



Determination 2011/099

Regarding the refusal to issue a code compliance certificate for a 14-year-old house at 9 Driftwood Lane, Waimari Beach, Christchurch



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, G Monk (“the applicant”), and the other party is the Christchurch 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 14-year-old building because it was not satisfied that the building work 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 otherwise stated, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

1.3 The matter to be determined³ is therefore whether the authority was correct to refuse to issue the code compliance certificate. In deciding this, I must consider:

1.3.1 **Matter 1: The external envelope**

Whether the external envelope of the building work complies with the Clauses E2 External Moisture and B2 Durability of the Building Code. The “external envelope” includes the cladding, its configuration and components, junctions with other building elements, formed openings and penetrations, as well as the way the components have been installed and work together.

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 Matters outside this determination

1.4.1 The building appears to have suffered some minor damage to some roofing tiling as a result of the Canterbury earthquakes of 2010 and 2011. However this damage falls outside of the work covered by the first and second consents, and this determination therefore does not consider that damage to the building work.

1.4.2 In addition, alterations were undertaken to the house in 2009 (refer paragraph 2.4). It appears that a code compliance certificate has been issued for the alterations; accordingly this determination does not consider the compliance of those alterations except as they impact on the compliance of the original building work as described in the matters in paragraph 1.3.

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.

2. The building

2.1 The building is a two-storey house with an attached internal access double garage, constructed between 1996 and 1997, and to which alterations were made in 2009. The building is sited on a level section that has been classified as a high-wind sea spray zone for the purposes of NZS 3604⁴.

2.2 The building is of light timber frame construction, and sits on a concrete slab foundation. It is complex in plan and form, with multiple and complex roof junctions and parapet/roof junctions with concealed flashings, and two decks to the upper level.

2.3 The cladding of the building is solid plaster (“stucco”) installed over a rigid plywood substrate, with face-fixed aluminium joinery throughout. The roof is clad with

³ Under sections 177(1)(b) and 177(2)(d) of the Act

⁴ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

concrete tiles in part, and waterproof membrane applied over a ply substrate to the areas of flat roof.

- 2.4 The alterations, which were consented in late 2009, consist of the modification of the decks located on the northwest and southeast elevations of the house. This included side fixed balustrades with glass panels. Metal capping was applied to the parapets and other minor repair work was carried out. It does not appear that investigation for possible damage to the parapets was included.
- 2.5 The expert was unable to establish whether or not the timber framing in the walls, roof and flooring of the dwelling had been treated. Given the date of construction in 1997, I consider that the wall framing is most likely to be treated.

3. Background

- 3.1 In September 1996, the authority issued a building consent (No. 96007322) (“the first building consent”) for construction of the building.
- 3.2 On 13 January 1997 the authority undertook pre-line and bracing inspections of the building work for the first consent, both of which passed.
- 3.3 It is unclear when the building work was completed, and a final inspection was not carried out until 22 May 2008. This inspection failed because of concerns regarding the exterior stairs and some flashing detail to be completed. A note on one version of this inspection record notes ‘unable to issue CCC due to age of consent’. In a subsequent letter to the applicant dated 30 May 2008, the authority made the following comments
- The inspection highlighted non-compliances with the cladding, consequently with the [authority] unable to confirm compliance with NZBC B2 and E2 a Code Compliance Certificate will not be issued.
- 3.4 On 22 January 2009, a registered building surveyor (“the building surveyor”) inspected the building work carried out under the first building consent at the request of the applicant. In a report entitled ‘Comment on Extent of Recladding Work’, the building surveyor noted that he sought clarification from the authority in relation to the refusal of the code compliance certificate. The building surveyor stated in his report that

[The authority’s] comments confirmed discussions on site during the walk around and in brief, the main areas of concern are:

- (a) Plaster work
- No horizontal movement control measures install [sic] at mid height of the two level walls.
 - No vertical control joints in some areas.
 - Fractures in plaster work. (Moderate)
 - Junction spouting with plaster. (Embedment)
 - Fascia and barge board junction with plaster. (Open joints)
 - No jamb or sill flashings installed.

- Junctions plaster with ground and roof. (Clearance not adequate)
 - The gable end spouting junctions. (Diverters and other water control measures not installed)
- (b) Balconies
- Connections to the walls are open to water penetration.
 - Plastered columns supporting the balconies are open to water penetration at the tops and by absorption at the bottoms.
 - The plaster, to most of the columns, are [sic] showing signs of water penetration into the cladding system.
 - Timber framing buried into plaster work.
 - There are many fixings that are corroding. (Not suited to a marine environment).

The building surveyor also provided details as to how the cladding on the lower and upper levels of the building might be remedied, and noted that a new building consent would be required. He confirmed the items in the inspectors report which required attention.

3.5 On 15 June 2009, a plasterer carried out an external inspection of the exterior plaster of the building at the request of the applicant. In letter to the applicant dated 22 June 2009, the plasterer provided an opinion on the installation and condition of the plaster and remedial work that would be required.

3.6 The applicant's architectural designer, the authority and a structural engineer exchanged a number of letters, emails and faxes in August and September 2009; and in a letter to the authority dated 2 September 2009, the architectural designer stated that

We accept that the outstanding matters from the first Building Consent (CON:96007322) can be addressed separately from this new work to allow progress to be made, however we would like to arrange a meeting with the [authority] to address the cladding issue from the first Consent based on an alternative solution as set out in the initial part (history) of the current Consent.

To this end I have altered the eastern deck design to further remove possible negative products and systems.

... I have altered the detail at the parapet so that the existing internal plaster is not cut back, therefore the 11 year successful integrity of the existing cladding is not compromised.

3.7 In a fax to the architectural designer dated 10 September 2009, the authority commented that the previous cladding work which was not part of the new work specified in the second building consent would be 'deleted from the consent'. The authority requested further information regarding: flashing details to the new column, window, parapet saddle and bottom of the parapet; whether the concealed gutter and parapet would be altered other than a capping added; the gutter lip being higher than the roof edge.

3.8 In late 2009, the authority issued a building consent (10094820) ("the second consent") for alterations to the decks, cladding and other features of the building. I

have not seen a copy of that consent or the corresponding code compliance certificate.

- 3.9 In a letter to the authority dated 15 March 2010, the architectural designer made a request on behalf of the applicant for a code compliance certificate 'for the original house ... as an amendment to the Building Consent to modify the durability provisions so that clause B2.3.1 applies from 1997'.
- 3.10 The authority carried out a final inspection for the work completed under the second building consent on 15 June 2011. This inspection passed, with the inspector noting that '[a]ll work completed as per consent plans; previous matters completed'.
- 3.11 The applicant sought to resolve the matter of the code compliance for the first building consent. In an email to the authority dated 13 July 2011 the applicant noted that the process of gaining a code compliance certificate had not been completed in 1998 because of 'stairs off front deck and also handrails on internal stairs' had not been completed.
- 3.12 On 18 July 2011 the authority emailed the applicant, stating that it was reluctant to issue the code compliance certificate for the first consent because 'the building work is over 10 years old and there are issues with providing the certification for the cladding system.'
- 3.13 The Department received the application for determination which was received on 5 August 2011.

4. The submissions

- 4.1 The applicant provided copies of:
- the consent drawings and specifications for the alterations
 - the consent documentation for the alterations
 - copies of correspondence between the parties.
- 4.2 The authority did not acknowledge the application for determination and did not make a submission to it.
- 4.3 A draft determination was sent to the parties for comment on 27 October 2011. Both parties accepted the draft without comment.

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, and inspected the house on 14 September 2011, providing a report that was completed on 23 September 2011.

General

- 5.2 In general the expert was of the view that the stucco was of a 'good standard' with lines true and straight surfaces uniform and consistent in texture. The expert undertook destructive testing of the stucco cladding, and found the cladding to be a '2 coat system with a thickness of 24mm approx' and the plaster appeared to be 'sound'. However, the expert also noted that the workmanship where the decks met the external walls was poor.
- 5.3 The expert also noted that remedial work has been undertaken at roof-to-wall-to-wall junctions and the exterior had recently been repainted.

Variations from consent

- 5.4 The expert noted some differences between the construction and the consented drawings, including:

The building

- the building has been clad with stucco instead of the planned insulated plaster wall cladding system.

The alterations

- the decks have been redesigned.

5.5 Moisture levels

- 5.5.1 The expert inspected the interior of the house and noted no signs of moisture ingress other than damage to the unprotected timber reveal of the laundry door.
- 5.5.2 The expert took nine invasive moisture readings in the exterior walls at areas considered at risk, noting swarf from drillings indicating decay in some locations and recording the following elevated readings or signs of moisture:
- 20% in the top of the deck/lounge junction on the west elevation
 - 21% in the bottom plate below the deck/lounge junction on the west elevation
 - 54% at the roof/wall junction above the garage on the west elevation
 - 18% in the top of the column adjacent to the northeast bedroom on the lower level of the building
 - 18% in the bottom plate below the lounge window on the east elevation
 - 19% at the top of the column below the lounge on the east elevation
 - 35% in the top of the roof/wall junction adjacent to the garage and laundry on the south elevation
 - 33% in the bottom plate below the bathroom window.

I note that moisture readings above 18%, or which vary significantly, generally indicate that moisture is entering the structure and further investigation is needed; and that readings of 40% indicate that the timber is saturated and decay will be inevitable over time.

5.6 Commenting specifically on the weathertightness of the external envelope, the expert noted

- there is no visible evidence that sealants or mechanical sill or jamb flashings have been fitted around the windows and exterior doors of the dwelling
- sloping and curved head flashings provide risks for moisture to be channelled behind the cladding
- window head flashings are fitted without provision of a capillary break to reduce risks of moisture ingress
- apron flashings on the south elevation are inadequately detailed to prevent moisture ingress
- the flashing where it terminates at the roof/wall junction is not durable and has been poorly detailed
- sealant has been applied as a means of deflecting rain water into the spouting
- observation shows that concealed flashings are showing signs of medium to severe corrosion, and where this flashing has not been formed correctly, water is entering the wall cavity and fully discharging into the spouting
- critical roof and apron flashings are affected by corrosion
- there is no under flashing at ridge line
- the membrane flashing on the roof penetration relies on tightness of fit with no over flashing fitted
- little or no regular maintenance has been carried out.

5.7 The expert also noted no visual evidence to show sufficient investigation was carried out to establish whether damage to framing had occurred prior to undertaking remedial repairs in respect to installing water diverters and the installation of metal parapet caps.

5.8 The expert further commented that there are isolated areas where concrete paving extends above the base of the cladding, although these areas are generally protected by porch and lower soffit overhang.

5.9 The expert also observed that metal parapet caps (fitted in the last 12 months) have been butt jointed to wall junctions and sealed, and that there is damage to roof tiles that was likely a result of seismic activity.

5.10 A copy of the expert's report was provided to the parties on 26 September 2011.

Matter 1: The external envelope

6. Weathertightness

- 6.1 The evaluation of building work for compliance with the Building Code and the risk factors considered in regards to weathertightness have been described in numerous previous determinations (for example, Determination 2004/1).

Weathertightness risk

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

Increasing risk

- the envelope complexity is moderately complex
- the building is sited in a high-wind sea spray zone
- there are no eaves to shelter the cladding
- the building has two storeys
- the two decks are at first floor level
- the weathertightness detailing of the dwelling's roof-to-wall junctions is generally inadequate.

- 6.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 6.2 show the house has a high weathertightness risk rating.

Weathertightness conclusion

- 6.4 I consider the expert's report establishes that the performance of the external envelope of the building is not adequate because it is allowing water penetration through the cladding, which has resulted in decay to the timber. Consequently, I am satisfied that the external envelope does not comply with Clause E2 of the Building Code.
- 6.5 In addition, the external envelope of the building is 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 faults in the building are likely to allow ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2. I also consider the building's ongoing compliance with Clause B1 must be considered following further investigation.
- 6.6 It is clear from the expert's report that the building is unsatisfactory in terms of its weathertightness risk and performance, and considerable work is required to make it comply with the Building Code. Because of the limited invasive testing undertaken by the expert, I am unable to conclude on the extent of the faults in the building. The rectification of the building will therefore require a careful investigation into the extent of decay and required timber replacement in the framing.

- 6.7 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 certain elements of the building taking into consideration the completion of the building work under the first building consent in 1997.
- 7.2 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).
- 7.3 In previous determinations (for example Determination 2006/85) I have taken the view that a modification of this requirement can be granted if I can be satisfied that the building complied with the durability requirements at a date earlier than the date of issue of the code compliance certificate, that is agreed to by the parties and that, if there are matters that are required to be fixed, they are discrete in nature.
- 7.4 Because of the extent of further investigation required into the condition of the timber framing and therefore to parts of the building’s structure, and the potential impact of such an investigation on the external envelope, I am not satisfied that there is sufficient information on which to make a decision about this matter at this time.

8. The decision

- 8.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the building work completed in respect of building consent No. 96007322 does not comply with Clauses E2 and B2 of the Building Code, and accordingly I confirm the authority’s decision to refuse to issue a code compliance certificate for building consent No. 96007322.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 21 November 2011.

John Gardiner
Manager Determinations