



## Determination 2011/118

### The refusal to issue a code compliance certificate and the issue of a notice to fix for a 10-year-old house at 116 Ennis Avenue, Pakuranga, 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 applicant is the owner, S Calderon (“the applicant”) and the other party is the Auckland Council<sup>2</sup> (“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 10-year-old house because it was not satisfied that the building work complied with certain clauses<sup>3</sup> of the Building Code (First Schedule, Building Regulations 1992). The authority’s concerns primarily relate to the weathertightness of the exterior building envelope of the altered house.

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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> Before the application was made, Manukau City Council was transitioned into Auckland Council. The term authority is used for both.

<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.

1.3 The matter to be determined<sup>4</sup> is therefore whether the authority was correct in its decision to refuse to issue a code compliance certificate and to issue a notice to fix for the house. In deciding this matter, I must therefore consider:

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

Whether the external claddings to the house (“the claddings”) comply with Clause B2 Durability and Clause E2 External Moisture of the Building Code. The claddings include the components of the exterior building envelope (such as the wall claddings, the windows, the roof cladding 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 code requirements**

Whether the house complies with other Building Code clauses identified in the notice to fix (C Fire safety, F4 Safety from falling and G12 Water supplies). (I consider these clauses in paragraph 7).

**1.4 Matters outside this determination**

1.4.1 The notice to fix cited Clause H1 Energy efficiency of the Building Code, although there are no specific identified items relating to this clause. The notice also cited contraventions of Clause B1 Structure and Clause E1 Surface water. I have taken Clause B1 as relating to potential structural implications associated with weathertightness and Clause E2 (not E1) as relating to the lack of a downpipe spreader. These clauses are both included within Matter 1.

1.4.2 The notice to fix also states that the applicant may apply to the authority for a modification of the durability requirements to allow durability periods to commence from the date of substantial completion in 2001<sup>5</sup>. I therefore leave this matter to the parties to resolve once the claddings have been made code compliant. I also note that the notice to fix lists ‘documentation required to assist with confirmation of compliance’, and I leave these matters to the parties.

1.5 In making my decision, I have considered the submission of the applicant, the report of the expert commissioned by the Department to advise on this dispute (“the expert”) and the other evidence in this matter. In regard to Matter 1, I have evaluated this information using a framework that I describe more fully in paragraph 6.1.

**2. The building work**

2.1 The, detached building is two-storeys high in part and is situated on a sloping site in a high wind zone for the purposes of NZS 3604<sup>6</sup>. The house is simple in plan but fairly complex in form, and is assessed as having moderate to high weathertightness risk (see paragraph 6.2).

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<sup>4</sup> Under sections 177(2)(d) and 177(2)(f) of the Act

<sup>5</sup> Based on the completion date of the monolithic cladding quoted in the warranty as 21 March 2001.

<sup>6</sup> New Zealand Standard NZS 3604:1999 Timber Framed Buildings.

- 2.2 Construction is generally conventional light timber frame with a concrete slab and foundations, except for pile foundations under the living room at the south corner. The wall claddings are a mix of monolithic and timber weatherboards, with aluminium joinery and pressed metal tile roofing. Given the lack of evidence and the date of construction in 2001, I consider that the timber framing is untreated.
- 2.3 30° pitch gable roof to the upper level extends to the north west above part of the ground floor, with a clerestorey window above the stair landing. The roof slope reduces to 18° over the kitchen/dining area and this low-pitched roof forms a lean-to against upper walls at the north corner, with a verandah at the main entry. Apart from the clerestorey window, roof projections vary from 200mm to 450mm.
- 2.3.1 A timber deck, with open timber balustrades and a timber slat floor, is attached to the south west end of the ground floor. At the north east front of the house, the concrete slab extends under the verandah, with a step down to timber slats at the north corner.

## 2.4 The wall claddings

- 2.4.1 The cladding system to most walls is a form of monolithic cladding system known as EIFS<sup>7</sup>. The proprietary EIFS system consists of 40mm polystyrene backing sheets fixed through the building wrap to the framing and finished with a proprietary mesh reinforced plaster system and a flexible acrylic paint system. The cladding system includes purpose-made flashings to windows, edges and other junctions.
- 2.4.2 Horizontal timber weatherboards clad the upper clerestorey walls, a panel above the north east upper window and a two-storey-high panel on the north-west elevation. The bevel-backed weatherboards are fixed through the building wrap to the framing.

## 3. Background

- 3.1 The authority issued a building consent (No. 103515) in September 2000 under the Building Act 1991. The consent drawings are stamped as approved on 19 September 2000, but I have not seen a copy of the building consent.
- 3.2 I have seen no inspection records, but the EIFS cladding was installed by March 2001, indicating that the house was substantially completed during 2001. However, a code compliance certificate was not sought until 2010.
- 3.3 Following a meeting on-site on 12 November 2010, the authority emailed the applicant to confirm that it 'would not be prepared to issue a code compliance certificate because of the cladding on the dwelling' and noted that a determination could be sought. The authority listed a number of concerns, concluding:

Taking the above matters into account we would require a full weathertightness assessment and report on the dwelling which has been undertaken by a person who is suitably qualified and experienced in weathertightness. Once this report has been done, reviewed and accepted by us then it will be necessary for you to have any works remediated where necessary. This could mean a total reclad of that part of the dwelling which is presently lined with EIFS.

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<sup>7</sup> Exterior Insulation and Finish System

3.4 The Department received an application for a determination on 20 April 2011 and sought further information from the parties as to the matters in dispute.

### **3.5 The notice to fix**

3.5.1 The authority inspected the house on 14 June 2011 and issued a notice to fix with an attached 'photo file' on 26 July 2011. The notice identified a number of Building Code clauses that the building work was 'in breach of' and listed 'details of the contravention'.

3.5.2 The authority identified various areas of concern (including in summary):

- In regard to Clauses E2 and B2:
  - cladding and floor clearances to paving/ground/roofing/decking
  - overlaps at bottom of cladding
  - lack of solid blocking behind fittings fixed through cladding
  - lack of a spreader to downpipes from upper roof
  - the weathertightness of windows in EIFS walls
  - underlying flashings, with reliance on sealants
  - inter-cladding junctions
  - unsealed penetrations
- in regard to Clause C, lack of smoke detectors
- in regard to Clause F4, lack of handrail to lower stairs
- in regard to Clause G12:
  - leaking pressure relief valve to hot water cylinder
  - back flow protection to shower hose.

3.5.3 The notice to fix also listed required documentation to 'confirm compliance with the building consent/code' and required the applicant to prepare a proposed scope of work to address the areas of non-compliance. The notice also stated that the applicant may apply to the authority for a modification of the requirements to allow durability periods to commence from the date of substantial completion.

3.6 Following some correspondence between the parties and the Department, the applicant confirmed by email on 28 September 2011 that the cladding items identified in the notice to fix were disputed as 'the building and construction methodology has been proven fit for purpose' and the determination proceeded.

## **4. The submissions**

4.1 The applicant made no submission and forwarded copies of:

- the consent drawings and specifications
- the warranty for the EIFS cladding.

4.2 The authority made no submission and forwarded the notice to fix dated 17 June 2011 with the attached 'photo file'.

- 4.3 A draft determination was issued to the parties for comment on 29 November 2011. The authority accepted the draft without comment in a response dated 8 November 2011. The applicant accepted the draft without comment in a response dated 12 December 2011.

## **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 registered architect and a member of the New Zealand Institute of Architects. The expert inspected the house on 7 October 2011, providing a report dated 25 October 2011.

### **5.2 General**

- 5.2.1 The expert noted minor variations from the consent drawings, including:
- window and door positions in the south east garage wall reversed
  - the proprietary brand of EIFS cladding changed.
- 5.2.2 The expert considered that the overall quality of construction generally 'appeared sound', with the cladding 'straight and fair' and coatings 'smooth and even' although due for repainting. Where visible, flashings appeared to be 'neatly installed' and appeared adequate except at the bottom of two apron flashings.

### **5.3 Moisture entry**

- 5.3.1 The expert took non-invasive internal moisture readings, noting that readings were 'uniformly low'. The expert also took 22 invasive readings using long probes from the inside, with several through the cladding from the outside. Readings were about 12% to 14% except for two that were elevated as follows:
- 17% below the bottom of the apron flashing to the entry verandah
  - 19% in the bottom plate at the EIFS/weatherboard junction under the bottom of the apron flashing to the entry verandah.
- 5.3.2 The expert noted that readings were taken at the end of winter following heavy rain, so were likely to be lower at other times of year. Moisture levels above 18%, or which vary significantly from equilibrium levels, indicate that external moisture is entering the structure and investigation is needed.

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

- 5.4.1 Windows and doors installed in the EIFS cladding are recessed by the cladding thickness, with sloping sill recesses and metal head flashings. The expert removed the plaster from the jamb to sill junction of a dining area window near the west corner and was able to observe uPVC sill and jamb flashings with sealant applied at the junction. The jamb flashing extended the full depth of the jamb reveal, with a thin plaster coating applied over the uPVC and no reinforcing mesh in the plaster.

5.4.2 The windows in the weatherboard walls are face-fixed, with metal head flashings, 'close fitted' timber scribes at the jambs and overlapping sill flanges. The expert noted that moisture readings under windows were low, indicating satisfactory performance.

## 5.5 Weathertightness

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

- there are some cracks and damage to plaster coatings,
- the thin plaster coating to joinery jamb and head reveals lacks reinforcing mesh, and plaster has broken away from underlying uPVC mouldings
- there is insufficient clearance from claddings to paving beside the garage doors and at the north west wall to the entry verandah, with elevated moisture in the bottom plate on the north west face
- there is insufficient allowance for drainage between the EIFS and the timber decking at the south west deck
- at the inter-cladding junction on the north west wall of the garage, the plaster butts against the timber scribe, with no evidence of underlying flashings
- the bottom of the two apron flashings to the north east elevation lack kick-outs and could allow moisture to penetrate behind claddings
- investigation is needed into the cause(s) of elevated moisture levels in the north west garage wall adjacent to the entry verandah, which may result from:
  - the inter-cladding junction and/or
  - the apron flashing above the junction and/or
  - the lack of cladding clearances to the verandah paving
- some pipe penetrations and fixings through the EIFS are unsealed
- the upper roof drains onto the lower roof, without appropriate spreaders.
- maintenance of the house is needed, including clearing and repairing leaking gutters, plaster repairs and repainting

5.5.2 The expert also made the following comments:

- Although cladding clearances to lower roof areas are reduced, the gaps of about 20mm are not blocked with debris and appear to be satisfactory.
- Given the deep overhang of the front verandah, cladding clearances at the north east entry wall are satisfactory in the circumstances.

5.5.3 The expert considered that the generally low moisture readings in the framing indicate that the claddings have performed adequately in areas remote from the area in the north west garage wall adjacent to the entry verandah.

## 5.6 Other code clauses

- 5.6.1 The expert also commented on other items identified in the notice to fix, and I have taken those comments into account in paragraph 8.1. The expert noted:
- the handrail not extended to the bottom section of the stairs (F4)
  - the lack of non-return valves to the shower hose (G12).
- 5.6.2 The expert also observed the lack of smoke detectors (C), but noted that these were not a requirement at the time of construction. The expert was unable to sight the pressure relief valve to the hot water cylinder, but considered that any leaking could be considered as 'a maintenance issue'.
- 5.7 The expert's report was forwarded to the parties on 28 October 2011.

## 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 These alterations have the following environmental and design features, which influence their weathertightness risk profile:

##### Increasing risk

- the house is two-storeys high in part and in a high wind zone
- although simple in plan, the house form includes some complex roof to wall and inter-cladding junctions
- walls have monolithic and weatherboard 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
- there is a deck attached to the ground floor level

##### Decreasing risk

- there are eaves to shelter upper areas of the wall claddings.

- 6.2.2 Using the E2/AS1 risk matrix to evaluate these features, two elevations are assessed as having a high weathertightness risk rating and the remaining elevations a moderate rating. If details shown in the current E2/AS1 were adopted to show code compliance, a drained cavity would be required for the EIFS to all elevations. However, this was not a requirement at the time of construction in 2001.

### **6.3 Weathertightness performance**

- 6.3.1 Generally the claddings appear to have been installed in accordance with good trade practice to the manufacturer's instructions at the time. However, taking account of the expert's report, I conclude that remedial work is necessary in respect of the areas outlined in paragraph 5.5.1.
- 6.3.2 I also note the expert's comments as outlined in paragraph 5.5.2 and accept that the areas described are adequate in these particular circumstances.
- 6.3.3 Notwithstanding the fact that the claddings are fixed directly to the framing, thus inhibiting free drainage and ventilation behind the cladding, I have noted certain compensating factors that assist the performance in this particular case:
- The claddings are generally installed according to good trade practice and in accordance with the manufacturers' instructions at the time of construction.
  - Elevated moisture levels are limited to an isolated area, with no evidence of moisture penetration to other areas in the house after 10 years.

These factors can assist the building to comply with the weathertightness and durability provisions of the Building Code.

### **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 of the timber framing adjacent to the garage door. Consequently, I am satisfied that the house does not comply with Clause E2 of the Building Code.
- 6.4.2 The building envelope is also required to comply with the durability requirements of Clause B2, which 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 faults will allow the ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.
- 6.4.3 Because the identified cladding faults occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraph 5.5.1 will result in the external envelope being brought into compliance with Clauses B2 and E2 of the Building Code.
- 6.5 I note the expert's comments on the need for maintenance to the house. 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 5.6.1, I consider that the following items require further investigation and/or remedial work:

- the lack of a handrail to the lower section of the stairs (Clause F4)
- in regard to Clause G12:
  - the lack of non-return valve to the shower hose
  - investigation and repair of the hot water cylinder relief valve.

### 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 17 June 2011; referring also to relevant code clauses and related paragraphs within this determination:

Notice to fix		My conclusions	Code Clauses	Paragraph references
	Summarised requirements			
<b>2.0</b>	<b>Issues relating to the cladding</b>			
<b>2.1</b>	<b>Not to manufacturer's specifications</b>			
a)	Lack of clearances to bottom of cladding	Some remedial work required	<b>E2, B2</b>	Paragraphs 5.5.1 and 5.5.2
b)	Lack of backing support to brackets etc	Some remedial work required	<b>E2, B2</b>	Paragraph 5.5.1
<b>2.2</b>	<b>Not to relevant acceptable solutions</b>			
a)	No spreaders to lower roofs	Remedial work required	<b>E2, B2</b>	Paragraph 5.5.1
b)	Inadequate window and door junctions	Adequate		Paragraph 5.5.1
c)	Lack of/inadequate flashings	Some remedial work required for apron flashings and one inter-cladding junction	<b>E2, B2</b>	Paragraph 5.5.1
d)	Inadequate inter-cladding junctions	Remedial work required to junction adjacent to entry	<b>E2, B2</b>	Paragraph 5.5.1
e)	Inadequate cladding/roofing clearances	Adequate in circumstances	<b>E2, B2</b>	Paragraph 5.5.2
f)	Inadequate cladding/decking clearances	Remedial work required	<b>E2, B2</b>	Paragraph 5.5.1
g)	Lack of handrail to lower stairs	Remedial work required	<b>F4</b>	Paragraph 5.6.1
h)	Inadequate floor clearances	Remedial work required to north corner of garage/entry	<b>E2, B2</b>	Paragraph 5.5.1
i)	Cladding overhang at bottom plates	Remedial work required to north corner of garage/entry	<b>E2, B2</b>	Paragraph 5.5.1
j)	Leaking pressure relief valve to HWC	Investigation/maintenance required		Paragraph 5.6.2
<b>2.3</b>	<b>Not to accepted trade practice</b>			
a)	Unflashed and/or unsealed penetrations	Some remedial work required	<b>E2, B2</b>	Paragraph 5.5.1
<b>2.4</b>	<b>Drainage and ventilation</b>			
a)	Lack of cladding drainage & ventilation	Adequate in circumstances	<b>E2, B2</b>	Paragraphs 5.5.3 and 6.3.3
<b>3.0</b>	<b>Other building related issues</b>			
a)	Smoke detectors	Not required at time	<b>C</b>	Paragraphs 5.6.2 and 0
b)	No back flow protection to shower hose	Remedial work required	<b>G12</b>	Paragraph 5.6.1

8.2 I note that the notice to fix identified the lack of smoke detectors. While these were not a code requirement when the house was constructed, I recommend the applicant to install smoke detectors in accordance with current requirements.

8.3 I am satisfied that the house does not comply with the Building Code and 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 likely to be 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 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 to take account the findings of this determination, identifying the items listed in paragraph 5.5.1 and paragraph 5.6.1 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 re-issue the notice to fix. The applicant 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 E2 and B2
- some components do not comply with Building Code Clauses F4 and G12

and accordingly I confirm the authority's decision to refuse to issue a code compliance certificate.

10.2 I also determine that the authority is to modify the notice to fix, dated 26 July 2011, 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 23 December 2011.

John Gardiner  
**Manager Determinations**