



## Determination 2016/056

# Regarding the refusal to issue a code compliance certificate for a house due to changes in its structural system at 7 Stewart Place, Opito Bay

### Summary

This determination concerns the refusal to issue a code compliance certificate on the grounds that the authority could not be satisfied that the building work complied with Clause B1 Structure. The as-built work differed from that described in the building consent, which has been supported by the specifications and design documentation for a proprietary construction system that was not used in the construction of the building.

### 1. The matter to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004<sup>1</sup> (“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 relevant building work, Mr D Tee, who is the applicant in the current determination (“the applicant”) and who is also acting as the agent for the owner
- the owner, the Stacey Family Trust
- Thames–Coromandel District Council carrying out its duties and functions as a territorial authority or a building consent authority (“the authority”).

1.3 This determination arises from the authority’s decision to refuse to issue a code compliance certificate for the building work on the grounds that it was ‘unable to be satisfied on reasonable grounds that the completed work complied with the Building Code’. The authority’s concerns relate to wall bracing calculations and some solid timber components relied on in the application for building consent and the variation of the as-built work.

1.4 Accordingly, the matter to be determined<sup>2</sup> is whether the authority correctly exercised its power of decision in refusing to issue a code compliance certificate for

---

<sup>1</sup> The Building Act, Building Code, compliance documents, past determinations and guidance documents issued by the Ministry are all available at [www.building.govt.nz](http://www.building.govt.nz) or by contacting the Ministry on 0800 242 243.

<sup>2</sup> Under sections 177(1)(b) and 177(2)(d) of the Act.

the building work. In making this decision, I must consider whether the building work complies with Clause B1 Structure<sup>3</sup> of the Building Code.

- 1.5 In making my decision, I have considered the application, the submissions of the parties, the report of the independent expert commissioned by the Ministry to advise on the dispute (“the expert”), and the other evidence in this matter. I have not considered any other aspects of the Act or Building Code, beyond those required to decide on the matter to be determined.

## **2. The building work**

- 2.1 The applicant is part of a construction company which builds mainly solid timber houses and other buildings. The applicant constructed the house that is the subject of the current determination on land at Opito Bay in the Coromandel, with the bulk of the building work taking place between March and November 2015.
- 2.2 The house is essentially a simple rectangular design, measuring 7.9m x 12.9m. It contains a combined kitchen and living area, two bedrooms and a bathroom. The garage is attached to its western end, and measures 6.6m x 6.6m. There is also a timber deck on the northern side.
- 2.3 The house has timber pile foundations and a solid timber superstructure, with weatherboard cladding and corrugated iron roofing. The solid timber walls are constructed from 190mm x 42mm timber boards. The timber boards interlock through a tongue and groove design, and span horizontally between supports, which may be either return walls or timber posts. The building’s design relies on its solid timber walls to provide both in-plane and out-of-plane load resistance.
- 2.4 The external walls have 47mm x 47mm battens at 450mm centres, and a 45mm x 45mm bottom plate, to which the building wrap and external cladding are fixed. The house also has a sarked-timber ceiling supported on timber beams. Vertical 10mm diameter tie rods, installed within the wall boards, tie the structure to the foundation.
- 2.5 The garage has a concrete floor and conventional timber frame construction: the garage is not subject to this determination.

## **3. The background**

- 3.1 The applicant applied for a building consent on 1 December 2014 to construct a new two-bedroom dwelling with an attached garage at 7 Stewart Place in Opito Bay.
- 3.2 Following a request for more information, the authority issued building consent no. ABA/2014/922 on 7 January 2015 for a ‘New 2 Bedroom Dwelling with Attached Garage’.
- 3.3 The applicant had previously been an approved contractor for another house construction company that used its own proprietary solid timber construction system (“the other company’s system”). The other company’s system was specifically designed and not covered by the Acceptable Solution for Clause B1 of the Building Code<sup>4</sup>. The other company’s system was usually supplied as a kitset with supporting documentation in the form of a technical Design and Construction Manual and bracing values and a design producer statement (PS1) issued by a chartered professional engineer (“the original engineer”).

---

<sup>3</sup> In this determination, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

<sup>4</sup> Acceptable Solution B1/AS1 in turn cites NZS 3604:2011 *Timber framed Buildings*.

- 3.4 In the current case, the applicant supplied the other company's technical documentation, including the original engineer's bracing values and PS1, alongside his own construction drawings as part of the consent documentation for this house. I understand that he did this because the house design was one that he had previously used when working as a contractor for the other company, although it was not one of their kit-sets and he did not use any components supplied by them. I also understand that at the time the building work occurred the applicant had ceased contracting for the other company.
- 3.5 The applicant constructed the house between March and November 2015. The authority completed several inspections during this time, including a framing inspection in May 2015, which passed the solid timber construction as an 'alternative design'. A final inspection at the end of October 2015 initially failed due to a bracing detail in the garage, but was subsequently passed at a re-inspection on 16 November 2015.
- 3.6 The applicant applied for a code compliance certificate on 2 November 2015.
- 3.7 Sometime in November 2015, the authority was contacted by a representative of the other company who raised concerns over consents that the authority had issued to the applicant. On 20 November, the other company's solicitor wrote to the authority advising that the applicant had been using its technical documentation to support his applications for building consent in relation to solid timber homes. The other company advised that the applicant was not authorised to do this, and that without the other company's kit sets 'these documents are not applicable'.
- 3.8 I understand that the authority discussed these issues with the applicant during meetings and telephone conversations between November 2015 and April 2016. During these discussions, the applicant confirmed that the dwellings he was constructing, including the house that is the subject of this determination, did not use any of the other company's componentry and differed from the other company's design in respect of:
- the width of the exterior boards used, which are 190mm wide (as opposed to the 135mm boards used by the other company)
  - the tie rods used to fasten the roof to the foundation, which have their tops bent over and fixed, and their bottoms fixed with stainless steel adjustment bolts (as opposed to the screw fixings used by the other company).
- The applicant also advised that he was having his own testing and engineering work completed to prove that the as-built construction of these dwellings was code-compliant.
- 3.9 On 1 May 2016, the applicant wrote to the authority enclosing the results of P21:2010<sup>5</sup> bracing tests that he had arranged to have carried out on the solid timber internal and external walls and bracings units used in the houses that he built ("the applicant's bracing tests"). He also enclosed calculations and a design manual ("the applicant's design manual"), prepared by a firm of chartered professional engineers ("the consulting engineer") addressing the code-compliance of the 'Timber Building System Using Profiled Board' used by the applicant including to construct the house in this case. The applicant asserted that these tests and design manual established that the building system he was using complied with NZS 3064:2011 and the Building Code, and requested the authority to apply these calculations to the building consent.

---

<sup>5</sup> P21: A wall bracing test and evaluation procedure cited in NZS 3604

- 3.10 On 5 May 2016, the authority wrote to the applicant advising that his application for a code compliance certificate for building consent ABA/2014/922 had been declined, as the authority was unable to be satisfied on reasonable grounds that the completed building work complied with the Building Code. The reasons given were that the wall bracing calculations and some of the solid timber components relied on in the specifications and design for the building work related to the other company's components and designs. The application had been processed on the assumption that the other company's alternative solution was being used. The authority did not think it could now rely on this other company's design documentation to establish code compliance when the applicant was not a 'bona fide' agent for the other company.
- 3.11 The applicant advises that the authority's letter of 5 May 2016 was given to him at a meeting on that same date. The authority advises that it did not receive the applicant's letter of 1 May 2016, until after its own letter had been written refusing to issue the code compliance certificate. The authority accordingly advised the applicant to apply for a determination.
- 3.12 The Ministry received the application for a determination on 9 May 2016.

#### **4. The submissions**

- 4.1 The applicant made a submission with his application for a determination, dated 7 April 2016. In his submission he outlined the background of the matter, and discussed the results of the bracing tests and design manual, which he submits demonstrate that the building work complies with NZS 3604:2011 and hence the Building Code. The applicant requested a determination about the 'solid timber engineering and bracing' aspects of the building work.
- 4.2 With his submission the applicant enclosed copies of:
- the consented plans and specifications
  - the authority's site inspection notices
  - the applicant's design manual dated April 2016
  - the applicant's bracing tests dated 27 April 2016
  - the original engineer's design PS1 and bracing calculations
  - correspondence with the authority.
- 4.3 The authority made a submission dated 23 June 2016 in response to the applicant's request for a determination. In its submission, the authority set out the background to the matter, including its historical involvement with the other company and its agents, including the applicant. The authority submitted that it had assumed when it processed the applicant's building consent in the current case that it related to the other company's building system, which it had accepted as an alternative solution.
- 4.4 The authority subsequently discovered that the building work did not use the other company's components and differed from the other company's construction system in two respects, namely the width of the exterior cladding boards and the nature of the tie rod fixings (see paragraph 3.8). As a result, the authority was unable to be satisfied on reasonable grounds that the building work complied with the building consent, as that consent had been based on the other company's construction system and the original engineer's Producer Statement Design – PS1.

4.5 With its submission the authority enclosed copies of:

- the certificate of title relating to the property
- the application for building consent, and building consent ABA/2014/922
- the consented plans and specifications
- the authority's site inspection notices, and other documentation relating to the building process
- the application for code compliance certificate
- the letter from the other company's lawyer
- its letter of 5 May 2016 to the applicant refusing to issue a code compliance certificate
- the applicant's letter of 1 May 2016 enclosing his bracing tests and design manual.

#### **4.6 The draft determination and submissions in response**

4.6.1 A draft determination was issued to the parties for comment on 28 October 2016.

4.6.2 The applicant initially responded on 14 November 2016, noting that the revised manual dated September 2016 addressed the out-of-plane loads, clarified the design spans for wall board spans, and incorporated bracing capacities. The applicant noted that the performance in the Canterbury earthquake sequence of solid timber homes incorporating tie rods with a bolt adjustment only provided historical evidence of compliance, and that the retightening of rods after 'a massive earthquake' will result in performance above the P21 requirements and that incorporating a spring system would drastically reduce both the in-plane and out-of-plane bracing elements (refer paragraph 5.7.6).

4.6.3 The authority responded on 18 November 2016, noting some minor amendments required and submitting that over the period of time the authority had received three design manuals as follows:

- The original design and construction manual of the other company that was supplied with the consent application (refer paragraph 3.4).
- A manual dated April 2016 (refer paragraph 3.9) developed by the consulting engineer for the applicant's construction system.
- A revised manual dated September 2016.

4.6.4 The authority questioned how it could be satisfied that the construction of the subject building is in accordance with the latest manual rather than the original manual supplied with the building consent application. I note here that the differences between the two construction systems appear to be very limited and that any further inspection would only need to cover those areas that differed (refer paragraph 3.8).

4.6.5 The applicant made a further submission on 18 November 2016, noting that the issues identified by the expert had been addressed in the September 2016 manual, and that the expert's reference to spring loading the tie rods is dismissed on the basis that it would compromise the inline bracing and out-of-plane bracing.

## **5. The expert's report**

- 5.1 As stated in paragraph 1.5, I engaged an expert, who is a chartered professional engineer, to assist me in this determination. The expert reviewed the documents provided by the parties, and communicated with the original engineer and the consulting engineer.
- 5.2 The expert provided a report dated 30 June 2016; the parties were provided with a copy of the report on the same day. The report sets out the expert's view as to whether the applicant's design manual and bracing tests 'adequately address the design of the subject building and show that it is compliant with B1'.
- 5.3 With respect to the applicant's design manual, the expert noted that it was for a solid timber construction system, similar to that used by the other company, but did not specifically address the house that is the subject of this determination. The manual covered design for gravity and out-of-plane wind loads, but did not include in-plane wind and earthquake loads.
- 5.4 With respect to the applicant's bracing test, the expert considered that the tests provided the data necessary to calculate the wind and earthquake bracing capacities of the applicant's construction system, but needed to be interpreted and applied in relation to the building work.
- 5.5 With respect to the differences between the applicant's construction system, and that specific in the consented documents, the expert considered that the wider boards used in the applicant's system would make little difference to the in-plane and out-of-plane performance of the walls.
- 5.6 However, the expert concluded that the authority was justified in not relying on the consented documentation, prepared for the other company's construction system, as evidence of the code-compliance of the building work. The expert also considered that additional design documents supplied by the applicant were not sufficiently specific to demonstrate compliance and that there were some technical issues relating to the design of the walls that needed to be clarified. The expert recommended that, once this was done, the applicant should seek a Producer Statement PS1 – Design from an engineer as evidence that the as-built building's design was code-compliant.

## **5.7 The response to the expert's report**

- 5.7.1 The applicant made a submission dated 18 July 2016 in response to the expert's report. The applicant raised several questions about the report and advised that he had referred these to the consulting engineer. He also advised that he had instructed further tests to be carried out with respect to the out-of-plane load resistance of the wall panels.
- 5.7.2 The consulting engineer provided a second design manual dated September 2016 ("the revised manual"), which incorporated information about the technical issues identified in the expert's report. The revised manual attached (among other things) the results of the out-of-plane load tests.
- 5.7.3 The consulting engineer also provided a Producer Statement PS1 – Design with respect to the compliance of the structural walls, roof and wall bracing components of the building work with Clause B1 of the Building Code.
- 5.7.4 The authority received but did not respond to the expert's report.

- 5.7.5 On 30 September 2016, the expert advised by way of email that he was now satisfied that the applicant had provided ‘sufficient evidence that the design methodology complies with the Building Code Clause B1’.
- 5.7.6 The expert referred to the way the walls spanned horizontally between bracing walls and/or timber posts, and vertically between the roof and floor. This action relied on the tie rods clamping the boards together and any shrinkage of the boards would lessen this effect. A note in section 10.1 of the revised manual states ‘As part of maintenance schedule provide to clients, it is advised that retightening of hold down nuts occurs yearly’. The expert had suggested other methods to maintain the tension in the tie rods other than the manual tightening of nuts, such as a compressed coil spring.

## **6. Discussion**

### **6.1 Compliance of the building work**

- 6.1.1 As a preliminary matter, I note that the applicant has stated that the documentation now provided establishes that the building work complies with NZS 3064, and hence the Building Code. This statement is incorrect. Compliance is measured against the requirements of the relevant clauses of the Building Code; in this case Clause B1 Structure. The building in question is specifically designed: NZS 3064 is not relevant in respect of the specifically-designed elements.
- 6.1.2 In the current case, the applicant has relied on the revised manual and its associated calculations, the results of his bracing tests and the consulting engineer’s PS1 to establish the compliance of the building work with Clause B1 of the Building Code.
- 6.1.3 This information was not available to the authority at the time it assessed the application for a code compliance certificate. I agree with the expert that the information that the authority did have available to it was insufficient for it to be satisfied that compliance would be achieved. Accordingly, the authority was correct to refuse to issue the code compliance certificate at that time.
- 6.1.4 However, I also concur with the expert that the evidence that the applicant has subsequently provided is sufficient for the authority to be satisfied on reasonable grounds that the building work complies with Clause B1.
- 6.1.5 I stress, however, that my finding in paragraph 6.1.4 is specific to the house that is the subject of this determination. If the applicant intends to rely on the design manual and associated documentation in relation to future applications for building consent, he will have to demonstrate in each case how the manual applies to the specific design of the building he is applying for consent for.
- 6.1.6 In conclusion, I consider that the authority was correct to refuse to issue the code compliance certificate as on the information available to it at time, compliance had not been demonstrated.

### **6.2 Minor variation or amendment**

- 6.2.1 Having decided that the applicant has now demonstrated that the building work complies with Clause B1, the question becomes whether the authority can issue a code compliance certificate in respect of it. This in turn depends on whether the variations between the as-built work and the consented work are considered to be minor or not. The variations in questions are the aspects of the applicant’s

construction system that differ from those specified in the other company's Design and Construction Manual which formed part of the consent.

6.2.2 The relevant legislation is sections 40, 45, 45A and 94 of the Act.

- Section 40 specifies that all building work must be carried out in accordance with a building consent.
- Section 45 allows for applications to amend a building consent. For minor amendments, the application must be in accordance with section 45A. In all other cases, the application for an amendment must be made as if it were an application for a building consent.
- Section 45A specifies that an application for a minor variation does not need to be on a prescribed form, and does not require the authority to issue an amended consent.
- Section 94 provides that a building consent authority must issue a code compliance certificate if it is satisfied, on reasonable grounds that the building work complies with the building consent.

6.2.3 Applying this legislation in the current case, it becomes clear that if the variations to the building consent (as represented in the as-built house) are considered other than minor, then the applicant should have made a formal application to amend the building consent in respect of those variations before the work was carried out; having failed to do so would mean a code compliance certificate cannot be issued in respect of those variations. There is no provision in the Building Act to issue a code compliance certificate in respect of work that is not covered by a consent, or to retrospectively bring already completed work within the ambit of a new or existing consent. In that situation, where the as-built work is compliant, the only option is for an applicant to apply for a certificate of acceptance in respect of the work under section 96.

6.2.4 The situation is different, however, where a variation to a building consent is considered to be minor. When considering minor variations, an authority need only record the minor variation in writing (section 45A(3)(a)), and there is no need for it to issue an amended consent (section 45A(3)(b)). In the current case, this would mean that, despite the variations between the as-built building work and that specified in the consent documentation, the authority could still issue a code compliance certificate in respect of the building consent, as the consent would be unaltered.

6.2.5 The Building (Minor Variations) Regulations 2009 define what is meant by a minor variation in clause 3.

### **3 Minor variation defined**

(1) A **minor variation** is a minor modification, addition, or variation to a building consent that does not deviate significantly from the plans and specifications to which the building consent relates.

(2) The following are examples of minor variations and do not constitute an exhaustive list:

(a) substituting comparable products (for example, substituting one internal lining for a similar internal lining):

(b) minor wall bracing changes:

(c) a minor construction change (for example, changing the framing method used around a window):



(d) changing a room's layout (for example, changing the position of fixtures in a bathroom or kitchen).

(3) The examples in subclause (2) are only illustrative of subclause (1) and do not limit it. If an example conflicts with subclause (1), subclause (1) prevails.

- 6.2.6 I have considered what is meant by minor variations in previous determinations<sup>6</sup>. The Ministry has also issued guidance as to what constitutes a minor variation to a building consent, and how these should be dealt with by builders, designers and authorities<sup>7</sup>.
- 6.2.7 The expert was of the opinion that the wider boards used by the applicant in the as-built house would make little difference to the structural performance of the walls. The only other variation raised by the parties relates to the nature of the fixings used for the tie rods. In my opinion, in this case both variations between the as-built and consented design can be viewed as minor. Both come within the definition in Clause 3 of the *Building (Minor Variations) Regulations 2009* as minor variation to a building consent that do not deviate significantly from the plans and specifications to which the building consent relates. Accordingly, no amendment to the building consent is required.

### 6.3 What should now be done

- 6.3.1 The applicant can apply for a minor variation to the building consent in respect of the variations discussed in this determination. The authority can then record the minor variation in writing. In this instance there is no need to amend the building consent.
- 6.3.2 The applicant can then reapply for a code compliance certificate, and the authority can issue this if it is satisfied that in all other respects the building work complies with the building consent.
- 6.3.3 The decision reached in this determination relates only to the building work that is the subject of the determination, and should not be read as applying to any other similar situations. It can, however, be taken as guidance by the parties as to how to go about establishing and assessing the code-compliance of those buildings, should the need arise.

## 7. The decision

- 7.1 In accordance with section 188 of the Building Act 2004, I confirm that the authority correctly exercised its powers of decision in refusing to issue a code compliance certificate for the building work.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 22 November 2016.



John Gardiner

**Manager Determinations and Assurance**

---

<sup>6</sup> See in particular Determination 2012/070.

<sup>7</sup> Ministry of Business, Innovation and Employment. (2010). *Minor variations to building consents: Guidance on definition, assessment and granting*. Wellington: Ministry of Business, Innovation and Employment.