

Addendum P05 2019.07.22 Structural Engineer Report

FB Consulting Engineers Pty (Ltd)

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22 July 2019

Ref: 10152

House Fitchat-Visual Structural Inspection 91 Frangipani Street Kleinbron Estate



*The scope of this inspection is a visual structural assessment of parts of the structure.
The primary purpose of this inspection is to detect and report abnormal structural conditions.*

This is solely an inspection of visible, readily accessible and exposed areas, major defects and damages at the time of the inspection only. Any areas and damages hidden, camouflaged, concealed intentionally or unintentionally or otherwise not visible or accessible at the time of the inspection are not included. This includes any defects from past or present owners and/or their contractors. The client remains responsible to ensure that all parts of the structure is on the approved council drawing.

This report is for the named client exclusively and may not be used for any other purpose.

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Brief

Inspect and report on existing property defects, structural status of the property.
The property was visually inspected on 6 August 2019

Findings

1.1 Water damage to walls

Various instances of water damage are visible throughout the property, both internal and external. The water damage is widespread, increasing in severity at the northern/eastern elevations of the property.



Photograph 1 – Northern Elevation Lounge area internal wall damage



Photograph 2 - External view of Northern Lounge wall, note damage at window lintol level

The water damage appears to mostly near bottom of the walls and above lintol level. Indicating on rising damp/non-functional weep holes and or absence of damp-proof membrane at window level/floor level.



Photograph 3 - Garage wall, adjacent to bathroom

In addition to the above, it appears that there might be leakages from the plumbing as the internal walls are also water damaged in areas. This is visible at the garage. (See photograph 3)



Photograph 4 - No Weepholes to external wall

In some areas it was noted that the weepholes were either omitted or covered with landscaping. (see photograph 4)

1.2 Widespread cracks

There are various widespread instances of cracking visible at the property. The table below (SANS 10400 – Part B) classifies damage to single storey masonry walls. Since the cracks are widespread throughout the building, it would be classified at Category 2.

Table 4 — Classification of damage in masonry walls

1	2	3
Description of damage in terms of ease of repair and typical effects	Approximate maximum crack width ^a in walls mm	Category of expected damage ^b
Hairline cracks less than 0,25 mm wide, classified as negligible.	< 0,25	0 Negligible
Fine internal cracks which can easily be treated during normal decoration. Cracks rarely visible in external masonry.	< 1 (isolated; localized)	1 Very slight
Internal cracks that are easily filled. Redecoration probably required. Recurrent cracks can be masked by suitable linings. Cracks not necessarily visible externally. Doors and windows might stick slightly.	< 5	2 Slight
NOTE 1 Where cracks less than 1 mm are widespread throughout the building, the damage may be regarded as being category 2 expected damage.		
NOTE 2 Annex C provides guidance on the limiting movements of masonry walls.		
^a Crack width is only one factor in assessing damage and should not be used on its own as a direct measure of damage. In assessing the degree of severity of damage, account should be taken of its location in the house.		
^b This classification is based on the ease of repair which may be considered under three headings representing a progression in difficulty of repair, namely, redecoration due to wear and tear, remedial work to reinstate functional efficiency, and structural repair.		



Photograph 5 - Example of typical cracks observed (1-2mm)



Photograph 6 – Example of cracks observed



Photograph 7 - Example of cracks observed



Photograph 8 - Repair work to typical cracks

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Photograph 9 - Repair work to cracks



Photograph 10 - Typical external wall cracks

1.3 Structural significant cracks

The chimney appears to be severely cracked near the top, it appears to be stable, but further deterioration could lead to dislodged parts. See photograph 11 below



Photograph 11 - Masonry Chimney

The steps leading from bedrooms to courtyard is cracked (+5mm) wide crack. This is due to uneven settlement between building and stair. This crack is open to water penetration and could worsen over time.



Photograph 12 - Settlement at steps leading from bedroom

Conclusions and Recommendations

1.1 Water damage to walls:

The water damage cause must be addressed before any repairs are done. A reputable water proofing specialist should be consulted with regards to products and methods. The water damage to the walls points to an underlying issue with regards to the wall construction, damp proof course not installed correctly, weep holes not performing in draining of the cavity or cavities bridged (not clean).

It must be noted that this defect would have been an historic issue and will return during wet seasons if not treated correctly.

Leak detection services would be required to establish if there are damaged pipes that contributes to the moisture/dampness of the internal walls. All waterproofing work must be done strictly to the specialist instructions and guarantee on workmanship and products must be obtained.

1.2 Widespread cracks:

The cracks that were visible during the inspection and mentioned in this report under above heading are mostly superficial and expected movement/settlement cracks. These cracks are not new and would have formed over the building life, starting soon after construction. The property does not pose a risk of structural collapse.

The recommended remedial action would be to repair these cracks after the water damages are repaired. The cracks need to be exposed and cleaned out at least 100mm in width. The masonry is to be treated with a bonding key and plastered. A fibre mesh should be installed over the cracks before plastered. It is advised that the cracks are repaired by a reputable contractor. It is advised that a good quality flexible paint is used over the repaired cracks.

1.3 Structural significant cracks:

The damage to the top section of the chimney can be repaired by carefully breaking out the loose sections and rebuilding. The new masonry must be bonded to the existing section by interlocking with the existing brickwork.

The crack at the steps leading from the bedroom needs to be filled with a flowable non-shrink structural repair grout and re-tiled.

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Overall the property does not show any signs of structural distress or immediate collapse. Defects observed are mostly moisture/damp related and have been long term defects that were neglected.

A handwritten signature in blue ink, appearing to read 'FP Bezuidenhout', is written in a cursive style.

FP Bezuidenhout

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