Department of Building and Housing
Te Tari Kaupapa Whare

Determination 2010/123

Refusal to issue a code compliance certificate for a 15-year-old house at 3 McWilliam Avenue, Winton

1. The matter 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 are:

- Mr P Stirling, the owner of the house ("the applicant")
- Southland District Council carrying out its duties as a territorial authority or building consent authority ("the authority").

1.3 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for a 15-year-old house because it was not satisfied that the house complied with clauses B2 Durability and E2 External Moisture[2] of the Building Code (First Schedule, Building Regulations 1992).

1.4 The matter to be determined[3] is therefore whether the authority was correct to refuse to issue a code compliance certificate. In deciding this, I must consider:

[1] 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 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
[3] Under section 177(b)(i) of the Act (prior to 7 July 2010)

1.4.1 Matter 1: the external envelope

Whether the external envelope to the house ("the external envelope") complies with Clause B2 Durability and Clause E2 External Moisture of the Building Code. The external envelope 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.

1.4.2 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.

1.5 I note that the authority has identified contraventions of a number of clauses of the Building Code (refer paragraph 3.4), however the authority has confirmed that the applicant is attending to the defects identified and this determination only need consider Clauses E2 and B2 (insofar as it relates to E2). This determination does not therefore consider the remaining clauses of the Building Code and the applicant has not taken exception to that interpretation.

1.6 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 house is located on a free-draining urban site that falls gently to the west, and is in a low wind zone for the purposes of NZS 3604[4]. The house has two storeys and has a complex exterior envelope.

2.2 The house has a concrete slab foundation on the ground floor and a timber structure at both ground and first floor levels. A freestanding roofed carport is located adjacent to the garage and the dwelling, at the front of the property.

2.3 The exterior joinery is aluminium, and the exterior walls are clad with EIFS[5] monolithic-type cladding system. The roof is clad with long-run roof cladding.

2.4 There is an enclosed deck off the first floor gallery hallway, and a feature pergola structure with pergola rafters attached to the house structure on the north elevation.

2.5 The expert was unable to confirm whether the external timber framing was treated, but given the date of construction in 1995 and the lack of other evidence, I consider that the wall framing is likely to be untreated.

3. Background

3.1 Building consent BLD/1994/943/1 was issued by the authority on 22 August 1994 for the construction of the dwelling, based on the plans and specifications which showed an external cladding system incorporating stucco plaster generally in accordance with the then-operative Acceptable Solution E2/AS1.

3.2 The dwelling was constructed during 1994 and 1995. The authority carried out inspections during construction, including footings, framing, lining and roof inspections, and on 21 May 1998 the authority noted that the dwelling was complete

[4] New Zealand Standard NZS 3604:1999 Timber Framed Buildings
[5] EIFS - Exterior insulation and finish system

except for an internal space heater, and that a code compliance certificate could be issued.

3.3 Following an application for a code compliance certificate, an interim code compliance certificate was issued by the authority on 22 May 1998.

3.4 On 28 October 2009, after receipt of an further application for a code compliance certificate, the authority issued a notice to fix which identified 35 items requiring attention before the code compliance certificate could be issued.

3.5 The notice to fix was subsequently reissued on 1 June 2010. This second notice contained a number of comments added by the authority which makes it apparent that progress was being made to rectify the items identified on the original notice.

3.6 The Department received an application for a determination on 25 May 2010.

3.7 As noted in paragraph 1.5 above, I note the expert has stated that the authority was only concerned with the compliance of the building with Clauses E2 and B2, as the other matters are being worked through by the parties.

4. The submissions

4.1 The applicant forwarded copies of:

- the building consent, dated 24 August 1994
- the project information memorandum, dated 5 August 1994
- the interim code compliance certificate, dated 22 May 1998

4.2 The authority acknowledged the application and forwarded copies of the building consent plans and a copy of the notice to fix dated 28 October 2009.

4.3 The draft determination was issued to the parties for comment on 31 August 2010. The authority accepted the draft without comment.

4.4 The applicant accepted the draft subject to a submission received on 1 October 2010. The applicant provided comments on the expert's report as referred to in the draft determination. The applicant submitted that the changes from the consented documentation (as noted in the draft) had been submitted to the authority for approval.

4.5 The submission included:

- a copy of the building consent and inspection records which highlighted entries regarding an inspection carried out on 21 May 1998 – 'all completed except heater'
- photographs of the work in progress noting a rebate to the floor slab for the EIFS cladding, the framing to the chimney for the solid fuel heater, and the 'facia packed out to let cladding up in behind'
- email advice from a specialist coatings manufacturer confirming that it did supply the original coating system used and submitting an offer regarding 'a full maintenance upgrade'
- as-built details of the balcony fixing, and chimney for the solid fuel heater.

I have amended the determination to take account of the above.

4.6 The applicant questioned why, if the matters raised by the expert were required at the time of construction, was the work inspected and found to be code compliant by the authority.

4.7 In response to the applicant I accept the expert's findings that there are a number of deficiencies in the cladding system that would have been apparent on inspection at the time of construction. I consider that the authority incorrectly issued the interim code compliance certificate in 1998, although I note as a general observation, that authorities now have a greater awareness of weathertightness matters. The authority has now adopted the correct approach in refusing to issue the code compliance certificate and by issuing a notice to fix.

5. The expert's report

5.1 As mentioned in paragraph 1.6, I engaged an independent expert to provide an assessment of the condition 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 6 July 2010 and furnished a report that was completed on 14 July 2010.

5.2 The expert noted that the house has generally been poorly maintained, and that when the cladding was first installed, it would not have met the requirements of Clauses E2 and B2, and certain aspects of the cladding design and installation would have permitted moisture ingress soon after the construction was completed.

5.3 The expert also undertook non-invasive and invasive moisture readings at selected locations and found the following elevated readings :

- 26% at the left hand side window opening stud below sill level at window 15
- 22% at the left hand side window opening stud below sill level at window 16
- 22% at the left hand side window opening stud below sill level at window 18
- 25% at the right hand side window opening stud below sill level at window 6
- 24% at the left hand side window opening stud below sill level at window 7 and 30% at the right hand side window lintel and 30% at the bottom plate below window 7, with wet and decayed timber observed at this location
- 88% at the corner stud near deck level below the spouting to cladding junction at the south west corner, with wet and decayed timber observed at this location
- 22% at the left hand side window opening stud at window 11 and 19% at the bottom plate below window 11.

5.4 I note that moisture levels recorded after cladding is in place that vary greatly or are above 18% generally indicate that external moisture is entering the structure and further investigation is required. Moisture readings over 40% indicate that the timber is saturated and decay will be inevitable over time.

5.5 Commenting specifically on the wall cladding, the expert noted that:

- the external wall cladding has been poorly maintained and there are extensive cracks visible

- some cladding penetrations have moved leaving gaps, and the penetrations are not sealed
- no head or sill flashings are installed to the windows
- polystyrene sheet substrate joints are visible and some joints are cracked
- there are no control joints installed
- remedial works have been undertaken in some places, and the works have not been carried out in a tradesman-like way of generally accepted industry manner
- the general arrangement of wall and roof apron flashings, particularly where they form a junction with the cladding and the spouting are not satisfactory to prevent the ingress of moisture, as the barge flashings and spouting ends are buried in the cladding, and timber is visible through the gaps
- the EIFS cladding system is not carried up under the barge rolls and fascia boards (I accept that the polystyrene sheets are carried up under these elements)
- there is extensive cracking around the windows and there are no head flashings
- the standard of cladding installation and directly related building works appears deficient overall
- some construction details have been observed to be such that water would have penetrated into the external wall structure soon after the house was first constructed, thereby commencing deterioration of the structure to some degree
- there has been movement of the garden walls that abut the house, resulting in exposed, unpainted plaster.

5.6 A copy of the expert's report was provided to each of the parties on 16 July 2010.

6. Matter 1: The external envelope

Weathertightness

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

Weathertightness risk

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

Reducing risk

- it is situated in a low wind zone

Increasing risk

- it is two storeys high
- it has a very complex envelope shape with poorly installed cladding systems

- it has exposed roof to wall intersections
- it has an enclosed deck at first floor level
- it has negligible eaves.

6.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 6.2 show that the house demonstrates a high weathertightness risk. I note that, if the details shown in the current E2/AS1 were adopted to show code compliance, the EIFS cladding on this building would require a drained cavity. However, I also note that a drained cavity was not a mandatory requirement of E2/AS1 for stucco plaster cladding systems at the time of construction.

Weathertightness performance

6.4 It is clear from the expert's report that the cladding installed on the house is unsatisfactory in terms of its weathertightness, because elevated moisture levels were recorded in the timber framing, and extensive water-related damage and other faults, such as cracking, were observed.

6.5 Taking into account the expert's report and comments in paragraphs 5.3 to 5.5, I conclude that the following items require attention:

- the adequacy of the junctions between roof apron flashings, spouting and the cladding
- the adequacy of the window flashings and the cladding
- the weathertightness of the service penetrations through the cladding
- the weathertightness of the junctions between the cladding and barge flashings and fascia boards, and at the ends of facia boards, spouting and barge flashings
- the adequacy of the separation between the base of the cladding and the ground
- deficiencies in the EIFS cladding including poor cover of plaster at sheet joints, cracking in the plaster generally and at window bands.

6.6 Further investigation is necessary to determine the extent of decay and the full extent of the repairs required.

Weathertightness conclusion

6.7 I consider the expert's report establishes that the current performance of the cladding is not adequate because there is evidence of moisture penetration and damage. In particular, the cladding and joinery demonstrates key defects (refer to paragraph 5.5) which are likely to have contributed to the moisture penetration evident within the external walls of this building.

6.8 The expert's report also identified the presence of a range of known weathertightness risk factors in this house. The presence of the risk factors on their own is not necessarily a concern, but they have to be considered in combination with the faults identified in the cladding system. It is that combination of risk factors and faults that indicate that the structure does not have sufficient provisions that would compensate for the lack of a drained and ventilated cavity. Consequently, I am not satisfied that the cladding system, as installed, complies with Clause E2 of the Building Code.

6.9 In addition, the building work is also required to comply with the durability requirements of Clause B2. Because the cladding faults on the house may allow further ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.

6.10 I consider that final decisions on whether code compliance can be achieved by either remediation or re-cladding can only be made after a more thorough investigation of the cladding to verify the extent of the damage. This will require a careful analysis by an appropriately qualified expert. Once that decision is made, the chosen remedial option should be submitted to the authority for its comment and approval.

6.11 Given the age of the building, and the expert's opinion that some defects existed since the cladding was completed, any investigation should include an assessment of the condition of the timber framing.

7. Matter 2: The durability considerations

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 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, the date being one that is agreed between the parties.

7.3 However, in conjunction with this, I also need to consider the nature and extent of the defects, the length of time that they may have been evident, and their consequential impact on the building's compliance with other Building Code clauses, particularly Clauses B1 and E2.

7.4 In this case, because of the extent of the defects to the external envelope of this building, I am not satisfied that a modification of the durability provision is appropriate at this stage. However the matter may be reconsidered by the authority once the weathertightness issues and all associated work have been addressed.

8. What is to be done now?

8.1 With respect to the weathertightness issues, the authority should modify the 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 and refer to any further defects that might be discovered in the course of investigation and rectification (refer also paragraph 6.6). The notice to fix should not specify how the defects are to be remedied and the building brought into compliance with the Building Code as that is a matter for the applicant to propose and the authority to accept or reject.

8.2 In response to the notice to fix, the applicant 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.

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.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 9 December 2010.

John Gardiner
Manager Determinations