



## Determination 2010/77

# Refusal to issue a code compliance certificate for a 12-year-old addition and alterations to a house at 47 Regina Street, Westmere, Auckland



### 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 applicants are the owners, D Evans and T Zeigler (“the applicants”) acting through an agent and the other party is the Auckland 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 and to issue a notice to fix for a 12-year-old addition and alterations to a house (“the addition”) because it was not satisfied that the building work complied with certain clauses<sup>2</sup> of the Building Code (First Schedule, Building Regulations 1992). The authority’s concerns about the compliance of the building work relate primarily to the weathertightness of the exterior building envelope.

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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> 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 matter to be determined<sup>3</sup> is therefore whether the authority was correct in its decisions to refuse to issue a code compliance certificate and to issue a notice to fix for the addition. In deciding this matter, I must consider:

**1.3.1 Matter 1: the external building envelope**

Whether the external claddings to the addition (“the claddings”) comply with Clause B2 Durability and Clause E2 External Moisture of the Building Code. The claddings include the components of the systems (such as the wall claddings, the windows, the roof claddings and the flashings, as well as the way the components have been installed and work together. (I consider this in paragraph 6).

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

Whether the addition complies with other relevant Building Code clauses identified in the notice to fix (E3 Internal Moisture, F2 Hazardous Building Materials, F4 Safety from Falling, and G13 Foul Water). (I consider this in paragraph 7).

**1.4 Matters outside this determination**

1.4.1 The notice to fix also cites contraventions of Clauses B1 Structure, E1 Surface Water, G3 Food Preparation and Prevention of Contamination and H1 Energy Efficiency. There are no specific identified items relating to these clauses, this determination is therefore limited to the clauses noted in Matter 1 and Matter 2.

1.4.2 The notice to fix also outlined requirements for durability of building elements and stated that the applicants may apply to the authority for a modification of the requirements to allow durability periods to commence from the date of substantial completion in 1998. I therefore leave this matter to the parties to resolve.

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.

**2. The building work**

2.1 The building work considered in this determination consists of an addition, with associated alterations, to an existing house on a flat site in a medium wind zone for the purposes of NZS 3604<sup>4</sup>. The addition is two-storeys in part and is assessed as having a moderate weathertightness risk (see paragraph 6.2).

2.2 The original 1950’s house was a simple single-storey house (“the original house”), with a rectangular plan, timber-framed walls and subfloor, weatherboard wall claddings, timber windows and a concrete tile hipped roof.

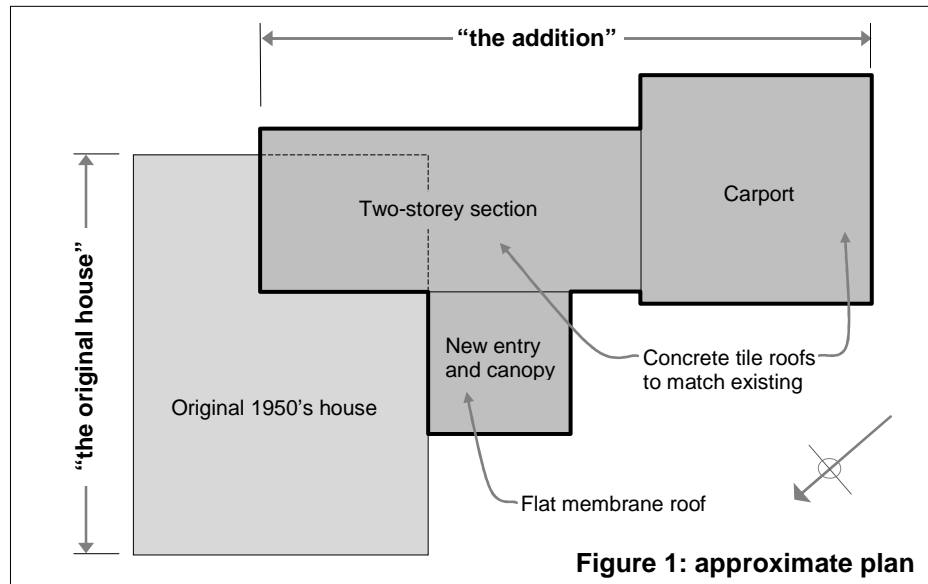
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<sup>3</sup> Under sections 177(b)(i) and 177(b)(iii) of the Act

<sup>4</sup> New Zealand Standard NZS 3604:1999 Timber Framed Buildings

2.3 The addition is shown in Figure 1 below. The altered house includes:

- a new entry foyer and canopy
- a new kitchen, living area, bathroom, laundry and bedroom on the ground floor
- two bedrooms and a bathroom in the upper level
- a new double carport partly enclosed with framed walls.



2.4 Construction of the addition is generally conventional light timber frame, with concrete block foundations, concrete slabs to the carport and entry, timber-framed floors to other areas, monolithic and timber weatherboard wall claddings, membrane and concrete tile roof claddings, and timber windows to match the original windows. The altered house is fairly complex in plan and form, with roofs at varying levels.

2.5 The 32° pitch roofs have eaves of about 600mm overall, except above the bay window to the west upper staircase wall. The base of the full-height bay window abuts a long shallow canopy attached above the ground floor laundry. Another canopy extends over the new entry area. Both canopies have membrane roofs with small upstands and timber cappings at the outer edges.

2.6 The expert noted that some visible timber framing in the roof space was marked as 'H1'. However, given the date of construction of the addition in 1998, I am unable to determine the particular level and type of treatment described as 'H1' and I therefore consider that the wall framing of the addition is unlikely to be treated to a level that will provide resistance to fungal decay.

## 2.7 The wall claddings

2.7.1 The cladding above sill level of the upper windows consists of 7.5 mm thick fibre-cement sheets fixed through the building wrap to the framing, and finished with an applied textured coating system.

2.7.2 The remaining walls are clad in bevel-backed timber weatherboards to match the original walls. The boards are fixed through the building wrap directly to the

framing. The timber windows are re-used, with timber facings and scribes installed at the jambs; over both the weatherboards and the fibre-cement upper level cladding.

### **3. Background**

3.1 The authority issued a building consent (No. B/1997/3600019) for the alterations in January 1998 under the Building Act 1991. I have not seen a copy of the consent, but the consent drawings are stamped as approved on 16 January 1997.

3.2 The authority's property file does not contain copies of the inspection records but, according to the applicants, most of the building work was completed during 1998. A letter from the authority to the applicants dated 5 August 1998 notes that a final inspection had not been undertaken, suggesting that work was substantially completed by that time.

3.3 It appears that no final inspection was carried out until the applicants wished to sell the house in 2009 and sought a code compliance certificate. The authority carried out a final inspection on 27 July 2009 and the record notes:

Failed – issues relating to the cladding/weathertightness. A notice to fix will be issue to help the owners identify areas of non-compliance (with attached photo file).

### **3.4 The notice to fix**

3.4.1 The authority wrote to the applicants on 7 September 2009, stating that it was not satisfied that the building work complied with the Building Code in 'a number of respects'.

3.4.2 The authority attached a 'photo file' of defects and a notice to fix dated 4 September 2009, listing defects identified during its final inspection. These included in summary (with associated code clauses shown in brackets):

- the lack of flashings and drainage gaps to window sills (E2)
- unsealed edges to fibre-cement sheet cladding (E2)
- lack of drainage gap at the bottom of fibre-cement sheet cladding (E2)
- sealant applied at the edge of the window jambs (E2)
- reflectivity of fibre-cement sheet colour greater than 40% (E2)
- vent pipe terminations too close to building elements (G13)
- cracking to fibre-cement sheet cladding (E2)
- lack of or inadequate apron flashings, saddle flashings and back flashings (E2)
- inadequate weatherproofing of windows in fibre-cement sheet cladding (E2)
- timber framing exposed to external moisture at an upper window (E2)
- ponding on membrane entry roof (E2)
- lack of cladding clearance above membrane roofing (E2)
- lack of handrail to staircase (F4)

- sink bench and hand basins not sealed to walls (E3)
- unflushed inter-cladding junctions reliant on sealant (E2)
- unflushed and/or unsealed penetrations (E2)
- timber capping fixed through membrane entry roof (E2)
- lack of drip edges (E2).

3.4.3 Under 'other building related issues', the authority also noted the lack of smoke alarms and safety glass to bathroom windows.

3.5 The authority met with the applicants on 3 November 2009 to 'go over issues identified and discuss possible remedial solutions', and the record notes:

Discussed reclad options, determination process and the fact that you do not need a code compliance certificate to sell your house.

Council will await notification from the owner(s)/agent as to their intentions/proposal.

3.6 The Department received an application for a determination on 1 June 2010.

## **4. The submissions**

4.1 On behalf of the applicants, the agent described the background to the situation and disputed many items identified in the notice to fix. The agent noted that the applicants were happy to address maintenance and minor workmanship issues, but not to undertake unnecessary major remedial work, concluding:

...the owners understand that, given the recent failings within the construction industry, the Council have to be cautious, particularly where they cannot see or have not seen the exact way details have been constructed, but consider it over onerous to require the removal of all the upper level windows, cladding and entry canopy if they are in fact performing adequately and, with suitable maintenance, are likely to continue to do so.

4.2 The applicants forwarded copies of:

- the drawings
- the notice to fix dated 4 September 2009
- the authority's letter dated 7 September 2009.

4.3 The authority forwarded a CD-Rom, entitled 'Property File'. The property file did not contain records of any inspections during construction of the alterations in 1997 and 1998, but contained some documents pertinent to this determination including:

- the consent drawings
- the record of the final inspection and subsequent site meeting.

4.4 Copies of the submissions and other evidence were provided to each of the parties.

4.5 The draft determination was issued to the parties for comment on 12 August 2010. Both the parties accepted the draft without comment.

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

5.1 As mentioned in paragraph 1.5, I engaged an independent expert to assist me. The expert is a member of the New Zealand Institute of Architects. The expert inspected the addition on 14 July 2010 and provided a report dated 20 July 2010.

### **5.2 General**

5.2.1 Apart from items outlined in paragraph 5.5, the expert considered that the general construction quality was good, with flashings generally 'fitted with care to a better standard than was common at the time'. However, the expert also noted that the house was due for repainting and some areas were overdue for maintenance; in particular the cladding cracks, upper windows and timber cappings to the canopies.

5.2.2 The expert noted that the enclosed single garage with the adjacent carport shown in the consent drawings had been changed to a double carport with sliding trellis screens to the west, framed walls elsewhere and garage doors to the street.

### **5.3 The windows**

5.3.1 The expert noted that window installation within the weatherboard cladding appeared satisfactory. Details used were traditional for timber windows, with metal head flashings, solid timber sills and timber facings and scribes at the jambs.

5.3.2 Windows installed within the fibre-cement cladding also appeared satisfactory, with metal head flashings folded around projecting timber mouldings, timber sills with grooves to undersides and timber facings overlapping the jamb to cladding junctions.

5.3.3 The weatherboards finished at upper window sill level, with a continuous metal flashing underlapping the upper fibre-cement and overlapping the weatherboards. This inter-cladding flashing continues beneath window sills, except at the projecting bay window to the staircase.

### **5.4 Moisture levels**

5.4.1 The expert inspected the interior of the additions, taking non-invasive moisture readings; noting one elevated reading at the laundry door sill which was confirmed by invasive testing. The expert also took invasive moisture readings into exposed framing in carport walls, through exterior claddings and through interior linings using long probes; recording the following elevated readings:

- 18% and 21% in the bottom plate at the northeast corner of the carport walls
- 19% and 22% in the boundary joist to the east canopy, under the bay window
- 28% in the bottom plate beside the east laundry door.

5.4.2 The expert noted that the moisture readings were taken during wet winter weather, so would likely represent peak seasonal variation. Moisture levels above 18% generally indicate that external moisture is entering the structure and further investigation is required.

5.4.3 The expert noted that high moisture levels under the staircase bay window were likely to be due to one or more defects in the complex junctions associated with:

- the canopy membrane and/or timber capping to the upstand
- the junction of the timber capping with the timber window sill
- the lack of clearance from the fibre-cement to the membrane roof
- the lack of a flashing under the sill.

5.5 Commenting specifically on the external envelope, the expert noted that:

- the cause(s) of the high moisture levels under the staircase bay window require further investigation and repair
- there is no clearance from the fibre-cement cladding at the sides of the staircase bay window to the membrane of the laundry canopy
- the meter box has scribes at the sides, but no head flashing or seals
- there is insufficient clearance under the weatherboards at the northeast corner of the carport walls, with elevated moisture levels in the bottom plate

#### **General maintenance**

- the house is due for repainting, with maintenance overdue for the upper cladding and windows, minor cladding cracks, deteriorated timber cappings to the canopies and unpainted edges to the fibre-cement cladding
- the colour of the paint coating to the fibre-cement cladding is too dark and there are several minor cracks, probably due to excessive thermal movement
- the upper bedroom window to the northwest corner requires repair as it has a damaged frame, with a gap apparent at the junction with the corner facing
- as detailing around the laundry door sill appears satisfactory, the high moisture level recorded is likely to be due to the lack of door weatherstrips.

5.6 The expert also noted that the entry canopy membrane has insufficient fall, with signs of ponding apparent. However, there is no evidence of associated moisture problems; and the expert considered that, providing the required 15-year durability applies from 1998, the membrane is likely to remain weathertight until the end of that period. He therefore suggested that rectifying the fall and the edge detail could be delayed until the membrane is replaced, with little risk for the next three years.

## **5.7 The remaining Building Code clauses**

5.7.1 Commenting on the code compliance of the other items identified in the notice to fix, the expert noted that:

- The soil vent terminates only about 600mm above the ground and therefore does not comply with Clause G13.
- There is no handrail fitted to the lower flight of the staircase.
- The kitchen bench upstands and bathroom basins are not sealed to walls.

5.8 A copy of the expert's report was provided to the parties on 23 July 2010.

## 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).

#### 6.2 Weathertightness risk

6.2.1 This addition has the following environmental and design features, which influence the weathertightness risk profile of the additions:

##### Increasing risk

- the addition is two-storeys high in part with some complex roof junctions
- there are two types of wall claddings, with inter-cladding junctions
- some walls have monolithic cladding fixed directly to the framing
- the external wall framing is unlikely to be treated to a level that provides resistance to decay if it absorbs and retains moisture.

##### Decreasing risk

- the house is in a medium wind zone
- the monolithic wall cladding is sheltered by eaves
- there are no decks attached to the additions.

6.2.2 Using the E2/AS1 risk matrix to evaluate these features, the elevations are assessed as having a low to moderate weathertightness risk rating. If details shown in the current E2/AS1 were adopted to show code compliance, a drained cavity would be required for some areas of the fibre-cement cladding. However, this was not a requirement at the time of construction.

#### 6.3 Weathertightness performance

6.3.1 Generally the claddings appear to have been installed in accordance with good trade practice at the time. However, taking into account the expert's report, I conclude that the areas outlined in paragraph 5.5 require investigation and rectification.

6.3.2 I also note the expert's comment in regard to the entry canopy (refer paragraph 5.6), and accept that the membrane is adequate, given an amendment to the durability requirements that will reduce the remaining required serviceable life to three years.

6.3.3 Notwithstanding that fibre-cement backing sheets are fixed directly to timber framing, thus inhibiting drainage and ventilation behind the cladding, I note that certain factors that assist the performance of the cladding in this case:

- The cladding is generally installed according to good trade practice.
- The windows are adequately flashed



- After twelve years, there is no evidence of moisture penetration associated with the lack of a drained cavity behind the cladding.

#### **6.4 Weathertightness conclusion**

- 6.4.1 I consider the expert's report establishes that the current performance of the building envelope is not adequate because there is evidence of moisture penetration into the framing at several areas. Consequently, I am satisfied that the addition does not comply with Clause E2 of the Building Code.
- 6.4.2 In addition, the building work is required to comply with the durability requirements of Clause B2. Clause B2 requires that a building continue to satisfy all the objectives of the Building Code throughout its effective life, and that includes the requirement for the additions to remain weathertight. Because cladding faults are likely to continue to allow the ingress of moisture in the future, the addition does not comply with the durability requirements of Clause B2.
- 6.4.3 Because the faults identified with the claddings occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraph 5.5 will result in the building envelope being brought into compliance with Clauses B2 and E2 of the Building Code.
- 6.4.4 I note the expert's comments regarding the lack of maintenance to the house, and the consequential deterioration of some elements in 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 remaining Building Code clauses**

### **7. Discussion**

- 7.1 Taking account of the expert's report, as outlined in paragraph 5.7.1, I consider that the following items require attention (associated code clauses are shown in brackets):
- The position of the soil vent outlet (G13).
  - The lack of handrail to the lower staircase (F4)
  - The lack of sealing to kitchen bench upstands and bathroom basins (E3)
  - Investigation into the safety of glazing to the bathroom windows (F2).

### **8. The notice to fix**

- 8.1 Taking into account the expert's comments, the following table summarises my conclusions on items listed in the notice to fix dated 10 March 2008; referring also to the relevant code clauses and related paragraphs within this determination:

Notice to fix		My conclusions	Code Clauses	Paragraph references
Item	Summarised requirement			
<b>2.1</b>	<b>Not to manufacturer's specifications</b>			
a)	No sill flashings or drainage gap	Adequate	<b>E2, B2</b>	5.3
b)	Unsealed fibre cement edges	Remedial work required.	<b>E2, B2</b>	5.5 and 6.3.1
c)	Lack of capillary gap to cladding base	Remedial work required (to laundry canopy only).	<b>E2, B2</b>	5.5 and 6.3.1
d)	Silicon fillet to window edge	Adequate	<b>E2, B2</b>	5.3
e)	Reflectivity of colour less than 40%	Remedial work required.	<b>E2, B2</b>	5.5 and 6.3.1
<b>2.2</b>	<b>Not to relevant code requirements at the time</b>			
a)	Vent pipes too close to eaves, windows etc	Remedial work required	<b>G13</b>	5.7 and 7.1
b)	Cracks to cladding	Remedial work required	<b>E2, B2</b>	5.5 and 6.3.1
c)	Lack of or no evidence of flashings	Adequate	<b>E2, B2</b>	5.2.1
d)	Inadequate window flashings	Adequate	<b>E2, B2</b>	5.3
e)	Exposed areas of timber framing	Repairs required (one window frame only)	<b>E2, B2</b>	5.5 and 6.3.1
f)	Inadequate fall to entry canopy roof	Adequate for the remaining service life	<b>E2, B2</b>	5.6 and 6.3.2
g)	Inadequate clearances to membranes	Remedial work required (to laundry canopy only).	<b>E2, B2</b>	5.5 and 6.3.1
h)	No handrail to part of stairs	Remedial work required	<b>F4</b>	5.7 and 7.1
i)	No sealing to sink bench handbasins	Remedial work required	<b>E3</b>	5.7 and 7.1
j)	No bead etc to top of sinkbench upstand	Remedial work required	<b>E3</b>	5.7 and 7.1
<b>2.3</b>	<b>Not to accepted trade practice</b>			
a)	Lack of back-flashings to inter-cladding junctions	Remedial work required (to laundry canopy only).	<b>E2, B2</b>	5.5 and 6.3.1
b)	Penetrations not sealed	Remedial work required (to meter box only).	<b>E2, B2</b>	5.5 and 6.3.1
c)	Timber perimeter to canopy membrane	Remedial work required	<b>E2, B2</b>	5.5 and 6.3.1
d)	Lack of drip edges	Adequate	<b>E2, B2</b>	5.5 and 6.3.1
<b>2.4</b>	<b>Drainage and ventilation</b>			
	Lack of cladding drainage & ventilation	Adequate	<b>E2, B2</b>	6.3.3 and 9.1
<b>3.0</b>	<b>Other building related issues</b>			
a)	Smoke detectors	Not required at time of consent	<b>C</b>	5.7 and 8.2
b)	Glazing to bathroom windows	Further investigation required	<b>F2</b>	5.7 and 7.1

8.2 I also note that the notice to fix identified the lack of smoke detectors. While these were not a code requirement when the addition was constructed, I strongly suggest the owners install smoke detectors in accordance with current requirements.

8.3 I am satisfied that the addition does not comply with the Building Code and that the authority made an appropriate decision to issue the notice to fix. However, I am also of the view that some items identified in the notice are adequate and I have also identified additional items that need to be addressed, so the notice should be modified accordingly (refer to paragraph 9.2).

## 9. What is to be done now?

- 9.1 I note that the notice to fix required provision for adequate ventilation and drainage. Under the Act, a notice to fix can require the owner to bring the additions into compliance with the Building Code. The Building Industry Authority (the predecessor to the Department ) has found in a previous Determination (2000/1) that a notice to rectify (the equivalent to a notice to fix under the Building Act 2004) cannot specify how that compliance can be achieved. I concur with that view.
- 9.2 The notice to fix should be modified in accord with the findings of this determination, identifying the items listed in paragraph 5.5 and paragraph 7.1 and referring to any further defects that might be discovered in the course of investigation and rectification, but not specifying 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. It is important to note that the Building Code allows for more than one means of achieving code compliance.
- 9.3 I suggest that the parties adopt the following process to meet the requirements of paragraph 9.2. Initially, the authority should revise and reissue the notice to fix. The applicants should then produce a response to this in the form of a detailed proposal for the house as a whole, produced in conjunction with a competent and suitably qualified person, as to the 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.

## 10. The decision

- 10.1 In accordance with section 188 of the Act, I hereby determine that:
- the external envelope does not comply with Building Code Clauses B2 and E2
  - the building work does not comply with Clauses E3, F2, F4 and G13 of the Building Code
- and accordingly,
- I confirm the authority's decision to refuse to issue a code compliance certificate for the additions, and
  - the authority is to modify the notice to fix, dated 4 September 2009, to take account of the findings of this determination.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 30 August 2010.

John Gardiner  
**Manager Determinations**