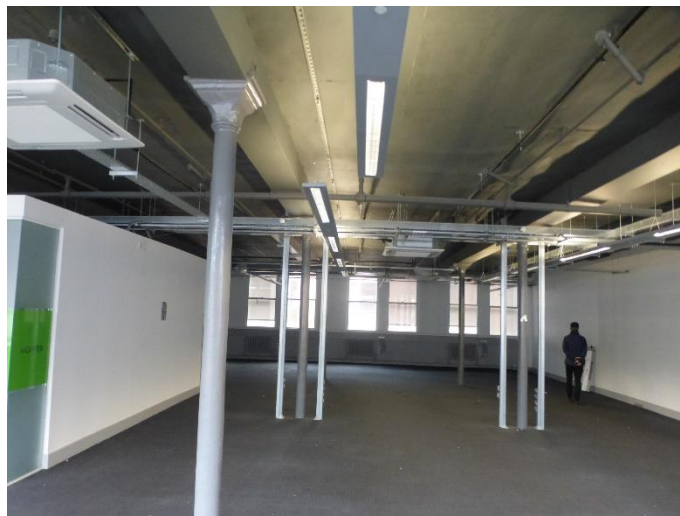
SJ8497NW PORTLAND STREET 698-1/32/312 (South East side) Nos.113 TO 119 (Odd)

The listing describes: *Manufacturers' home trade warehouse and shipping warehouse, now offices etc. c.1860-70, altered. Red brick with sandstone dressings (roof not visible). Irregular plan on corner site, with loading at rear. Utilitarian design with some Italian Gothic features. Four storeys and basement, 16 windows (some coupled); stone basement with weathered plinth, sill-bands to all floors, simplified Lombard friezes over most windows except the top floor, elaborated Lombard frieze of brick to moulded stone cornice. Basement and ground floor altered except in the last 3 bays (and right-hand return side to Dickinson Street), which have elaborately decorated cast-iron railings to the basement openings and coupled sashed windows with stone mullions and heads; upper floors have single (a) and coupled (b) windows arranged a-b-a-a-b-a-a-b-b-a, those at 1st floor square-headed, those at 2nd floor segmental-headed, and those at 3rd floor stilted segmental with stepped heads and linked hoodmoulds. Right-hand return wall, 10 bays in matching style, with wide segmental-headed loading bay entrance in 6th bay. Rear and interior not inspected. Forms group with No.103, Nos 105 and 107, and Nos 109 and 111 to left (q.v.), together comprising a complete block of former warehouses.*

3.0 Visual Inspection

3.1 The building structure comprises:-

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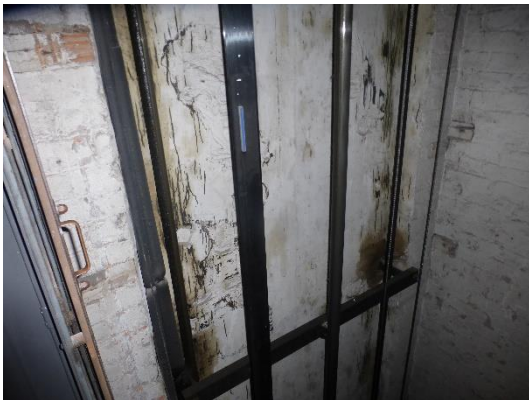


Typical floorplate- Note main timber beams are encased in this location.



Typical floor joist arrangement at cast iron column heads with localised trimmer.
Note feature column support heads to underside of main timber beams

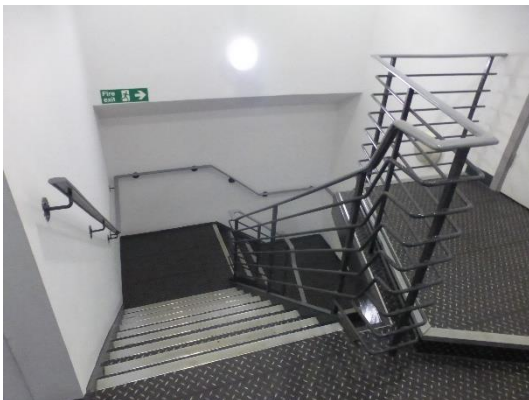
- 3.2 We noted that to some areas of the floorplates, the large timber beams are encased in boarding, whilst some areas are exposed. Both of these situations are shown in the photos immediately above.
- 3.3 The size of the cast iron columns increases as you go down the building. At 4th floor level the columns are in the order of 110mm diameter increasing to approx. 240mm diameter at Lower Ground level.
- 3.4 The lift shaft and stair core walls are all of solid brickwork. One of the shafts is also lined with plasterboard. The main access stair is structural steel with steel durbar plate treads. The 'original' fire escape stair is constructed with stone treads.



Lift shaft walls



Typical fire escape stair (4th floor)



Main accommodation stair to left and fire escape stair to right

4th Floor & Roof

- 3.5 Access to the roof was not gained.
- 3.6 Internally the roof is supported at 4th floor level with large timber trusses also supporting the sloping side walls. The trusses are supported on timber posts to the 'leaning' outside walls and on either cast iron columns or brick walls internally.



Typical 4th Floor space

- 3.7 There is evidence of water penetration to the trusses and side purlins at almost every window. However, the windows were replaced and the flashings fully refurbished in 2019 and the water ingress and staining is historic. A record photo from 2019 is below with the staining already showing.

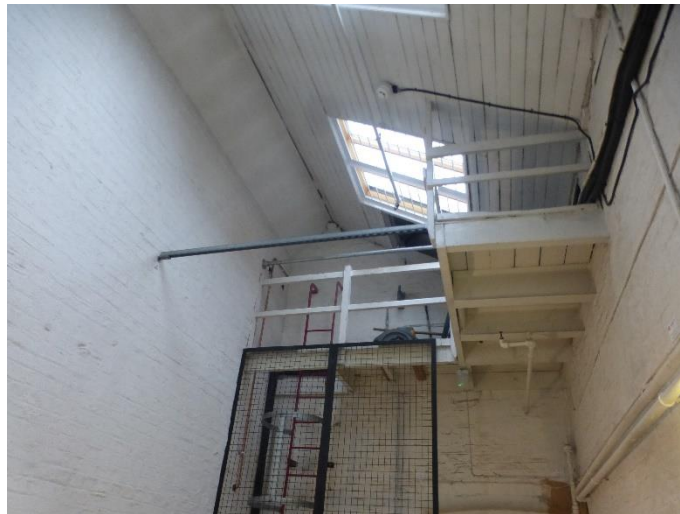


Water staining to timber trusses and purlins at 4th floor level.



Record photo from 2019 showing the water staining to the purlins.

- 3.8 The roof can be accessed via a hatch located off a platform above the fire escape stair.



Ladder to platform above fire escape stair.

- 3.9 No visual structural defects were found at 4th floor level.

3rd Floor Level

- 3.10 The access doors off the fire escape stair, at most levels, are formed within wider original masonry openings, with the space at the side and above infilled with board.



Door to fire escape stair (typical at most levels)

- 3.11 The large floor beams at 3rd floor are mainly encased in board. The type of board is not known.



3rd floor – Large beams to u/s 4th floor encased in board.

- 3.12 The rear glazed elevation contains raised 'cotton tables' against the wall. The soffit to the tables has been 'squared off' in the past and boxed in.



Note sloping face to tables on rear glazed elevation.

- 3.13 The glazed elevation is formed with cast iron stanchions supporting the timber floor beams on large brackets. Internally the cast iron framing and windows appear to be in good condition.



Glazed rear elevation.
Note large cast iron bracket supporting timber floor beam

- 3.14 At third floor there is a link to 115 Portland Street. From there it was possible to view part of the rear elevation to 117-119. Photos of the rear elevation are contained further into this report.



Opening between 115 Portland St to 117 / 119 Portland St at 3rd floor level

- 3.15 No visual structural defects were found at 3rd floor level.

2nd Floor Level

- 3.16 The 2nd floor construction repeats from 3rd floor.



Typical 2nd floor arrangement.

- 3.17 The sloping soffit to the 'cotton table' arrangement against the rear glazed elevation is clearly visible from 2nd floor level, along with the large cast iron brackets supporting the timber floor beams off the cast iron stanchions to the elevation.



Cast iron brackets supporting floor beam and visible sloping soffit to u/s 3rd floor

- 3.18 No visual structural defects were found at 2nd floor level.

1st Floor Level

3.19 Building structure repeats as 2nd and 3rd floor levels.



Typical 1st floor arrangement.

3.20 The sloping soffit and cast iron support bracket arrangements at the underside of 2nd floor, to the rear glazed elevation, are again clearly visible from 1st floor.



Rear glazed elevation – Sloping soffit and cast iron brackets to cast iron stanchions

3.21 No visual structural defects were found at 1st floor level.

Ground Floor Level

- 3.22 The ground floor construction typically repeats the floors above. The gable wall to the East elevation is visible with exposed brickwork at this level.



Typical ground floor arrangement with exposed brickwork to the main gable wall.

- 3.23 The cast iron brackets from the rear glazed elevation stanchions are again visible and providing support to the main floor beams at u/s 1st floor. However the sloping soffit is not present, as it is at underside of 2nd & 3rd floors.



Cast iron brackets supporting floor beams off rear glazed elevation.
Note the soffit is flat rather than sloping.

- 3.24 The main entrance off Portland Street is just below ground floor level and contains stairs and an accessible lift. The main timber floor beam on the column line at ground floor level is present.



Stairs entrance off Portland Street.

- 3.25 A separate fire escape exists from ground floor level onto Dickinson Street. As the other stair locations, the walls are of solid brickwork.



Fire escape down to Dickinson Street.

- 3.26 Access to the bin store is also gained from ground floor level.
- 3.27 No visual structural defects were found at ground floor level.

Lower Ground Floor Level

- 3.28 The construction at Lower Ground floor level repeats from the floors above.
- 3.29 The lowered area of floor at the main entrance off Portland Street is visible. Also, the large main timber floor beam is also clearly intact.



Entrance floor area off Portland Street to left side of cast iron column and main beam

- 3.30 We noted one main beam at u/s ground floor is a 'fitch' beam, with steel plates sandwiched between timber beams. We assume that when originally constructed there was a heavier use in this area.



One fitch beam noted at underside ground floor.

- 3.31 The old lifting pully gear is still in place alongside the Dickinson Street elevation.



Old lifting pully gear against Dickinson Street elevation.

- 3.32 At the rear elevation, the cast iron glazed façade stops at ground floor level and a small lean-to glazed roof area extends out towards the rear car park.



Glazed roof at rear elevation

- 3.33 No visual structural defects were found at ground floor level.

Sub-Basement

- 3.34 The sub-basement is very small and is accessed via ladder from Dickinson Street. The basement houses the boiler plant.



Ladder access to sub-basement.

- 3.35 The construction at this level is loadbearing brickwork walls with internal cast iron columns and walls, supporting beams and brick arch / barrel vaulted soffit. The floor is a concrete slab.



Brick arch / barrel vaulted soffit supported on cast iron beams, columns and loadbearing brick walls.

- 3.36 There is a former staircase leading to, presumably, Lower Ground floor level. However, this is sealed off at that floor level.



Entrance to former stair

Elevations

- 3.37 The elevations are typically brickwork with windows formed with stone cills, heads and mullions. The windows at street level are protected with heavy railings.



Portland Street elevation



Portland Street entrance



South corner looking towards the entrance door.



Dickinson Street elevation.

- 3.38 The elevation to Dickinson Street also contains the bin store entrance and the old lifting pulley.



Lifting pulley to Dickinson Street elevation

- 3.39 The gable (to the East) elevation contains no windows but does have 2 vent openings. We noted that the brickwork face is not 100% vertical, but we did not consider any of the areas that appears to bulge outwards or inwards to be excessive and certainly as would be expected for a building of this type and age. The wall thickness was measured as 490mm at ground floor level.



Gable elevation off Dickinson Street



Opening in gable wall with louvre cover removed.



Small areas of misalignment can be seen on the gable wall, but not excessive

- 3.40 The main rear (North) elevation is formed with a cast iron frame of stanchions and beams. The stanchions support the building floor beams at each level. From street level, the cast iron framing appears to be in good condition, albeit in need of refurbishment; cleaning and repainting etc. The timber framed windows are showing signs of deterioration.



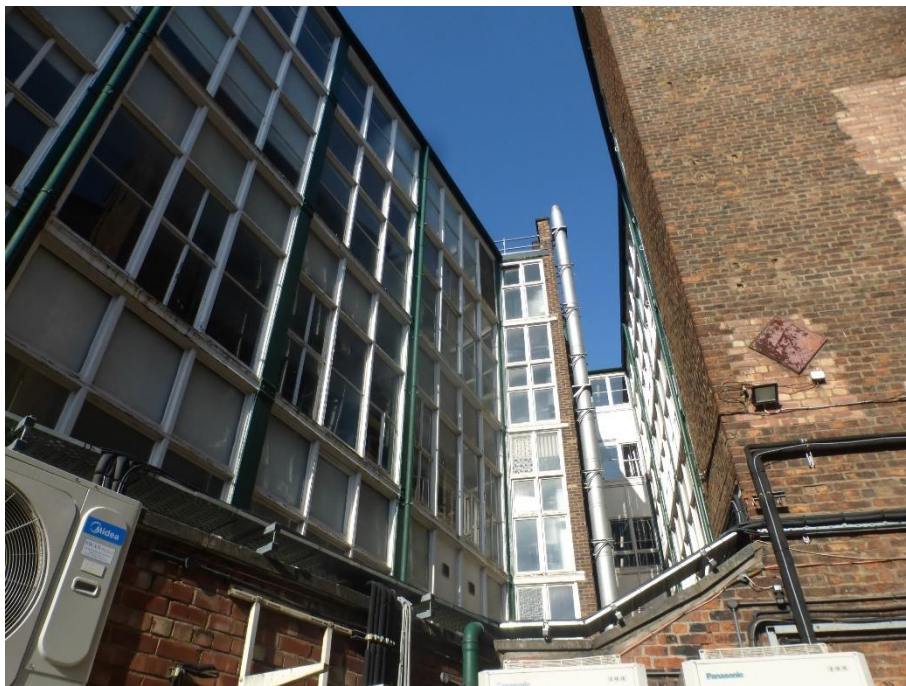
Main rear elevation viewed from car park



Main rear elevation viewed from 3rd floor of 115 Portland Street



Main rear elevation viewed from 3rd floor of 115 Portland Street.
Small lean-to glazed roof above Lower Ground floor visible.



Small return façade looking towards Portland St from rear car park

4.0 Proposed Structural Works

4.1 The proposed structural works are as follows:-

- Infill the old goods lift at each level to form floorspace.
- Forming a new opening at 3rd floor level to link the 2 main floorplate areas.
- Moving the access door to the bin store and modifying the steps arrangement to street level.
- Installation of additional louvres into the gable wall off Dickinson Street (East elevation).

4.2 Infill to the goods lift floors - The new floor will be constructed with timber joists spanning between the brick walls. Timber is to be used as it is similar to the main floor constructions, easy to construct without causing damage to the existing walls and can be easily removed in the future if needed.

4.3 New doorway at 3rd floor level – This opening will mirror similar openings in the same wall at 2nd, 1st and Ground Floor levels and can be formed by cutting the wall and installing concrete lintels above. It is also understood historically there has been an opening on this wall and this is shown on old lease plans.

4.4 Moving the access door to the bin store and modifying the steps arrangement to street level – As shown on the AXI drawing, these works will involve bricking up the existing doorway and forming a new door adjacent to it. In addition, the existing concrete steps arrangement is to be removed and a new 'straight' stair installed to allow better access within the bin / recycling area.

4.5 New louvre openings to the gable wall can be formed by locally propping the wall to allow the openings to be cut out. Concrete lintels can be used to the internal faces with a proprietary hidden lintel to the outer face to ensure that the existing brick face is visible directly above the new openings.

5.0 Conclusions

5.1 The main building structure is robust comprising heavy duty timber floors supported from cast iron columns and loadbearing masonry walls. Generally, the structure is in good condition and we found no significant structural defects.

5.2 The proposed structural works are very minor compared to the overall structure and can be carried out without any detriment to the integrity of the building.