



## Determination 2009/37

### Determination regarding the code compliance of a 15-year-old addition to a house at 149 Tipahi Street, Nelson



#### 1. The matters 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, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department. The applicant is the owner, S Smaill (“the applicant”), and the other party is the Nelson City Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.
- 1.2 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for a 15-year-old addition to a house because it was not satisfied that it complied with Clause B2 Durability and Clause E2 External Moisture of the Building Code<sup>2</sup> (First Schedule, Building Regulations 1992).

<sup>1</sup> The Building Act 2004 is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

<sup>2</sup> The Building Code is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

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.

1.3 The matters for determination are:

**1.3.1 Matter 1: The cladding**

Whether the cladding as installed on the addition (“the cladding”) complies with Clauses B2 and E2 (see sections 177 and 188 of the Act). By “the cladding as installed” I mean the components of the system (such as the boards, the jointers, the flashings and the paint coating), as well as the way the components have been installed and work together.

**1.3.2 Matter 2: The durability considerations**

Whether the building elements comply with Clause B2 Durability of the Building Code, taking into account the age of the building work.

**1.3.3 Matter 3: The deck balustrade**

Whether the as-built deck balustrade complies with Building Code Clause F4 “Safety from falling”.

1.4 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. I have evaluated this information using a framework that I describe more fully in paragraph 6.1.

## **2. The building work**

2.1 The building work is a two-storey addition of approximately 85 square metres to a 1970’s single-storey house, which is situated on a flat site in a low wind zone for the purposes of NZS 3604<sup>3</sup>. The addition accommodates a garage area in the ground floor with two bedrooms in the upper level. Construction is generally conventional light timber frame, with some specifically engineered elements, and has a concrete slab and foundations, fibre-cement wall claddings and aluminium windows.

2.2 The addition is simple in plan, with an asymmetrical 35° pitch gabled roof. The profiled metal roof has eaves and verge projections of about 500mm, except to the east boundary wall where there is a gutter only. The hipped roof of the existing house meets the upper wall of the addition, with an internal gutter at the junction.

2.3 The east wall of the addition is a fire-rated boundary wall, with the concrete slab supported on 150mm x 150mm timber posts set into 300mm diameter 1200mm deep concrete footings. The face of the timber posts is exposed within the concrete foundation wall.

2.4 A narrow timber deck, with spaced boards and open timber balustrades, projects to the north from the upper level. The deck is supported on timber posts, with the joists extending back through the exterior wall and fixed to an interior floor joist.

2.5 The expert has noted that some visible timber appeared to be untreated. However, the specification calls for the wall framing to be “Rad H1 or Douglas fir”, and the

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<sup>3</sup> New Zealand Standard NZS 3604:1999 Timber Framed Buildings

estimate from the timber supplier dated 28 May 1993 notes the framing as “H1 Dry frame”. Given this, and the date of construction in 1993, I accept that most of the external wall framing is likely to be treated.

- 2.6 The wall cladding to the addition is 7.5mm fibre-cement weatherboards, with 6mm fibre-cement sheets to the apex of the gable end walls. The claddings are fixed through the building wrap directly to the framing timbers, with uPVC jointers at sheet and board junctions.

### **3. Background**

- 3.1 The authority issued a building consent for the house (No. BC25703) on 6 July 1993, under the Building Act 1991. The consent included a list of inspections required for the building work, which included inspections of certain structural elements to be undertaken by a consulting engineer (“the engineer”).
- 3.2 Inspections of the construction were carried out by the authority or the engineer, including:
- the foundations inspected on 5 August 1993 (by the engineer)
  - the pole foundations to the firewall on 10 August 1993 (by the engineer)
  - the framing on 29 September 1993 (by the authority)
  - the structural beams on 6 October 1993 (by the engineer)
  - the pre-lining and insulation on 31 March 1994 (by the authority), which was the last inspection recorded.
- 3.3 The specification excluded the interior joinery and called for “all decorating to be done by owners”. It therefore appears that the addition was at a “closed in” stage and most of the remaining work was completed over the next 15 years. During that time, a carport to the north wall of the garage and a canopy over the deck were also constructed, which were not included in the building consent.
- 3.4 The authority inspected the building work on 20 August 2008, and the inspection record notes the unconsented carport and canopy, along with some other changes from the consent drawings. The record also lists defects that included (in summary):
- lack of flashings
  - poor fixing of cladding
  - exposed framing appears to be untreated
  - lack of paint and maintenance of cladding
  - lack of balustrades to the end of the deck
  - lack of flashings to the cantilevered deck joist penetrations
  - the timber decking butts against the wall cladding
  - there are signs of water damage to the interior.

- 3.5 In a letter to the owner dated 16 July 2008, the authority noted that the final inspection had “revealed a number of serious issues”, and listed these as:
1. The building works do not comply with the NZ Building Code.
  2. The building works are not strictly in accordance with the consented plans.
  3. The building consent was issued 15 years ago.
  4. There are unauthorised building works attached to the extension.
  5. The building works have been left unfinished exposing the structure of the building to the weather and there is evidence of water damage.
  6. The deck is dangerous as it has no end balustrade. The existing balustrade does not comply with the NZ Building Code.
- 3.6 The authority also noted that the durability requirements of the Building Code commenced from the time of issue of the code compliance certificate, concluding that it would not issue a code compliance certificate due to the time elapsed since the work was undertaken, as it could not:
- ...be satisfied on reasonable grounds that the work now meets all the requirements of the building code, especially B2 durability and E2 external moisture.
- 3.7 The Department received an application for a determination on 20 January 2009 and sought further information on the building work, which was received on 28 January 2009.

## **4. The submissions**

- 4.1 The applicant forwarded copies of:
- the consent drawings and specification
  - the consent documentation
  - the inspection summary and final inspection record
  - the engineer’s producer statements
  - various other statements and information.
- 4.2 A copy of the applicant’s submission was provided to the authority, which did not respond. The authority acknowledged the application, but made no submission in response.
- 4.3 A draft determination was issued to the parties for comment on 20 March 2009. Both parties accepted the draft without comment.

## **5. The expert’s report**

- 5.1 As mentioned in paragraph 1.4, I engaged an independent expert to provide an assessment of the condition of those building elements subject to the determination. The expert is a member of the New Zealand Institute of Building Surveyors. The expert inspected the house on 18 February 2009 and furnished a report that was completed on 20 February 2009.

5.2 The expert noted the following variations from the consent drawings:

- One skylight has been omitted.
- The deck has been altered and extended in length.
- A canopy has been added above the deck.
- A carport has been added.
- The interior stair layout has been changed.
- There are changes to the windows.

5.3 The expert noted that construction appeared to be “of a poor quality”, with the cladding generally showing that “there has been no consideration given to sealing and weathering of the cladding to prevent water entry at junctions and penetrations”.

5.4 The expert also noted that the addition was unfinished in various areas, had not been well maintained and the fibre-cement cladding had not been painted. Exposed timber did not appear to be treated.

5.5 The expert inspected the interior of the addition and noted water stains were apparent in some areas. The expert took 8 invasive moisture readings through the cladding at areas considered at risk, and moisture readings were recorded at 12% to 14%, except for:

- 21% at the bottom of a fire wall post (refer paragraph 2.3)
- 17% at a weatherboard joint to the north elevation
- 17% adjacent to a deck joist penetration.

Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure. The expert also noted that readings were taken in summer and I therefore consider that the moisture levels recorded are likely to represent lower levels than expected at other times of the year.

5.6 Commenting specifically on the exterior of the building work, the expert noted that:

**The unfinished work**

- the fibre-cement wall cladding has not been painted
- the fascias behind some gutters have not been painted, and the paintwork to barge boards is in a deteriorated condition
- there are no seals or mouldings at the junction of the cladding with the soffits and gaps are apparent at these junctions, with a large gap above the internal gutter exposing deteriorating building wrap
- there are a number of areas where unfinished timber is exposed, including around the south garage door and at the base of the north garage door jambs (where there are signs of decay)
- the junction between the existing house and the addition has not been finished, with gaps and bare timber visible, and interior water stains are apparent

- the deck is incomplete, with a gap in the deck boards and a section of the balustrade omitted

#### **The fibre cement weatherboards**

- some weatherboards are cracked and some jointers are missing, loose or damaged
- there is no anti-capillary gap at the bottom of the cladding to the north and south walls

#### **The windows and doors**

- the windows have no head flashings
- the jambs have no seals behind the flanges, with sealant (that has deteriorated) applied to some windows
- the garage doors have no head or jamb flashings

#### **The deck and canopy**

- the deck balustrade is less than 1 metre high
- some of the balusters are loose
- the deck joists penetrate the cladding, with no flashings
- the deck boards butt against the cladding, with no drainage gap
- the deck canopy is not flashed against the cladding
- the bolts to the canopy stringer are under-sized

#### **The gutters**

- the internal gutter has no fall and no provision for overflow
- the gutter on the west wall above the internal gutter is blocked and has deformed.

5.7 A copy of the expert's report was provided to the parties on 2 March 2009.

## **6. Evaluation of the cladding for code compliance**

### **6.1 Evaluation framework**

6.1.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solutions<sup>4</sup>, which will assist in determining whether the features of this house are code compliant. However, 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.

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<sup>4</sup> An Acceptable Solution is a prescriptive design solution approved by the Department that provides one way (but not the only way) of complying with the Building Code. The Acceptable Solutions are available from The Department's Website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

- 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.

## **6.2 Weathertightness performance**

- 6.2.1 It is clear from the expert's report that the wall cladding of this addition is unsatisfactory in terms of its weathertightness, as outlined in paragraph 5.6. The unfinished work, the lack of window flashings, and inadequate weatherproofing of many junctions may have contributed to a systemic failure and considerable work is required to make the addition code compliant.
- 6.2.2 Remedial work may need to include removal of parts of the cladding and the replacement of decayed timber. Further investigation is necessary, including the systematic survey of all risk locations, to determine the full extent of the repairs required.
- 6.2.3 I also note the expert's comments with regard to the deck balustrade, and I am satisfied that the addition does not comply with Clause F4 Safety from falling of the Building Code.

## **Matter 1: The wall cladding**

### **7. Discussion**

- 7.1 I consider the expert's report establishes that the current performance of the cladding is not adequate because there is evidence of moisture penetration and decay, and the cladding has not been installed according to good trade practice. In particular, the cladding demonstrates the key defects listed in paragraph 5.6. Consequently, I am not satisfied that the cladding system, as installed, complies with Clause E2 of the Building Code.
- 7.2 In addition, the building is also required to comply with the durability requirements of clause B2. Clause B2 requires that a building continues to satisfy all the objectives of the Building Code throughout its effective life, and that includes the requirements for the house to remain weathertight. Because the cladding faults on the building are likely to continue to allow the ingress of moisture in the future, the building work does not comply with the durability requirements of clause B2.
- 7.3 I consider that final decisions on whether code compliance can be achieved by either remediation or re-cladding, or a combination of both, can only be made after a more thorough investigation of the cladding. This will require a careful analysis by an appropriately qualified expert. Once that decision is made, the chosen remedial option should be submitted to the authority for its comment and approval.
- 7.4 The expert has noted the lack of maintenance to the addition. Effective maintenance of claddings is important to ensure ongoing compliance with Clauses B2 and E2 of the Building Code and is the responsibility of the building owner. The Department has previously described these maintenance requirements, including examples where the external wall framing of the building may not be treated to a level that will resist the onset of decay if it gets wet (for example, Determination 2007/60).

## **Matter 2: The durability considerations**

### **8. Discussion**

- 8.1 The authority has concerns about the durability, and hence the compliance with the Building Code, of certain elements of the building, taking into consideration the substantial completion of most of the building work in 1994.
- 8.2 The relevant provision of Clause B2 of the Building Code requires that building elements must, with only normal maintenance, continue to satisfy the performance requirements of the Building Code for certain periods (“durability periods”) “from the time of issue of the applicable code compliance certificate” (Clause B2.3.1).
- 8.3 In previous determinations (for example Determination 2006/85) I have taken the view that a modification of this requirement can be granted if I can be satisfied that the building complied with the durability requirements at a date earlier than the date of issue of the code compliance certificate, that is agreed to by the parties and that, if there are matters that are required to be fixed, they are discrete in nature.
- 8.4 Because of the unfinished work, the extent of the defects in the cladding, and the possible consequential impact on the building’s timber framing and therefore its structure, I am not satisfied that I have sufficient information on which to make a decision about this matter. However, the matter may be referred to the Department for a further determination once the cladding and all associated work has been made code compliant.

## **Matter 3: The deck balustrade**

### **9. Discussion**

- 9.1 I note the expert’s comments with regard to the deck balustrade, and I am satisfied that the building work does not comply with Clause F4 Safety from falling of the Building Code.

### **10. What is to be done now?**

- 10.1 A notice to fix should be issued that requires the owner to bring the addition into compliance with the Building Code, identifying the items listed in paragraph 5.6. The notice shall refer to any further defects that might be discovered in the course of investigation and rectification, but shall not specify how those defects are to be fixed. It is not for the notice to fix to stipulate directly how the defects are to be remedied and the house brought to compliance with the Building Code. That is a matter for the owner to propose and for the authority to accept or reject.
- 10.2 I would suggest that the parties adopt the following process to meet the requirements of paragraph 10.1. Initially, the authority should issue the notice to fix. The owner should then produce a response to this in the form of a detailed proposal, produced in conjunction with a competent and suitably qualified person, as to the rectification or otherwise of the specified issues. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.

- 10.3 I note that the expert has identified variations between the consent drawings and the addition as constructed, and I leave that matter to the authority to resolve with the owners as it considers appropriate.

## **11. The decision**

- 11.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the addition does not comply with Clauses B2, E2 and F4 of the Building Code, and accordingly confirm the authority's decision to refuse to issue a code compliance certificate.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 25 May 2009.

John Gardiner  
**Manager Determinations**