

## Determination 2010/046

### Refusal to issue a code compliance certificate for a 5-year-old house at 75B Paremata Haywards Road, Pauatahanui



#### 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 the Department.
- 1.2 The applicant is the owner of the house, Strathane Trust (“the applicant”). The other party is the Porirua City Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.
- 1.3 The determination arises from the decision of the authority to refuse to issue a code compliance certificate for a 5-year-old house, because, due to cladding issues it was not satisfied that it complied with Clause B2 of the Building Code (First Schedule, Building Regulations 1992).
- 1.4 The matter to be determined<sup>2</sup> is whether the decision of the authority to refuse to issue a code compliance certificate was correct. In making this decision, I must consider:

<sup>1</sup> The Building Act 2004, 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(a) and 177(b)(i) of the Building Act 2004. 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.

## **1.5 Matter 1: the external envelope**

1.5.1 Whether the external envelope of the house complies with Clauses B2 Durability and E2 External Moisture of the Building Code. The external envelope includes the cladding, its configuration and components, junctions with other building elements, formed openings and penetrations, and the proximity of these building elements to the ground.

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

1.6.1 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 house.

1.7 In making my decision, I have considered the submissions of the parties, the report of the independent expert (“the expert”) commissioned by the Department to advise on this dispute, and other evidence in this matter.

## **2. The building work**

2.1 The building is a large, complex, two-storey house, built in 2005. The house is situated on a moderately sloping site, in a rural area, which is in a very high wind zone for the purposes of NZS 3604<sup>3</sup>.

2.2 The house has poured concrete foundations and ground floor slab, with light timber framed walls above. The external wall cladding is a combination of 40mm thick EIFS<sup>4</sup> and profiled metal sheet. Both cladding systems have been installed on drained cavity systems. The roof is low angled long-run corrugated trough steel with intermediate roof levels using a butynol on ply roof surface. The tops of the parapet walls are protected with metal cappings. The house has double glazed, powder-coated alloy framed doors and windows. The house also has an open timber deck at ground level in its north-west corner and two cantilevered decks at first floor level, one of which includes two decorative pillars. The decks are finished with tiles over butynol.

2.3 The wall framing, although not tested is assumed to be H1 treated with H3 treated for the bottom plate, as specified on the plans. Therefore, I consider the external wall framing is likely to be treated to a level that will provide some resistance to decay.

## **3. Background**

3.1 The authority issued a building consent for the house on 21 January 2004. The authority carried out a number of inspections of the building work during its construction, the records for which I have not seen. It appears the work was completed around August 2005 given the manufacturer’s warranties issued for various building elements.

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

<sup>4</sup> Exterior Insulation Finishing System

- 3.2 A final inspection was completed on 28th April 2009 which failed due to the presence of a number of defects in the cladding that were identified. Another final inspection was undertaken by the authority on 7 August 2009 and further defects with the cladding were identified. At this inspection a site instruction was prepared that detailed the defects to the cladding system and also requested a report be provided to the authority by the owners that would provide information on 'the cause and if there has been any damage to the structure behind the cladding.'
- 3.3 On 17th November 2009, the authority was provided with a report prepared by a building surveyor ("the building surveyor") about the condition of the cladding, which was commissioned by the applicant and detailed the remedial work that was undertaken.
- 3.4 The authority rejected this report and on 27th November 2009, wrote to the applicant requiring additional information including:
- the cause and extent of the cracking to the EIFS cladding
  - the effect of water ingress on the building wrap and framing
  - comment from the organisation or person providing a warrantee in respect of the repairs
  - assurance on the durability, as installed, of the cladding systems.
- 3.5 The reply from the building surveyor, on the 20th December 2009, answered the issues outlined in paragraph 3.4 but, according to the authority, without the necessary evidence and thus the authority rejected this letter and instead wrote to the applicant on the 14th January 2010, refusing to issue a code compliance certificate.
- 3.6 The applicant made an application for a determination which was received by the Department on 22nd February 2010.

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

- 4.1 The applicant also forwarded copies of:
- the consent documentation
  - the inspection records
  - the documentation required by the authority to support the issue of the code compliance certificate, including producer statements and the electrical certificate
  - the report described in paragraph 3.3.
- 4.2 The authority acknowledged the application for a determination and enclosed a copy of its inspection records and correspondence relating to the applicant's house.

### **4.3 The building surveyor's report**

- 4.3.1 As noted in paragraph 3.3, the applicant engaged a building surveyor, who is a member of the New Zealand Institute of Building Surveyors, to provide an assessment of the condition of the EIFS cladding.
- 4.3.2 The building surveyor carried out non invasive moisture readings and observed that there was no excessive moisture detected in the structure and cladding system. The surveyor also noted the remedial work that was undertaken by the original applicator of the EIFS cladding ("the applicator") to correct a number of defects to the cladding as:
- installation of control joint
  - sealing or resealing of internal junction joints, cracking and internal corners.
- 4.3.3 The building surveyor concluded that the cladding was in sound condition and also noted that the manufacturer's maintenance programme needed to be implemented during the life of the coating system.
- 4.3.4 In a later letter to the applicant, the building surveyor noted that all of remedial work was carried out by the applicator and according to the EIFS manufacturer's recommended procedures. The building surveyor also noted that the applicator of the advised that the cracking is thermal cracking of the paint coat only, and not the underlying water proof system, moisture has not penetrated the structure, there was no need for control joints, and the EIFS cladding, with normal maintenance as recommended by the manufacturer, will meet the durability requirements of the Building Code.

### **4.4 The draft determination**

- 4.4.1 A draft determination was issued to the parties on 29 April 2010. The draft was issued for comment and for the parties to agree on a date when the building elements, with the exception of the items that are to be rectified, complied with Clause B2 Durability.
- 4.4.2 The applicant accepted the draft, noting that the profiled metal cladding system is aluminium.
- 4.4.3 The authority accepted the draft, noting that the expert had commented that the cladding system may not have a sufficient degree of durability and tolerances, given the extreme site conditions, and the authority was of the view that specific investigations would be required in order to identify alternative methods of achieving a higher level of durability.
- 4.4.4 Both parties agreed that compliance with Clause B2 was achieved on 1 September 2005.

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

- 5.1 As mentioned in paragraph 1.7, I engaged an expert to provide an assessment 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 15 March 2010 and filed a report on 23 March 2010.
- 5.2 The expert noted that the house appeared to generally have been built in accordance with the supplied plans with the exception of the roof and the cladding systems. The expert did not view the original consent documents.
- 5.3 The expert noted that, in general, the workmanship was of a superior quality and in particular that the level of weathertight design detail and construction made the likelihood of water penetration having spread past the outer surface was remote.
- 5.4 The expert noted that the cladding system may not have a sufficient degree of durability and tolerances given the extreme site conditions (e.g. very high wind zone).

### **5.5 Moisture levels**

- 5.6 In addition to visually inspecting the house, the expert carried out invasive and non-invasive moisture testing at several locations, and removed a small section of the cladding for inspection.
- 5.6.1 The expert took non-invasive and invasive moisture readings at numerous locations on the external walls. Moisture levels were as follows:
- 20%-21% (non invasive) on decorative bands on the east and northern elevations, however, there was no evidence that this moisture has penetrated building wrap and timber framing
  - 20-21% (non invasive) on the eastern elevation beneath the kitchen window, however, the reading was 9% (invasive) beneath the sill corners, suggesting that moisture was restricted to exterior surfaces of cladding system
  - 45-56% (non invasive) at the upper window (south east elevation), however the reading was 18.5% (invasive) suggesting moisture was restricted to the exterior surfaces of the cladding system
  - 22–25% at the western elevation at corner of sill and behind the applied sealant where the crack had previously been repaired
  - 45% and 80-90% at the flat topped columns on the northern deck, although invasive probes indicated rapidly reducing moisture levels in the columns.

## 5.7 Weathertightness observations

5.7.1 Commenting on the weathertightness detailing, the expert noted the following:

### Cladding

- although there are areas where cracking to the EIFS cladding has been repaired, further cracking to the EIFS cladding has occurred generally, but in particular to (although not limited to):
  - the window sills
  - the areas around windows including above window heads
  - the decorative bands attached to the surface of the cladding (which can collect additional water that can enter the plaster surface)
  - the flat topped columns at the northern deck
  - the walls of the parapets
  - the balustrades
- the joints between the EIFS and profiled metal claddings are protected only by sealant

### Flashings at windows and doors

- the windows are well detailed, however, the plaster has been taken to the base of the window sill frame

### Roof

- the parapet cap flashings are inadequate due to the small mitred join overlap and the reliance on sealant
- the roof kick out flashings are inadequate as the kick out is embedded in the plaster.

## Matter 1: The external envelope

### 6. Discussion

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 factors have also been described in previous determinations (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.

6.2 The consequences of a building demonstrating a high weathertightness risk is that building solutions that comply with the Building Code will need to be more robust. Conversely, where there is a low weathertightness risk, the solutions may be less robust. In any event, there is a need for both the design of the cladding system and its installation to be carefully carried out.

6.3 I have evaluated the house using the risk matrix in E2/AS1. The risk matrix allows the summing of a range of design and location factors applying to a specific building design. The resulting risk level can range from "low" to "very high" and is applied to determine what claddings can be used on a building in order to comply with E2/AS1. Higher risk levels will require more rigorous weatherproof detailing.

#### **6.4 Weathertightness risk**

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

##### **Increasing risk**

- it is in a high wind zone
- it has two storeys
- it has cantilevered decks at first floor level
- it has exposed roof to wall intersections, including parapets
- the envelope is complex with angular shapes and multiple types of cladding

##### **Decreasing risk**

- some of the cladding is not protected by eaves, but the EIFS cladding is generally protected by soffit or deck overhangs.

6.4.2 When evaluated using the E2/AS1 risk matrix, these features show that the house demonstrates a high weathertightness risk rating.

#### **6.5 Weathertight performance**

6.5.1 Generally, the cladding appears to have been well installed and is in good condition. However, it is clear from the expert's report that in certain discrete areas, particular aspects of the building work are allowing moisture to enter the outer part of the EIFS cladding. In addition, the flat topped balustrade and northern deck columns are allowing moisture to enter the external framing. I note the expert found that the house had superior workmanship that was evident in the design detailing and construction. I also note the expert found no elevated moisture levels in the external framing to the walls and that moisture has generally not penetrated into the building wrap and external framing, other than at the flat topped balustrade and northern deck columns.

6.5.2 Taking into account the expert's comments, I conclude that the following items require rectification with respect to weathertightness:

- the detail to the window sills
- the parapet cap flashing detail
- the roof kick out detail
- the cracking to the EIFS cladding (in conjunction with identifying and resolving the cause), in particular at the window sills, the areas around the windows and above the window heads, the decorative bands, the flat topped columns at the northern deck, the balustrade, and the walls of the parapets
- the joins between the EIFS and profiled metal claddings
- the flat topped balustrade and columns.

6.5.3 I note the expert's view that cladding system may not have a sufficient degree of durability and tolerances given the extreme site conditions. The cracking to the cladding requires further investigation by a suitably qualified expert. The bracing and flexing of the structure should be investigated by a suitably qualified structural engineer because the differential movement of the building under extreme wind load could cause damage to the cladding.

## **6.6 Weathertightness conclusion**

6.6.1 I consider that the expert's report establishes that the current performance of the external envelope is not adequate as it is currently allowing moisture to penetrate the external wall framing at the flat topped balustrade and columns. As such, the house does not comply with Clause E2 of the Building Code.

6.6.2 The claddings are also required to comply with Clause B2 Durability, which requires that buildings continue to satisfy all the objectives of the Building Code throughout their effective life with normal maintenance. It is likely that without rectification, the EIFS cladding will not continue to prevent the ingress of moisture into the structure of the building. The degree of moisture ingress that might result in this set of circumstances is not considered in this determination.

6.6.3 I therefore consider that the cladding system will not comply with the durability requirements of Clause B2 of the Building Code. Because the faults to the external envelope may allow ingress of moisture to the external framing in the future, the building work does not comply with the durability requirements of Clause B2.

6.6.4 I also note that effective maintenance of claddings is important to ensure ongoing compliance with Clauses B2 and E2 of the Building Code, and is the responsibility of the building owner. The Department has previously described these maintenance requirements, including examples where the external wall framing of the building may not be treated to a level that will resist the onset of decay if it gets wet (for example Determination 2007/60).



## Matter 2: The durability considerations

### 7. Discussion

- 7.1 The authority has concerns about the durability, and hence the compliance with the Building Code, of the house, taking into account the age of the building work.
- 7.2 Clause B2.3.1 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. 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.
- 7.3 The five-year delay between when the building work was carried out in 2005, and the applicant’s request for a code compliance certificate has raised concerns with the authority that various elements of the house are now well through, or at the end of, their required durability periods, and would consequently no longer comply with clause B2, if a code compliance certificate was issued that was effective from today’s date.
- 7.4 It is not disputed and therefore I am satisfied that compliance with Clause B2 was achieved on 1 September 2005. This date has been agreed between the parties, refer paragraph 4.4.4.
- 7.5 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.
- 7.6 I continue to hold the views expressed in the previous determinations, and therefore conclude that:
- the authority has the power to grant an appropriate modification of clause B2 in respect of all of the elements of the building
  - it is reasonable to grant such a modification, with appropriate notification, because in practical terms the building is no different from what it would have been if a code compliance certificate had been issued in 2005.

7.7 I strongly recommend that, once the final determination has been issued, the authority should record the determination, and any modification resulting from it, on the property file and any LIM issued concerning this property.

## 7.8 Further discussion about an authority's power to grant waivers and modifications

7.8.1 I note that in a 2008 District Court case<sup>5</sup>, which considered whether a waiver to the Building Code can be granted after the issue of the original building consent, the Court, referring to the former Act, observed that:

[78] [Section] 34(4) is capable of being read alone. All that it says is that a building consent can be granted subject to a waiver or modification. It does not say that such waiver or modification cannot be sought and/or granted after the original building consent is granted. Indeed [section] 33(4) provides that a building consent can be amended. Obviously it can only be amended after it is issued. It says:

(4) An application for an amendment to a building consent shall be made in the same manner as the original application.

[79] Therefore this must allow for a waiver or modification to be applied for subsequent to the issue of the original building consent. An amendment to the building consent must be able to incorporate a waiver or modification of the Building Code.

[80] The code compliance certificate can only be issued if the work complies with the Building Code, or if there is such a departure from the Building Code that it complies with any previously approved waiver or modification of the Building Code contained in the building consent. The fact that building work for which a building consent has been issued does not comply with the Building Code will be a factor in determining whether or not an amendment in terms of [section] 33(4) (whether by waiver or otherwise) to the building consent will be granted.

7.8.2 Section 433 of the Act states:

### **433 Transitional provision for building consents granted under former Act**

(1) A building consent that was granted under section 34 of the former Act before the commencement of this section must, on that commencement, be treated as if it were a building consent granted under section 49.

(2) However,-

(a) section 93 does not apply; and

(b) accordingly, a building consent authority is not required to issue a code compliance certificate for the building work concerned within the period specified in that section.

7.8.3 I note that the wording of section 67 of the Act is, in effect, similar to that of section 34(4) of the former Act. I therefore take the view that the decision of the District Court as set out in paragraph 7.8.1 applies equally to section 67 of the Act.

7.8.4 I have taken regard of the approach taken by the Court and accordingly I continue to hold the views expressed in previous relevant determinations that, an authority, following the appropriate application from the owner, has the power to grant a modification to the Building Code requirements of an existing building consent without a determination (refer also to the article titled 'Modification of durability periods' in Codewords Issue 39 – August 2009<sup>6</sup>).

<sup>5</sup> (Palmerston North CC v Morresey, Judge Callaghan, DC Palmerston North CIV-2007-454-000463 [11 August 2008])

<sup>6</sup> Codewords articles are published by the Department and are available on the Department's website at [www.dbh.govt.nz/codewords-index](http://www.dbh.govt.nz/codewords-index)

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

- 8.1 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 6.5.2 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.
- 8.2 In response to the notice to fix, the owners should engage a suitably qualified person to undertake a thorough investigation of the external envelope to determine the extent of the defects and produce a detailed proposal describing how the defects are to be remedied. The proposal should be submitted to the authority for approval. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.
- 8.3 Once the agreed matters have been rectified to both parties' satisfaction, the authority may issue a code compliance certificate in respect of the building consent.

## **9. The decision**

- 9.1 In accordance with section 188 of the Building Act 2004, I determine that the external envelope does not comply with Clause B2 and E2 of the Building Code, and accordingly I confirm the authority's decision to refuse to issue a code compliance certificate.
- 9.2 I also determine that:
- a) all the building elements installed in the house, apart from the items that are to be rectified as described in Determination 2010/046, complied with Clause B2 on 1 September 2005
  - b) 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 1 September 2005 instead of from the time of issue of the code compliance certificate for all of the building elements, except for the items to be rectified as set out in Determination 2010/046.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 8 June 2010.

John Gardiner  
**Manager Determinations**