MINERS RESCUE CENTRE, WREXHAM



STRUCTURAL CONDITION ASSESSMENT

December 2024
Suitability S2
Revision P01

Prepared on Behalf of:
Geraint Roberts

Geraint Roberts Associates
Architect & Historic Buildings Consultant
2 Maes Derw,
Llanfechain,
Powys,
SY22 6XN

By:
Bingham Rawlings Partnership Ltd.

2 Grosvenor Road,
Wrexham,
LL11 1BS

SUITABILITY	REV	DATE	DESCRIPTION	Org.	Chk'd	App'd
S2	P01	05/07/2024	First Issue.			

CONTENTS PAGES

1.0 Preface 4
2.0 Inspection 5
2.1 Site Details 5
2.2 Inspections of the Properties 5
3.0 Structure Information 6
3.1 Structure Details 6
4.0 Miners Rescue Centre (B1) 7
4.1 Defects encountered / Notable comments 7
4.2 Structural Considerations 11
5.0 Miners Rescue Centre (P2) 12
5.1 Defects encountered / Notable comments 12
5.2 Structural Considerations 17
6.0 Building 3 (Super Intendant House) 18
6.1 Defects encountered / Notable comments 18
6.2 Structural Considerations 23
7.0 Conclusion 24
8.0 Recommendations 25
8.1 Masonry Repair 25
8.2 Hall Roof 25
8.3 Reinforced Concrete Roof 25
8.4 Fracture Repairs 25
8.5 Lintel Replacement 25
8.6 Strengthening of Floor 25
8.7 Mortar Pointing 26
8.8 Purlin Support 26
8.9 Moisture Ingress Penetration 26
8.10 Window and Door Maintenance 26
8.11 Vegetation 26
9.0 Further Investigation 27

APPENDIX A - Site Location Plan
APPENDIX B - Building Identification Plan
APPENDIX C - Defects Location Plan
APPENDIX D - Site Photographs

1.0 Preface

1.1.1 **Property Address:**

Miners Rescue Station,

3 Maesgwyn Road,

Wrexham,

LL11 2AP

1.1.2 Date - 25th of April 2024

1.1.3 Nature of Investigation - Structural Condition Assessment of the above property.

1.1.4 This report has been produced to evaluate the structural stability and condition of the buildings and make recommendations for further investigations and remedial works.

1.1.5 The inspection was undertaken by Martin Williams BEng (Hons.) GMICE, Senior Engineer at Bingham Rawlings Partnership Ltd (hereby referred to as "BRP"), Camila Ramos, Project Engineer at BRP, Jared Humphries, Graduate Engineer at BRP and Olivia Kaasab, Engineering Apprentice at BRP with the findings and recommendations reviewed by Ifan Rowlands BEng (Hons.) IEng FICE AaPS GMIStructE, Managing Director of BRP. Copies of their individual qualifications and experience are available upon request.

1.1.6 BRP have been employed as an independent professional consultancy to investigate and report factually as part of the investigation. A copy of BRP's professional indemnity cover to undertake such investigation and design is also available upon request.

1.1.7 No intrusive testing or identification of hazardous material was undertaken by BRP, and the nature of the inspection was visual only.

1.1.8 This report has been compiled in strict accordance with BRE 251 and the IStructE guide to surveys and inspections of buildings and associated structures.

2.0 Inspection

2.1 Site Details

Bingham Rawlings Partnership Ltd (hereby referred to as BRP within this report) have been appointed to undertake a structural assessment of the property at Maesgwyn Road, Wrexham (National Grid Reference **SJ 32805 50740**). See Location Plan in **APPENDIX A**.

2.2 Inspections of the Properties

2.2.1 For the purposes of this report, the properties have been separated in sections to provide clarity on each property condition.

2.2.2 The properties investigated have been given a unique identification. These are as follows:

- Miners Rescue Centre **(B1)**
- Drill Hall **(B2)**
- Superintendent House **(B3)**

2.2.3 These are highlighted identified on the plan attached in **APPENDIX B**.

2.2.4 The properties investigated are discussed individually with the identified defects & recommendations discussed in Sections 4 - 9.

2.2.5 All room numbers, door and window identifiers are as stated on the architects' drawings

3.0 Structure Information

3.1 Structure Details

3.1.1 The exact year of construction for the property was 1912.

3.1.2 The properties were built using traditional construction methods. The roofs of B1 and B3 have a north to south orientation, with a hip valley attached to the eastern elevation and orientating from east to west. These roofs comprise of clay tiles and are supported by traditional cut roof structures. B2 also utilises traditional construction methods, featuring a duo-pitch roof spanning east to west, supported by steel gable trusses.

3.1.3 The external walls of all buildings are constructed using solid Ruabon bricks.

3.1.4 Internal load-bearing walls are constructed of solid brickwork.

3.1.5 The ground floor of the properties consists of cast in-situ concrete floor.

3.1.6 While the foundations were not uncovered during the survey, it is considered likely, given the structure's age and type, that they consist of brick spread footing at shallow depths onto competent bearing strata.

4.0 Miners Rescue Centre (B1)

4.1 Defects encountered / Notable comments

4.1.1 The defects identified are highlighted below and are illustrated in **APPENDIX C** for location reference.

4.1.2 Photographs of the defects are appended in **APPENDIX D.**

4.1.3 **External**

Ref / Location	Defect	Photograph Ref.	Additional Comments
Front Elevation			
B1.1	Missing bricks facing	Figure 1	Approx 5% of total area
B1.2	1 brick displaced	Figure 2	
B1.3 W2.B1	Stepped fracture extending from windowsill and terminates at ground level	Figure 3 Figure 4	
B1.4 W1.B1	Stepped fracture extending from window and protrudes around the wall return, terminating on D1B2	Figure 5 Figure 6 Figure 7	
B1.5 W1.B1	Horizontal fracture extending from W1.B1 to W2.B2	Figure 8	
B1.6 W1.B1	Displaced brick on W1.B1	Figure 9 Figure 10	
B1.7 W1.B1	Stepped fracture extending from W1.B1	Figure 11	
B1.8 D1.B1	Horizontal fracture on mortar joint extending from D1.B1 and protruding around to NE facing	Figure 12 Figure 13 Figure 14	

B1.9	Deteriorated timber fascia and pointing	**Figure 15**	
Side Elevation			
B1.10 W4.B1	Horizontal fracture from NW facing protruding to W4.B1. Stepped fracture extending from window.	**Figure 16** **Figure 17**	
B1.11 W5.B1	Hairline stepped fracture from W5.B1	**Figure 18**	
B1.12	Missing mortar along elevation	**Figure 19** **Figure 20**	<10% of total surface area
B1.13	Voids noted along wall	**Figure 21**	
B1.14 W9.B1	Stepped fracture extending from W9.B1 sill and terminating at ground level	**Figure 22** **Figure 24** **Figure 25**	
B1.15 W10.B1	Displacement on window head	**Figure 26**	
B1.16	Section of the wall missing	**Figure 27** **Figure 28** **Figure 29** **Figure 30**	As result a stepped fracture extends from the end of the wall and terminates at soffit
Rear Elevation			
B1.17	Deteriorated timber bearer, missing sections of DPC and missing masonry	**Figure 31** **Figure 32** **Figure 33** **Figure 34**	
B1.18	Lean-to at the rear of the property has been knocked down	**Figure 35** **Figure 36** **Figure 37**	Contractors' activity

Roof			
B1.19	Missing Roof tiles. Evidence of recent repair work on panel	**Figure 39**	
B1.20	Deteriorated timber on rooflight window	**Figure 41**	Inadequate flashing

4.1.4 Internal B1

Ref / Location	Defect	Photograph Ref.	Additional Comments
Cafe			
B1.21	Displacement of brick	Figure 42 Figure 43	10mm
Room 1			
No defects identified			
Room 2			
B1.22	Stepped fracture on masonry	Figure 45 Figure 46	
B1.23	Displaced lintel	Figure 47 Figure 48	
B1.24	Stepped fracture on masonry above access to room 4. Visual deflection on ceiling	Figure 49 Figure 50 Figure 51 Figure 52	Fracture emanates from purlin bearing on wall
Room 3			
B1.25	Hairline fractures on ceiling	Figure 54 Figure 55 Figure 56	
Workshop			
B1.26	Hairline fractures on ceiling	Figure 58 Figure 59 Figure 60 Figure 61	
B1.27	Missing plaster on ceiling (exposed lath)	Figure 62	

Room 4			
B1.28	Missing plaster on wall	Figure 63	
B1.29 W9.B1 W10.B1	Void around window	Figure 64 Figure 65	

4.2 Structural Considerations

4.2.1 In evaluating the structural integrity of the building, several significant external defects have been identified, particularly on the front and side elevations. These include missing facing bricks, and deteriorated mortar joints which are considered likely to be attributed to deterioration of the materials due to prolonged exposure to environmental factors and thermal effects such as contraction and expansion of materials.

4.2.2 Of notable concern are the fractures extending from windows and wall returns. The fractures extending from the windows are attributed to the lintels entering a mode of failure.

4.2.3 The fractures extending from the windowsill to the ground and protruding around the corner to W10 could be attributed to historical settlements.

4.2.4 The fracture above the access door of room 4 emanates from the purlin bearing on the brick wall. This fracture is associated with the overturning of the purlin due to roof spread, which is common in traditional cut roof structures.

4.2.5 Additionally, the presence of voids along the walls raises issues of potential water ingress and further deterioration of the structure.

4.2.6 The defective rooflight flashing will allow moisture to penetrate the fabric of the building.

4.2.7 Remedial actions for the defects identified are discussed in **Section 8**.

5.0 Miners Rescue Centre (P2)

5.1 Defects encountered / Notable comments

5.1.1 The defects identified are illustrated in **APPENDIX C** for location reference.

5.1.2 Photographs of the defects are appended in **APPENDIX D.**

5.1.3 **External**

Ref / Location	Defect	Photograph Ref.	Additional Comments
Front Elevation			
B2.1 D1.B2	Leaching, missing pointing and vegetation growth	Figure 67 Figure 68	Less than 5% of pointing missing
Side Elevation - SW Facing			
B2.3	Leaching, missing pointing and vegetation growth	Figure 70 Figure 71 Figure 72	Approx. 10% of pointing noted missing on elevation
B2.4	Hairline fracture and delamination on concrete slab roof	Figure 73 Figure 74	Fractures are noted to be 700mm – 900mm apart
B2.5	Voids noted along elevation	Figure 75	Historic downpipe fixings
B2.6	Spalling of brick facing	Figure 76	Less than 5% of total area
B2.7	2mm vertical fracture	Figure 77	Blocked off window
Rear Elevation			
B2.8	2mm vertical fracture protruding from arch	Figure 78 Figure 79	Blocked off window
B2.9	Leaching observed on wall	Figure 80	Higher section of wall

B2.10	Inadequate distance between exterior ground level and DPC membrane	**Figure 81**	Throughout elevation
B2.11	Spalling bricks noted on elevation	**Figure 82**	Less than 5% of total area
B2.12	Demolished section of wall.	**Figure 83**	Physically knocked down. Temporary support in place.
Side Elevation – NE Facing			
B2.13	Demolished section of wall and roof	**Figure 84** **Figure 85**	Temporary support and external walls in place
B2.14	Demolished reinforced concrete slab	**Figure 86** **Figure 87** **Figure 88** **Figure 89**	Contractors' activity
B2.15	Displaced masonry, missing pointing and vegetation growth	**Figure 90**	
B2.16	Damaged masonry	**Figure 91**	
B2.17 W1.B2	Missing pointing	**Figure 93**	
Roof			
B2.18	Missing pointing noted on roof verge and verge corbelling	**Figure 94**	
B2.19 CH1	Missing pointing noted on chimney breast	**Figure 96** **Figure 97**	Less than 5% of total area
B2.20	Damaged roof slate tiles	**Figure 101**	

B2.21 CH2	Displaced chimney breast out of plumb	**Figure 102**	
B2.22	Horizontal and stepped fracture on spandrel	**Figure 103**	
B2.23	Missing pointing on spandrel	**Figure 104**	Less than 5% of total area
B2.24	1 brick missing on blocked up window	**Figure 105**	

5.1.4 Internal

Location	Defect	Photograph Ref.	Additional Comments
Drill Hall			
B2.25	Damaged steel truss	Figure 107 Figure 108 Figure 109	Contractors' activity
B2.26	Displacement and missing masonry noted on pier	Figure 110 Figure 111	Contractors' activity
B2.27	Vertical fracture noted on pier	Figure 112	Contractors' activity
B2.28	Temporary membrane on roof	Figure 113	Contractors' activity
B2.29	Existing historical pipe	Figure 114	No structural issues identified
B2.30	Split noted on purlin	Figure 115 Figure 116	Historical
B2.31	Deteriorated lintel	Figure 117 Figure 118	
Room 1			
B2.32	Missing masonry	Figure 119 Figure 120	
B2.33	Fracture along wall and ceiling edge	Figure 121	
B2.34	Transverse fracture along ceiling	Figure 122	Reinforced concrete
Room 2			
B2.35	Transverse fracture along ceiling	Figure 124 Figure 125	Reinforced concrete
B2.36	Blocked up access	Figure 126	

Entrance Lobby			
B2.37	Deteriorated timber bearer	Figure 127	
B2.38 D1.B2	Deteriorated lintel	Figure 128 Figure 129	
B2.39	Displacement of brick	Figure 130	
Hallway			
B2.40	Vertical fracture and void noted on wall	Figure 131 Figure 132 Figure 133	
B2.41	Deterioration of timber dentil	Figure 134	
WC			
B2.42	Vertical fracture and void noted on wall	Figure 136	
Room 3			
B2.43	Paint delaminating of masonry wall	Figure 137 Figure 138 Figure 139 Figure 140	Approx 30-40% of total surface area. The type of paint used is currently unknown, further testing required.
B2.44	Longitudinal fracture on ceiling	Figure 141 Figure 142	Reinforced concrete

Gallery			
B2.45	Surface corrosion on steel hoop sections	**Figure 144**	
B2.46	Transverse fracture noted on concrete ceiling	**Figure 145** **Figure 146** **Figure 147** **Figure 148** **Figure 149**	Reinforced concrete
B2.47	Missing pointing noted on wall	**Figure 150**	Less than 10% of total wall area.
B2.48	Deteriorated lintel bearing	**Figure 151**	

5.2 Structural Considerations

5.2.1 In assessing the structural conditions of the building, several defects have been identified across various elevations. Notably, leaching, missing pointing, and vegetation growth. These are considered likely to be attributed to deterioration of the materials due to prolonged exposure to environmental factors and thermal effects such as contraction and expansion of materials.

5.2.2 Of particular note are the demolished sections of the wall and roof, which were knocked down by contractors' activity. Temporary supports and access restriction are in place which underscores the urgent necessity for structural replacement to ensure the longevity and safety of the building.

5.2.3 Remedial actions for the defects identified are discussed in **Section 8**.

6.0 Building 3 (Super Intendant House)

6.1 Defects encountered / Notable comments

6.1.1 The defects identified are illustrated in **APPENDIX C** for location reference.

6.1.2 Photographs of the defects are appended in **APPENDIX D.**

6.1.3 **External**

Location	Defect	Photograph Ref.	Additional Comments
Front Elevation			
B3.1	Damaged parapet wall	Figure 153	
B3.2 W3.B3	Stepped fracture noted on elevation	Figure 154 Figure 155	
B3.3	Missing pointing noted elevation	Figure 156	Less than 5% of total area
B3.4	Blocked up drainage	Figure 157	
Gable Elevation – SW facing			
B3.5	Deteriorated timber fascia	Figure 158 Figure 159	
B3.6	Missing pointing	Figure 160	Less than 5% of total area
B3.7	Hairline fracture	Figure 161	
B3.8	Spalled brick	Figure 162	Less than 5% of total area
B3.9	Hairline fracture	Figure 163	
B3.10 W7.B3	Deteriorated timber windowsill	Figure 164	

B3.11	Tree trunk and sapling root identified	**Figure 165** **Figure 166**	
B3.12 W8.B3 W9.B3	No lintel identified above opening	**Figure 167** **Figure 168**	
B3.13 W8.B3	Damaged masonry	**Figure 169** **Figure 170** **Figure 171**	Void around window, lacking water tightness
B3.14 W9.B3	Hairline fracture	**Figure 172** **Figure 173** **Figure 174**	
B3.15	Displaced fascia boards	**Figure 175** **Figure 176**	
B3.16	Damaged vent	**Figure 177**	
Rear Elevation			
B3.17 D2 B3	Recent repair works	**Figure 179** **Figure 180**	Bonding not matched in repair work
B3.18	Missing pointing	**Figure 181**	Less than 5% of total area
B3.19	Vegetation growth	**Figure 182**	Localised areas
B3.20 W10 B3	Exposed lintel	**Figure 183** **Figure 184**	Minor corrosion noted
Gable Elevation – NE facing			
B3.21	Missing pointing	**Figure 187**	
B3.22	Damaged glass	**Figure 188**	

Roof			
B3.22 CH 4 CH5	Vegetation growth, missing Pointing and spalling of bricks	Figure 190	

6.1.4 Internal

Ref / Location	Defect	Photograph Ref.	Additional Comments
Ground Floor			
A.1	Displacement of bricks and deteriorated lintel	**Figure 191**	Access blocked up
A.2	Displacement of bricks	**Figure 194**	
A.3 W2.B3	Void noted on base of wall under	**Figure 195**	Missing timber plug
A.4 W2.B3	Diagonal fractures	**Figure 196** **Figure 199**	
A.5	Hairline fractures on ceiling	**Figure 198**	
B.1	Hairline fractures on ceiling	**Figure 198**	
B.2 W1.B3	Diagonal fracture	**Figure 199**	Hairline (<1mm in width)
B.3	Evidence of moisture ingress	**Figure 200**	
C.1	Evidence of moisture ingress	**Figure 201**	
C.2	Void noted on wall	**Figure 202**	
D.1	Evidence of moisture	**Figure 204**	Joists were in good condition
D.2	Missing masonry	**Figure 205**	
D.3	Missing masonry	**Figure 206**	
E.1	Lintel deflection	**Figure 208** **Figure 209**	Up to 15mm

E.1	Fracture on masonry	**Figure 210**	
E.2	Horizontal fracture on ceiling edge	**Figure 211**	
First Floor			
G.1	Diagonal fracture extending from windowsill	**Figure 212** **Figure 213** **Figure 214**	2mm in width
G.2	Hairline vertical fracture	**Figure 215** **Figure 216**	Above access door
G.3	Deteriorated plaster on ceiling edges	**Figure 217**	Approx.10% of total area
H.1	Hairline fracture above access door H	**Figure 219** **Figure 220**	
H.2	4mm fracture was at the interface of the external wall and the partition wall. Additionally, diagonal fractures emanate from the vertical fracture. Furthermore, a horizontal fracture extends from the vertical fracture along the ceiling edge.	**Figure 221** **Figure 222** **Figure 223** **Figure 224** **Figure 225** **Figure 226**	
H.3 W4.B3	Vertical and diagonal fractures	**Figure 227** **Figure 228**	Hairline fractures

H.4	Vertical hairline fracture above access door	**Figure 229**	
I.1	Diagonal fracture above access door room I	**Figure 231**	
J.1 W6.B3	Hairline vertical fracture	**Figure 233**	
J.2	Voids in ceiling	**Figure 234** **Figure 235**	
J.3	Missing floorboards	**Figure 236**	
K.1	Evidence of repair work on ceiling	**Figure 237**	

6.2 Structural Considerations

6.2.1 The assessment of structural conditions reveals several defects across the building's exterior and interior, necessitating prompt attention and remediation measures.

6.2.2 The observed external defects likely stem from material deterioration due to prolonged exposure to environmental elements, thermal effects such as expansion and contraction of the materials and inadequate maintenance practices.

6.2.3 Similarly, internal defects are likely consequences of material deterioration resulting from prolonged exposure to environmental factors and thermal effects. However, the presence of vertical fractures on the walls between the external wall and partition wall in room H suggests potential roof spread, which is common in traditional hip roof constructions.

6.2.4 Remedial actions for the defects identified are discussed in **Section 8**.

7.0 Conclusion

7.1.1 In conclusion, BRP consider the properties to be in a deteriorating structural condition. The assessment has uncovered a range of issues necessitating urgent attention to uphold the safety and integrity of the buildings.

7.1.2 The majority of identified defects stem from prolonged exposure to environmental factors, material degradation, substandard maintenance, and thermal effects such as material expansion and contraction.

7.1.3 Of particular concern are fractures originating from critical structural elements, such as windows and wall returns on B1, indicating potential or historical consolidation of the strata or ongoing structural instability.

7.1.4 Furthermore, the presence of voids along the rear elevation of B2 resulting from damaged roof trusses, and reinforced concrete roof damage caused by contractor activity, underscores the immediate need for action to prevent further deterioration. A holistic approach is necessary, including structural reinforcement, masonry repairs, waterproofing, and proactive maintenance strategies, to ensure the long-term safety and stability of the buildings

7.1.5 Addressing these defects promptly and effectively will restore the buildings to a structurally sound condition, safeguarding occupants and preserving their integrity for years to come.

7.1.6 It's paramount that all remediation efforts align with conservation consent requirements to maintain historical integrity and compliance.

8.0 Recommendations

8.1 Masonry Repair

8.1.1 The gable end at the rear elevation of B2 is to be rebuilt whilst ensuring it conforms with the conservation agreement.

8.2 Hall Roof

8.2.1 It is recommended that that the damaged roof trusses are to be replaced with a suitable member. The members are to be designed by a qualified structural engineer.

8.3 Reinforced Concrete Roof

8.3.1 The damaged concrete slab roof to the rear of B2 is to be replaced with a suitable roof. The roof is to be designed by a qualified structural engineer.

8.4 Fracture Repairs

8.4.1 All of the fractures greater than 2mm in width are to be stitched with Heli-fix or similar.

8.4.2 Fractures smaller than 2mm in width are to be cosmetically repaired with a suitable material.

8.4.3 Agreement of mortar specification will be necessary, ensuring that it conforms with the conservation agreement.

8.5 Lintel Replacement

8.5.1 It is recommended that the condition each of the lintels that are not exposed are to be to be investigated to ascertain their structural integrity.

8.5.2 Any lintels noted missing or are in poor state of repair are to be replaced by a suitably designed member. All members are to be designed by a qualified structural engineer.

8.6 Strengthening of Floor

8.6.1 It is recommended that the ceiling floor in Room 3 B2 be strengthened to address the observed deflection. This remedial measure should be designed by a qualified structural engineer.

8.7 Mortar Pointing

8.7.1 It is recommended that the missing mortar are to be repointed with a suitable mortar specification in accordance with the conservation agreement.

8.8 Purlin Support

8.8.1 It is recommended that galvanised straps are installed to tie the purlin to the rafters. Additionally, installing angle brackets or clips to secure the purlins and supporting element will provide rigid connections and help to prevent lateral movement.

8.9 Moisture Ingress Penetration

8.9.1 Implement effective measures to prevent further moisture ingress into the properties.

8.9.2 Address any sources of water infiltration, such as damaged roofing, faulty gutters, or ineffective seals around windows and doors.

8.9.3 Replace loose and missing roof slates.

8.9.4 Install proper ventilation systems to mitigate dampness and prevent future moisture-related issues.

8.10 Window and Door Maintenance

8.10.1 Repair or replace damaged windows and doors in line with the conservation agreement to improve structural integrity and prevent further water penetration.

8.10.2 Ensure proper sealing around windows and doors to enhance weatherproofing and insulation.

8.11 Vegetation

8.11.1 It is recommended that vegetation growth is to be removed. Any voids left will be filled with appropriate material that comply with the conservation agreement.

9.0 Further Investigation

9.1.1 Further Investigation is required on the properties, these are as follows:

Location	Required	Reason
B1 – D1.B1 & W4.B1	Trial Excavation	To ascertain if the fractures identified are attributed to historical or ongoing structural instability.
Gallery	• Half Cell Test • Schmidt Hammer Test • Dust Sample Test	To ascertain the condition of the reinforced concrete roof. This will determine the necessary concrete repairs on the roof.
Throughout (windows and door access)	Intrusive Investigation	To ascertain the condition of the lintels that are not exposed.
Throughout	Lead paint test	Paint finishes are unknown, some might contain lead.

APPENDICES

APPENDIX A - Site Location Plan

APPENDIX B - Building Identification Plan

APPENDIX C - Defects Location Plan

APPENDIX D - Site Photographs

EXTERNALS - B1



Figure 1. Missing facing B1



Figure 2. Displaced dentil brick



Figure 3. Stepped fracture under W2.B1



Figure 4. Stepped fracture under W2.B1



Figure 5. Stepped fracture W1.B1



Figure 6. 3mm fracture



Figure 7. Fracture protruding to B2



Figure 8. Horizontal fracture extending from W1.B1 to W2.B1



Figure 9. Brick displacement W1.B1

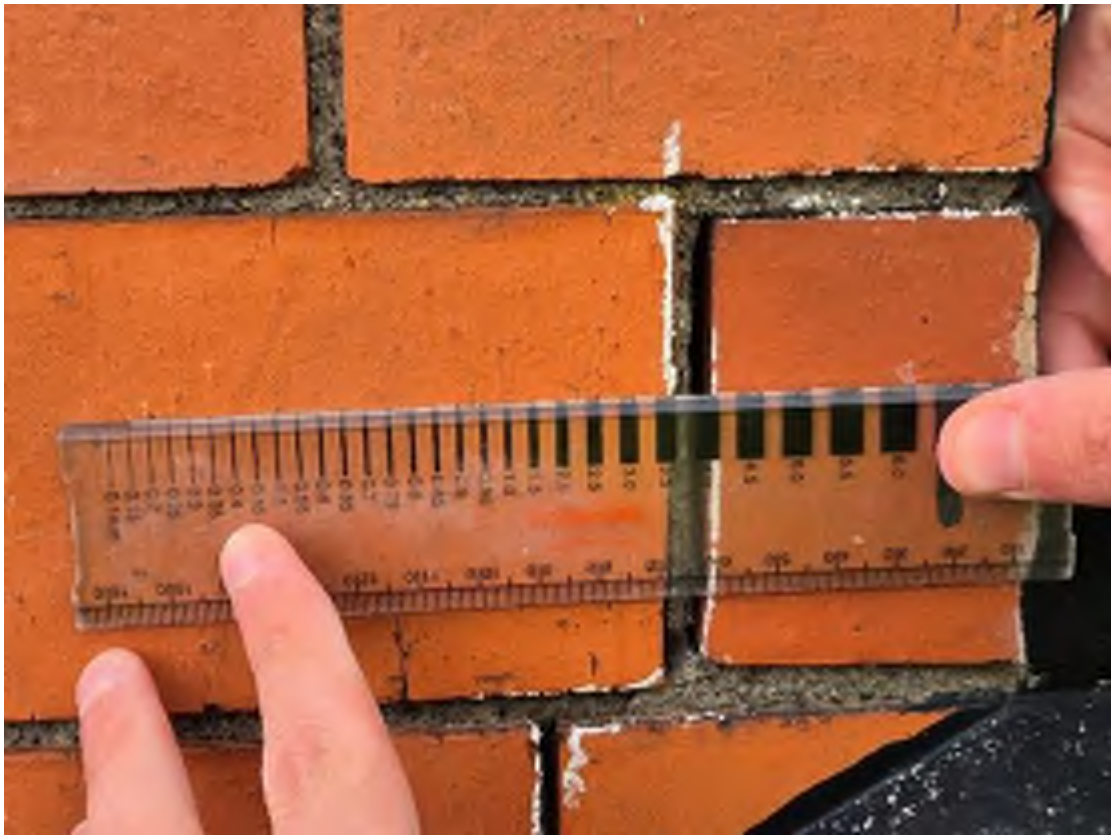


Figure 10. 4mm displacement



Figure 11. Stepped fracture from W1.B1



Figure 12. Horizontal fracture on mortar joint B1

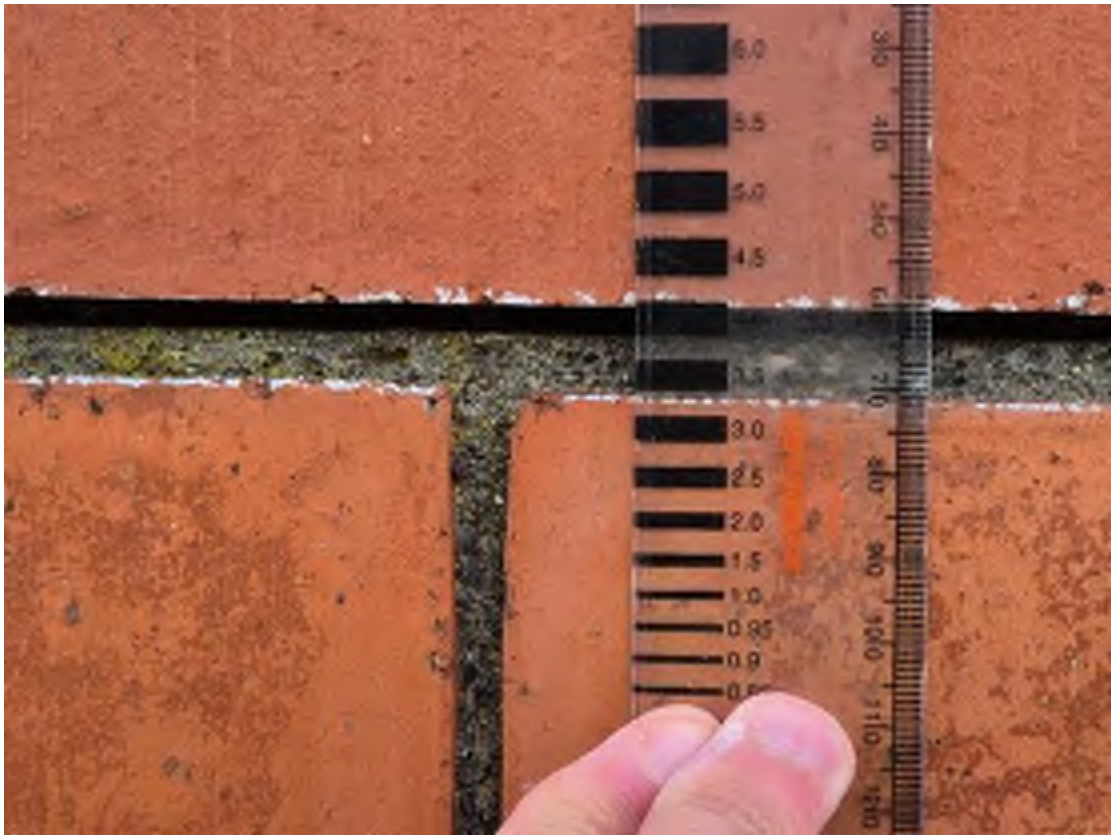


Figure 13. 4mm fracture



Figure 14. Fracture protruding to NE facing elevation



Figure 15. Deteriorated timber fascia and pointing



Figure 16. Fracture protruding from NW facing B1to W4.B1



Figure 17. Stepped fracture W4.B1



Figure 18. Hairline stepped fracture W5.B1



Figure 19, Missing mortar at base of wall B1



Figure 20. Repair works and missing mortar on B1



Figure 21. Voids on external wall



Figure 22. Stepped fracture extending from W9.B1 and terminating at ground



Figure 23. Stepped fracture extending from W9.B1 and terminating at ground



Figure 24. Sapling trunk noted adjacent to wall B1



Figure 25. Stepped fracture W9.B1



Figure 26. Displacement of brick W10.B1 head



Figure 27. Missing masonry



Figure 28. Stepped fracture on elevation B1



Figure 29. General view SE facing B1



Figure 30. General view of gable spandrel B1



Figure 31. Deteriorated timber bearer



Figure 32. Missing timber bearer



Figure 33. Missing masonry and DPC



Figure 34. Missing masonry on spandrel



Figure 35. Demolished lean-to B1



Figure 36. Demolished lean-to B1



Figure 37. Knocked down lean-to B1



Figure 38. General view of roof B1



Figure 39. Missing roof tiles



Figure 40. General view of spandrel B1



Figure 41. Deteriorated timber on pitched roof window

INTERNALS – B1



Figure 42. Displacement of brick



Figure 43. Displacement of brick



Figure 44. General view of Room 2



Figure 45. Stepped fracture on masonry



Figure 46. Stepped fracture on masonry



Figure 47. Displacement of lintel



Figure 48. Displacement of lintel



Figure 49. Stepped fracture



Figure 50. Stepped fracture



Figure 51. Stepped fracture



Figure 52. 13mm fracture



Figure 53. General view of room 3



Figure 54. Hairline fracture on ceiling



Figure 55. Hairline fracture on ceiling



Figure 56. Hairline fracture on ceiling



Figure 57. General view of Workshop



Figure 58. Fracture on ceiling



Figure 59. Fracture on ceiling

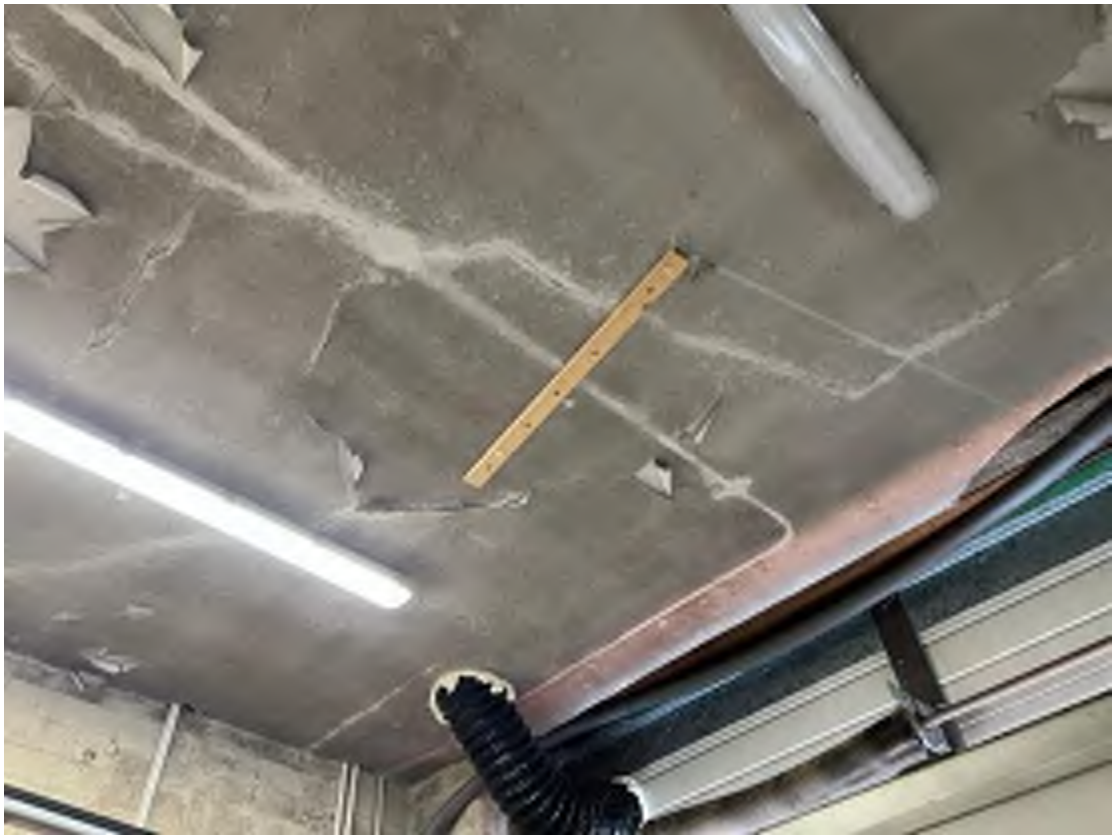


Figure 60. Fracture on ceiling



Figure 61. Fracture on ceiling



Figure 62. Missing plaster



Figure 63. Delaminated plaster



Figure 64. Void noted around window W10.B2



Figure 65. Void noted around window W9.B2

EXTERNALS - B2



Figure 66. General view of front elevation



Figure 67. General view of missing mortar and observed leaching



Figure 68. General view of vegetation growth



Figure 69. B3 interaction with B2



Figure 70. General view of missing pointing and leaching on elevation



Figure 71. Close up of missing pointing and leaching on elevation



Figure 72. Missing mortar and vegetation growth



Figure 73. Hairline fracture on concrete slab



Figure 74. Spalling of concrete



Figure 75. Voids from historic downpipe



Figure 76. Spalling bricks

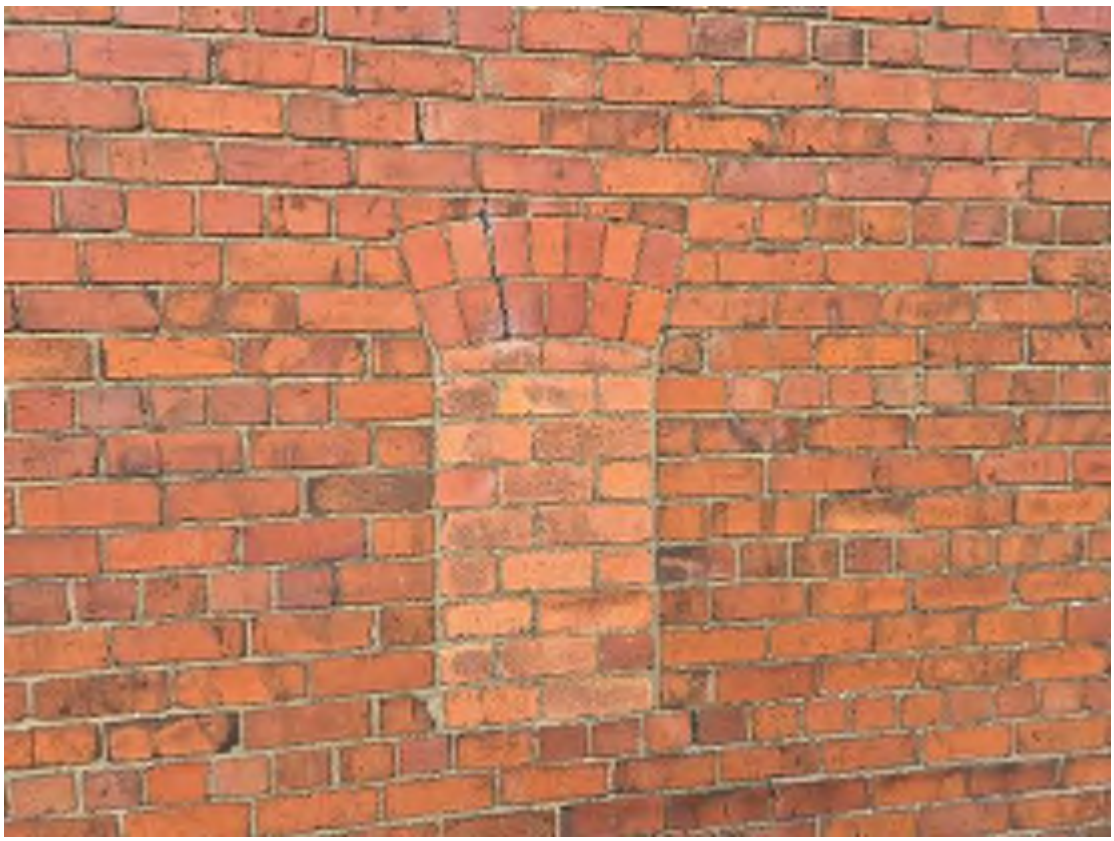


Figure 77. Stepped fracture protruding from blocked window



Figure 78. Stepped fracture protruding from blocked window



Figure 79. Stepped fracture



Figure 80. Evidence of leaching



Figure 81. Inadequate minimum distance between exterior ground level and DPC



Figure 82. Spalling bricks



Figure 83. Knocked down section of gable end B2



Figure 84. General view of NE facing



Figure 85. External wall demolished



Figure 86. Section of reinforced concrete slab roof demolished



Figure 87. General view of soffit



Figure 88. Bearing of reinforced concrete slab



Figure 89. General view of reinforced concrete slab bearing



Figure 90. Displaced masonry, missing pointing and vegetation growth



Figure 91. Damaged masonry



Figure 92. General view of W1.B2



Figure 93. Missing pointing noted above W1.B2



Figure 94. Missing pointing noted on roof verge



Figure 95. Missing pointing on dentil



Figure 96. General view of CH1 looking NE



Figure 97. General view of CH1 looking S



Figure 98. General view of roof B2



Figure 99. General view of roof B2



Figure 100. General view of roof B2



Figure 101. Damaged slate tiles



Figure 102. Displaced chimney breast



Figure 103. Vertical and stepped fracture observed on gable end B2



Figure 104. General view of missing pointing on spandrel



Figure 105. Missing masonry



Figure 106. General view of entrance roof

INTERNALS – B2



Figure 107. Damaged steel truss



Figure 108. Damaged steel truss



Figure 109. Retrofitted straps to tie truss to ad-hoc post



Figure 110. Missing masonry and displacement noted on wall



Figure 111. Displacement noted on wall



Figure 112. Fracture on pier



Figure 113. Temporary membrane on roof



Figure 114. Historical pipe



Figure 115. Split noted on purlin



Figure 116. Split on purlin



Figure 117. Deteriorated lintel



Figure 118. Deteriorated lintel



Figure 119. Missing masonry



Figure 120. Missing masonry

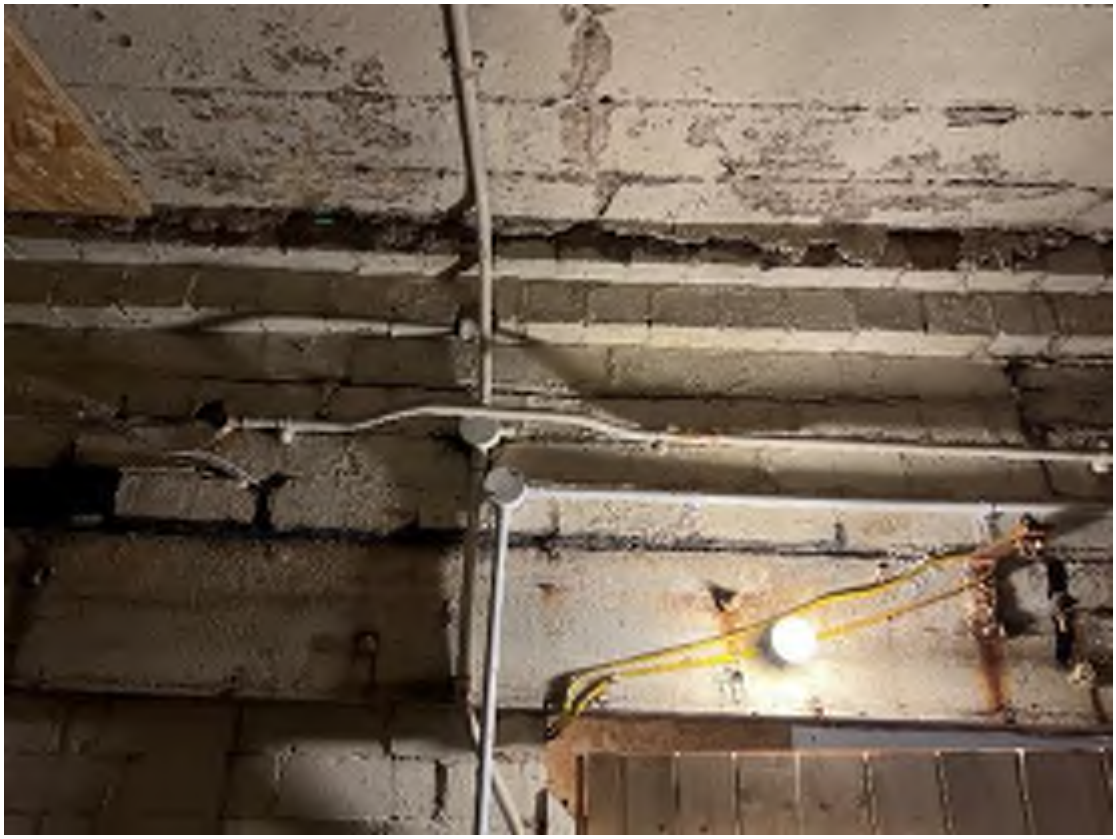


Figure 121. Fracture along wall and ceiling edge



Figure 122. Transverse fracture along ceiling



Figure 123. General view of room 2



Figure 124. Transverse fracture along ceiling



Figure 125. Transverse fracture along ceiling



Figure 126. Blocked up access



Figure 127. Deteriorated timber bearer



Figure 128. General view of D1.B2 lintel



Figure 129. Deteriorated lintel



Figure 130. Displacement of brick



Figure 131. Vertical fracture



Figure 132. Vertical fracture



Figure 133. Void in plaster



Figure 134. Deterioration of timber bearer



Figure 135. General view of WC



Figure 136. Vertical fracture and void noted on wall



Figure 137. Paint delaminating



Figure 138. Paint delaminating



Figure 139. Paint delaminating



Figure 140. Paint delaminating



Figure 141. Transverse fracture on ceiling



Figure 142. Longitudinal fracture on ceiling



Figure 143. General view of gallery



Figure 144. Surface corrosion



Figure 145. Transverse fracture on ceiling

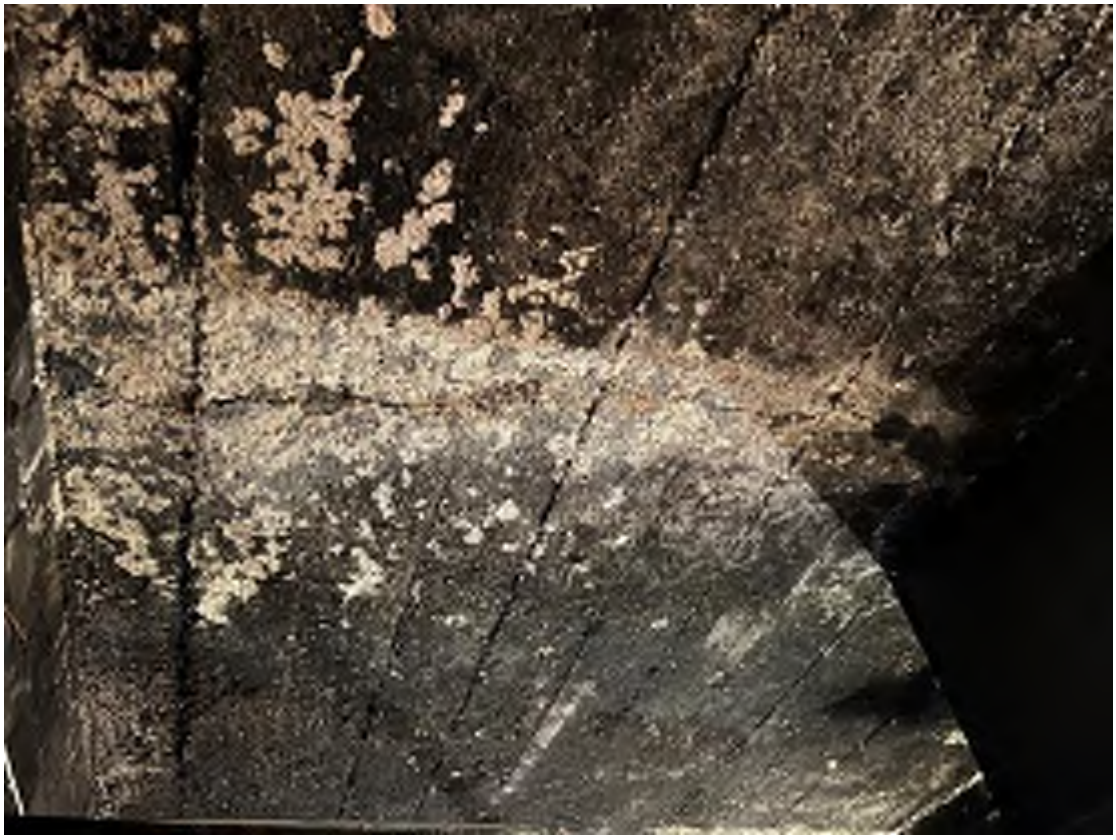


Figure 146. Transverse fracture on ceiling



Figure 147. Transverse fracture on ceiling



Figure 148. Transverse fracture on ceiling



Figure 149. Transverse fracture on ceiling



Figure 150. Missing pointing on wall



Figure 151. Deteriorated lintel and bearing

EXTERNALS - B3



Figure 152. General view NW facing



Figure 153. Deteriorated parapet wall



Figure 154. Stepped fracture protruding from historic fixings to windowsill



Figure 155. Close up of fracture



Figure 156. Section of pointing missing



Figure 157. Drainage blocked up



Figure 158. Deteriorated timber fascia



Figure 159. Deteriorated timber fascia



Figure 160. Missing pointing



Figure 161. Hairline fracture



Figure 162. Spalled brick



Figure 163. Hairline fracture



Figure 164. Deteriorated timber windowsill and recent repair works W7.B3



Figure 165. Sapling root



Figure 166. Tree trunk



Figure 167. No lintel identified on W8.B3



Figure 168. No lintel identified on W9.B3



Figure 169. Damaged masonry W8.B3



Figure 170. Damaged masonry W8.B3



Figure 171. Damaged masonry W8.B3



Figure 172. Hairline fracture W9.B3



Figure 173. Hairline fracture



Figure 174. Hairline fracture on masonry



Figure 175. Displaced fascia board



Figure 176. Displaced fascia board



Figure 177. Damaged vent



Figure 178. General view of SE facing B3



Figure 179. Recent repair works



Figure 180. Recent repair works

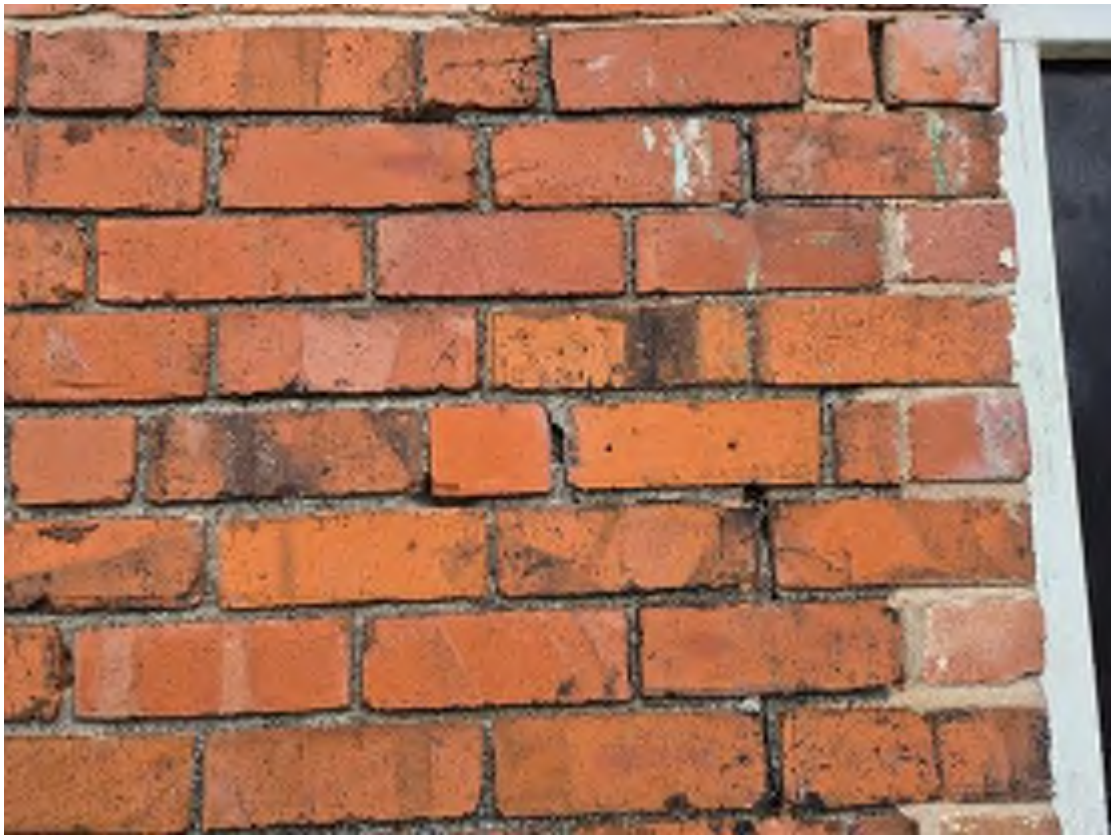


Figure 181. Missing pointing



Figure 182. Vegetation growth



Figure 183. Exposed lintel D2.B3



Figure 184. Exposed lintel W10.B3



Figure 185. General view of SE facing



Figure 186. General view of NE facing B3





Figure 187. Missing pointing



Figure 188. Damaged glass W11.B3



Figure 189. General view of CH4



Figure 190. Vegetation growth, missing pointing and spalling of brick CH4

INTERNALS – B3



Figure 191. Displacement and deteriorated lintel



Figure 192. General view of wall



Figure 193. Displacement of bricks



Figure 194. Displacement of bricks



Figure 195. Void noted on wall



Figure 196. Diagonal fracture W2.B3



Figure 197. General view of room B



Figure 198. General view of hairline fractures on ceiling



Figure 199. Diagonal fracture W1.B3



Figure 200. Evidence of moisture



Figure 201. Evidence of moisture



Figure 202. Void noted on wall

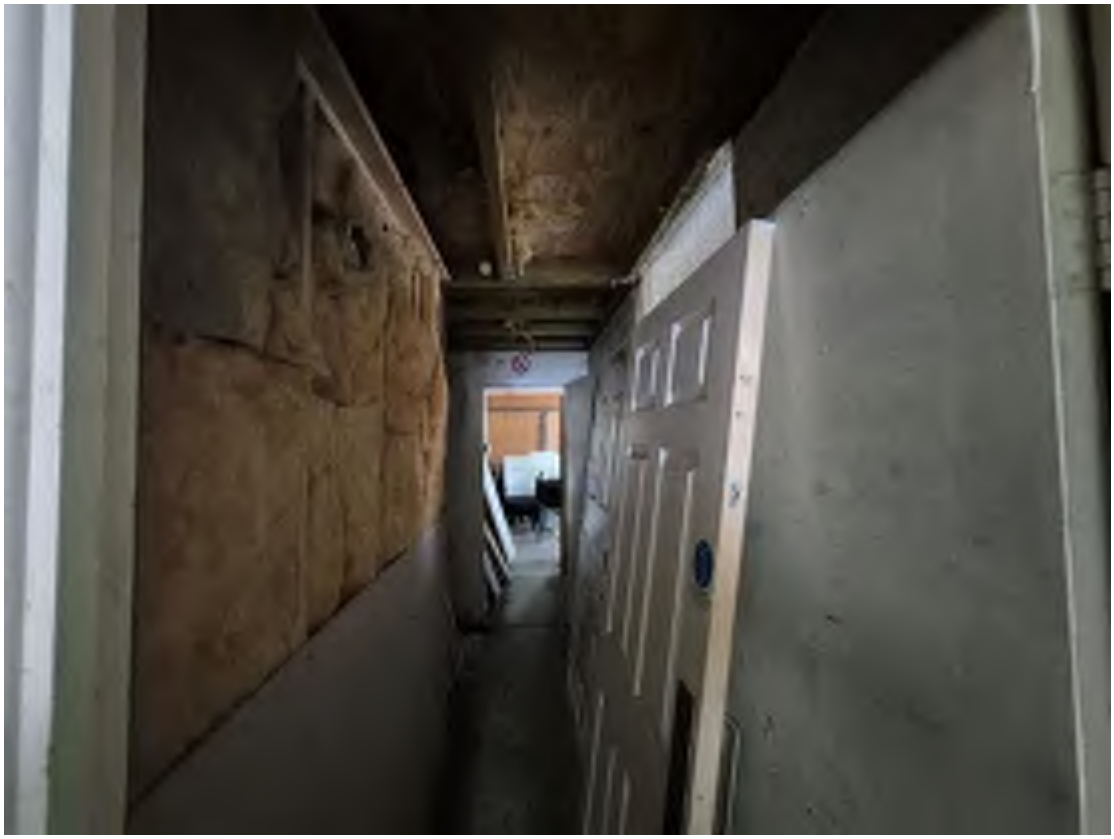


Figure 203. General view room D



Figure 204. Evidence of moisture



Figure 205. Missing masonry



Figure 206. Missing masonry



Figure 207. General view room E



Figure 208. Lintel deflection



Figure 209. 15mm deflection



Figure 210. Fracture on masonry



Figure 211. Fracture on ceiling edge



Figure 212. Diagonal fracture



Figure 213. Diagonal fracture



Figure 214. 2mm fracture



Figure 215. Hairline fracture above room G access door



Figure 216. Hairline fracture



Figure 217. Deteriorated plaster on ceiling edges



Figure 218. General view of room H



Figure 219. Hairline fracture above access door room H



Figure 220. Hairline fractures



Figure 221. Fracture and void



Figure 222. Vertical fracture



Figure 223. 4mm fracture



Figure 224. Diagonal hairline fracture



Figure 225. Vertical fracture



Figure 226. Diagonal hairline fracture



Figure 227. Vertical fracture W4.B3



Figure 228. Vertical and diagonal fractures W4.B3



Figure 229. Vertical hairline fracture access room H



Figure 230. General view room I



Figure 231.Diagonal hairline fracture above access door room I



Figure 232. General view of room J



Figure 233. Hairline vertical fracture W6.B3



Figure 234. Void in ceiling



Figure 235. Void in ceiling



Figure 236. Missing floorboards



Figure 237. Evidence of repair work on ceiling room K