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## 1.00: INSTRUCTIONS:

In accordance with verbal instructions, I have been asked to advise upon structural movement in the above property.

A copy of my standard conditions of engagement for Structural Appraisals of this kind is attached to the back of this report.

## 1.01:

This Report has been requested as a result of comments made in a "Colleys Property Check" survey report. I have been provided with a copy of that report, which contains the following comments:-

### **"Structural Movement:**

*There is evidence of structural movement in the rear elevation of the two storey rear wing, where both the external brickwork and internal plasterwork have cracked above the kitchen door and window opening, and which appears to be ongoing. This could be a serious problem and you now need to instruct a structural engineer or Chartered Building Surveyor, to make a detailed investigation providing you with a report identifying the cause, full extent and necessary repairs together with an estimate of the cost. I cannot give a valuation until this has been obtained.*

*The external stone cills to the dining room and rear bedroom windows have suffered previous movement, which I suspect is due to historic settlement but I saw no evidence to suggest this is ongoing.*

### **Main Walls:**

*As I have already reported there is evidence of cracking in the rear elevation brickwork above the kitchen door and window opening, which may be due to inadequate strength in the lintel over the door and window. This appears to be ongoing and you now need to instruct a structural engineer, or chartered building surveyor, to make a detailed investigation providing you with a report identifying the cause, full extent and necessary repairs, together with an estimate of the cost.*

### **Windows, external doors & joinery:**

*However, as I have already reported, there is evidence of cracking above the kitchen door and adjacent window opening, which may be due to inadequate support from the lintel above."*



**1.02:**

My own report must not be used in the same way as a pre-purchase survey. It has been commissioned and prepared in connection with the subject of structural movement only. It does not deal with the general condition of the building, decorations, services, etc.

**1.03 General Limitations of the Inspection:**

My report is based upon a purely visual examination. I have not exposed the foundations or carried out disruptive investigations, in order to examine those parts of the property which were hidden from view

I carried out my inspection in August 2010, at which time the weather was dry and fine. The house was unoccupied, although fully furnished and carpeted.

**1.04 Directions:**

All directions referred to in this report are given looking at the front wall of the house.

**1.05 Photographs:**

In addition to this report, the cracks referred to in Section 3 have been photographed. The photographs are contained on a compact disc, which accompanies this report.



**2.00 Description:**

**2.01 Type and Age:**

The property comprises a traditional, two storey mid terraced, house. The exact age of the property is not known, although I suspect that it was built about 120 years ago. Alterations have been carried out to the house, which include the installation of the door/window opening in the rear wall of the kitchen. Originally, there were no openings in this wall.

**2.02 Construction:**

The house is conventionally constructed for its era, with 225mm (9 inch) thick solid brick walls, under a pitched, timber framed slate covered roof. The floors inside the house are a combination of solid and suspended timber construction. The windows and outer doors comprise white u-PVC double glazed frames.

**2.03 Topography:**

The site upon which the property is built is reasonably level and flat.

**2.04 Geology:**

Trial holes have not been dug and the sub soil has not been analysed. Reference to the 1:50,000 scale British Geological Survey Map (solid and drift Edition) suggests the underlying superficial deposits to be boulder clays.

**2.05 Vegetation:**

There are no significant trees or shrubs nearby, which are thought to be associated with the damage under investigation.



**3.00 Observations:**

**3.01 Externally**

Photograph  
Nos. 1 - 38

There are no signs of cracking or structural movement in the front wall.

In the main rear wall, the bedroom and dining room window openings are not truly horizontal; the heads and sills in these openings slope down from right to left. (See Photograph Nos. 8 - 12). However, the evidence of movement is clearly old.

The "brick-on-end" lintel above the side window opening in the right hand wall of the kitchen has dropped slightly. (See Photograph Nos. 13 - 15). Again, the evidence of movement in this area is old and no action is recommended.

The upper part of the gable wall has distorted slightly and the apex section of the rear gable does bulge outwards slightly. The evidence of movement is clearly old.

Alterations have been carried out to the rear gable wall of the two storey rear wing. The outer kitchen door/window opening has been created, as has the opening for the bathroom window above, on the first floor. Originally, there would have been no openings in this wall. It is not known when the alterations were carried out.

The outer kitchen door/window opening is spanned by a 150mm x 100mm profile timber lintel, which spans an opening of about 1.83m in width.

The timber lintel sags slightly and there are cracks in the mortar joints above it. These cracks are between 1mm and 3mm in width. There are old infestations of woodworm in the timber lintel, although it is free from rot. (See Photograph Nos. 20 - 38).



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**PHOTOGRAPH No. 9 - Distortion in the window openings**



**PHOTOGRAPH No. 10 - Distortion in the window openings**







**PHOTOGRAPH No. 20 - Distortion above the kitchen window**



**PHOTOGRAPH No. 22 - Cracking above the kitchen window/door**





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**PHOTOGRAPH No. 24 - Cracking above the kitchen window/door**



**PHOTOGRAPH No. 25 - Cracking above the kitchen window/door**





**3.02 Internally**

Photograph  
Nos. **39 - 44**

Apart from the normal hair-line plaster cracking, the following specific cracks were noted inside the house:-

In the rear wall of the kitchen, there is a zig-zag, diagonal, crack in the plaster above the outer door opening. (See Photograph Nos. 39 - 41). The crack is about 1mm in width.

In the bathroom, there is a hair-line diagonal crack under the window sill, left hand side. (See Photograph Nos. 42 & 43). Again, the crack is about 1mm in width.



**PHOTOGRAPH No. 41 - Plaster crack above the kitchen door**



**4.00 Discussion and Recommendations:**

**4.01:**

It is common practise to categorise the structural significance of damage in buildings, in accordance with a classification given in Table 1 of Digest 251 produced by the Building Research Establishment. In this instance the cracks are between 1mm and 3mm in width; they, therefore, fall within the category of "**slight**".

Category 0	Negligible	< 0.1mm
Category 1	Very Slight	0.1mm – 1mm
Category 2	Slight	>1mm but < 5mm
Category 3	Moderate	>5mm but <15mm
Category 4	Severe	>15mm but < 25mm
Category 5	Very Severe	> 25mm

*Extract from Table 1 BRE Digest 251  
Classification of damage based upon crack widths*

**4.02:**

The house is about 120 years old. There is evidence of old movement in the structure, where the heads and sills in the rear window openings have distorted; the upper part of the rear gable wall has distorted slightly and the apex section of this wall bulges outwards slightly. This movement in these areas is clearly old and the situation is now stable.

**4.03:**

Movement also affects the rear gable wall, immediately above the outer kitchen door/window opening. This is where alterations have been carried out to the building and where the window and door opening has been created. It is not known when these alterations were carried.

**4.04:**

The movement which affects the rear gable wall externally and internally is minor. My suspicion is that the cracking probably occurred soon after the opening was created. Although the timber lintel has sagged slightly, it is structurally sound and is intact. I do not believe it is necessary to replace the lintel or carry out additional strengthening works. My advice is that the cracks are cut out and properly filled, following which, they should be kept under observation.



**5.00 Conclusion and Recommendations:**

**5.01:**

This is a Victorian terraced house, which has suffered slight structural movement, which, in my view, is old and is long standing.

**5.02:**

The cracking and distortion above the outer kitchen door/window opening has been caused, I believe, by the creation of the new opening. The cracking is likely to have occurred soon after this work was undertaken. The cracks are "slight" and no signs of **significant** recent or ongoing movement were observed. Although the timber lintel has sagged, it is structurally sound.

**5.03:**

My advice is that the cracks externally are cut out and properly filled and a suggested specification for this follows:-

- 1) Instruct a competent bricklayer to:
  - a) Cut out the mortar from the cracks.
  - b) Fill the masonry cracks, using epoxy resin anchor grout.
  - c) Re-point the cracks, using and cement mortar

The plaster cracking internally should also be repaired and a specification for this follows:-

- 2) Instruct a competent plastering contractor to:
  - a) Remove the plaster from the rear kitchen wall, above the outer door opening.
  - b) Fill any cracks in the masonry behind, using epoxy resin anchor grout.
  - c) Fix expanded metal lath over the cracks.
  - d) Re-plaster the wall internally.



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The cost of these repairs is unlikely to exceed £500 (including VAT). This does not include decorating costs. Once repaired, the cracks should be kept under observation for a period of 12 months.

**5.04:**

If, during the 12 month crack monitoring period, the cracks open or worsen, it will be necessary to replace the timber lintel with a more rigid reinforced concrete lintel. This will involve propping up the rear wall and probably some re-setting of the brickwork. The cost of these works is likely to be around £1500 plus VAT.

I repeat that, at this stage, this expenditure is not necessary.

This concludes my report.

**APPENDICES:**

**Photographic CD**

**Standard Conditions of Engagement for Structural Appraisals**

**SIGNATURE**

**SURVEYOR'S NAME AND  
PROFESSIONAL QUALIFICATIONS**

**DATE OF REPORT**

Glyn Jones **MRICS IRRV**  
Chartered Building Surveyor  
2 Plymouth Place  
Leamington Spa  
Warwickshire  
CV31 1HN

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