



Determination 2015/011

Regarding the compliance of masonry block walls to a 19-year-old garage at 15 Godley Drive, Scarborough, Christchurch

1. The matter to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ (“the current Act”) made under due authorisation by me, John Gardiner, Manager Determinations and Assurance, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry.

1.2 The parties to the determination are:

- the owners of the house, N and J Olsen (“the applicants”), represented by an architect
- Christchurch City Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.

1.3 This determination arises from a notice to rectify issued under the Building Act 1991 (“the former Act”) in respect of Clauses B1 Structure, B2 Durability, and E2 External Moisture². The house was the subject of a claim under the Weathertight Homes Resolution Services Act 2002 and building work has been proposed to bring the external envelope into compliance with regard to weathertightness. The outstanding issue relates to structural compliance of concrete masonry walls (“the masonry walls”) and the applicants wish to resolve this issue in order that a code compliance certificate can be issued once the weathertightness remedial work is complete.

1.4 The matter to be determined³ is whether the masonry walls complies with Clause B1 of the Building Code that was in force at the time the consent was granted.

1.5 While the application was made in respect of a decision by the authority to refuse to issue a code compliance certificate, that decision was historical and encompasses other aspects of the building, namely the weathertightness of the external envelope. The applicants wish to resolve the issue regarding the masonry walls in order that a code compliance certificate may be issued once the house is otherwise in compliance with the Building Code. Accordingly I have framed the matter to be determined in respect of the compliance of the masonry walls only.

1.6 I have not considered any other aspects of the building, the remedial work to the external envelope, or any other clauses of the Building Code.

¹ The Building Act, Building Code, compliance documents, past determinations and guidance documents issued by the Ministry are all available at www.dbh.govt.nz or by contacting the Ministry on 0800 242 243.

² In this determination, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

³ Under sections 177(1)(a) and of the current Act

- 1.7 In making my decision, I have considered the submissions of the parties, the report of the expert commissioned by the Ministry to advise on this dispute (“the expert”), and the other evidence in this matter.

2. The building work and background

- 2.1 The building is a two-storey timber framed house with an attached garage. The house is monolithic clad with a concrete tile roof. The external walls of the garage are constructed from 200mm masonry block with a stucco plaster finish approximately 10mm thick.
- 2.2 The original building was constructed in 1995 under building consent No. 94009603 issued by the authority under the former Act. Building work commenced and the authority carried out various inspections during the work; the house was substantially completed by March 1996.
- 2.3 The authority’s records, dated 11 December 1995, indicate that it contacted the designer regarding the garage wall design, and noted the following:
- 1) Third builder now on job.
 - 2) He is unable to say what steel was used as wall was completed without his knowledge.
 - 3) House floor level was lifted. Guessed at 50 (check recession planes)
 - 4) Engineers producer statement may be a problem because of no inspection.
- 2.4 On 10 December 1995 the applicants wrote to the authority noting that the masonry walls ‘had not been designed as a retaining wall’, but that there was backfill approximately 900mm against the wall.
- 2.5 On 14 December 1995 the authority responded stating that the drawings and specifications on which the consent was based show the masonry walls being used as a retaining wall. The letter noted that the issue of backfill was a matter between the applicants and the neighbour, and went on to say
- It is a condition of the specification and the consent that your Engineer inspect the structural work and provide a statement that the building work has been completed to the extent required by the building consent. Please confirm what reinforcing has been provided in the [masonry walls].
- 2.6 It appears that there were also issues with the original plastering work to the house which were not resolved for some years, and so a final inspection had not been carried out.
- 2.7 On 2 August 2004 the authority wrote to the applicants to give notice of its refusal to issue a code compliance certificate, and enclosing a notice to rectify. The particulars of contravention stated in the notice to rectify were failure to comply with Clauses B1.1, B2.1, B2.2, E2.1 and E2.2.
- 2.8 In 2005 the applicants filed a claim under the Weathertight Homes Resolution Services Act 2002. It appears that a proposal to repair the external envelope was prepared and the applicants now wish to resolve the issue regarding the masonry walls in order that a code compliance certificate may be issued once the house is brought into compliance with the Building Code.

3. The submissions

3.1 The applicant provided a brief submission with the application and copies of relevant documents from the building file, including:

- The notice to rectify and refusal to issue a code compliance certificate, both dated 2 August 2004.
- Various correspondence between the parties.
- Inspection reports during construction.
- The original consent documentation.

3.2 In an email to the Ministry on 24 July 2014 the authority stated that its position at this time remained no different to when the notice to rectify was issued, that is, the authority considers it does not have reasonable grounds to believe that the work with respect to the masonry walls complies with Clause B1. The authority noted that the requirement for engineers' inspections and a producer statement were recorded as a condition of the consent, and that there is no record of the engineer being on site after a site instruction was issued for the foundations.

3.3 In a further email on 9 September 2014, the authority stated that the engineer had confirmed that he did not inspect the masonry walls. The authority also confirmed that it was reasonable for the purposes of the determination to restrict the expert's assessment to the masonry walls, noting that other specific engineering design work would have been available for view at the time of the authority's pre-line inspection.

3.4 The authority provided a submission on 12 November 2014 in response to the expert's report, noting that it accepted that the report provides reasonable evidence that the correct steel has been used in the masonry walls, and that this issue was the outstanding issue apart from weathertightness problems. The authority submitted that a code compliance certificate could be issued subject to:

- Amending the building consent to modify the building code provisions for B2 – Durability for those parts of the building that were substantially complete in 1998 (or whatever date may be agreed);
- Amending the building consent to remove the work that has subsequently been replaced through the financial assistance package (FAP) rectification work;
- The parts of the building that have been identified as non-compliant through the FAP programme being rectified; and
- A satisfactory final inspection. This could be carried out concurrently with the final inspection for the FAP rectification work. The [applicants] may wish to engage with the building inspector allocated to the FAP work at an earlier stage if they wish.

The code compliance certificate for the house would be issued after (or concurrently with) the code compliance certificate for the FAP rectification work.

I note these matters are outside the matter to be determined in this case, and I leave this to the parties to address once all the compliance issues have been resolved.

3.5 The authority referred to the expert's report, stating that the cracks identified in the block wall that the expert considered were likely caused by movement due to earthquake activity, were identified in a weathertightness report that I have not seen, that pre-dates the earthquake sequence.

3.6 A draft determination was issued to the parties for comment on 26 November 2014.

- 3.7 The agent for the applicants accepted the draft without further comment in a response received on 15 December 2014.
- 3.8 The authority responded by email on 24 December 2014, accepting the draft determination without further comment.

4. The expert's report

- 4.1 As stated in paragraph 1.7, I commissioned an independent expert who is a Chartered Professional Engineer with expertise in structural engineering to verify the presence of reinforcing in the masonry walls. The expert carried out a site visit on 9 October 2014 and provided a report on 4 November 2014.
- 4.2 The expert applied Ground Penetrating Radar (GPR) / Concrete scanning techniques, and appended the scanning report. Scanning was carried out in four locations along the south and southeast masonry walls. The scanning results showed (in summary):
- Vertical bars of 16mm @ 600mm spacing with concrete cover ranging from 90mm to 100mm.
 - Horizontal bars of 12mm @ 800mm spacing with concrete cover ranging from 80mm to 120mm.
- 4.3 The expert compared the scanning results with the original construction drawings, noting that:
- the wall layout matches the floor plan
 - no internal masonry walls, shown in the floor plan, were identified
 - GRP scanning readings show the steel reinforcement sizes and spacing matches the construction drawings
 - height of earth retained varies from 0.6m to 1.4m
 - none of the masonry walls retain heights between 1.5m to 2m (making one construction drawing not relevant).
- 4.4 The expert concluded that the reinforcing of the masonry walls appears to comply with the original design.
- 4.5 The expert commented that damage observed resulting from the Canterbury Earthquake Sequence⁴ was observed to be non-structural and was principally to the external masonry wall cladding.
- 4.6 The expert's report was forwarded to the parties on 4 November 2014.
- 4.7 On 10 November 2014 I sought clarification of a statement made in the report regarding cracking observed to the masonry walls. The expert confirmed that there was 'some non-structural cracking' to the masonry wall exterior at the southeast elevation, and damage to the lower level masonry walls was much less than that of the upper level cladding. In later correspondence the expert noted that:
- the performance of the wall under long term loading as well as the earthquake events in Christchurch in recent years has left the wall(s) with no signs of structural

⁴ The Canterbury Earthquake Sequence includes the 'Darfield Earthquake' of 4 September 2010 with a moment magnitude of 7.1, followed by a series of aftershocks that included a 6.3 magnitude shake on 22 February 2011.

damage. We note that the strength of shaking for this site approached, if not exceeded the ULS⁵ for this walls' design...

5. Discussion

- 5.1 In correspondence with the applicants in 1995, the authority had raised its concerns regarding compliance of the masonry walls given that no inspections had been carried out (refer paragraph 2.4). The authority subsequently confirmed that the engineer did not inspect the masonry walls (refer paragraph 3.3).
- 5.2 The expert's findings have confirmed the construction of the masonry walls are within an acceptable tolerance against the design and there is both vertical and horizontal reinforcing present within the masonry walls.
- 5.3 In addition there is no obvious damage as a result of significant seismic activity which would indicate the masonry walls are not performing adequately.
- 5.4 Given the above, I am of the view that the masonry walls comply with the Building Code that was current at the time the consent was issued. The compliance of the masonry walls with respect to Clause B1 Structure is not an impediment to the issue of a code compliance certificate for the building as a whole.
- 5.5 I note the authority has proposed that the code compliance certificate could be issued, subject to amendment and rectification work being carried out to the external envelope. I consider that proposal reasonable in the circumstances.

6. The decision

- 6.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the masonry walls to the garage at 15 Godley Drive complies with Clause B1 of the Building Code that was in force at the time the relevant building consent was issued.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 26 March 2015.

John Gardiner
Manager Determinations and Assurance

⁵ The ultimate limit state is the state at which the strength or ductility capacity of the structure is exceeded, when it cannot maintain equilibrium and becomes unstable.