



Determination 2012/034

The code compliance of unconsented foundations and ground floor slab to a house at 92 Bibiana Street, Christchurch

1. The matter to be determined

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

1.2 The parties to this determination are:

- Friday Investments Ltd, the owner of the property (“the applicant”) acting through an agent
- Christchurch City Council, carrying out its duties and functions as a territorial authority or building consent authority (“the authority”).

1.3 The dispute arises from the decision of the authority not to issue a code compliance certificate for the house superstructure until a certificate of acceptance has been issued for the concrete foundations and ground floor slab of the house. No application has been made to the authority for a certificate of acceptance; however the authority has advised that it is unable to be satisfied on reasonable grounds that the construction of the concrete foundations and floor slab complies with the relevant clauses of the Building Code² (Schedule 1, Building Regulations 1992).

1.4 Therefore I consider the matter for determination³ is whether the foundations and ground floor slab as constructed complies with the Building Code.

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

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

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

³ In terms of sections 177(1)(a) of the Act.

2. The building work and background

- 2.1 The property comprises a two-storey house with an attached garage. The ground floor is a concrete slab; the walls, upper floor and roof framing is a steel system, and the roof cladding is long-run profiled sheet steel.
- 2.2 The foundation comprises a reinforced concrete perimeter foundation, damp-proof membrane, a reinforced concrete slab on compacted hardfill, with slab thickenings to load-bearing walls.
- 2.3 Based on dates from various documents the initial architectural design was done in July 2004 and the engineering design was completed by mid September 2004. An application for a Project Information Memorandum (PIM) was made at an unknown date but on 19 August 2004 the authority issued a notice in response to that application that certain aspects of the proposed work did not comply and requested amended plans.
- 2.4 An application for a Building Consent was made on 24 August 2004 and a Building Certificate was issued on 20 September 2004 by a Building Certifier; however building consent was not granted before construction started in late September/early October 2004 and by mid January 2005 the house had been framed.
- 2.5 The building certifier undertook three 'unofficial' site visits, which were recorded, as the certifier was aware that construction had begun before the consent was issued. Two of the inspection records are undated and indicate that the foundations and floor slab were mostly satisfactorily in place with the work for the floor slab incomplete. The third record, dated 18 October 2004 appears to be for the floor slab only, and notes four items requiring attention;
- 250 DPM taped, some DPM to re-install and tape
 - Reinforcing to install
 - Mesh to finish
 - Some starters too small
- Call for recheck when completed. Do not pour until rechecked.
- 2.6 On 4 May 2005 the authority issued Building Consent No. 10049312 under the Building Act 2004. The consent included the following two of the conditions:
- This consent does not include floor slab completed without a building consent.
 - The foundations and floor slab shall be included in the Producer Statement Inspection (sic) from [the designated] Structural Engineer that the work complied with his design requirements.
- Other conditions of that consent indicate that the house was at least framed up at that stage but without any wall cladding and had been in that state for some months. It is not clear if the roof cladding was on at that time.
- 2.7 The authority undertook a number of inspections in respect of the house superstructure from 2005 to 2006.

- 2.8 The structural engineer issued a Producer Statement dated 17 May 2007 in respect of the ‘Structural steelwork, wall/floor framing, site foundation investigation, bracing plan and steel framing...’
- 2.9 On 26 January 2011 the authority carried out a final inspection which noted a number of items that required rectification, and that the time lapsed from construction to the then owner (“the previous owner”) seeking a code compliance certificate was of concern and referred the then owner to the Department for a determination. It appears there is no dispute as to the items to be rectified (refer paragraph 3.4) and this determination does not consider therefore the consented building work.
- 2.10 The application for a determination was received by the Department on 20 May 2011 and was initiated by the previous owner.

3. Submissions

- 3.1 The previous owner’s agent made no submission with the application, but provided copies of:
- Residential (final) Check sheet
 - Building Certifier’s inspection reports
 - Building consent conditions for Consent 10049312
 - Producer statement in respect of the structural steelwork
 - Foundation inspection report
- 3.2 The Department sought clarification from the parties as to the matters in dispute and given the recent seismic activity in the area what the status was of the final inspection check sheet.
- 3.3 The authority responded in an email dated 4 August 2011 outlining the background and confirming that no application for a certificate of acceptance had been made, but that if one was made it would be refused based on there being no indication that matters identified in the inspection notices (refer paragraph 2.5) were rectified or repaired, and that no PS4 has been provided by the engineer. The authority submitted that ‘confirmation is required that the foundation and floor slab is able to support the building therefore allowing the building to meet the requirements of [clauses] B1 Structure, B2 Durability and E2 External Moisture’. The authority observed that it had not carried out any further inspection since the recent seismic activity but noted that the area in which the house is located has not been particularly hard hit by the earthquakes.
- 3.4 The previous owner’s agent responded by email on 6 August 2011, confirming that no application had been made for a certificate of acceptance, the matters arising from the final inspection are not disputed, and the agent was unaware of whether there was any earthquake damage.
- 3.5 The first draft determination was issued to the authority and the previous owner for comment on 29 November 2011. The draft concluded that the unconsented building

work complied with the Building Code. This was based on a review of the documentation for the unconsented building work undertaken by the expert (refer paragraph 4), and a visual assessment of the property undertaken by an officer of the Department (refer paragraph 4.5). Both parties accepted the first draft determination without comment.

- 3.6 After an internal review, and taking into account the location of the property and guidance issued by the Department (refer paragraph 5.1), a second draft determination was issued to the authority and the previous owner for comment on 13 February 2012. The second draft found that there was insufficient evidence to establish on reasonable grounds that the unconsented building work complies with Clause B1.
- 3.7 The authority accepted the second draft determination without comment on 28 February 2012. Some time during this period the property was sold to the current owner, who accepted the second draft without comment in an email to the Department dated 4 May 2012.

4. The expert's report

- 4.1 As mentioned in paragraph 1.5, I engaged an independent expert to assist me. The expert reviewed the documentation and spoke with the previous owner, the structural engineer, representatives of the authority and the also the building certifier. The expert provided a report dated 7 November 2011.
- 4.2 The expert provided information on the background events. The expert was advised by the structural engineer that:
- soil conditions were suitable for NZS 3604:1999⁴-type foundations and floor slab
 - the Producer Statements for Design and Construction Review did not include inspections of the reinforced concrete foundations and ground floor slab
 - he was not aware of the condition in the building consent and did not design the foundations and floor slab.
- 4.3 In respect of the construction of the foundations and floor slab, the expert noted:
- The design is detailed on the drawings and appears to have been designed using details from NZS 3604, and the acceptance of the design is included in the Building Certificate issued by the building certifier and included as part of the application for building consent.
 - The four outstanding items identified by the building certifier (refer paragraph 2.5) were not reinspected before the concrete was poured.
 - If a visual inspection does not indicate any undue cracking, movement or signs of ground moisture ingress then it is likely that the unconsented work has been adequately constructed.

⁴ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- 4.4 A copy of the expert's report was provided to the parties on 8 November 2011.
- 4.5 Further to the expert's report an officer of the Department undertook a visual inspection of the house. The officer noted that foundation lines that were able to be sighted were straight and true, and that there were no signs of differential movement, distress, or damage except to slender double height exterior walls where two ranch-slider windows were cracked and there was evidence of movement in the sealant to the jambs. The officer did not consider this to be the result of any defects in the construction of the concrete slab. No visible evidence of liquefaction, or loss of support, was observed around the house or on any of the adjacent properties or streets.

5. Discussion

5.1 Building Code compliance and the Canterbury Earthquake events

- 5.1.1 The authority has received Producer Statements for Design and Construction Review. The PS4s identify that the footings may have been satisfactorily constructed, however it is unknown if the four outstanding defective items (refer paragraph 2.5) were remedied before the slab was poured.
- 5.1.2 In the normal course of events, it would be reasonable to conclude that the foundations and floor slab comply with the Building Code. However, the property is located in the Foundation Technical Category 2 Zone ("TC2") as described in the 'DBH Residential Foundation Technical Categories, Southern Area' plan information published by the Department dated 16 November 2011. Land within the TC2 zone is described in that document as:
- Minor to moderate land damage from liquefaction is possible in future large earthquakes. Lightweight construction or enhanced foundations are likely to be required such as enhanced concrete raft foundations (i.e., stiffer floor slabs that tie the structure together).
- 5.1.3 Damage on land subject to liquefaction can manifest itself in two ways:
- ejection of waterborne sand through weak points in the surface crust, leading to loss of 'bulk' in the ground underlying the building and localised in differential settlement of the ground surface.
 - distortion of the surface crust without sand necessarily being ejected, leading to differential settlement in the ground surface.
- 5.1.4 In respect of any new building on the site, and unless the site was subject to ground improvement, any foundation system for a residential building would need to be designed to limit the effects of surface distortion. The TC2 classification, in effect, precludes non-specific designed slab-on-ground foundation solutions unless a specific geotechnical investigation confirms the existence of 'good ground'.
- 5.1.5 In my view, a geotechnical investigation using the investigation and assessment guidelines⁵ published by the Department is required to verify the current ground conditions. Such an assessment should then be used to inform a professional opinion

⁵ Guidelines for the geotechnical investigation and assessment of subdivisions in the Canterbury region, dated 14 November 2011

about the degree to which the as-built foundations comply with the current requirements of Building Code Clause B1 Structure. Such an opinion can, in turn, be used to support the application for the certificate of acceptance.

5.2 The issue of a certificate of acceptance

- 5.2.1 No application has yet been made for a certificate of acceptance for the foundation and ground slab; however, as the authority has indicated that it would refuse to issue a certificate of acceptance, to assist the parties I have discussed the matters relevant to the issue of such a certificate in the following paragraphs.
- 5.2.2 Section 40 of the Act states that building work must not be carried out except in accordance with a building consent, and section 96(1)(a) provides for the issue of a certificate of acceptance where an owner has carried out building work without obtaining a building consent. In such a situation, a territorial authority may, on application, issue a certificate of acceptance but ‘only if it is satisfied, to the best of its knowledge and belief and on reasonable grounds, that, insofar as it could ascertain, the building work complies with the [Building Code]’⁶. In this instance it is the foundations and ground floor slab that were constructed without building consent and for which a certificate of acceptance is the appropriate regulatory mechanism for regularising the work.
- 5.2.3 An application for a certificate of acceptance requires an authority to consider all the available evidence such as plans and specifications, producer statements, the builder’s records, the owner’s records, any expert reports, and the authority’s own experience and knowledge of the builders and designers involved in the work, in order to ascertain whether the building work complies with the Building Code. In this instance I am of the view that the information should include the geotechnical assessment of the ground conditions and foundations as outlined on paragraph 5.1.5.
- 5.2.4 In a previous determination (2011/043) I discussed the provisions for a certificate of acceptance where there is building work that cannot be inspected and for which there is no evidence available to determine whether it complies with the Building Code. Under section 97, with respect to an application for a certificate of acceptance, it is the applicant who must provide sufficient information to the authority to establish the level of compliance achieved. I note that the applicant still needs to follow the authority’s process and apply for a certificate of acceptance for the building work.
- 5.2.5 In this case the work for which a building consent has been issued, and for which a code compliance certificate is now being sought, is founded on work that may be formalised via certificate of acceptance. In my view the decisions related to the compliance of the consented work cannot be separated from the compliance of the foundation, in that I do not believe it is possible to issue a code compliance certificate for the work that is supported by the foundation unless it can be determined that the foundation is also compliant, which in this case is determined by the issue of the certificate of acceptance.

⁶ Section 96(2)

6. The decision

- 6.1 In accordance with section 188 of the Act, I hereby determine that there are insufficient grounds for me to be satisfied that the unconsented building work, being the foundation and floor slab of the house, complies with the Building Code Clause B1.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 7 May 2012.

John Gardiner
Manager Determinations

Appendix: The legislation

A1 The relevant provisions of the Building Act are:

96 Territorial authority may issue certificate of acceptance in certain circumstances

1. A territorial authority may, on application, issue a certificate of acceptance for building work already done —
 - (a) if —
 - (i) the work was done by the owner or any predecessor in title of the owner; and
 - (ii) a building consent was required for the work but not obtained...
2. A territorial authority may issue a certificate of acceptance only if it is satisfied, to the best of its knowledge and belief and on reasonable grounds, that, insofar as it could ascertain, the building work complies with the building code.
3. This section —
 - (a) does not limit section 40 (which provides that a person must not carry out any building work except in accordance with a building consent); and
 - (b) accordingly, does not relieve a person from the requirement to obtain a building consent for building work.

97 How to apply for certificate of acceptance

- (a) An application for a certificate of acceptance must—
 - (a) be in the prescribed form; and
 - (b) if available, be accompanied by plans and specifications that are—
 - (i) required by regulations made under section 402; or
 - (ii) if the regulations do not so require, required by the territorial authority; and
 - (c) contain or be accompanied by any other information that the territorial authority reasonably requires; and...

99 Issue of certificate of acceptance

- (b) A certificate of acceptance may, if a territorial authority inspected the building work, be qualified to the effect that only parts of the building work were able to be inspected.
- (c) A territorial authority's liability for the issue of a certificate of acceptance is limited to the same extent that the territorial authority was able to inspect the building work in question.

A2 The relevant provisions of the Building Code include:

B1.3.1 *Buildings, building elements and sitework* shall have a low probability of rupturing, becoming unstable, losing equilibrium, or collapsing during *construction* or *alteration* and throughout their lives.

B1.3.2 *Buildings, building elements and sitework* shall have a low probability of causing loss of *amenity* through undue deformation, vibratory response, degradation, or other physical characteristics throughout their lives, or during *construction* or *alteration* when the *building* is in use.

B1.3.3 Account shall be taken of all physical conditions likely to affect the stability of *buildings, building elements* and *sitework*, including:

- (a) self-weight,
- (b) ...
- (f) earthquake,
- (g) ...
- (m) differential movement
- (n) ...
- (r) removal of support