

Determination 2010/052

Refusal to issue a code compliance certificate for a 6-year old house at 103 Karewa Parade, Papamoa



1. The matters to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ (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, the D & C McConnell Family Trust (the applicant), and the other party is the Tauranga City Council (the authority), carrying out its duties and functions as a territorial authority or building consent authority.
- 1.2 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for a 6-year old house because it was not satisfied that it complied with certain clauses² of the Building Code (First Schedule, Building Regulations 1992).

¹ The Building Act, Building Code, Compliance documents, past determinations and guidance documents issued by the Department are all available at www.dbh.govt.nz or by contacting the Department on 0800 242 243

² 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 determined³ 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 of the extensions, as installed on the building, complies with Building Code Clauses B2 Durability and E2 External Moisture. The 'external envelope' includes the cladding, its configuration and components, junctions with other building elements, formed openings and penetrations, and the proximity of those building elements to the ground.

1.3.2 **Matter 2: The durability considerations**

Whether the elements that make up the building work comply with Clause B2 Durability of the Building Code, taking into account the age of the building work.

1.4 In making my decision, I have considered the submissions of the parties, the available building certifier records for the building, the report of the expert commissioned by the Department to advise on this dispute (the expert), and the other evidence in this matter.

2. The building

2.1 The building is a large double storey residential house. The house is sited on a flat, exposed residential section, with open sea views to the north. It has been classified as a high-wind, sea spray zone, for the purposes of NZS3604⁴.

2.2 It is constructed with timber framing, founded on timber foundation piles and has timber floors. The cladding is a combination of fibre cement weatherboards and 60mm EFIS⁵ which is textured and painted. The joinery is aluminium.

2.3 The building has a series of butynol covered flat pitched roofs with perimeter parapet walls and internal gutters.

2.4 The consent drawings specified H3 CCA treated external wall framing. The applicant was able to provide some additional confirmation that H3.1 treated framing had been used. I therefore consider the external framing is likely to be treated to a level that would provide resistance to decay.

3. Background

3.1 The building consent was issued by Bay City Certifiers, a duly registered building certifier under the Building Act 1991 (the building certifier) in June 2004.

³ Under sections 177(b)(i) of the Act

⁴ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

⁵ Exterior Insulation and Finish System

- 3.2 In February 2010, the authority undertook a final inspection. The authority found that it could not be satisfied on reasonable grounds that the building complied with Clauses B2 Durability and E2 External Moisture.
- 3.3 The applicant made an application for determination, which was received by the Department on 15 March 2010.

4. The submissions

- 4.1 The applicant forwarded copies of the plans, producer statements for the cladding, documentation from the final inspection, and the correspondence from the authority explaining its reason for refusing to issue a code compliance certificate.
- 4.2 The authority acknowledged the application and provided a copy of the letter explaining its refusal to issue a code compliance certificate.
- 4.3 A draft determination was sent to the parties on 21 May 2010. The draft was issued for comment and for the parties to agree a date when the building work, with the exception of the items requiring rectification, complied with Building Code Clause B2 Durability.
- 4.4 The parties agreed that the building work, with the exception of the with the exception of the items requiring rectification, complied with Clause B2 Durability on 29 September 2004.
- 4.5 The authority accepted the draft determination without comment.
- 4.6 The applicant noted the building has been built to the plans for both the doors and the windows, which do not show sill flashings. The mitigating factors of no leaks around the windows, treated timber, effective flashings and well fitted scribes mean the lack of sill flashings has not impacted compliance with Clauses E2 and B2.

5. The expert's report

- 5.1 As mentioned in paragraph 1.4, on 29 March 2010 I contracted an independent expert to assess the weathertightness of the house. The expert is a member of the New Zealand Institute of Building Surveyors. The expert visited the building on 12 and 14 April 2010 and furnished a report that was completed on 29 April 2010. A copy of this report was provided to the parties on 30 April 2010.

General

- 5.2 The expert concluded that the shape and form of the house was largely in accordance with the architectural design concept and consent documentation. However, the expert noted that the back grooved cavity polystyrene and plaster cladding system that was specified on the drawings had been replaced by a face fixed EIFS system. A producer statement that was provided indicated that the EIFS system has diamond shaped grooves at the back of the cladding.

- 5.3 The expert noted that the cladding, although recently repainted had cracked in several locations.
- 5.4 The expert noted that the construction appeared to be of good quality. The ground clearances met the requirements of NZS 3604 and were not considered a water ingress risk factor. The expert also found the butynol covered 1.5° sloping roof planes to be generally in sound condition with no evidence of ponding. Gutters appeared to have sufficient fall to water outlets and the overflows were provided as required. Storm water was conveyed into perimeter internal gutters, disposed into water heads and 90mm diameter copper down piles into the drainage system.
- 5.5 The expert noted that the consent drawings specified all external wall framing to be H3 CCA treated. Although there were no areas where the wall framing was visible the applicant was able to provide some additional confirmation that H3.1 treated framing had been used.

Moisture levels

- 5.6 The expert inspected the interior of the house and took non-invasive and invasive moisture readings. Particular attention was paid to the windows but no evidence of water ingress was found

The expert undertook invasive moisture testing at 22 high risk locations in the external envelope. The following elevated readings were found:

- 20% at the parapet top right hand side of windsurf storage room on the east elevation
- 20% at the top right hand side of soffit on the south elevation,
- 24% at the top left hand side of soffit on the south elevation
- 21% at the parapet wall to wing wall junction on the west elevation and roof
- 58% at the top of small wing wall on the west elevation
- 22% at the top of large wing wall on the west elevation.

Flashings at windows and doors

- 5.7 The expert found there were head flashings at all windows and doors to both the EIFS and fibre cement weatherboard claddings. There were sill and jamb flashings to the windows of the EIFS claddings. Sill flashings were part of the flashing assembly of the system for the fibre cement cladding, however, there were no sill flashings installed to the windows.
- 5.8 The expert noted that the joinery to the north elevation is subject to severe weather conditions and that evidence (such as a producer statement) was required to demonstrate that the joinery had a serviceability wind pressure and ultimate wind pressure that corresponds with the wind zone of NZS 3604. However, there are no windows installed into the weatherboard cladding in this elevation.

Roof/parapet flashings

- 5.9 The expert noted that with the exception of a level ledge along the east elevation, the top of all parapet walls was generally sloped at 15°. The expert also found evidence that the top of the parapet walls have been waterproofed with a wrap type water proofing membrane. However, in spite of this waterproofing, elevated moisture levels were found.

Cracking in the cladding

- 5.10 Despite the recent repainting of the cladding, cracks were evident along the east elevation.

Penetration sealing

- 5.11 Invasive and non-invasive moisture testing indicated no water ingress at the stainless steel junctions. However, the expert noted that the TV aerial fixings on the butynol roof were inadequately sealed and the vent pipe was also poorly flashed. Urgent attention was required in these areas.
- 5.12 A copy of the expert's report was provided to the parties on 30 April 2010.
- 5.13 The applicant provided a submission in response to receiving the expert's report. The applicant noted:
- sill trays were an optional requirement at the time of construction, the approved plans expressly stated there will be no sill liners
 - the parapets have a sufficient fall and have a waterproof wrap membrane, and the parapets do not have exceptionally high readings with the exception of the one high reading at 58%
 - the vertical piece under the parapet that was not painted may be the cause of the higher readings on the wing walls of the parapets.

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 apply the principles of weathertightness. This involves the examination of the design of the building, the surrounding environment, and 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.
- 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.

Weathertightness risk

- 6.3 The house has been evaluated using the E2/AS1 risk matrix. The risk matrix allows the summing of a range of design and location factors applying to a specific building design. The resulting level of risk can range from “low” to “very high”. The risk level is applied to determine what claddings can be used on a building in order to comply with E2/AS1. Higher levels of risk will require more rigorous weatherproof detailing; for example, a high risk level is likely to require a particular type of cladding to be installed over a drained cavity.
- 6.4 The house has the following environmental and design features which influence its weathertightness risk profile:

Increasing risk

- the house has no eaves
- the house has exposed and complex roof to wall intersections
- the house is situated in a high wind zone
- the house has two storeys
- the house has a complex envelope shape with two wall cladding types

Decreasing risk

- there are no decks.

- 6.5 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 6.4 show the house has a high weathertightness risk rating. I note that, if the details shown in the current E2/AS1 were adopted to show code compliance, the cladding on this building would require a drained cavity. However, I also note that a drained cavity was not a requirement of E2/AS1 at the time of construction.

6.6 Weathertight performance

- 6.7 With respect to the lack of sill flashings to the weatherboard claddings, the drawings note sill flashing details to the exterior doors but there is no window sill detail provided and the window details shown are drawn at a very small scale. The plans refer only to there being no sill flashings provided at doors, although other details specify that sill flashings to sliding doors are required (for example note 47 on sheet A10). The omission of sill flashings could have resulted in additional failure of compliance with Clause E2 of the Building Code.
- 6.8 However the windows in the weatherboard cladding have shown no signs of leaking in the 5 years since construction. This could be in part because they are not installed in the most exposed building elevation as well as having effective head flashings and scribes fitted to the window jambs. I consider the H3.1 timber treatment would also compensate for any periodic water ingress.

- 6.9 It is clear from the expert's report that in most other respects, the house is well constructed and generally the claddings are installed in accordance with good trade practice. However, taking into account the expert's comments (refer to paragraphs 5.7 to 5.11), I note the evidence is required that the joinery to the exposed north elevation is adequate for the severe weather conditions, and that remedial work is required as follows:
- repair of cracking to areas of plaster on the east elevation
 - provision of adequate protection e.g. proper cap flashings to the parapets
 - remediation of the penetration details through the butyl roofing membrane.

Weathertightness conclusion

- 6.10 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.
- 6.11 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 external envelope is currently allowing the ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.
- 6.12 The faults identified in the external envelope are discrete in nature. I am therefore of the view that satisfactory rectification of the items outlined in paragraph 6.9 will result in the external envelope being brought into compliance with Clauses E2 and B2.
- 6.13 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 relevant provision of Clause B2 of the Building Code requires that building elements must, with only normal maintenance, continue to satisfy the performance requirements of the Building Code for certain periods ("durability periods") "from the time of issue of the applicable code compliance certificate" (Clause B2.3.1).

7.2 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 In this case, the delay between the completion of the building work and the applicant's request for a code compliance certificate has raised concerns that various elements of the building are now well through or beyond 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.

7.4 It is not disputed, therefore I am satisfied, that all the building elements, with the exception of those items requiring rectification, complied with Clause B2 on 29 September 2004. This date has been agreed between the parties, refer to paragraph 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 view, and therefore conclude that:

- the authority has the power to grant an appropriate modification of Clause B2 in respect of the building elements.
- it is reasonable to grant such a modification because in practical terms, the building is no different from what it would have been if a code compliance certificate had been issued when the building work was completed in 2004.

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

8. What is to be done?

- 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 6.9 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 E2 and Clause B2 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 2010/052, complied with Clause B2 on 29 September 2004.
 - 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 29 September 2004 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 2010/052.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 17 June 2010.

John Gardiner
Manager Determinations