Department of Building and Housing
Te Tari Kaupapa Whare

Determination 2010/124

Refusal to issue a code compliance certificate for a 10-year-old house that has been re-clad at 415 Seaforth Road, Bowentown

1. The matters to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004[1] ("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.

1.2 The parties to this determination are:

- P & L McGregor, as trustees of the McGregor Family Trust, the owners of the house ("the applicants") acting through a legal adviser
- Western Bay of Plenty District Council ("the authority"), carrying out its duties as a territorial authority or building consent authority.

1.3 This determination arises from the refusal of the authority to issue a code compliance certificate for the construction of a 10-year old house ("the original house") to which remedial work to the cladding had been completed under two subsequent consents. The authority was not satisfied that the building work in the original house complied with certain clauses of the Building Code[2] (First Schedule, Building Regulations 1992).

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[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 otherwise stated, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

1.4 Based on the information available to me, I therefore consider that the matter for determination[3] is whether the authority was correct in its decision to refuse to issue a code compliance certificate in respect of building consents BC 61653 and BC 79914. In making this determination I have considered the following:

1.4.1 Matter 1: Compliance of the building work under two consents

- Whether the original house (built under building consent BC 61653) complies with Building Code Clauses B2 Durability and E2 External Moisture.
- Whether the recladding to the 2nd floor tiled deck and targeted repairs to monolithic cladding (under building consent BC 79914) complies with Building Code Clauses B2 Durability and E2 External Moisture.

1.4.2 Matter 2: The modification of the original consent

Whether the original building consent should be modified to exclude the work carried out in the two later consents (the re-cladding work and remedial work) and for the date from when the durability requirements should commence.

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

2. The building work

2.1 The building is a three storey residential house. The house is sited on a flat site with sea views to the east. It is situated in a very high-wind and a sea spray zone, for the purposes of NZS 3604[4]. It is constructed with timber framing with some steel post and beam elements, founded on concrete foundations and a concrete floor.

2.2 The flat-pitched roof comprises a liquid-applied membrane on plywood with perimeter parapets. There is an external gutter to the north elevation of the roof.

2.3 The building has two perimeter decks. The upper deck comprises a liquid-applied membrane in plywood overlaid with tiles that is, in part, located over habitable rooms. The lower deck is of open timber. Both decks have solid balustrades of timber framing clad with fibre-cement sheet.

2.4 The original house

2.4.1 The consent drawings do not indicate the treatment of external wall framing to the original house. The applicants have indicated that Douglas Fir was used for the framing. Given the date of construction in 1999 and the lack of other evidence, I consider the external wall framing is likely to be untreated. The external window and door joinery is aluminum.

2.4.2 The monolithic cladding to the original house was fibre-cement sheet fixed through the building wrap directly to the framing. The original cladding was not removed prior to the re-clad.

[3] In terms of sections 177(b)(i) of the Act (prior to 7 July 2010)
[4] New Zealand Standard NZS 3604:1999 Timber Framed Buildings

2.5 The re-cladding work

2.5.1 The new cladding is fibre-cement sheets installed over a drained and ventilated cavity. The new cladding was applied over the existing fibre-cement sheets. The existing external joinery was retained but fitted with new flashings.

3. Background

3.1 The original house was constructed under a building consent (BC 61653) issued on 17 May 1999 under the Building Act 1991. Inspections were completed from May 1999 to October 2000.

3.2 A final inspection was carried out, and in a letter dated 24 February 2005 the authority advised the then owner that it would not issue a code compliance certificate as the authority was not reasonably satisfied that the house complied with Clause E2. The authority provided the following options to resolve the matter:

1. Destructive testing/checking, a weathertightness inspection and report provided to the authority setting out whether or not the cladding has, or is likely to, allow the ingress of external moisture.
2. Removal of the cladding and replacement with either alternative non-monolithic cladding, or monolithic cladding with a suitable moisture management system such as a cavity. A building consent would be required for this option.

3.3 The applicants entered into an agreement to purchase the house in February 2005 subject to a code compliance certificate being issued for the original house.

3.4 The then owner opted to completely re-clad the house but apply the new cladding over the existing. In April 2005 the authority issued building consent BC 72657 for the re-cladding of the house and a code compliance certificate was issued on 8 August 2005.

3.5 It appears that the house continued to suffer from moisture ingress problems and the authority issued building consent BC 79914 on 15 July 2009 to "reclad 2nd floor tiled deck & targeted repairs to monolithic cladding". A code compliance certificate has not been issued in respect of this consent.

3.6 The applicants have since sought a code compliance certificate for the original house (BC 61653), suggesting to the authority that the later building consents BC 72657 and BC 79914 be excluded from the consent for the original house, and that a modification for the durability provisions also be made.

3.7 I have seen no record of a response from the authority to the applicants' request.

3.8 The application for a determination was received by the Department on 31 March 2010.

4. The submissions

4.1 With a covering letter providing background to the dispute, the applicants' lawyer forwarded copies of:

- various consent application documents
- inspection records
- correspondence with the authority.

4.2 The authority acknowledged the application but made no submission.

4.3 The first draft determination was issued to the parties on 14 July 2010. The draft was issued for comment and for the parties to agree on a date when the building elements under the original building consent complied with the Building Code Clause B2 Durability.

4.4 The authority responded in an email dated 9 August 2010. The authority noted that:

> It [seemed] the original construction was inadequate in that [it] did not comply with Clause E2 …
>
> As a result, compliance with both B1 … and B2 is compromised, and has been since the external envelope was applied.
>
> It is difficult to judge when moisture ingress began … it could be … that the building was non-compliant at some time before completion ...
>
> [The authority] believes it is more appropriate that the "B2 date" be set by the [Department] as part of the determination process

I discuss this matter of the Clause B2 completion date in paragraph 7.2.5.

4.5 It appears that remedial work under BC 79914, was completed shortly after the issue of the first draft determination.

4.6 A second draft was issued for comment from the parties on 14 September 2010.

4.7 The authority accepted the second draft subject to comments. The authority noted that the applicants had:

> … opted to completely re-clad the house but applied this over the existing cladding instead of removing [it] and replacing it with an alternative non-monolithic cladding or monolithic cladding with a suitable moisture management system (cavity) which was the second option provided to the applicants by the local authority.
>
> … the framing was not exposed [under BC 72657] to enable it to be checked to establish the true extent of any water ingress and/or the integrity of the timber framing.

The submission also wished that that authority's response to the first determination be expanded upon (refer paragraph 4.4).

4.8 In response, I note that in granting a building consent an authority must be satisfied that compliance would be met if the work was completed in accordance with the plans and specifications as required under section 49 of the Act.

4.9 The applicants responded via a marked-up copy of the draft determination. The submission corrected and sought clarification of some matters in the draft.

4.10 I have amended the determination as I consider appropriate.

5. The expert's reports

5.1 As mentioned in paragraph 1.5, 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.

5.2 The expert's first report

5.2.1 The expert visited the building on 31 May 2010 and furnished a report that was completed on 15 June 2010. A copy of the report was provided to the parties for comment on 21 June 2010.

General

5.2.2 The expert concluded that the shape and form of the house was largely in accord with the consent documentation. The expert noted that the construction appeared to be 'generally good quality', flashings were generally tidy and effective, and the ground clearances were adequate.

5.2.3 The expert also found the flat roof was covered with a liquid applied membrane that appeared to be generally in sound condition with no evidence of ponding. The storm water is conveyed into an externally fitted gutter and disposed onto the deck below.

5.2.4 The expert noted that although there were no areas where the wall framing was visible, the applicant and a tradesman involved in recent remedial works had commented that the framing timber was Douglas Fir and that some areas of the framing that were inspected during remedial works showed no visual evidence of decay.

Moisture levels

5.2.5 The expert inspected the interior of the house and took non-invasive and invasive moisture readings. Minor damage consistent with water ingress was observed to the ceiling of the master bedroom and also to the ceiling in the en-suite

5.2.6 The expert undertook invasive moisture testing at over 30 high risk locations in the external envelope. The majority of readings ranged from 7% to 15% with two notably elevated readings as follows:

- 43% at the ceiling of the en-suite
- 65% at the ceiling of bedroom 1

(I note that the cause of both elevated readings was a faulty joint the parapet capping that has now been fixed.)

5.2.7 The expert noted that both non-invasive and invasive readings taken to the ceiling along the south side of the en-suite and bedroom 1 were highly elevated, and that water ingress was seen to be severe when a section of plaster board was removed from the ceiling in the en-suite. I note that moisture readings of over 40% indicate that the wood is saturated and decay will be inevitable over time.

Flashings at windows and doors

5.2.8 The expert found that the existing aluminium joinery was not removed during the re-clad and that a specific designed window flashing had been installed. The expert noted that this work would have been considered as an alternative solution.

Roof/parapet & balustrade flashings

5.2.9 The expert noted that the parapet flashings were flat, and joints in the flashings were not riveted and appear to rely on silicone sealant only.

The cladding

5.2.10 The expert commented that the cladding appears well fixed and aligned but that the standard of detailing and overall workmanship is 'below average'. The expert observed that the required vertical movement control joints to the ground and first floors have been omitted. Though the house has recently been repainted and appears to be in overall good condition, due to the omission of vertical movement control joints, cracking was visible at some locations.

Penetrations to the cladding

5.2.11 The expert commented that the detailing and sealing of penetrations was poor with the new cladding fitted around downpipes and other service fittings and pipes.

5.2.12 The expert also noted that because the house is located within the sea spray zone the galvanised coach screws used to fix penetrations to the first floor deck should be replaced with stainless steel, and that structural steel shows signs of corrosion and will require regular maintenance.

Conclusion

5.2.13 The expert concluded that the house at present does not comply with Clause B2 Durability and E2 External Moisture, and that further investigation of the condition of the framing timber was required to in order to determine compliance with Clause B1 Structure.

5.3 The expert's second report

5.3.1 In response to the draft determination the owner proceeded with further remedial work under the guidance of a local building surveyor ("the surveyor"). The surveyor confirmed in writing to the expert what remedial work had been completed, and provided drawings detailing the remedial work under BC 79914.

5.3.2 During the course of the work windows were removed and the expert was invited to inspect some of the original framing to consider its condition.

5.3.3 Subsequently the expert produced an addendum to his original report. In the addendum the expert confirmed that the timber was Douglas Fir and that the timber was a sound. The expert noted that previously elevated moisture readings in the ceiling of Bedroom 1 and the en-suite were now at an acceptable level (7 to 15%).

5.3.4 The expert concluded that the original framing met the durability requirements of the Building Code.

Matter 1: The compliance of the original house

6. Weathertightness

6.1 General

6.1.1 The approach in determining whether proposed building work will be weathertight and durable and 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. Weathertightness risk factors have also been described in previous determinations[5] (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.

6.1.2 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.

6.2 Weathertightness risk

6.2.1 The existing building 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 cladding systems 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.

6.2.2 This building has the following environmental and design features which influence its weathertightness risk profile:

Design features that increase risk

- the building is in a very high-wind and sea spray zone
- the building is three-storeys high
- there are parapets to most walls
- the upper deck has a solid balustrade and is, in part, located over habitable spaces

Design features that decrease risk

- the house has been re-clad with monolithic cladding fixed over a cavity

6.2.3 When evaluated using the E2/AS1 risk matrix, these features show that all elevations of the house demonstrate a high weathertightness risk rating.

[5] Copies of all determinations issued by the Department can be obtained from the Department's website or are available by phoning the Department on 0800 242 243.

6.3 The approach to the recladding work

6.3.1 It appears that although the applicants elected to re-clad the house, no investigation and testing was required, or undertaken, to assess the locations and extent of the water ingress, and to confirm the condition of the framing to the house. Because the condition of the original building framing was not investigated, any defects that may have been present have gone uncorrected.

6.3.2 I consider that the lack of such an investigation results in possible damage to the original framing not being repaired and an inadequate basis from which to develop a satisfactory remediation proposal.

6.3.3 The completion of any necessary remedial work to the original building would have enabled a view to be formed as to whether the original building, excluding the recladding, was code compliant.

6.4 Weathertightness performance

6.4.1 I consider the expert's first report established that the performance of the building envelope was not adequate because there was evidence of severe moisture penetration in at least one location, and I note that the authority's initial decision to refuse to issue the code compliance certificate in respect of building consent BC 61653 was correct.

6.4.2 However, remedial work has been undertaken since the first report, and I consider the details submitted by the surveyor (refer paragraph 5.3) now confirms that the house complies with Clause B2 and E2.

6.5 I accept the conclusions reached by the surveyor, as witnessed by the expert in his second report, that the framing timber is in a sound condition and that the house complies with Clause B1 Structure.

Matter 2: The modification of the original consent

7. Discussion

7.1 The exclusion of the re-cladding work

7.1.1 The applicants have proposed that the re-cladding work (BC 72657) and remedial work (BC 79914) should be excluded from the building consent for the original house.

7.1.2 In my opinion, as a code compliance certificate has not been issued for BC 61653 an application can be made for the modification of that consent. The modification should exclude those building elements completed under the consents issued for the re-cladding and remedial work.

7.1.3 I note that by issuing the building consent for re-cladding the authority has, in effect, acknowledged that the original cladding systems would be excluded from the original consent documentation.

7.2 The durability modification

7.2.1 The modification of the building consent should also take into account the durability of the building elements not subject to remedial work, and hence the compliance of those elements with the Building Code, taking into consideration the completion of the original house some time in 2000.

7.2.2 The relevant provision of Clause B2 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).

7.2.3 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.

7.2.4 In this case, the delay between the completion of the original house in 2000 and the applicant's request for a code compliance certificate has raised concerns with the authority that various elements of the original house, excluding the matters that to be rectified, 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.

7.2.5 It appears that the original house was substantially complete sometime in 2000. The authority has requested that I set a date from which the durability periods would commence. The date that appears on the as-built drainage plan and references in the submissions provides a basis for this and accordingly I consider 31 December 2000 a reasonable date.

7.2.6 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.

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

(a) following a request from an owner, the authority has the power to grant an appropriate modification of Clause B2

(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 final code compliance certificate for the building work had been issued in 2000.

7.2.8 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.

8. What is to be done now

8.1 The authority should amend Building Consent BC 61653 to exclude the cladding and building work carried out under BC 72657 and BC 79914.

8.2 I note consent BC 72657 is now effectively 'closed' as the corresponding code compliance certificate has been issued. It appears the remedial work under BC 79914 has now been completed, but I consider the authority should carry out the necessary inspections to ensure this work has been properly installed.

9. The decision

9.1 In accordance with section 188 of the Act, I reverse the authority's decision to refuse to issue a code compliance certificate in respect of building consent BC 61653.

9.2 In accordance with section 188 of the Building Act 2004, I hereby determine that:

(a) all the building elements installed under building consent BC 61653, with the exception of those elements subject to remedial work, complied with Clause B2 on 31 December 2000.

(b) building consent BC 61653 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 31 December 2000 instead of from the time of issue of the code compliance certificate for all the building elements, other than those elements and remedial work as described in Determination 2010/124.

(c) building consent BC 61653 is to be further amended to exclude the building elements installed under building consents BC 72657 and BC 79914.

(d) following the modification set out in (b) and (c) above, the authority shall issue the code compliance certificate in respect of that consent.

9.3 I also confirm the decision of the authority to refuse to issue a code compliance certificate in respect of building consent BC 79914.

9.4 However, subject to the authority satisfying itself as to the code-compliance of the matters as outlined in paragraph 8.2, I consider that the house as a whole will be code compliant and the authority may issue a code compliance certificate in respect of building consent BC 79914.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 15 December 2010.

John Gardiner
Manager Determinations