



## Determination 2010/044

### Refusal to issue a code compliance certificate for a 10-year-old house with brick veneer and monolithic cladding at 21 Wilding Ave, Epsom, 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 Gardner, 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 J P Singh (“the applicant”), 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 for a 10-year old house because it was not satisfied that it complied with certain clauses<sup>2</sup> of the Building Code (First Schedule, Building Regulations 1992).

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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 stated otherwise, references to the sections are 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 to refuse to issue a code compliance certificate. In deciding this, I must consider:

**1.3.1 Matter 1: the external envelope**

Whether the external envelope to the house (“the external envelope”) complies with Clause B2 Durability and Clause E2 External Moisture of the Building Code. The external envelope include the components of the systems (such as the monolithic and brick veneer 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 matter in paragraph 6.

**1.3.2 Matter 2: the notice to fix**

Whether the authority was correct to issue the notice to fix (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 the Building Code Clause B2 Durability taking into account the age of the house. (I consider this matter in paragraph 8).

1.4 The notice to fix that was issued by the authority also questioned compliance with Clauses B1 Structure and E3 Internal Moisture (refer paragraph 3.3), however the notice to fix included no specific defects that relate to either Clause. I have therefore not considered compliance with Clause E3 and I have taken the view that concerns regarding ‘structural integrity’ under Clause B1 are limited to possible consequential damage to the structure under Building Code Clause B1.3.4(a) as a result of moisture ingress.

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. 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 consists of a two storey detached house, which is located on a sub-divided site in a medium wind zone for the purposes of NZS3604<sup>4</sup>. Construction is generally conventional light timber frame, with a concrete slab, monolithic and brick veneer cladding, powder coated aluminium windows and concrete tiled roofing.

2.2 The house is reasonably simple in plan and form, with a 20° pitched roof and only minimal eaves. The concrete tiled roof is coated with a factory applied glazed coating. The rainwater from the roof terminates into a concealed spouting/fascia system. On the south elevation there is a roof at the junction between the brick veneer and monolithic claddings that extends beyond the bay window. On the north eastern elevation there is an enclosed balcony.

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

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

- 2.3 The cladding is a combination of brick veneer to the lower levels and monolithic cladding described as 60mm EIFS<sup>5</sup> cladding to the upper level. The 60mm polystyrene has been direct fixed to the timber framing of the upper level, and on the lower level 40mm polystyrene has been fixed over 20mm horizontal timber battens.
- 2.4 The expert (refer to paragraph 5) had tested three samples of wood for presence of timber treatment. No timber treatment was identified in any of the samples and on this basis, I consider that the wall framing is likely to be all untreated.

### 3. Background

- 3.1 The authority issued a building consent (BLD36000074501) in March 2000 under the Building Act 1991. I have not seen a copy of the building consent, but I note that the consented drawings are stamped as approved by the authority on 10 March 2000.
- 3.2 The authority carried out inspections during construction, including masonry and insulation inspections. No inspections of the EIFS cladding were undertaken.
- 3.3 A final inspection was undertaken on 7 March 2006. This inspection was the result of the request by the applicant for a code compliance certificate. Following the inspection, the authority wrote to the applicant on 24 March 2006, attaching a notice to fix, dated 29 March 2006 and stating that the authority could not satisfied that the house complied with the Building Code in a number of respects. The notice to fix stated that the authority had identified building work which:
- Has not been undertaken in accordance with the building consent number BLD36000074501 also known as AC 00 00745, and
- .....is in breach of clauses B1 Structure, B2 Durability, E2 External Moisture, E3 Internal Moisture, and H1 Energy Efficiency
- 3.4 The notice to fix listed the details of contravention, which were associated with the following areas (refer to paragraph 7.1):
- horizontal surfaces (item 2.1(a), item 2.3(d))
  - finished cladding levels above the deck (item 2.1(b), item 2.3(f))
  - junctions between recessed windows and wall cladding (item 2.1(c), item 2.3(a & b))
  - plaster coatings not extending behind fascia boards (item 2.1(d))
  - direct fixing of down pipes to the polystyrene cladding (item 2.1(e))
  - cracking in the EIFS (item 2.2(a))
  - inadequate step downs between finished floor level and deck level (item 2.2(b))
  - absence of exhaust grills which could prevent entry of vermin (item 2.2(c))
  - penetrations through the EIFS (item 2.3(c & e)).

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<sup>5</sup> Exterior Insulation and Finish System

3.5 In September 2006 the authority explained to the applicant that a scope of works was required to progress the work necessary to address the areas of contravention. From the notes on authority's file it appears that the applicant agreed to forward this scope shortly thereafter. However, no further correspondence appears to have been exchanged between the applicant and the authority.

3.6 The Department received the application for a determination on 11 January 2010.

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

4.1 The applicant forwarded copies of:

- the consent drawings
- the inspection summary
- the letter and attached notice to fix following failure of the final inspection.

4.2 The authority acknowledged the applicant's submission but made no submission in response.

4.3 Copies of the submissions and other evidence were provided to the parties. Neither party made any further submissions in response to the information that was provided.

4.4 A draft determination was issued to the parties on 21 April 2010. The draft was issued for comment and for the parties to agree a date when the house, with the exception of the items to be rectified, complied with Building Code Clause B2 Durability.

4.5 Both parties accepted the draft without comment and agreed that compliance with Clause B2 Durability was achieved on 14 August 2000.

#### **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 Building Surveyors. The expert inspected the house on 26 January 2010 and provided a report that was completed on 10 March 2010.

##### **General**

5.2 The expert identified five key items that differed from the as-built plans that could affect the weathertightness and durability of the dwelling. These were:

- the upper level safety barrier details as 'selected handrail' but substituted for an enclosed balustrade
- construction of the upper and lower level framings on the same vertical plane instead of cantilevering the mid-floor joist to the outside face of the brick veneer cladding as consented

- the construction of a lower level roof over the living room
- the construction of a bay window in the kitchen
- the absence of a lower level roof over the external doors on the northern elevation.

5.3 The expert noted that the brick veneer cladding appeared to be performing and meeting the requirements of the Building Code. He also noted that, with the exception of defects outlined in section 5.2, the installation of the original EIFS system appeared to be of a reasonable quality. A similar conclusion was reached in respect of the flashings.

5.4 The expert made particular reference to the poor current condition of the EIFS. In his view this condition could be attributed to the lack of any maintenance that appears to have been undertaken. For instance the paint finish is fading and there are surface contaminants on the plaster finish. It appears that the exterior has not been recoated in the last five to eight years.

### **Moisture levels**

5.5 The expert inspected the interior of the house, taking non-invasive moisture readings internally, and no evidence of moisture was observed. The expert took 18 invasive moisture readings through the cladding at areas considered at risk, and noted the following elevated readings:

- 22% at the horizontal EIFS junction
- five readings between 21 to 36% at the balcony balustrade.

5.6 The expert submitted two samples of the external framing of the balcony balustrade for laboratory testing. The samples exhibited signs of decay, with one sample exhibiting decay to the extent that the integrity of the framing may have been compromised.

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

### **Ground clearances**

- cladding clearances adjacent to garage door openings are inadequate

### **Roof flashings**

- at the junction between the tiles, flashing, fascias and the EIFS cladding there are visible openings

### **EIFS cladding joints**

- differential movement between the floors has caused peaking and cracking at the horizontal joint on the western elevation with the resulting moisture ingress

### **Balconies, balustrade walls and junctions**

- no liquid applied membrane or mechanical flashing has been installed to the top of the balcony balustrade.
- the handrail penetrates the horizontal surface of the balustrade

### **Balcony, roof and deck flashings (including membranes)**

- the balcony outlet has been formed using a 40mm shower waste outlet which is not fit for purpose
- the butyl membrane has split at the transition between the 100x50mm overflow outlet and the plywood substrate through the eastern facing balustrade
- there is an inadequate upstand provided at the transition between the overflow outlet and the vertical face of the balcony balustrade

### **Penetration sealing**

- the electrical meter box was not fixed to the timber wall framing and lifted away from the cladding when the cover to the box was removed.

5.8 The expert also noted there was no insulation in the roof cavity space.

5.9 The expert noted that two ventilation grilles had been fitted to openings on the north and eastern elevations.

5.10 A copy of the expert's report was provided to the parties for comment on 22 March 2010.

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

### **6. Weathertightness**

6.1 The approach in determining whether building work is weathertight and durable and is likely to remain so, is to examine the design of the building, the surrounding environment, the design features that are intended to prevent the penetration of water, the cladding system, its installation, and the moisture tolerance of the external framing.

#### **Weathertightness risk**

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

#### **Increasing risk**

- the walls have minimal eaves to shelter the cladding
- the roof to wall intersections are partly exposed
- there is an enclosed balcony at first floor level

### **Decreasing risk**

- the house is in a low-medium wind zone
- the house is two storeys
- the house is fairly simple in plan and form.

6.3 When evaluated using the E2/AS1 risk matrix, these features show that one elevation of the house demonstrates a moderate weathertightness risk rating and the remaining elevations demonstrate a high risk rating. I note that, if the details shown in the current E2/AS1 were adopted to show code compliance, the EIFS cladding on this building would require a drained cavity. I also note that EIFS was not included in E2/AS1 at the time of construction, nor was a drained cavity required.

### **Weathertightness performance**

6.4 Generally the claddings appear to have been installed in accordance with good trade practice. However, taking account of the expert's comments in paragraph 5.5 and 5.7, I conclude the remedial work is necessary in respect of the external envelope as follows:

- the balcony balustrade on the first floor
- cracking of the horizontal EIFS joint on the western elevation at mid floor level
- the junction between the metal fascia, lead flashings and the EIFS wall cladding
- the metal inter-storey flashing between the brick veneer and the EIFS cladding.

6.5 I also note the expert's comments regarding ongoing maintenance of the EIFS cladding and the requirement of recoating every 5 – 8 years. The upper floor windows are reliant on flexible sealants and the plaster and paint finish to provide a weathertight junction. These junctions must be maintained in a weathertight state.

6.6 Notwithstanding the fact that the EIFS cladding is face fixed to the timber framing that will inhibit free drainage and ventilation behind the cladding somewhat, I have noted certain compensating factors that assist the performance of this cladding in this particular case:

- the EIFS cladding is generally installed according to good trade practice
- moisture penetration is limited to an isolated area.

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

### **Weathertightness conclusion**

6.8 I consider the expert's report establishes that the current performance of the building envelope is not adequate because it is allowing water penetration through the cladding in at least one area at present. Consequently, I am satisfied that the house does not comply with Clause E2 of the Building Code.

- 6.9 The building work 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 requirement for the house to remain weathertight. Because the cladding faults on the house are likely to allow the ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.
- 6.10 The faults identified in the EIFS cladding are widespread in extent but discreet in nature and in my view have not led to a systemic failure of the cladding. I am therefore of the view that satisfactory rectification of the items outlined in paragraphs 5.4 and 6.3.1 will result in the EIFS cladding being brought into compliance with Clauses E2 and B2.
- 6.11 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 notice to fix

### 7. Discussion

- 7.1 The following table summarises conclusions on the items listed within the notice to fix, dated 29 March 2006, and refers to related paragraphs within this determination:

Item	Summarised requirement	My conclusion about the remedial work required	Paragraph ref.
<b>2.0</b>	<b>Issues relating to cladding</b>		
<b>2.1</b>	<b>Not installed as per manufacturer's specifications</b>		
a	Adequacy of deck barriers	Remedial work required	5.4, 6.3.1
b	Adequacy of cladding finished levels above deck	Remedial work required	5.4, 6.3.1
c	Adequacy of window/cladding junctions	No evidence of moisture ingress	5.4
d	Plaster coatings to be taken behind fascia board	No evidence of moisture ingress	5.4
e	Adequacy of down pipe fixings	No evidence of water ingress	5.4
<b>2.2</b>	<b>Not installed as per acceptable or alternative solutions for consent</b>		
a	Claddings to be waterproof	Remedial work required	5.4, 6.3.1
b	Adequacy of step down from finished floor level	Remedial work required	5.4, 6.3.1
c	Protection from vermin	Adequate remedial work already undertaken.	5.8



<b>2.3</b>	<b>Not installed as per accepted trade practice</b>		
a	Adequacy of junctions between window head flashing and cladding	No evidence of water ingress	5.4
b	Adequacy of junction between bottom edge of window joinery and cladding	No evidence of water ingress	5.4
c	Adequacy of penetrations through cladding	Remedial work required to meter box	5.4
d	Adequacy of fall on horizontal surfaces	Remedial work required	5.4, 6.3.1
e	Adequacy of handrail penetrations	Remedial work required	5.4, 6.3.1
f	Adequacy of clearance between cladding and adjacent surfaces	No evidence of water ingress	5.4
<b>2.4</b>	<b>Drainage and ventilation of timber framing</b>	Not required at time work consented	6.2.2, 6.3.3

- 7.2 Inclusion of non-compliance with certain Building Code Clauses requires the authority to demonstrate and articulate the areas of contravention. In my view stating non-compliance with a current Acceptable Solution does not provide sufficient evidence to establish non-compliance with the performance requirements of the Building Code.
- 7.3 I accept that the expert has demonstrated that the building currently does not comply with Building Code Clauses E2 and B2. I also note that the expert found that insulation was absent from the roof cavity and thus the building did not comply with Clause H1 Energy Efficiency.
- 7.4 The expert also observed that ventilation grilles are installed.
- 7.5 I am therefore able to conclude that the authority was correct to include in the notice to fix, reference to non-compliance with respect to Clauses E2, B2, and H1, but that the notice should be modified to take into account the findings of this determination.

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

#### **8. Discussion**

- 8.1 As set out in the notice to fix, the authority has concerns about the durability, and hence compliance with the Building Code, of certain elements of the building taking into consideration the substantial completion of the building work during 2000..
- 8.2 The relevant provision of Clause B2 of the Building Code requires the 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 These durability periods are:

- 5 years if the building elements are easy to access and replace, and failure of those elements would be easily detected during the normal use of the building
- 15 years if building elements are moderately difficult to access or replace, or failure of those elements would go undetected during normal use of the building, but would be easily detected during normal maintenance
- the life of the building, being not less than 50 years, if the building elements provide structural stability to the building, or are difficult to access or replace or failure of those elements would go undetected during both normal use and maintenance.

8.4 In this case, the delay between the completion of the building work in 2000 and the applicant's request for a code compliance certificate in 2009 has raised concerns with the authority that various elements of the building are now well through their required durability periods and would consequently no longer comply with Clause B2 if a code compliance certificate were to be issued effective from today's date.

8.5 It is not disputed, and I am therefore satisfied, that all the building elements, with the exception of those items that are to be fixed, complied with Clause B2 on 14 August 2000. This date has been agreed between the parties, refer paragraph 4.5.

8.6 In order to address these durability issues when they were raised in previous determinations, I sought and received clarification of general legal advice about waivers and modifications. That clarification, and the legal framework and procedures based on the clarification, is described in previous determinations (for example, Determination 2006/85). I have used that advice to evaluate the durability issues raised in this determination.

8.7 I continue to hold that view, and therefore conclude that:

- a) the authority has the power to grant an appropriate modification of Clause B2 in respect of all the building elements.
- b) it is reasonable to grant such a modification, with appropriate notification, as in practical terms the building is no different from what it would have been if a code compliance certificate for the building work had been issued towards the end of 2000.

8.8 I strongly suggest that the authority record this determination and any modifications resulting from it, on the property file and also on any LIM issued concerning this property.

## 9. What is to be done now?

- 9.1 Although I am satisfied that the authority made an appropriate decision to refuse to issue a code compliance certificate and to issue a notice to fix, I consider that the notice to fix should be modified and reissued to take account of the findings of this determination, identifying the areas listed in paragraph 6.3.1 and referring to any further defects that might be discovered in the course of the investigation and rectification, but not specifying how those defects are to be fixed. It is not for the notice to fix to specify how the defects are to be remedied and the building brought to compliance with the Building Code. That is a matter for the owner to propose and for the authority to reject or accept.
- 9.2 I suggest that the parties adopt the following process to meet the requirements of paragraph 9.1. Initially, the authority should issue the notice to fix. The applicant 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 specified matters. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.
- 9.3 Once the matters set out in paragraph 6.3.1 have been rectified to its satisfaction, the authority may issue a code compliance certificate in respect of the building consent amended as outlined in paragraph 8.

## 10. The decision

- 10.1 In accordance with section 188 of the Building Act 2004, I hereby determine that:
- The external envelope does not comply with Clauses E2, B2 and H1 of the Building Code, and accordingly confirm the authority's decision to refuse to issue a code compliance certificate
  - The authority is to modify the notice to fix, dated 29th March 2006, to take account of the findings of this determination.
- 10.2 I also determine that:
- c) All the building elements installed in the house, apart from the items that are to be rectified, complied with Clause B2 on 14 August 2000
  - d) The building consent is hereby modified as follows:

The building consent is subject to a modification to the Building Code to the effect that, Clause B2.3.1 applies from 14 August 2000 instead of from the time of issue of the code compliance certificate for all the building elements, except the items to be rectified as set out in paragraphs 5.7 and 5.6 of 2010/044.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 31 May 2010.

John Gardiner  
**Manager Determinations**