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Our Ref: 17775/KL

17th April 2025

[redacted]

72 Elmwood Crescent, Flitwick, Beds. MK45 1LJ - Structural Inspection

I refer to your instructions that we carry out a structural inspection of the above property, and report to you on the condition of the structure in connection with the forthcoming sale of it.

I visited the property on 21st March 2025 to carry out the structural inspection and give a brief summary of my observations and opinion as follows:

General Conditions:

1. This letter of opinion is based on a visual inspection and is accordingly limited in scope. It is not normal practice to lift floor coverings or floorboards, remove panels or plaster or move items of furniture. It does not include those parts of the structure which were covered, unexposed, or inaccessible, including services and drains below ground. The report also does not cover decorative conditions, damp proofing, non-structural timbers, and other non-structural matters.
2. The presence or possible consequences of any site contamination, asbestos products or invasive plants are not researched or covered by this report.
3. I shall report only upon those structural defects that I consider will materially affect the structural integrity of the property, provided that these defects were reasonably detectable at the time of the inspection.
4. Whilst I have used reasonable skill and care in preparing this letter of report, it should be appreciated that David French Partnership LLP cannot offer any guarantee that the property will be free from future defects or that existing defects will not suffer from further deterioration.
5. This report is for the sole use of the Client relating to the property and is limited to the current brief. No responsibility is accepted by David French Partnership LLP if used outside these terms.

Description of the Building:

6. The property is a detached bungalow built about 50 years ago. There is a front attached porch and garage to the left hand side and this may be an extension built at a later date but this could not be confirmed.
7. It is built on an ostensibly flat site.
8. The walls are constructed of cavity brick and block work and the roof is of traditional rafter and purlin construction with concrete tiles. The ground floor is a thought to be a suspended timber floor.

External Inspection:

9. All positional references are as viewed from the front, except that damage to individual walls is described as the wall itself is viewed.
10. External inspection of the building has been carried out from ground level by visual sighting. This method means that parts of the structure may in incapable of inspection, and we cannot confirm that they are free from defect.
11. The general appearance of the house is of a solidly constructed traditional building typical of its era. It is generally in average condition but in need of some refurbishment, maintenance, redecoration, etc.

Front Elevation:

12. There is a stepping crack below the left-hand window. The crack is approximately 2-3mm wide.
13. There are areas to the right-hand side of the crack where some bricks appear to have been replaced or have been repointed.

14. There is cracking to the top left corner of the left-hand window. The crack is hidden by the decorative shutters but appears to be above 5mm wide.
15. There is also some cracking to the left-hand side of the soldier course above the window.
16. The mastic joint to the left-hand side of the window is about 20mm wide and the brickwork at high level is uneven.

17. There are some cracks above the windows and areas that have been repointed.

18. There is a vertical crack below the right-hand window. The crack is about 2mm wide at the bottom increasing to 7-8mm wide at the top.

19. There are areas to the left-hand side of the crack where some bricks appear to have been replaced or and areas have been repointed.

20. There is cracking above the window both sides ranging in width from 1-3mm.
21. Some repointing has been carried out over the window and the cracks have reopened by 1-2mm.

22. There is cracking to the top right corner of the righ-hand window. The crack is hidden by the decorative shutters but appears to be above 10mm wide.

23. There is a loose brick to the pier to the right of the window.

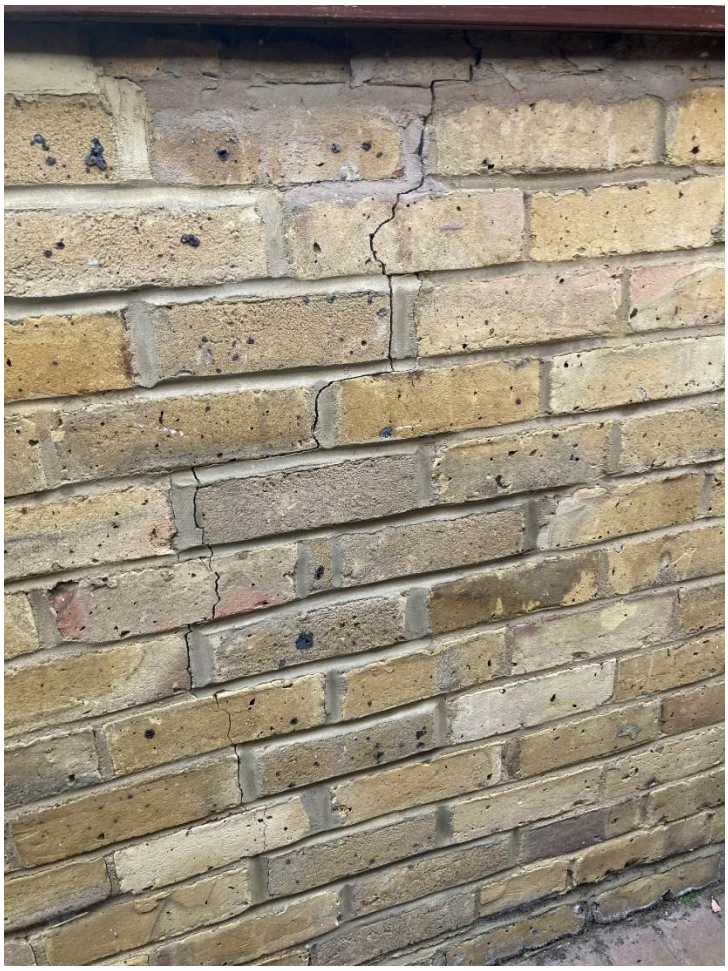
24. The mastic joint to the right-hand side of the window is about 25mm wide and the brickwork at high level is uneven.

25. The bottom of the soldier course does not line through with the adjacent brick coursing indicating that there are no lintels to support the outer leaf of brickwork.

Right hand Side Elevation

26. There is a gap of about 8mm between the left-hand side of the window frame and the wall to the window nearest the front of the property.

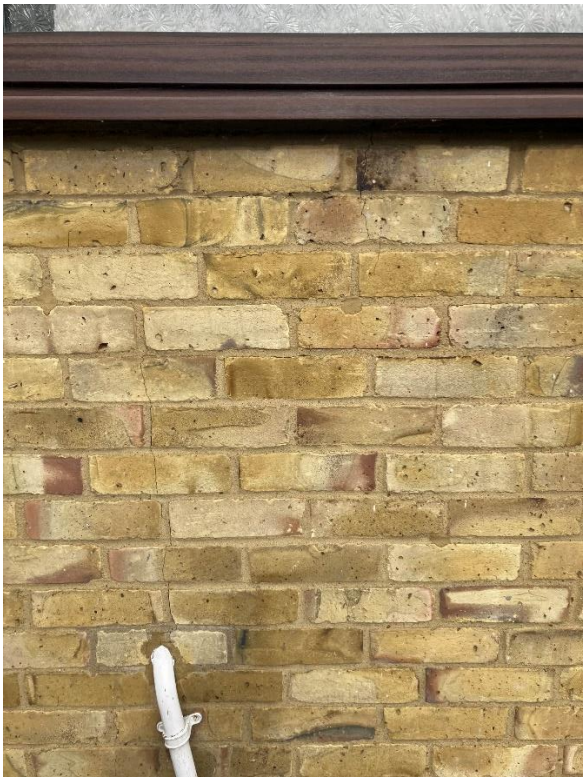
27. There is also a gap of 3-4mm to the right-hand side of this window.



28. There is cracking below the window. The cracking is approximately 2mm wide at the top reducing to hairline at the bottom.

29. The crack has been repointed and had reformed. Some of the repointed perp joints are 25-30mm wide.

Left hand Side Elevation



30. There is some hairline vertical cracking below the bathroom window.
31. An area of the all have been rebuilt and repointed.

Rear Elevation

32. There is some signs of historic cracking below the living room window and these cracks are reforming. Some of the repointed perp joints are 25-30mm wide.

33. With the exception of the points noted, and considering the age of the property, the brickwork was generally straight, acceptably plumb and in reasonable condition.

Internal Inspection:

34. The house is in average decorative order. The decorations could mask some historic movement, and a full appraisal is only possible if the decorations are removed. As this is impractical at this stage, we shall only comment on visible defects.

Front Right hand bedroom

35. There is a horizontal crack 4-5mm wide at the corner which runs from the bottom corner of the front window and continues around the corner into the side wall of the property where is meets a vertical crack in the side wall.

36. The right-hand side window cill has pulled away from the wall and there are gaps.

37. There are slight signs of mould growth in the corner of the room.

38. There is a crack to the left-hand side of the entrance door. There is also some stretching of the wallpaper at the wall/ceiling junction.

Front Left hand bedroom

39. There is a vertical crack below the front window. The crack is 5-6mm wide at the top reducing to hairline at the bottom.

40. There is a crack 3-4mm wide at the top to the right hand side of the window.

41. There are signs of movement to the left side of the window cill and there are gaps between the cill and the wall.
42. There are also signs of movement where the coving meets the wall.
43. The roof structure was not examined/ because of a lack of access/ not examined in detail but in the absence of reported damage and obvious defects, a detailed inspection did not appear justified.

44. The roof structure was inspected/ viewed from the access hatch as far as was possible and seen to be in reasonable order with no obvious signs of movement or distress.

Middle Bedroom

45. There is a vertical crack below the window.

46. There is some cracking to the ceiling over the door to the cupboard that houses the boiler.

47. There is a vertical crack in the corner over the entrance door and some signs of movement where the wall meets the ceiling.

Entrance Hall

48. There is a vertical crack to the left-hand side of the entrance door to the front right hand bedroom. The crack measures approximately 5mm wide at the top reducing to hairline at the bottom. The crack extends up the wall and through the coving.

49. There is a crack in the ceiling that extends through the coving roughly in the middle of the hall close to the entrance to the WC.

50. There are other less significant cracks to the entrance hall ceiling.

51. There is a gap of approximately 10mm where the architrave to the kitchen entrance door has pulled away from the entrance door to the living room.

Kitchen

52. The kitchen is located towards the rear of the house.

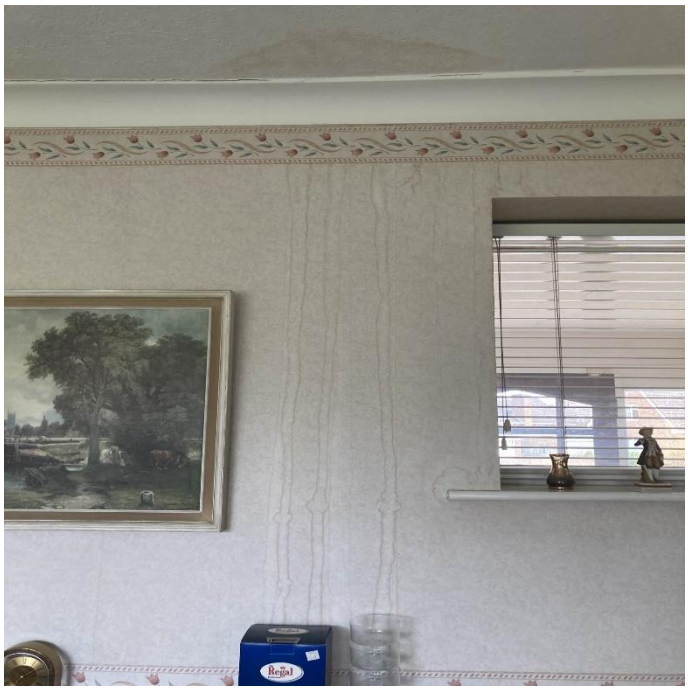
53. There is cracking to the right-hand side of the entrance door to the kitchen.

Living Room

54. There is a crack to the rear wall below the window. The crack is 3-4mm wide at the top reducing to hairline at the bottom.

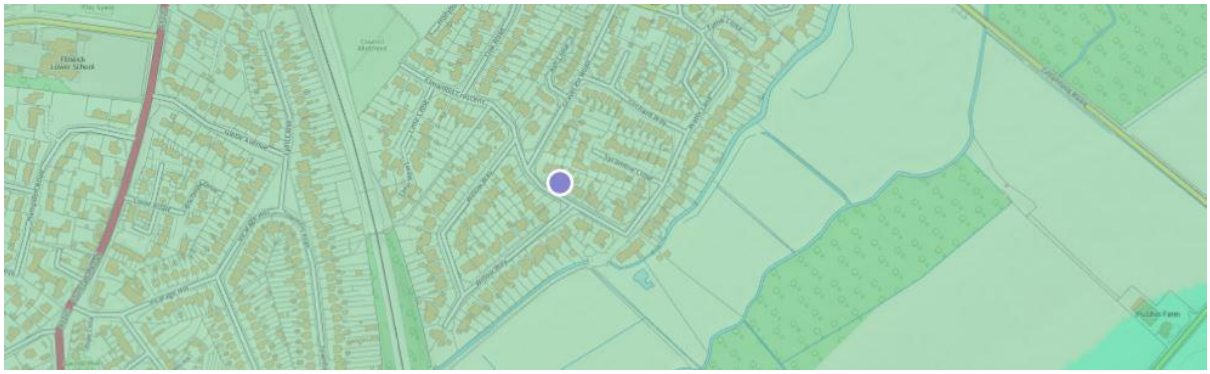
55. There is a tall window on the rear wall of the living room. There is a crack running from the top left-hand corner of this window up to the ceiling.

56. There is some cracking at the coving/ceiling junction above the entrance door to the living room.



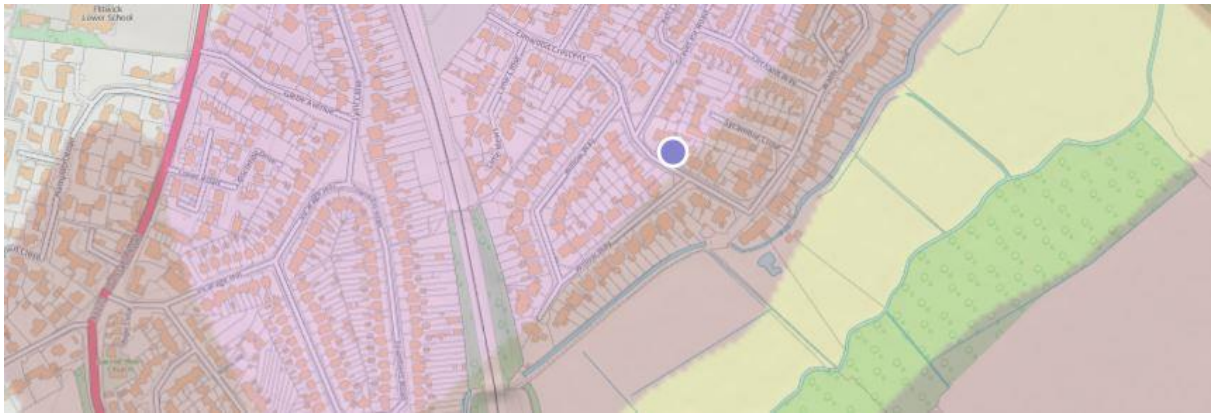
57. There is some water staining to the ceiling and wallpaper to the front wall of the living room.

Other Information:



58. The British Geological Survey suggests the most likely ‘bedrock’ is expected to be:

Woburn Sands Formation - Sandstone. Sedimentary bedrock formed between 126.3 and 100.5 million years ago during the Cretaceous period.



59. The superficial deposits are expected to be:

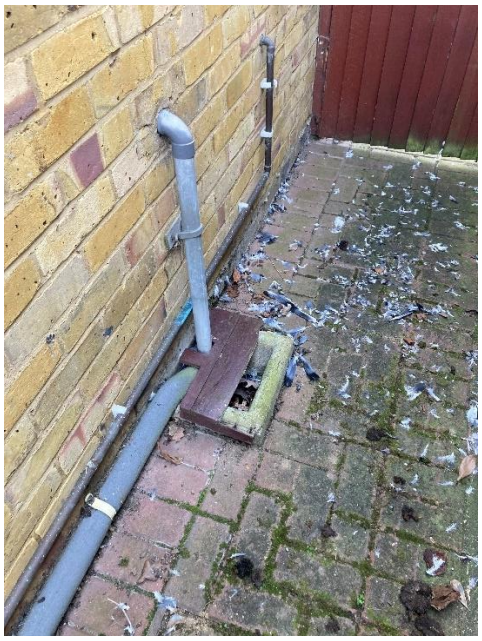
Glaciofluvial Deposits, Mid Pleistocene - Sand and gravel. Sedimentary superficial deposit formed between 860 and 116 thousand years ago during the Quaternary period.

60. No significant trees are near the property.

61. There was no evidence or report of any trees having been near to the property in the past and subsequently removed.

62. There appears to be drainage both sides of the property.

63. The drainage from the bathroom connects to a soil vent pipe on the left-hand side elevation.



64. The drainage from the kitchen discharge to a gully to the right-hand side of the property. There is a manhole in the footpath close to the front right hand corner of the property.

Assessment and Recommendations:

65. The ‘bedrock’ at this location, according to the British Geological Survey, is expected to be Woburn Sands Formation - Sandstone

66. Sandstone is normally found to be non-shrinkable.

67. Bedrock does not necessarily mean ‘rock’ but is the primary subsoil and this is then sometimes overlain by superficial deposits.

68. The superficial deposits at this location are expected to be mainly sand and gravels and these also are normally found to be non-shrinkable.

69. With the expected subsoil and the fact that there are no external influences, such as significant trees, means that there is a low risk of subsidence at this property.

70. The cracking to the property is quite extensive and widespread throughout the property although the most significant damage is towards the front right hand corner.

71. The cracking appears to be longstanding, and some historic repairs have been carried out externally.

72. While on site we had a look at some of the neighbouring properties and noticed that many of the properties also have cracks.

    Some examples of this are:-

    - No 74 has some cracking to the side wall. I spoke to the owner while I was on site and they said that they had the crack repaired in 2006-2007 and it has not reopened.
    - The neighbour told me that No. 70 had a history of cracking, and these were also repaired in 2006-2007.
    - No. 78 has some slight cracking to the side elevation.
    - No. 66 is a very similar property to this property and appears to have been constructed with the same bricks. Cracking was noted to the front of this property in similar positions and there are signs that historic repairs have been carried out.

73. It was also noted that the road almost directly opposite this property is named Gravel Pit Road.

74. The likely cause of the cracking to this property is differential settlement of the foundations. One possibility cause of this is that the properties in this area may have been built on an area previously used as gravel pits.

75. It is notes that the natural ground in this area is sand and gravel.

76. With a sandy subsoil you do not get subsidence in the way you do with a clay subsoil, but you can get subsidence if there is a significant water leak as this can wash away the fines from the soil which removes the support to the foundations and can result in movement. Normally, for this to occur you need a lot of water such as a burst water main. With leaking drains, you don't tend to have enough water to wash away the fines and if it does it causes a very localised issue.

77. A leaking water main tends to cause damage in a localised area and not over the whole property as seems to have occurred here.

78. I would recommend that you get a CCTV survey carried out to assess the condition of the below ground drainage close to the property. If the building is built on an old gravel pit and the ground settles to cause the damage, this could crack the drains and leaking water into fill could exacerbate the problem.

79. It is reported that there are sandy subsoils in this area. Sandy subsoil often get a lot of initial settlement when the property is first built. This movement can be very large so often with new builds we use piled foundations rather than traditional foundations.

80. The cracking here is most likely settlement, and the main movement appears to have occurred many years ago. By its nature this movement usually reduces with time and may have virtually ceased.

81. It is reported that the property owner, who has since passed away, changed insurers in recent years and that the current insurers will not accept a claim for the damage caused to the property.

82. If you need evidence that the property is no longer moving, then one option is to implement a regime of level monitoring. Often, we have to form a datum by drilling a borehole and bedding a steel bar in the bottom of the hole and take readings off the top of the bar which is now ostensibly rigid.

83. This is not quick and can be quite expensive as the property needs to be monitored for a reasonable period of time to get any meaningful results. This is normally a minimum of a reading every two months for one year.

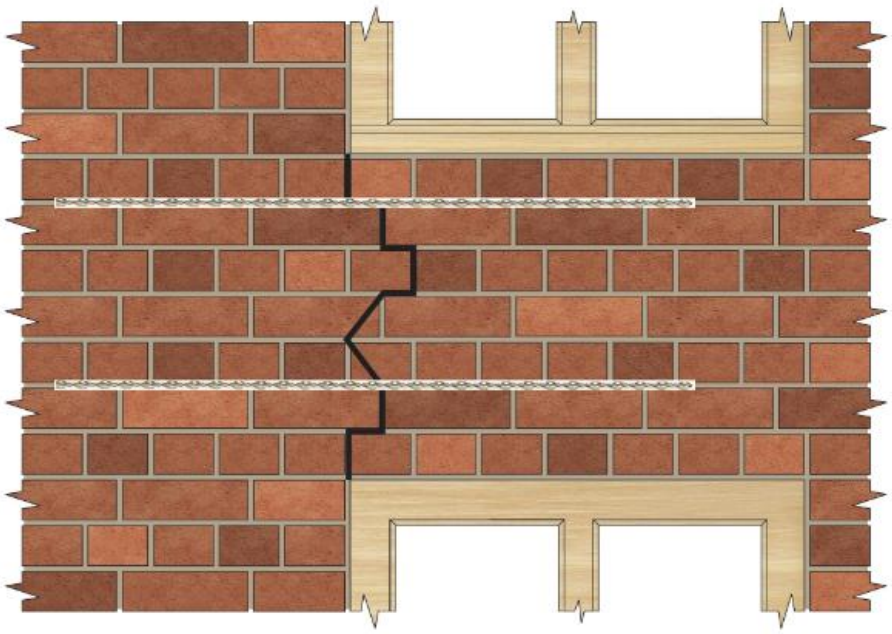
84. It may be worthwhile excavating some trial holes to try to identify the subsoil that the property is founded on. Sometimes, if this is fill it can be identified as such, but not always. The change from sand & Gravel to Head is not far away and the transition is estimated by the Geological Survey. Head is a mixed material dependent on the upslope source and there is a chalky boulder clay nearby.

85. Another option is to carry out structural repairs to the property. If the cracks reform, then you know you have an ongoing issue, and further investigation may be required. This may be the best option as the neighbour repaired in 2006-2007 and their cracks reportedly have not reformed which might be the solution here.

86. Historically it appears that the cracks to the property have been repointed but there is no evidence that suitable structural repairs have been carried out.

87. When a crack has formed, if you repair this by simply filling the crack with mortar it does nothing to reinstate the inherent strength of the wall. Any normal building movements such as changes in temperature and moisture can result in the crack re-forming.

88. If you use the analogy of repairing a torn piece of paper, you wouldn't attempt to repair this by just applying glue to the edges of the tear but instead reinforce the repair with maybe tape stuck across the torn section to strengthen the repair. Similarly, with cracks in masonry, the best approach is to do a structural repair where the crack is 'stitched' across the crack using resin fixed ties to strengthen the repair.



89. Lengths of HeliBar are bonded with resin into slots cut in the bed joints. The crack itself should also be filled with grout or resin.

90. Once this has been completed, the crack can be repointed externally, ideally re-pointing an area around the crack to blend the repairs.

91. Internally the plaster should be removed for 100-150mm either side of the crack and the substrate repaired using resin ties as described above. Stainless-steel expanded metal lathing can be fixed across the line of the cracking with plugs and stainless-steel screws and washers prior to re-plastering.

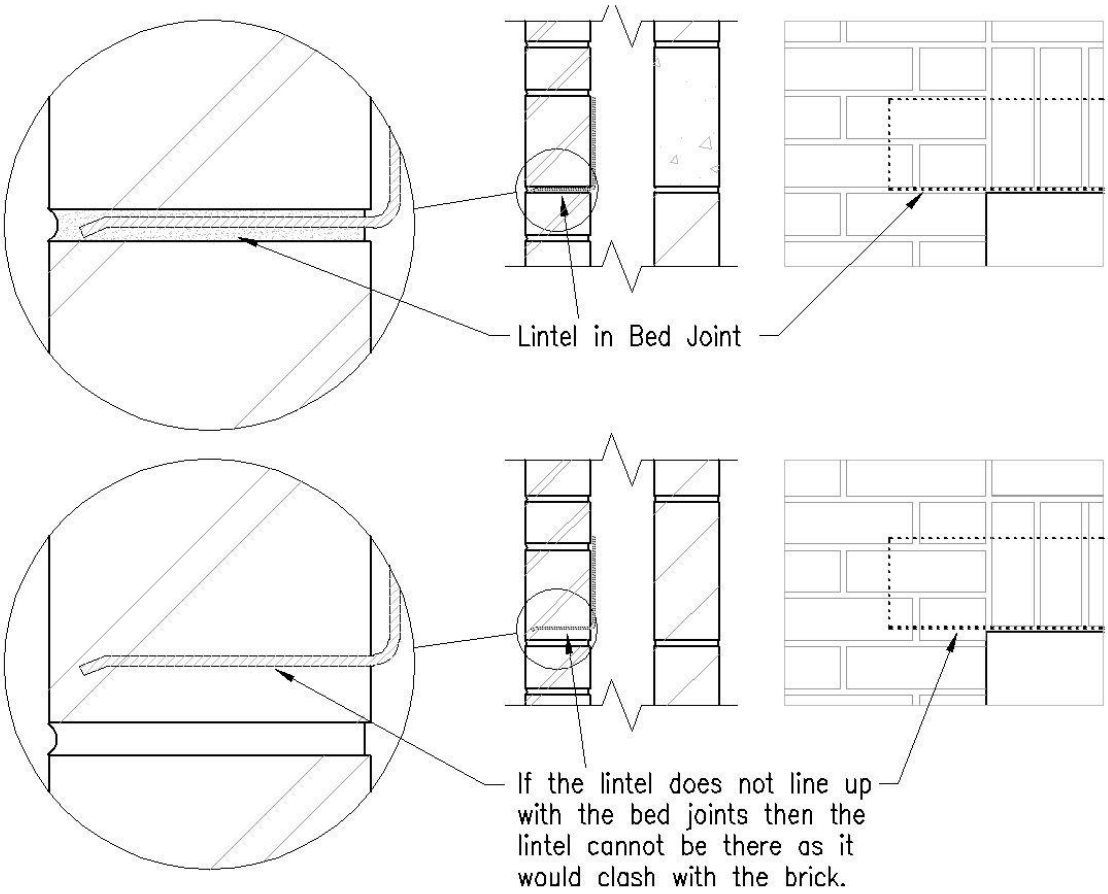
92. If this approach is followed, then this should return the wall to its original strength and make it better able to resist normal building movements without cracking.

93. The contractor that we find does a very good job with these crack repairs is:

    Martin Lockyear Contracting Ltd
    01234 852992
    07900 806181
    martinlockyear@btinternet.com

94. This contractor is an approved Helifix installer.

95. As far as could be seen, there appeared to be no lintels supporting the outer leaf of brickwork.



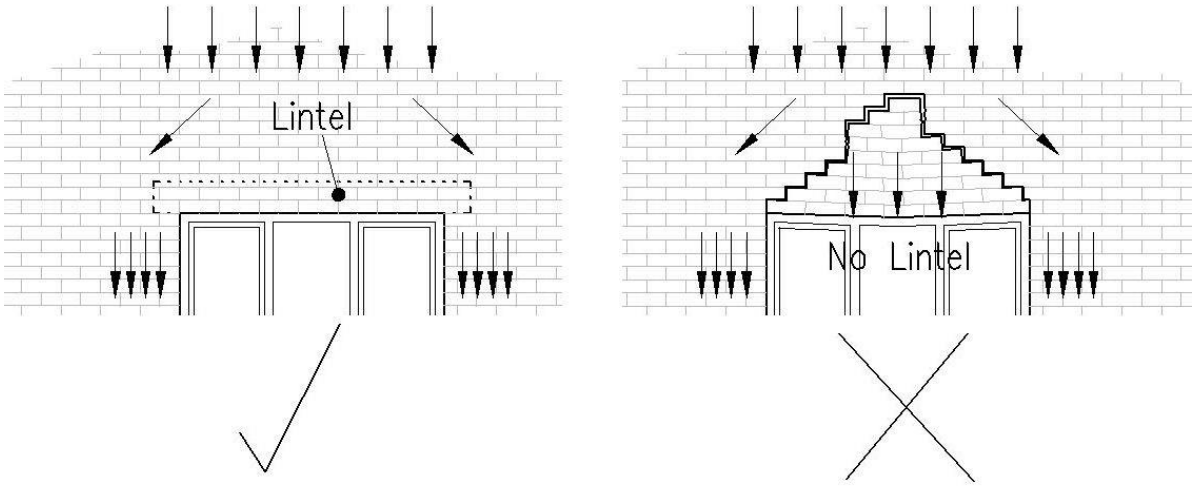
96. If the top of the window opening does not line up with a mortar bed joint, there is a high chance that there are no lintels supporting the outer leaf of the wall.

97. With properties of this era, the original window frames and mullions were often load bearing, with window frames built in as the bricks were laid and the frames then supported the outer leaf of brickwork.

98. The inner leaf carries all the roof and floor loads, and this used to have a lintel, so the building is structurally adequate.

99. The windows to this property are timber but I think it is unlikely that they are the original windows installed when the property was first built.

100. The timber windows fitted here, are non-load bearing and hence are unable to provide the same support as the original windows.



101. If the mortar is strong or the opening width small, the bricks over the window can hang in place without any issues. If the mortar is weaker then, the brickwork over the window can crack and drop, resulting in cracking.

102. When the bricks drop, often the brickwork forms a natural arch by corbelling so only a small area of brickwork is affected. This rarely comes completely away as it is generally tied to the inner leaf by brick ties.

103. When new windows are fitted, the installation company should check the support and install new lintels if necessary. If they are not fitted then they can be fitted later by cutting out some brickwork over the window, installing a proprietary single leaf lintel and then re-bricking. This is likely to cost £300-£600+VAT per window. The wider the window the more it costs.

104. If there is a soldier course over the window, then this sometimes was laid compositely and tied to a cast insitu concrete lintel for the inner leaf. If this is the case, then even though no lintel is evident the support to the outer leaf is adequate and no action is needed.

105. The actual situation can only be fully determined by having a builder open up to check the situation.

106. Even if the concrete is built up against the soldier course it does not necessarily mean that it is a composite lintel.

107. In the above photographs, the concrete lintel was cast against the soldier course but there were no ties joining the brick to the concrete with it just relying on the concrete ‘sticking’ to the back of the bricks. This detail does not adequately support the brick above.

108. In this case there is some cracking over the soldier course which suggests that the lintel is not a composite lintel.

109. The mastic seals to the windows, particularly to the front and side windows are very large. It may be advisable to remove the mastic, foam fill the gaps and install some trims to cover the gaps. The trims can then be sealed with mastic to provide a weather tight junction.

110. There are visual signs of water ingress to the front wall of the living room. This could mean that the roof is leaking, and this will need to be investigated by a roofing contractor and repaired if necessary.

I trust this gives you the information you require, but if you have any queries, please contact me.

Your sincerely

Kevin Lennon
IEng MICE
Incorporate Engineer
for David French Partnership LLP

Yours sincerely,

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