Structural Dilapidation Report

31 Court St, Mudgee NSW 2850

Client: Mr Symond Carr

(Our Reference: 36900-SR01_a.docx)

barnson
DESIGN.PLAN.MANAGE

a Unit 1 / 36 Darling Street
Dubbo NSW 2830
t 1300 BARNSON (1300 227 6766)
e generalenquiry@barnson.com.au
w www.barnson.com.au

date
23.06.2021

reference
36900-SR01_a.docx

receiver
Attn: Mr Symond Carr
Po Box 1099
Mudgee NSW 2850

Dear Sir,

31 Court St, Mudgee NSW 2850
Structural Dilapidation Report

As requested, Luke Morris inspected the residence at the above property on Tuesday 4th May 2021. The inspection was requested to assess the damage to the residence and provide recommendations for remediation.

Following is our report detailing findings from the investigation.

If you have any further enquiries regarding this matter, please contact the undersigned.

Yours faithfully
BARNSON PTY LTD

Luke Morris
BE MIEAust CPEng (Reg)
DIRECTOR

Disclaimer

This report has been prepared solely for Mr Symond Carr in accordance with the scope provided by the client and for the purpose(s) as outlined throughout this report.

Barnson Pty Ltd accepts no liability or responsibility for or in respect of any use or reliance upon this report and its supporting material by anyone other than the client.

Project Name:	Structural Dilapidation Report - 31 Court St, Mudgee NSW 2850
Client:	Mr Symond Carr
Project No.	30966
Report Reference	36900-SR01_a.docx
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Prepared by:
[redacted]
Luke Morris BE MIEAust CPEng (NPER) Director

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1.0 INTRODUCTION

As requested, Luke Morris inspected the residence at 31 Court St, Mudgee on Tuesday 4th May 2021. The owner of the property, Mr Symond Carr was present during the inspection. The inspection was requested to assess the damage to the residence and provide recommendations for remediation.

1.1 Background

The exact age of the structure is not known but is estimated to be over 60 years old.

No previous inspections were done that we are aware of. The residence was purchased in poor structural condition. Our client, Mr Carr, is seeking guidance as to the requirements for rectification works that would also provide him with a valid Construction Certificate (CC) upon completion.

The following report investigates the above.

1.2 Structure

The residence is of full masonry masonry construction with no articulation joints. The walls bear on sandstone strip footings with internal flooring consisting of standard bearer/joist construction. The internal masonry walls have been rendered.

The roof is clad and conventionally pitched with a mixture of open and Dutch gabled ends. There is evidence of ongoing patching of cracking both internally and externally throughout the building.

There is also evidence of extreme rising damp, mortar failure and failed flooring section.

Figure 1 –31 Court St, Mudgee

2.0 INSPECTION

The following defects were recorded during the inspection. Each defect contained throughout the report is noted to clarify the record location and severity.

2.1 Internal Defects

Figure 2 – Cracks in render, 2mm approx. generally throughout

Figure 3 – Cracks in render, 2mm approx. generally throughout

Figure 4 – Cracks in render, 2mm approx. generally throughout

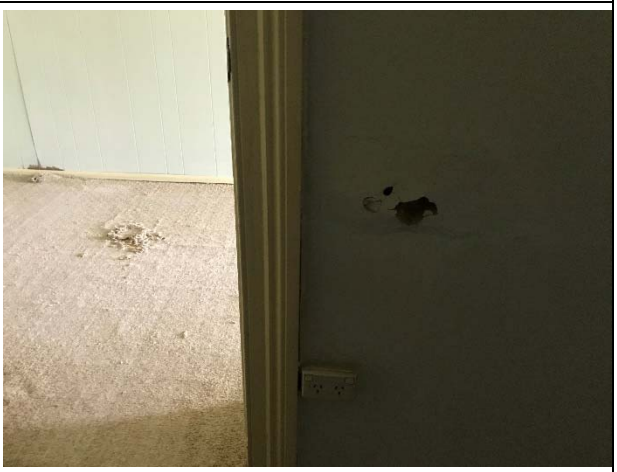

Figure 5 – Spalling render and failed flooring sections throughout

Figure 6 – Spalling render, rising dam, detached skirting and failed flooring sections throughout

Figure 7 – Spalling render and rising dam, throughout

Figure 8 – Spalling render and rising dam, throughout

Figure 9 – Spalling render, mortar failure and rising dam, throughout

Figure 10 – Spalling render, mortar failure and rising dam, throughout

Figure 11 – Spalling render, mortar failure and rising dam, throughout

2.2 External Defects

Figure 12 – Rising damp and failed mortar

Figure 13 – Rising damp and failed mortar

3.0 CAUSE & CLASSIFICATION OF DEFECTS

The cause of most of the damage is most likely due to a combination of factors. Mudgee has experienced an unseasonal long dry period and the residence is on moderately to highly reactive clay soils. These soils have dried considerably, experiencing clay shrinkage and causing footing settlement.

The age of the building also means that the footings would not have been constructed to accommodate such seasonally movements and in addition, there are no articulation joints to further minimise the impacts of footing settlement. The rendered walls also are a rigid surface that have little capacity to resist movement. The render has also induced rising damp which in turn, has resulted in mortar failure.

With reference to table C.1 of AS2870:2011 – Residential Slabs and footings (shown below), the damage is classified as 'moderate to severe'. As such, they pose a serious structural issue currently. The major concerns are the roof hold-down and excessive floor defection.

Typically, the roof hold-down would rely on rods embedded into the masonry walls. There is ample evidence of masonry mortar failure to suggest that this hold-down is currently compromised. In addition, there is sever rising dam and excessive deflection in the timber flooring suggesting inadequate ventilation and/or proximity to the natural ground.

AS 2870—2011 72

APPENDIX C

CLASSIFICATION OF DAMAGE DUE TO FOUNDATION MOVEMENTS

(Normative)

Classification of damage with reference to wall is given in Table C1. Classification of damage with reference to concrete floors is given in Table C2.

TABLE C1

CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS

Description of typical damage and required repair	Approximate crack width limit (see Note 1)	Damage category
Hairline cracks	<0.1 mm	0 Negligible
Fine cracks that do not need repair	<1 mm	1 Very slight
Cracks noticeable but easily filled. Doors and windows stick slightly	<5 mm	2 Slight
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weather tightness often impaired	5 mm to 15 mm (or a number of cracks 3 mm or more in one group)	3 Moderate
Extensive repair work involving breaking out and replacing sections of walls, especially over doors and windows. Window frames and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted	15 mm to 25 mm but also depends on number of cracks	4 Severe

NOTES:

1 Where the cracking occurs in easily repaired plasterboard or similar clad-framed partitions, the crack width limits may be increased by 50% for each damage category.

2 Crack width is the main factor by which damage to walls is categorized. The width may be supplemented by other factors, including serviceability, in assessing category of damage.

3 In assessing the degree of damage, account shall be taken of the location in the building or structure where it occurs, and also of the function of the building or structure.

4.0 RECOMMENDATIONS

As per section 3.0 of this report, the cause of the damage is most likely due to a combination of factors, namely:

- Seasonal sub-surface moisture changes.
- Sandstone footings unable to accommodate movement.
- Un-articulated full masonry construction.
- Rendered construction inducing rising damp.
- Lack of ventilation and/or timber flooring too close to the ground.

The current structure is in very poor structural condition and is unfit for occupation currently. It is therefore recommended that:

- The roof is propped internal with alternate hold-down.
- All internal walls are removed.
- All internal timber flooring is removed.
- The internal masonry skin of all external walls is removed.
- An infill concrete slab is constructed.
- New load bearing timber framed stud walls are installed with suitable hold-down.
- Timber framed stud walls are installed with suitable hold-down to replace the internal masonry skin that was removed.
- Affected mortar is repointed.
- Any additional works as recommended by a rising damp specialist.

It is anticipated that the cost for these rectification works would be more than the finished value of the residence. The cost, therefore, would greatly outweigh the benefit in this case.

Therefore, it is our overall recommendation that the residence be demolished. If you have any further enquiries regarding this matter, please contact the undersigned.

Yours faithfully

BARNSON PTY LTD

[redacted]

Luke Morris

BE MIEAust CPEng (Reg)

DIRECTOR