

# Determination 2011/046

## Regarding the refusal to issue a code compliance certificate for a 10-year-old addition to a house at 74 Ranui Crescent, Khandallah

### 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, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department. The applicants are the owners, Mr B Alp and Ms R Greening (“the applicants”), and the other party is the Wellington City Council (“the authority”), carrying out its duties and functions 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 10-year-old addition (“the addition”) to an existing house because it was not satisfied that this building work complied with the Building Code (First Schedule, Building Regulations 1992).

1.3 The matter to be determined<sup>2</sup> therefore is whether the authority was correct to refuse to issue the code compliance certificate. In deciding this, I must consider:

#### 1.3.1 Matter 1: The external envelope

Whether the external envelope of the addition complies with the Clauses<sup>3</sup> E2 External Moisture and B2 Durability of the Building Code. The “external envelope” includes the cladding, its configuration and components, junctions with other building elements, formed openings and penetrations. I consider this matter in paragraph 6.

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

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

<sup>3</sup> 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.

### 1.3.2 **Matter 2: The remaining code clauses**

Whether the addition complies with the other relevant Building Code Clauses. I consider this matter in paragraph 7.

### 1.3.3 **Matter 3: the durability considerations**

Whether the elements that make up the building work comply with Clause B2 Durability of the Building Code, taking into account the age of the building work. I consider this matter in paragraph 8.

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.

## **2. The building**

2.1 The building is a four-storey 1970s dwelling that has been subject to a number of additions and alterations since it was first built. The building is sited on a steep section in a high wind zone but is sheltered to some extent from southerly winds.

2.2 The original part of the building is a four-storey concrete block house, including a concrete block garage on the uppermost level. The addition consists of a new small office, photographic studio and timber slat deck which together make up the lowest of the four levels of the house.

2.3 The addition is constructed from light timber framing and is clad in a direct-fixed lightweight plaster system over cement board sheeting. The foundations for the addition are a combination of concrete pile foundations and timber bearers, and an over-clad concrete block wall. The joinery throughout the addition is double-glazed aluminium.

2.4 The roof of the addition doubles as a roof-top deck accessible from the third level of the original building. The surface of the roof deck is a liquid applied membrane over ply sheeting.

2.5 The expert noted that he was unable to establish whether or not the timber framing in the walls, roof and flooring of the addition had been treated.

## **3. Background**

3.1 On 7 June 2000 the authority issued a building consent (SR65458) under the Building Act 1991 for the addition to the existing building.

3.2 On 12 December 2000 the authority undertook a final inspection which failed. The authority’s inspection record notes:

1. Lower deck stair barrier to be installed to comply with F4 of the building code
2. Lower deck joists require extra plate fixings

3. Lower deck barrier to be completed
4. Advised builder to notify owner to install a complying barrier to car deck however because this is existing this is only a recommendation.

Reinspect.

- 3.3 On 20 December 2000 a further inspection was undertaken by the authority. The inspection record notes four plumbing items as being passed and states 'Approved to issue CCC'.
- 3.4 On 20 March 2007 a site meeting was undertaken with the authority and one of the then owners. The authority's record notes that a final inspection was not undertaken but that the inspection process was discussed and that a barrier 'beside the external stairs attached to the lower level timber deck was sited'.
- 3.5 In November 2010 the applicants contacted the authority to request that a further final inspection for the building be undertaken in order that a code compliance certificate could be issued for the building work.
- 3.6 On 2 December 2010, the authority wrote to the applicant in response to their request for a code compliance certificate. The authority had reviewed the building consent file and inspection records, and on the basis of this review advised the applicant that it would not issue a code compliance certificate for the addition as it could not be satisfied that the building work complied with the durability requirements of the Building Code. The authority stated that this was because a significant amount of time had elapsed between the completion of the majority of the building work for the addition and the request for a code compliance certificate.
- 3.7 The authority suggested the applicant provide to it a report from a suitably qualified person on the current compliance of the addition and with specific regard to Clauses B1 Structure, B2 Durability, E2 External Moisture and E3 Internal Moisture
- 3.8 The applicants responded to the authority's refusal in a letter dated 5 December 2010, and noted that a final inspection had been carried out after the four items previously identified had been made compliant. The applicants sought a further final inspection from the authority and stated that they would accept the commencement of the durability period being dated as December 2000.
- 3.9 On 13 December 2010 the authority responded to the applicants, reiterating its request for a building report and noting that the applicants could apply for a modification of the durability date dependent on the outcome of the report.
- 3.10 An application for a determination was received by the Department on 9 March 2011.

## **4. The submissions**

- 4.1 The applicants forwarded copies of:
- the plans and specifications for the addition
  - the authority's inspection records
  - correspondence between the parties (refer paragraphs 3.6 to 3.9)
- 4.2 The authority did not acknowledge the application for a determination, provide any evidence for consideration or make a submission to it.
- 4.3 A draft determination was issued to the parties for comment on 3 May 2011. In a letter dated 9 May 2011 the authority declined to accept the draft and submitted the inspection record dated 20 December 2000, a record of a site meeting dated 20 March 2007, and noted three minor amendments be considered. These have been included in the determination as appropriate.
- 4.4 The authority also submitted its view that the approval for a code compliance certificate referred to in the 20 December 2000 inspection record (refer paragraph 3.3) was in respect of the plumbing items only.
- 4.5 In an email dated 17 May 2011 the applicants accepted the draft determination and reiterated that they considered a date in December 2000 for the commencement of durability periods would be appropriate. The applicants also noted that:
- decay to the framing had been undetectable without invasive testing
  - the sections of structure identified in paragraph 6.4 had previously been inspected and approved and no items of concern had been raised at the time.

## **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 March 2011, and furnished a report that was completed on 23 March 2011.

### **5.2 General**

- 5.2.1 The expert noted that although the external envelope of the addition had been well maintained and was generally in good condition, there were several high risk weathertightness details in the cladding and the deck.
- 5.2.2 The expert noted that the membrane on the upper-level deck had recently been resurfaced and was in generally good condition.

### 5.3 Moisture levels

- 5.3.1 The expert undertook non-invasive moisture testing of the top surface of the upper-level deck balustrades. The following elevated readings were found:
- Moisture levels up to 25% were found under the flat surface of the balustrades (measured with a non invasive meter). No further invasive tests were made here as high moisture levels had been measured elsewhere and shown the need for further investigation.
  - Up to 58% beneath the membrane lining at the base of the balustrades which indicated moisture was draining down inside the balustrade and finding its way underneath the deck membrane.
- 5.3.2 The expert took three invasive moisture readings in the exterior walls at areas considered at risk, and noted the following elevated readings or signs of moisture:
- 26% in the junction between the window and the cladding beneath the eastern window of the addition
  - 75% and evidence of decay in the junction between the window and the cladding beneath the eastern window of the addition.
- 5.3.3 I note that moisture readings above 18%, or which vary significantly, generally indicate that moisture is entering the structure and further investigation is needed.
- 5.4 Commenting specifically on the weathertightness of the external envelope, the expert noted:
- there is evidence of decay in the framing below the eastern window sill
  - the joinery throughout the addition has been recessed without head flashings, and includes recessed plastered sills
  - there is no separation at the junction between the window sills and the plaster cladding of the addition, and there is evidence of fine cracking failures at these junctions.

The expert also noted that invasive testing of the east and west windows of the addition found evidence of water entry and timber decay in the eastern window sill and that, although it was unable to be tested due to poor access, the north window is likely to have been affected by moisture ingress.

#### The roof deck

- 5.4.1 The expert noted that the membrane system for the upper-level deck appears to have been installed according to the manufacturer's instructions. The expert also noted that the membrane lining has been taken well up the side of the deck walls and balustrades, and is well-adhered to the adjacent concrete wall which is part of the original building.

5.4.2 However, the expert also observed

- recently removed scaffolding has damaged the plaster surface of the deck balustrade
- there is evidence that moisture is penetrating via the deck and/or deck balustrades down through the walls to the lower level of the building (i.e. into the walls of the addition).

5.5 The expert observed that the addition complied with the relevant clauses of the Building Code with the exception of clauses E2 and B2 (as identified in the defects described above) and H1 for which an inspection was not possible and no evidence to support compliance was identified.

5.6 A copy of the expert's report was provided to the parties on 29 March 2011.

5.7 The applicants replied in a letter dated 18 April 2011 and advised the following:

- The framing is constructed of treated timbers.
- The cladding has been checked and repainted and is under warranty until February 2016.
- The deck membrane has recently been recoated and extended over the sides of the deck.
- Exposure of framing under the large east window (where 74% moisture was recorded) confirmed the presence of decay.

## **Matter 1: The external envelope**

### **6. Weathertightness**

6.1 The evaluation of building work for compliance with the Building Code and the risk factors considered in regards to weathertightness have been described in numerous previous determinations (for example, Determination 2004/1).

#### **Weathertightness risk**

6.2 The house has the following environmental and design features which influence its weathertightness risk profile:

#### **Increasing risk**

- the building is four stories and sited in a high wind zone
- the roof/wall intersections of the addition are fully exposed
- the addition does not have eaves
- the building has a complex external envelope with multiple cladding and roofing types
- the addition has a deck exposed in plan

**Decreasing risk**

- the timber deck to the addition has free-draining floors

6.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 6.2 show the house has a very high weathertightness risk rating. I note that, if the details shown in the current E2/AS1 were adopted to show code compliance, the light weight plaster over cement board cladding would require a drained cavity for all risk levels. However, I also note that a drained cavity was not a requirement at the time of construction.

**Weathertightness performance**

6.4 Taking into account the expert's comments, I conclude that remedial work is required in respect of the following defects:

- The moisture ingress into the framing and associated materials of the addition from the membrane-lined upper-level deck.
- Possible moisture ingress into the balustrades of the membrane-lined upper-level deck.
- The moisture ingress, cracking and decay at the junction between the windows and cladding of the addition.
- Damage to the plaster surface of the deck balustrade.
- The lack of head flashings to the windows.

**Weathertightness conclusion**

6.5 I consider the expert's report establishes that the current performance of the building envelope is not adequate because there is evidence of significant moisture penetration and evidence of decay. Consequently, I am satisfied that the house does not comply with Clause E2 of the Building Code.

6.6 The external envelope of the addition is also required to comply with the durability requirements of Clause B2 of the Building Code. Clause B2 requires that a building continues to satisfy all the objectives of the Building Code throughout its effective life, and that includes the requirement for the house to remain weathertight. Because the cladding is currently allowing ingress of moisture, the building work does not comply with the durability requirements of Clause B2.

6.7 Given the extent of non-compliance with Clause E2 and the extent of damage to the external framing, the building's ongoing compliance with Clause B1 must be considered following further investigation.

6.8 The faults identified in the external envelope are discrete in nature and have not led to a systemic failure of the cladding. I am therefore of the view that satisfactory rectification of the items outlined in paragraph 6.4 will result in the external envelope being brought into compliance with Clauses E2 and B2.

## **Matter 2: the remaining code clauses**

### **7. Discussion**

- 7.1 I have not been provided with any information from the applicant as to the compliance of the addition with Clause H1 Energy Efficiency. The expert noted that an inspection was not possible and no evidence to support compliance was identified. I therefore consider that I do not have reasonable grounds to conclude the addition complies with Clause H1 Energy Efficiency of the Building Code.
- 7.2 The expert's report and the other evidence do however provide me with reasonable grounds to conclude that the building work complies with the other relevant clauses of the Building Code.

## **Matter 3: The durability considerations**

### **8. Discussion**

- 8.1 The authority has concerns about the durability, and hence compliance with the Building Code, of certain elements of the building taking into consideration the completion of the house in 2000.
- 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 extent of further investigation required and the potential impact of such an investigation on the external envelope, I am not satisfied that there is sufficient information on which to make a decision about this matter at this time.

### **9. What is to be done?**

- 9.1 The authority should issue a notice to fix requiring the owners to bring the building into compliance with the Building Code. The notice should identify the defects listed in paragraph 6.4 and the investigations referred to in paragraph 6.7, and refer to any further defects that might be discovered in the course of investigation and rectification. The notice should not specify how those defects are to be fixed and the building brought into compliance with the Building Code, as that is a matter for the owners to propose and the authority to accept or reject.

- 9.2 I suggest that the parties adopt the following process to meet the requirements of paragraph 9.1. The applicants should produce a response to the notice to fix in the form of a detailed proposal, produced in conjunction with a competent and suitably qualified person, as to the investigation and rectification or otherwise of the specified matters. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.
- 9.3 The applicants should also provide the necessary information and evidence of compliance to the authority so that the authority can satisfy itself as to the compliance of the addition with Clause H1.

## **10. The decision**

- 10.1 In accordance with section 188 of the Building Act 2004, I hereby determine that:
- the external envelope of the addition does not comply with the Building Code Clauses E2 and B2 of the Building Code
  - the external framing does not comply with Building Code Clause B2 insofar as it relates to Clause B1
  - there is insufficient evidence to establish on reasonable grounds that the addition complies with Clause H1
- and accordingly I 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 23 May 2011.

John Gardiner  
**Manager Determinations**