MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Determination 2017/007

Regarding the authority's refusal to issue a building consent for a new house at 99B Forfar Street, Mosgiel, Dunedin

Summary

This determination considers whether the authority was correct to refuse to issue a building consent on the grounds that it considered the proposed footing detail, which is an alternative solution, did not comply with Clause B1 of the Building Code. The determination compares the proposed footing detail with that set out in the Acceptable Solutions SH/AS1 and B1/AS1 in terms of its flexural and shear capacity.

1. The matter to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004[1] ("the 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 licensed building practitioner concerned with the proposed building work, J Hannon ("the applicant"), who is also acting as the agent for the owners, M and P Pearce
- Dunedin City Council ("the authority"), carrying out its duties as a territorial authority or building consent authority.

1.3 The application for this determination arose because the authority is of the view it does not have reasonable grounds on which to conclude the proposed footing detail will comply with the Building Code (First Schedule, Building Regulations 1992).

1.4 The matter to be determined[2] is the authority's exercise of its powers of decision in refusing to issue the building consent. In making this decision I must consider whether the footing detail as proposed will comply with the relevant clauses[3] of the Building Code. I have not considered any other building elements, other clauses of the Building Code, or other requirements under the Act.

1.5 In deciding this matter, I have considered the submissions made to this determination and the other evidence in this matter.

[1] The Building Act, Building Code, compliance documents, past determinations and guidance documents issued by the Ministry are all available at www.building.govt.nz or by contacting the Ministry on 0800 242 243.
[2] Under sections 177(1)(b) and 177(2)(a) of the Act
[3] In this determination, unless otherwise stated, references to sections are to sections of the Building Act and references to clauses are to clauses of the Building Code.

2. The proposed building work and background

2.1 The proposed building is a single-storey timber framed dwelling on a concrete slab foundation with reinforced perimeter footings. The external wall cladding is brick veneer with fibre-cement weatherboard to gable ends, and corrugated steel to the roof.

2.2 The dispute centres on the footing detail (see Figure 1 below):

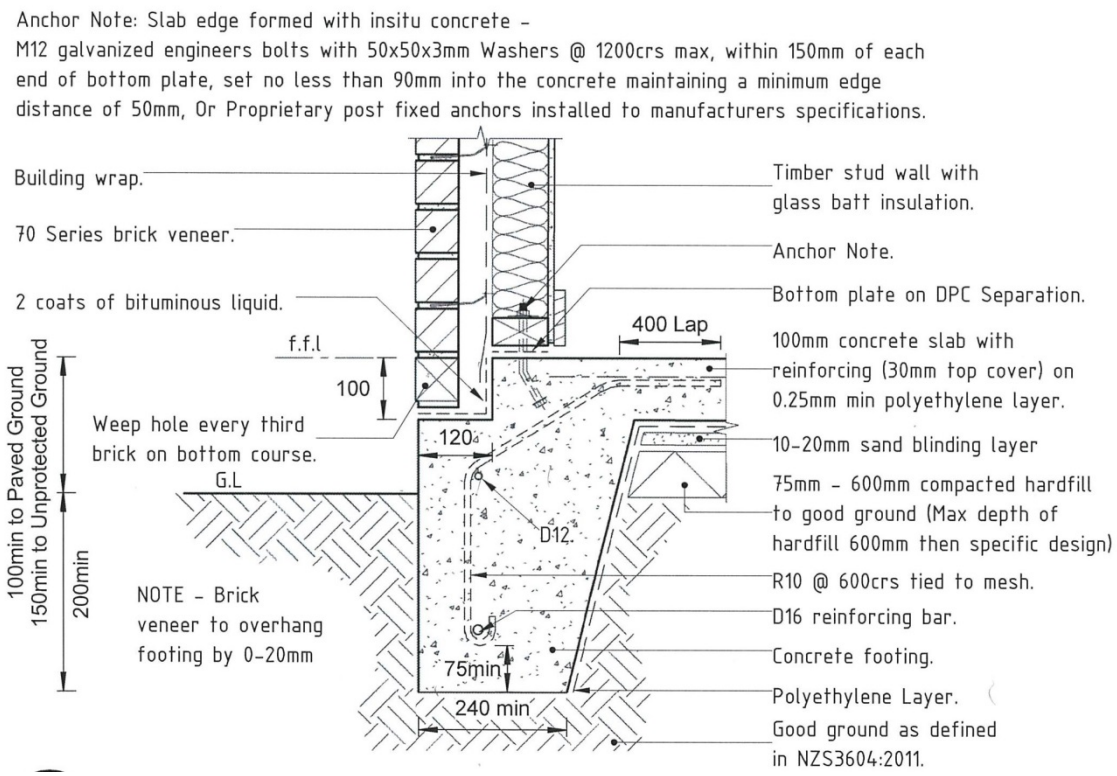

Figure 1: Footing detail (not to scale)

2.3 On 16 November 2016, after reviewing the building consent application, the authority sent a request for information ("RFI") to the applicant. In regards to the footing detail, the authority noted:

> NZS 3604 requires a minimum of 2 D12 to the base of a concrete footing, refer to Figure 7.15(b) of NZS 3604 2011[refer Appendix A.1]. The use of one bar to the base of the foot had been deleted from the standard in August 2011.

2.4 The applicant responded on 29 November 2016, noting that the footing detail was being accepted by other building consent authorities. The authority did not accept the response and the issue remained unresolved.

3. The submissions

3.1 In conjunction with a completed application form, the applicant provided a brief submission on the matter, noting that the detail was based on Figure 3.1.6 from the Acceptable Solution SH/AS1[4] (refer Appendix A.2) with the D12 reinforcing bar replaced with a D16, and the R6 starters replaced with R10 starters at 600 centres. The applicant acknowledged that the proposed building did not fall within the scope of SH/AS1, but noted that this was only due to the eaves being less than 650mm

[4] *Simple House Acceptable Solution* (2010) Department of Building and Housing

from the boundary and less than the minimum width of 450mm to one face, and that these factors would not affect the compliance of the footing detail.

3.2 The applicant provided copies of the consent drawings and relevant correspondence with the authority.

3.3 In a further submission on 20 December 2016, the applicant reiterated the views set out in the application with regard to the use of the footing detail from SH/AS1.

3.4 The authority did not acknowledge the determination application or provide a submission in response.

3.5 A draft determination was issued to the parties for comment on 20 January 2017.

3.6 The applicant and the authority accepted the draft without further comment in responses received on 24 and 25 January 2017 respectively.

4. Discussion

4.1 As noted by the applicant the proposed building falls outside of the scope of the Simple House Acceptable Solution, SH/AS1.

4.2 An Acceptable Solution provides a prescriptive design solution that sets out one way of complying with the Building Code; but use of an Acceptable Solution or a cited Standard is not the only way of achieving compliance.

4.3 In evaluating the design of a building and its construction it is useful to make some comparisons with the relevant Acceptable Solutions, which will assist in determining whether the proposed footing detail is code-compliant. In making this comparison the following general observations are valid:

- Some Acceptable Solutions cover the worst case, so that they may be modified in less extreme cases and the resulting alternative solution will still comply with the Building Code.
- Usually, when there is non-compliance with one provision of an Acceptable Solution, it will be necessary to add some other provision to compensate for that in order to comply with the Building Code.

4.4 In making a comparison with the Acceptable Solution, SH/AS1, I note the following:

- The detail in Figure 3.1.6 of SH/AS1 shows a single D12 bar in the bottom of the footing whereas the proposed detail uses a single D16 bar; the foundation beam in the proposed detail has twice the flexural capacity (vertically and horizontally) of that in SH/AS1.
- The stirrups in the proposed detail have nearly three times the area of the stirrups in the detail provided in SH/AS1, and as the spacing is the same as for SH/AS1 the shear capacity of the proposed detail will be significantly greater.

4.5 In making a comparison with the Acceptable Solution B1/AS1, which in turn cites NZS 3604, I note the D16 horizontal bar in the proposed detail has a cross-sectional area of almost twice that of a single D12 bar in Figure 7.15(B) of NZS 3604. This means the proposed foundation beam has a vertical flexural capacity for resisting soft spots at 90% that of the 2x D12 bars and a horizontal flexural capacity greater than the detail in Figure 7.15(B).

4.6 Taking into account the above, I have reasonable grounds on which to form the view that the proposed foundation detail will comply with Clause B1 of the Building Code, and accordingly I conclude that the authority incorrectly exercised its powers in refusing to grant the building consent with respect to the foundation detail.

5. The decision

5.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the authority incorrectly exercised its powers in refusing to grant building consent with respect to the proposed foundation detail described in this determination.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 7 February 2017.

John Gardiner
Manager Determinations and Assurance

Appendix A: The legislation, Standards and Acceptable Solutions

A.1 The standards referred to in this determination

New Zealand Standards NZS3604:2011 Timber-framed buildings

7.5.2.3 The combined *foundation* and edge details shall be constructed as shown in figures 7.13 and 7.14 (and figures 7.15 and 7.16 for *foundation* supporting a masonry veneer).

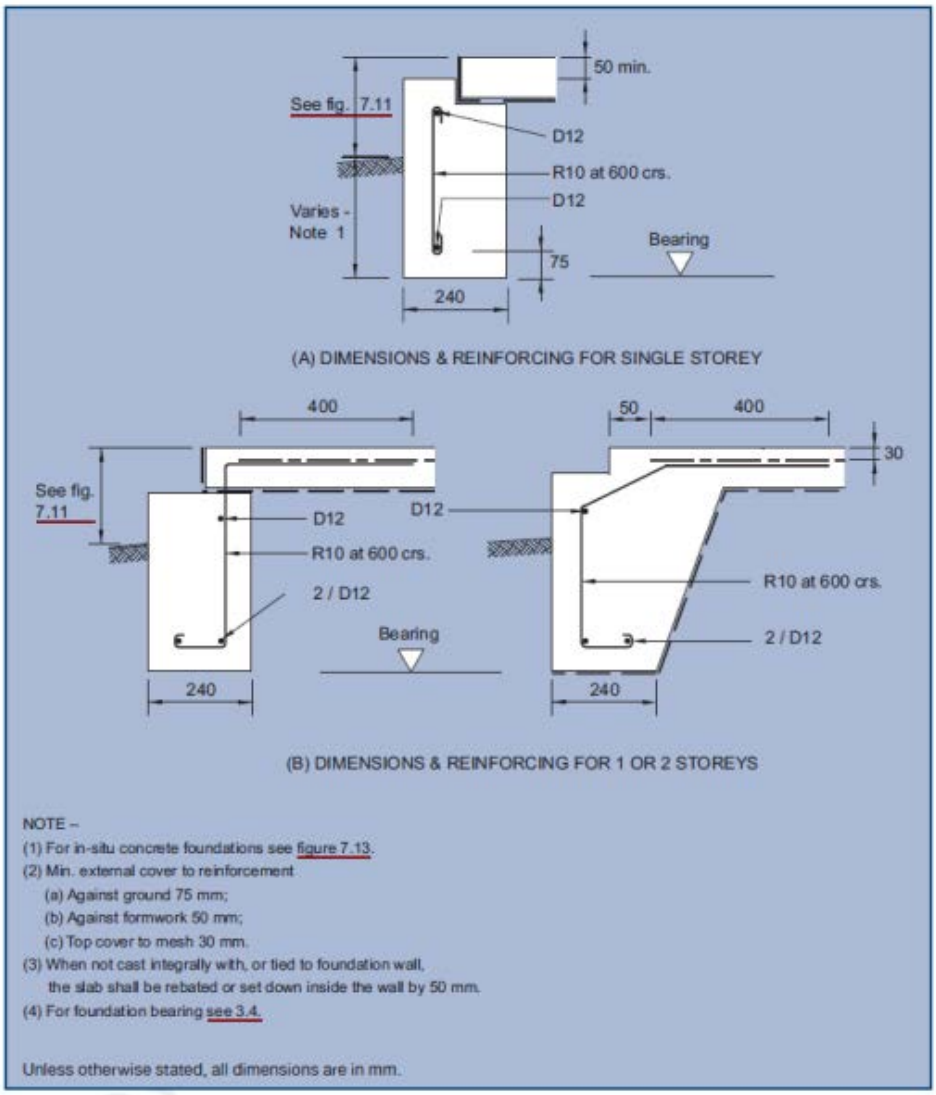

Figure 7.15 – Masonry veneer foundation edge details – in-situ concrete

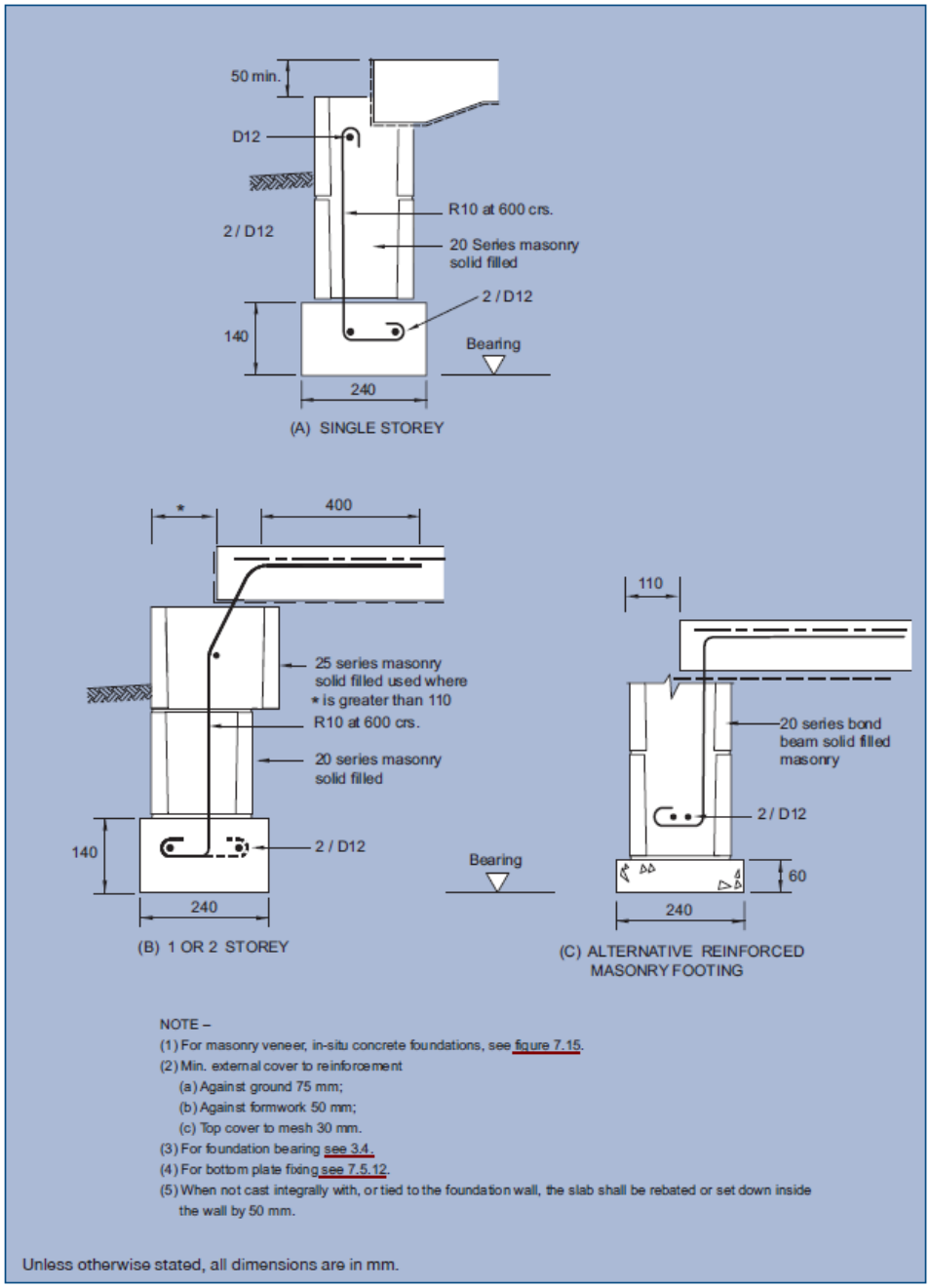

Figure 7.16 – Masonry veneer foundation edge details – Concrete masonry

A.2 The Acceptable Solutions referred to in this determination

Acceptable Solutions and Verification Methods for New Zealand Building Code Clause B1 Structure (B1/AS1)

3.1.6 NZS 3604 Figure 7.15

Delete: Figure 7.15(A) – Masonry veneer foundation edge details – Dimensions and reinforcement for single storeys

Simple House Acceptable Solution (2010)

3.1.8 concrete slab edge details 3.1.8.1 The combined foundation edge details shall be constructed in accordance with Figures 3.1.5 and 3.1.6 or Figure 3.1.7

Figure 3.1.6 **Foundation edge details – masonry veneer cladding**
Paragraphs 3.1.5 and 3.1.8.1