Department of Building and Housing
Te Tari Kaupapa Whare

Determination 2010/55

Refusal to issue a code compliance certificate for an 8-year-old house at 54 Ocean Road, Ohope, Whakatane

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 M Vincent, the owner of the house ("the applicant")
- the Whakatane District Council carrying out its duties and functions as a territorial authority and 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 an 8-year-old house because it was not satisfied that it complied with clauses B2 Durability and E2 External Moisture[2].

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

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

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 components of the systems, such as the cladding systems, the windows, the roof claddings and the flashings, as well as the way the components have been installed and work together.

1.4.2 Matter 2: The durability considerations

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

1.5 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 the other evidence in this matter.

2. The building

2.1 The building work consists of a double-storey detached house situated on a level site in a very high wind sea spray zone for the purposes of NZS 3604[4].

2.2 The dwelling is founded on perimeter masonry foundation blocks and a solid poured concrete floor. The cladding is a combination of horizontally aligned, powder coated corrugated aluminium and 60mm EIFS[5], which is textured and painted. The joinery throughout is aluminium. The dwelling is complex in form, and sits beneath a series of low pitch roof areas with perimeter parapet walls and butynol-lined internal gutters. The roof cover is six-rib galvanised steel.

2.3 The dwelling features two enclosed decks - one along the northern elevation above the entry, and the other along the western elevation above the garage. Both decks are waterproofed with a reinforced polyvinyl waterproof membrane.

2.4 Based on the visual observations of the expert, I consider that the wall framing is likely to be treated to a level that will provide some resistance to decay.

3. Background

3.1 The building consent application was lodged on 13 April 2002.

3.2 The authority wrote to the then owner on 13 May 2002 noting that it was unable to approve the consent due to information that was unclear or not included. A list of items was provided.

[3] In terms of section 177(b)(i) of the Act.
[4] New Zealand Standard NZS 3604: Timber Framed Buildings
[5] Exterior Insulation and Finish system

3.3 The authority subsequently issued a building consent (No. 10263) for the dwelling on 28 May 2002. The consent conditions included the condition that items identified by the authority in its dated 13 May 2002 were to be provided prior to the erection of framing. These items included a requirement to specify an alternative cladding to the proposed corrugated aluminium cladding, as it was noted this was not suitable for the highly corrosive environment.

3.4 The authority carried out an estimated seven inspections during construction, including a building and plumbing/drainage inspection on 26 April 2002, and additional building inspections on 10 May 2002 and 24 May 2002. The building's framing was inspected on at least one of these visits.

3.5 A final inspection was carried out on 18 November 2005. Following this inspection, the authority wrote to the EIFS cladding installer, stating

> Whilst carrying out the final inspection it was noted the polystyrene had been seated into the rebate above the footing so that the subsequent mesh layer was flush over the poly and the foundation. The plaster finishing coats were then carried over both … My concern is that there is no provision or ability for any moisture penetrating the polystyrene to get out. Also there is no ability for air to circulate in behind the polystyrene.

3.6 The EIFS cladding installer wrote to the authority on 23 November 2005 to supply the product compliance certification and specifications.

3.7 On 9 December 2005 the EIFS product supplier provided to the authority installation specification options for cladding footers.

3.8 No re-inspection was carried out until the applicant requested a code compliance certificate and the authority inspected the house on 16 February 2010. The authority subsequently wrote to the applicant refusing to issue a code compliance certificate for the house due to concerns about compliance of the house with Clauses B1, B2, and E2.

3.9 On 19 February 2010 the Department received the application for a determination.

4. Submissions

4.1 The applicant forwarded copies of the building consent and plans and specifications and the correspondence from the authority.

4.2 The authority acknowledged the application on 23 February 2010, but did not make a submission.

4.3 A draft determination was issued 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 items requiring rectification, complied with Clause B2 Durability on 12 December 2002.

4.5 The applicant accepted the draft determination without comment. The authority accepted the draft determination and noted an error to a date in paragraph 3.6 which has since been corrected.

5. The expert's report

5.1 As mentioned in paragraph 1.5, 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 20 March 2010 and furnished a report that was completed on 21 April 2010.

General

5.2 With regard to the wall cladding systems, the expert noted that at the time the consent was issued, corrugated metal and EIFS cladding systems were not covered by E2/AS1. However, the expert noted the control joints to the EIFS are adequately placed and there is no sign of cracking or premature deterioration, and the corrugated aluminium cladding is performing.

5.3 The expert also noted it was not possible to establish the flashing system that was used and silicone sealant has been applied to some fixing screws and head flashings which may indicate attempts to stop water leaks.

Moisture levels

5.4 The expert took non-invasive moisture readings at numerous locations on the external walls and took 19 invasive moisture readings at high risk locations.

5.5 The readings taken below the left hand side of the stairwell window and the bottom plate corner of the stairwell were over 80% and were too wet for reliable readings to be taken. The expert removed a small section of plaster board from inside the stairwell storage area, and recorded a moisture content reading of 46%. These readings provided evidence that external water ingress is taking place in the stairwell area of the dwelling. Readings of over 40% indicate that the wood is saturated and decay will be inevitable over time.

5.6 The non-invasive and invasive moisture content readings from the remainder of the dwellings were not elevated; however I note that the readings were taken after a long dry summer and that some currently marginal readings are likely to be elevated during winter periods. I suggest that further investigation would be warranted.

5.7 The expert also noted:

Ground clearance

- Although the EIFS cladding terminates into a rebate, which is flush plastered to the outside of the footings, this detail was commonly used prior to the introduction of cavity systems

- This detail generally appears to meet the requirements of NZS 3604 with respect to ground clearance and is not considered a water ingress risk factor

Window and door head flashings

- The head flashings have not been properly formed and installed, and appear to rely solely on silicone sealant for weathertightness
- The PVC sill flashing does not extend 20mm past the jamb flashing as required by most EIFS cladding manufacturers
- A producer statement confirming that the joinery meets the required wind zone standards is typically required for joinery that is subject to severe weather conditions.

Roof/parapet wall flashings

- The parapet cap flashings do not have a 5° slope as required
- One barge flashing to roof junction relies on silicone sealant for weathertightness, while the other junction does not appear to be sealed at all, which may be the reason for the high moisture readings at the stairwell
- A roof penetration is not appropriately flashed and is likely to fail in the near future.

5.8 A copy of the expert's report was provided to each of the parties on 21 April 2010.

Response to the report

5.9 In response to the expert's report, in a letter dated 27 April 2010, the authority submitted a correction be made to a reference to the wind zone.

5.10 In response to the expert's report, in a letter dated 27 April 2010, the applicant noted:

- the corrugated steel cladding was changed to corrugated, powder coated aluminium cladding so that it would be suitable for the sea spray zone, and this is confirmed on the valuation report for the property
- silicon sealing on any windows and doors was undertaken by the owner to prevent moisture entry (in general) rather than to stop leaks
- the dampness in the stair well is most likely caused by overzealous washing of the house. Washing is done on a 6 weekly basis and consists of spraying high pressure water over the whole house including under the roofing overhanging the stairwell area
- clarification is required on what is an adequate flashing of junctions.

5.11 In response to these comments, I note the following:

- As the cause of the leak is not obvious, further investigations should be carried out which must include the window/cladding junctions, bracket fixing penetrations, flashing/wall junction, parapet capping and roof flashings in this area.

- Cleaning the house every six weeks and with large volumes of water under high pressure is not recommended. It is possible under this scenario that water has been entering through a small crack and or junction and caused the damage, however, further investigation is required.

- Some flashings/roof junctions and wall/balustrade junctions rely on silicone sealant only for weathertightness. Adequate flashing is providing a more permanent system and/or additional protection against water penetration.

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:

- the house is located in a very high wind zone
- the house is two storeys
- the house is moderately complex in form, with two cladding types
- most walls have no eaves
- the roof to wall intersections are fully exposed and roof elements finish within the boundaries of exterior walls
- there is an enclosed deck exposed in plan at first floor level.

6.3 When evaluated using the E2/AS1 risk matrix, these features show the features of the house demonstrate 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 requirement of E2/AS1 at the time of construction.

Weathertightness performance

6.4 Generally the cladding appears to have been installed in accordance with good trade practice. However, taking account of the expert's report, I conclude that the parapet capping and head flashings are unsatisfactory, and consequently remedial work is necessary in respect of the following:

- the head flashings need to be replaced with sloped flashings with turned-up stop ends
- the parapet capping needs to be refitted with adequate slope and apron flashings
- any other defects discovered during the rectification process.

6.5 Apart from the noted exceptions concerning the head flashings and parapet capping, the cladding is installed to reasonable trade practice and appears to be functioning adequately as an alternative solution.

Weathertightness conclusion

6.6 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 parapet capping and head flashings in at least one area (notably the stair well storage area) at present. Consequently, I am satisfied that the house does not comply with Clause E2 of the Building Code.

6.7 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 capping and flashing faults on the house are likely to allow the ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.

6.8 The faults identified in the flashing and capping are discrete and have not in my view led to a systemic failure of the building envelope as a whole. I am therefore of the view that satisfactory rectification of the items outlined in paragraph 6.4 will result in the dwelling being brought into compliance with Clauses B2 and E2.

6.9 Effective maintenance of the capping and flashings 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.

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 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 not 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 12 December 2002. 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 that view, and therefore conclude that:

- The authority has the power to grant an appropriate modification of Clause B2 in respect of all the building elements.
- 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 code compliance certificate for the building work had been issued towards the end of 2005.

7.7 I strongly recommend 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 I note that the authority has not issued a notice to fix. A notice to fix should be issued that requires the owner to bring the building work into compliance with the Building Code, identifying the items listed in paragraph 6.4 and referring to any further defects that might be discovered in the course of rectification, but not specifying how those defects are to be fixed. It is not for the notice to fix to stipulate directly how the defects are to be remedied and the house brought to compliance with the Building Code. That is a matter for the owner to propose and for the authority to accept or reject.

8.2 I would suggest that the parties adopt the following process to meet the requirements of paragraph 8.1. Initially, the authority should issue the notice to fix. The owner should the produce a response to this in the form of a detailed proposal, produced in conjunction with a competent and suitably qualified person, as to the rectification or otherwise of the specified items. 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 Clauses E2 and 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 2010/55, complied with Clause B2 on 12 December 2002.

(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 12 December 2002 instead of from the time of issue of the code compliance certificate for all the building elements, except the items to be rectified as set out in Determination 2010/55.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 30 June 2010.

John Gardiner
Manager Determinations