Department of Building and Housing
Te Tari Kaupapa Whare

Determination 2010/040

Refusal to issue a code compliance certificate for a seven-year-old house at 4 Rembrandt Terrace, Hamilton

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 the Department.

1.2 The applicants are the owners of the house, Mr A and Mrs H Allport ("the applicants"). The other party is the Hamilton City Council ("the authority"), carrying out its duties and functions as a territorial authority or building consent authority.

1.3 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for a seven-year-old house because it was not satisfied that it complied with Clauses B2 and E2 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.

1.4 The matter to be determined[2] is whether the decision of the authority to refuse to issue a code compliance certificate was correct. In making this decision, I must consider:

Matter 1: The external envelope

1.4.1 Whether the external envelope of the house complies with Clauses B2 Durability and 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 these building elements to the ground.

Matter 2: The durability considerations

1.4.2 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 The applicants have advised that the initial reason the code compliance certificate was declined was because the authority had not received the pressure test certificate. This matter is not in dispute and is not considered further in this determination.

1.6 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 is a single-storey detached house in a medium wind zone for the purposes of NZS 3604[3]. It is situated on a near-flat section in a suburban area.

2.2 The house has concrete foundations and floor slabs, and a light timber frame. The house is clad in plastered clay brick veneer, polyclad EIFS cladding and artificial stone cladding applied to a fibre cement backing board. All of the cladding incorporates a cavity, except for the artificial stone cladding on the chimney, which is directly fixed to framing. There is no current evidence as to whether the external framing is treated, although I note the framing used on the chimney is H3 treated.

2.3 The roof is clad with corrugated steel, generally with 450mm to 600mm eaves and verge overhangs. All of the windows have aluminium joinery.

3. Background

3.1 The authority issued a building consent (number 2002/2251) for the house on 25 November 2002 and made regular inspections of the construction through until

[2] Under section 177(b)(i) of the Building Act 2004. 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.

[3] New Zealand Standard NZS 3604:1999 Timber Framed Buildings.

27 March 2003, when the construction of the house was completed.

3.2 On 9 November 2009, the applicants obtained a Land Information Memorandum (LIM) for the property, which noted that there is no code compliance certificate for the construction of the house.

3.3 The applicants obtained an inspection report by a property inspection company for the house dated 25 November 2009. The report noted that overall, the property is in good condition for its age and has been well maintained. The report also identified a number of items that required remedial work, including items relating to the weathertightness of the external envelope.

3.4 In a subsequent letter to the applicants, the authority noted:

> … due to the age of the [building consent] we are not in a position to be able to issue a code compliance certificate.
>
> … [The authority] can not be satisfied on reasonable grounds that the provisions of the Building Code for:
>
> 1. Durability in terms of B2 and/or
> 2. Weathertightness in terms of E2 and/or
> 3. Other appropriate provisions of the Building Code.
>
> have been met and maintained in the period since the issue of the building consent.
>
> Additionally as per the report [by the property inspection company] … a number of items were identified. Please rectify these matters highlighted in the report and on completion notify [the authority].

3.5 The application for a determination was received by the Department on 8 December 2009.

4. The submissions

4.1 In a letter dated 6 December 2009 supporting the application for determination, the applicants noted:

> [The authority] are now saying that due to the age of the building consent they cannot issue a [code compliance certificate]… This circumstance should never have arisen as everything had in fact been signed off as approved at the time of completion and the courtesy of a letter stating otherwise would have been appreciated from [the authority] so the matter could have been dealt with immediately.

4.2 The applicants also provided copies of:

- the LIM report (refer to paragraph 3.2)
- the inspection records and correspondence from the authority
- the inspection report from the property inspection company (refer to paragraph 3.3)
- a statement of the specifications for the EIFS cladding and the plastered clay brick veneer cladding, and a warranty and testing statement for the plumbing.

4.3 The authority submitted a letter dated 9 December 2009 noting that it cannot be satisfied on reasonable grounds that the building complies with the Building Code in terms of 'durability in terms of [Clause] B1' and 'weathertightness in terms of [Clause] E2'.

4.4 A draft determination was issued to the parties on 6 April 2010. The draft was issued for comment and for the parties to agree on a date when the building elements, with the exception of the items that are to be rectified, complied with Clause B2 Durability.

4.5 The applicants did not accept the draft determination saying, in summary, that:

- The initial reason the code compliance certificate was declined was because the authority had not received the pressure test certificate.
- The expert's report confirmed that the house complied with the building code, and that the chimney structure had been approved by the authority at the time of construction.
- The building has been 'signed off' by [the authority] under the then Building Code (Building Act 1991).
- Matters that were considered 'maintenance items' were now being considered as matters of non-compliance.

4.6 I acknowledge the comments made by the applicants. Under the transitional provisions of the Act, the code compliance of the house is to be assessed against the provisions of the Building Code that were in force at the time the work was consented in 2002. The requirements of the Building Code itself have not changed significantly since this time.

4.7 The authority accepted the draft without comment and agreed that compliance with Clause B2 was achieved on 27 March 2003: the applicants also confirmed their agreement with this date.

5. The expert's report

5.1 General

5.1.1 As mentioned in paragraph 1.5, I engaged an independent expert to provide an assessment of the external cladding. The expert is a member of the New Zealand Institute of Architects. The expert furnished the report on 23 February 2010 and a copy of the expert's report was provided to the parties on 24 February 2010.

5.1.2 The expert noted that the house was built according to the plans except for three cladding variations, the most significant of which was the substitution of artificial stone cladding for the planned stone cladding. The expert also noted that the house had been finished to a good standard and had been newly painted in 2009. There was one hairline crack found in the plastered brick veneer at the head of a window and a number of other hairline cracks that had been repaired.

5.1.3 The expert also noted that the plastered brick veneer cladding used on the house was an alternative solution to the standard brick veneer system described in Acceptable Solution E2/AS1. This uses the layer of painted plaster to exclude water from the bricks. Any failure to maintain the plaster layer on the cladding in the future may undermine its weathertightness performance. The expert also noted there were other details that relied on good maintenance, including the penetrations that are sealed with silicon and the area with a flush eaves detail that appeared to be adequately constructed, but which requires the guttering to be well maintained.

5.2 Moisture levels

5.2.1 The expert inspected the interior linings of the external walls and found they were 'flat and free from mould, water stains or other visual signs of moisture entry.' The expert took non-invasive moisture readings of the interior walls at points above and around the joinery. All readings were consistently low.

5.2.2 The expert also carried out invasive moisture testing at 11 locations on the house's exterior walls. Nearly all of the readings were in the low range (between 9% and 13%) and the expert noted that even allowing a margin for higher moisture levels in winter, these readings were likely to remain low.

5.2.3 The only location where an elevated reading of 22% was recorded was in the framing below the sloping shoulder of the chimney.

5.3 Weathertightness observations

5.3.1 Commenting on the weathertightness detailing, the expert noted the following:

Cladding

- The EIFS cladding made inadequate provision for drainage at its base, meaning that any moisture that penetrated the cladding could not drain away.
- The artificial stone cladding did not appear to have weep holes (as specified in the manufacturer's instructions) and the horizontal batten fixed to the bottom plate was not notched to provide for ventilation and drainage.
- Plaster had been applied in places over the junction between the plastered brick veneer cladding, the EIFS cladding and the foundation concrete, which increased the risk of ground water reaching the plaster by capillary action.

Chimney

- There was no flashing at the top of the chimney and no flashing or seal at the junctions of the artificial stone cladding and the plastered brick veneer cladding.

Ground levels

- There was inadequate clearance in places between all three cladding types and ground levels, including in some locations where the garden soil level had been built up above the bottom of the cladding.

Penetrations

- The gas water heater was installed in a non-weathertight recessed box, which was enabling water to penetrate the cavity behind the plastered brick veneer cladding. In addition, no head flashing or other effective waterproofing had been provided at the top of the box.

Matter 1: The external envelope

6. Discussion

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 factors have also been described in previous determinations (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.

6.2 The consequences of a building demonstrating a high weathertightness risk is that building solutions will need to be more robust in order to comply with the Building Code. 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.

6.3 I have evaluated the house using the risk matrix in E2/AS1. The risk matrix allows the summing of a range of design and location factors applying to a specific building design. The resulting risk level can range from 'low' to 'very high' and is applied to determine what claddings can be used on a building in order to comply with E2/AS1. Higher risk levels will require more rigorous weatherproof detailing.

6.4 Weathertightness risk

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

Increasing risk

- It is in a medium wind zone.
- There are no eaves at one location above the ensuite, bathroom and toilet.

Decreasing risk

- In general the eaves are adequate to protect the cladding.
- Flashings have been installed between the roof and the cladding.
- The house is single storey.
- The house's plan and form is of medium complexity.
- There are no decks.

6.4.2 When evaluated using the E2/AS1 risk matrix, these features show that the house demonstrates a medium weathertightness risk rating. The external cladding is installed over a drained and ventilated cavity to all areas other than the chimney, where the cladding is direct fixed to the framing.

6.5 Weathertightness performance

6.5.1 Generally the claddings appear to be well installed and are in accordance with good trade practice. I also note that there is provision for a drained and ventilated cavity to all areas of the external wall framing, other than at the chimney. However, taking account of the expert's comments in paragraph 5.2.3 and 5.3.1, I conclude that remedial work is required in respect of the following defects:

- the lack of provision for drainage at the base of the EIFS cladding
- the lack of provision for ventilation and drainage at the horizontal batten under the artificial stone cladding
- the lack of provision for drainage and ventilation at the junction between the foundation concrete and both the plastered brick veneer and EIFS claddings
- the lack of flashings to the chimney and chimney to wall junctions, and the high moisture reading at the framing at the sloping shoulder of the chimney
- the inadequate ground clearance at some areas of the claddings
- the lack of flashing to the gas water heater box.

6.5.2 In his report the expert referred to a single hairline crack in the plaster, and evidence of earlier cracks that had been repaired. I concur with the expert's opinion that these cracks do not pose any significant risk to the building's durability and can be dealt with as a matter of routine maintenance.

6.5.3 I note also that it is important that the guttering, areas where penetrations are sealed, and the water repellent coating of the brick veneer cladding are well maintained.

6.6 Weathertightness conclusion

6.6.1 I consider that the expert's report establishes that the current performance of the external envelope is not adequate as it is allowing moisture to penetrate the house at the chimney and in the gas water heater box. As such, the house does not currently comply with Clause E2 of the Building Code.

6.6.2 In addition, the house 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 to the external envelope may allow further ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.

6.6.3 In his report, the expert has made several comments about the requirement for ongoing maintenance for various elements of the building and I concur with these. 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). I draw particular attention to the expert's observations, as recorded in paragraph 5.1.3 of this determination.

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 the house, taking into account the age of the building work.

7.2 Clause B2.3.1 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. 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 The house is seven years old, which means that some of the elements of the house are now well through, or at the end of, their required durability periods, and would most likely not comply with Clause B2, if a code compliance certificate was issued effective from today's date.

7.4 It is not disputed, and I am therefore satisfied, that all the building elements complied with Clause B2 on 27 March 2003. This date has been agreed between the parties, refer paragraph 4.7.

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, are 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 views expressed in the previous determinations, and therefore conclude that:

- the authority has the power to grant an appropriate modification of clause B2 in respect of all of the elements of the building

- it is reasonable to grant such a modification, with appropriate notification, because in practical terms the building is no different from what it would have been if a code compliance certificate had been issued in 2003.

8. What is to be done now?

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 6.5.1 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 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 I strongly suggest that once the final determination has been issued the authority should record the determination, and any modification resulting from it, on the property file and any LIM issued concerning this property.

9. The decision

9.1 In accordance with section 188 of the Building Act 2004, I determine that the external envelope of the building does not comply with Clauses B2 and E2 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, complied with Clause B2 on 27 March 2003.

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 27 March 2003 instead of from the time of issue of the code compliance certificate for all the building elements, except for the items to be fixed as set out in Determination 2010/040.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 11 May 2010.

John Gardiner
Manager Determinations