

SAMPLE REPORT

BUILDING INSPECTION REPORT - CRACKING



JOB NO: 213 ----

ON: Cracking Problems to Residence.

AT: *No Street
Suburb*

FOR: *Mr*

DATE OF INSPECTION:

WEATHER CONDITIONS: Fine.

ASSUMED DIRECTIONS: Front door faces north

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*BSS donates 1% of its
annual profit to
Royal Children's Hospital,
Melbourne.*

Client Brief

We are instructed to prepare a report which comments on cracking problems both internally and externally.

Access

Access was available to both the exterior and interior walls of the building

Documents

We have not considered any specific documents (drawings, computations etc) in respect to the preparation of this report. We were however provided with a quotation from for ground injection and lifting work.

Conditions

The general scope and conditions of the report are contained in Appendix A.

We report as follows: The matters of concern were inspected on the above date and discussions were held with the owner.

1. Brief Background

We confirm that this building was constructed Circa 1885. It is a two storey house with a metal roof and timber windows. The home has had an alteration undertaken at ground level to the rear however this appears to incorporate some of the original walls.

Our client has owned the house for about seven years however since then has undertaken only relatively minor works including painting, plaster patching, etc.

Over recent years cracking has opened up to this residence and it is in relation to this movement that we have been engaged to do this report.

2. Observations

We note that this residence has some cracking evident both externally and internally throughout. We comment here in relation to these cracks:-

2.1 External

North elevation (front)

- 2.1.1 Vertical crack to top right hand side of right hand upper level window has opened up to about 25mm.
- 2.1.2 Vertical crack below right hand side window runs down to top of veranda.
- 2.1.3 Window sill to front living room appears to rise to east.
- 2.1.4 Vertical/diagonal cracking bottom left hand side of window.
- 2.1.5 Client advised that an aggi drain has been installed to the eastern end of the veranda and is channelled beneath it. Note the ground level to the front of the home is higher than the ground level below the home. Watering of the front garden will create a potential moisture flow beneath the building.

West elevation

- 2.1.6 This was simply viewed from the footpath looking up outside property No. --- No major cracks were evident and the western wall appeared to be basically vertical although a slight bow in it running north south was evident. There was not a suggestion that the wall had suffered any recent major movement.

East elevation

- 2.1.7 Some doboid bricks exist in the chimney (incorrectly fired at time of manufacture) and re-rendering should be undertaken to stabilise this situation.
- 2.1.8 Brickwork adjacent to living room shows relative drop to north (or rise to south).
- 2.1.9 Vertical cracking to top of dining room window running up to underside of sill to bedroom two.
- 2.1.10 Wall basically vertical and not exhibiting signs of movement.
- 2.1.11 Eastern wall below kitchen windows shows rising damp signs.
- 2.1.12 Vertical/diagonal cracking to left hand side of left hand kitchen window.

South elevation

- 2.1.13 Upper level inspected from street and appeared to be quite sound.
- 2.1.14 Paving to south of the home not channelled away as positively as is ideal.

2.2 Internal

Ground floor living room

- 2.2.1 Passage door head shows relative rise to north (e.g. to front) by about 10mm in level length.
- 2.2.2 Architraves have opened up to top left hand side of door to front passage.
- 2.2.3 Previous patching top right hand side of square arched opening to dining room.
- 2.2.4 Previous patching of cracks that have opened up to top left hand side of passage door head.
- 2.2.5 Previous cracks to top right hand side of passage doorway.
- 2.2.6 Previous patching to left hand side of fireplace.
- 2.2.7 Front wall leans north.
- 2.2.8 Window sill to front north basically horizontal.

Ground floor passage

- 2.2.9 Front door sill rises to east.
- 2.2.10 Diagonal cracking to west wall starting from base of door and running up towards archway further along.
- 2.2.11 Obvious kick up of front door head to west.
- 2.2.12 Horizontal crack to west wall bottom left hand side of arch and note various other cracks that have been patched to this western wall in the stairwell.

Dining room

- 2.2.13 Square arched opening has opened up to top left hand side.
- 2.2.14 Diagonal/vertical cracking has opened up to top left hand side.
- 2.2.15 Diagonal crack opened up to left hand side of east facing window.
- 2.2.16 Vertical/diagonal hairline cracking bottom left hand side of above.
- 2.2.17 Horizontal crack runs from south east corner along southern wall at approx. 2metre height.
- 2.2.18 Diagonal crack bottom left hand side of square arched opening to rear section.
- 2.2.19 Hairline cracking to south west corner at approx. 2.5metre height.
- 2.2.20 Hairline cracking left hand side of passage door both horizontally and vertically.
- 2.2.21 Fractured cracking above passage door.
- 2.2.22 Vertical cracking now patched to north west corner.
- 2.2.23 Level check on hall door indicates rise to north.

Family area

- 2.2.24 Vertical crack top left hand side of pantry double doors also has opened up and note also that architrave to linen press doors has opened up to this side.
- 2.2.25 Vertical crack to south west corner above bathroom door.

Kitchen

- 2.2.26 Vertical crack/bulging plaster top right hand side of southern east facing window.
- 2.2.27 Horizontal crack to bottom right hand side of above.

Bathroom

- 2.2.28 No signs of recent movement.

W.C.

- 2.2.29 No signs of recent movement.

Stairwell to upper level/landing

- 2.2.30 General distress to ceiling has opened up and a small section has come away.
- 2.2.31 Door head to bedroom one (front) rises up to west.
- 2.2.32 Diagonal crack above bedroom one door head matches the comment above in relation to rise to west.
- 2.2.33 Vertical/diagonal crack top right hand side of bedroom two door and note architrave has opened up to top right hand side.
- 2.2.34 Bedroom two door head rises to north.

Bedroom Two

- 2.2.35 Diagonal crack top left hand side of hallway door.
- 2.2.36 East west hairline crack runs through ceiling.

Bedroom One

- 2.2.37 Large vertical/diagonal crack to left hand side of left hand window has opened up to about 20mm.
- 2.2.38 Cornice separating from walling to north west corner.

- 2.2.39 Separation between left hand window and plaster to left hand side.
- 2.2.40 Vertical cracking below left hand window.
- 2.2.41 Left hand window rises up to east by at least 10mm in width of window.
- 2.2.42 Vertical cracking to right hand side of left hand window.
- 2.2.43 Right hand window sill rises to east.
- 2.2.44 Central window sill rises to west.

3. Discussion

When this building was constructed it will have been built on a foundation/footing system founded at a depth of 450mm (or thereabouts) which was common place throughout Melbourne.

We note that this area is known for having reactive clays and these are the subject of expansion and contraction with different moisture contents. Such movement is common and generally such ground is higher in the winter and lower in the summer. These days footings on this site would be required to be founded at a depth of 1000mm so that they are robust enough for the site conditions. (e.g. clay/drainage/tree root problems).

The movements to this building can be summarised as follows:-

- House walls appear to rise to eastern end of north wall (about 2 metres from east alignment).

In our opinion the causes of these movements can be summarised as follows:-

- Inadequate footing depths as discussed above means that the building is 'fragile'.
- Drainage problems in particular to the north of the building has created a situation where moisture is being channelled beneath the building creating a moisture issue.
- There is a possibility of pipe leakage creating these problems however this is in the writer's opinion unlikely. In this event an Insurance claim would exist.

4. Conclusions & Recommendations

In conclusion we recommend:-

4.1 Photographic Record

You should take a detailed photographic record of the site and of the cracks that have occurred for future reference purposes. These photographs should be placed in a suitable album, dated and located on a floor plan. (See Appendix B for Guide Notes)

4.2 Watering to front of home

We recommend that watering to the front of the home be absolutely minimised. Ideally both paving and ground levels should be lowered so that they approximate more the ground level beneath the building. At the moment we believe that watering of this area is being channelled into a well beneath the building and that the wet clay is expanding and has lifted the building.

Immediate action: reduce watering to a minimum in this area.

4.3 Monitoring

The situation should then be monitored.

Yours sincerely



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Architect & Chartered Builder

Further Reading:-

For your information and assistance we highly recommend that you obtain a copy of CSIRO pamphlet BTF 18 – *Foundation Maintenance and Footing Performance: A Homeowner's Guide*. This is obtainable from CSIRO Publishing via their website www.publish.csiro.au/pid/3612.htm or telephone (03) 9662 7666. Cost of leaflet is approx. \$5.00 for the pdf and \$6.00 for the pamphlet. (Pre-payment required - confirm current cost).

Encl: Appendix A – Report Conditions

Appendix B – Guide Note to Monitoring Cracks & Building Movement

APPENDIX A: BUILDING INSPECTION REPORT CONDITIONS - GENERAL

1. **Weather Conditions**

The building has been inspected on the date and in the prevailing weather and environmental conditions specified in this report.
2. **Client Brief**

The report describes the condition of those elements of the property described in the client brief, and lists faults then visible.
3. **Report Exclusions:**
 - (a) faults in inaccessible parts of the building,
 - (b) faults not apparent on visual inspection,
 - (c) faults apparent only in different weather or environmental conditions,
 - (d) faults resulting from different uses of the building,
 - (e) minor faults (eg. hairline plaster cracks, jamming doors, windows and catches, etc.).
 - (f) faults outside the scope of the client brief.
4. **Unless Otherwise Specified:**
 - (a) no soil, etc., has been excavated nor has any investigation of sub ground drainage been made,
 - (b) no plants or trees have been removed,
 - (c) no fixtures, fittings, cladding or lining materials have been removed,
 - (d) no items of furniture or chattels have been moved,
 - (e) no enquiries of Councils or other Authorities or persons have been made for the purposes of inspecting the building and providing this report.
5. **Sole Use of Client**

The report is provided solely for the use of the clients named on the face of this report and no responsibility to other persons is accepted.
6. **Insect Attack, Asbestos and Soil Contamination**

No special investigation of insect attack (eg. borer, termite, etc.) asbestos or soil contamination has been made and any reference to these has been based on a casual visual inspection.
7. **VCAT Suitability**

Unless this report is designated on the front page 'For Presentation to VCAT', then the scope of this report excludes the necessary enquiries and costings, etc as required by Practice Note VCAT 2.
8. **Preliminary Items**

In the event that an item cannot be fully investigated because of constraints or a lack of documentation, etc, then such item(s) will be denoted preliminary. Such items will require further investigation prior to a Hearing.
9. **Report Costings (where provided)**
 - (a) New Building Work
 - (i) If costings are preliminary these are a single figure total or range for all works, indicative only (say plus or minus 30%). These costings are NOT suitable for Hearing use.
 - (ii) If detailed costings are prepared, these are handwritten or in spreadsheet form and may not appear in our report apart from a summary total in dollars per report item. In the event of the matter proceeding to a Hearing, any detailed handwritten costings will be made available then.
 - (b) Maintenance of Old Buildings

Cost estimates provided in Maintenance and Commercial Pre-Purchase Reports are very approximate only (ball park). We strongly recommend quotations be sought.
10. **Frame Inspection**

Unless our engagement is a specific inspection at the Frame Stage, then the frame has NOT been inspected.
11. **Report Reproduction**

If this report is reproduced, it must be done in full.
12. **Measurements**

Unless noted measurements up to 8m are taken by a steel pocket tape with an accuracy of ± 2 mm. No check has been made in relation to title boundaries or easements.
13. **Engineering Reports**

Engineer's reports are undertaken by or authorised by a qualified professional engineer. Professional opinion and appraisal of the building will have an emphasis on major concerns such as structural integrity (minor defects not necessarily covered). Engineer's reports do not normally include site testing of drains/plumbing or any laboratory tests. If plumbing leaks, drainage or flooding problems are suspected, the client should engage a plumber and contact their building insurance company if relevant.
14. **Appliances, Plant and Equipment**

Unless noted otherwise, we have NOT tested nor checked for appropriateness, capacity, completeness, functioning, correct installation or plumbing/electrical certification of appliances, plant and equipment and associated services (wiring/gas/electricity/water supply). An appropriately qualified engineer or appliance service company should be engaged to check these items.
15. **Floor and building element heights, floor levels and wall verticality**

Unless specifically noted no instruments have been used to determine the above. Defects in the above which are visually significant, are reported. In many cases the full extent, locations, magnitude and variability of any significant problem will require further, detailed investigation.
16. **Fee Recovery and Dispute Resolution**

In the event of a dispute arising between BSS and its client regarding fees or other matters, it is agreed that the proper forum for dispute resolution is the Civil Claims List of VCAT.

APPENDIX B: GUIDE NOTES TO MONITORING CRACKS & BUILDING MOVEMENT

The aim is to document the changes that have occurred to the building over time. We recommend that this be done, at least initially, for the first 2 years at six monthly intervals. If the building has stabilized an annual program should then be adopted.

To commence the project you should purchase an A-3 size Art folder with cartridge paper and commence by undertaking a sketch floor plan of the property.

You should then commence on the outside of the building and proceed around it taking photographs of all relevant cracks and defects. The inside should then be done proceeding from one end to the other.

The location of the photographs should be shown on the floor plan and these should be numbered to coincide with the folder.

All photographs should be taken as close up as follows, and the length and width of cracks should be noted beside them. Where possible and practical a scale ruler can be shown in the photographs.

When you reassess the damage in 6 – 12 months (see above) you should not change the original photograph locations but retain these and then add new photograph numbers if new cracks have emerged. This makes it easy to make comparisons.

Finally, if you have any queries contact BSS quoting the above job number.