Department of Building and Housing
Te Tari Kaupapa Whare

Determination 2009/13

Refusal of a code compliance certificate for a house with a monolithic cladding system that had been inspected by a building certifier at 28 Travis Country Drive, Burwood, Christchurch

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. The applicant is the owner, M Scaife ("the applicant") and the other party is the Christchurch City Council ("the authority"), carrying out its duties 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 an 8-year-old building. The refusal arose because the building work had been completed under the supervision of a building certifier and the authority is therefore not satisfied that the house complies with the requirements of the Building Code[2] (Schedule 1, Building Regulations 1992).

[1] The Building Act 2004 is available from the Department's website at www.dbh.govt.nz.
[2] The Building Code is available from the Department's website at www.dbh.govt.nz
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 I consider that the matters for determination are:

Matter 1: The cladding
Whether the cladding as installed on the building complies with Clause B2 Durability, and Clause E2 External Moisture of the Building Code. By the "cladding as installed" I mean the components of the system (such as the backing sheets, the flashings, the joints and the plaster and/or the coatings) as well as the way the components have been installed and work together. (I consider this matter in paragraph 8.)

Matter 2: The remaining Building Code clauses
Whether the building complies with the remaining clauses of the Building Code which are relevant to this house. (I consider this matter in paragraph 9.)

1.4 Based on the information and records supplied, I consider there is sufficient evidence available to allow me to reach a conclusion as to whether this building will comply with the Building Code once remedial work is completed. This determination therefore considers whether it is reasonable to issue a code compliance certificate. In order to determine that, I have addressed the following questions:

(a) Is there sufficient evidence to establish that the building work as a whole complies with the Building Code? I address this question in paragraph 5.

(b) If not, are there sufficient grounds to conclude that, once any outstanding items are repaired and inspected, the building work will comply with the Building Code? I address this question in paragraph 9.

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 other evidence in this matter. With regard to the cladding, I have evaluated this information using a framework that I describe in paragraph 7.1.

2. The building

2.1 The building is a fairly simple single-storey detached house situated on a flat site that is in low wind zone in terms of NZS 3604[3]. The exterior walls are of conventional light-timber frame construction, with a concrete floor slab and foundations, monolithic cladding and aluminium windows. Except for a number of recessed walls, the 30° pitch hipped and gabled pressed metal tile roof has eaves and verge projections of more than 450mm overall.

2.2 The expert noted that the timber framing in the roof space is marked as H1 and the specification calls for the timber framing to be "H1 treated". However, given the date of construction in 2001 and the lack of other evidence, I am unable to determine the particular level and type of treatment that is described as H1. I therefore consider that the wall framing of this house is unlikely to be treated to a level that will provide resistance to fungal decay.

2.3 The cladding system to the house is EIFS[4] monolithic cladding, which appears to be similar to most EIFS systems in use at the time of construction. The system includes

[3] New Zealand Standard NZS 3604:1999 Timber Framed Buildings
[4] External Insulation and Finish System

40mm polystyrene backing sheets fixed directly to the framing over the building wrap, which are finished with a mesh reinforced proprietary textured finish, followed by a flexible acrylic paint system.

2.4 The cladding supplier issued a "Compliance/Construction" statement dated 18 August 2000 for the cladding, which included a 3-year warranty on workmanship and a 10-year warranty on materials and stated that the coating system was "applied in compliance with manufacturer's instructions".

3. Background

3.1 The authority issued a building consent (No. 10004207) on 8 May 2000, under the Building Act 1991, based on a building certificate issued by Building Consent Service Ltd ("the building certifier") on 1 May 2000.

3.2 The building certifier carried out the following inspections:

- foundations and drainage on 2 August 2000, which passed
- plumbing and building pre-line on 19 July 2000, which passed after a re-inspection on 24 July 2000
- completion of pre-line on 27 July 2000, which passed
- pre-plaster on 27 July 2000, which passed
- final inspection (undated) which passed.

3.3 Under cover of a letter to the authority dated 30 April 2001, the building certifier provided the "Advice of Completion of Building Work", an interim code compliance certificate and a building certificate, all of which were dated 30 April 2001. The building certificate noted that it excluded "E2 work outside certifier's scope". It is not known what the authority did in response to this advice.

3.4 In a letter to the applicant, also dated 30 April 2001, the building certifier attached the interim code compliance certificate and noted that the authority would "complete the cladding certification".

3.5 I have no record of any further correspondence between the applicant, the building certifier and the authority. Despite advice from the certifier, it appears that the applicant was not aware that a code compliance certificate had not been issued until arranging to sell the house.

3.6 The certifiers approval as a building certifier lapsed on 19 June 2005.

3.7 The applicant made an application for a determination, which was received by the Department on 15 October 2008.

3.8 The Department sought clarification from the authority on its reason for refusing to issue a code compliance certificate, and was verbally advised that this was due to the building work being carried out under the supervision of a building certifier.

4. The submissions

4.1 Within the application, the applicant noted that all building work had been completed in accordance with the Building Code up to the time the building certifier issued the interim code compliance certificate and sent the required documentation to the authority, stating:

> All that was needed was the council to do final inspection, which was requested but never done although all paperwork was completed.

4.2 The applicant forwarded copies of:

- the drawings and specification
- the consent documentation
- the building certifier's inspection records
- the building certifier's interim code compliance certificate and building certificate dated 30 April 2001
- various producer statements, correspondence and other information.

4.3 The authority acknowledged the application, but made no submission.

4.4 Copies of the submissions and other evidence were provided to each of the parties. Neither the applicants nor the authority made any further submissions in response to the submissions of the other party.

4.5 A draft determination was issued to the parties on 26 January 2009 so as to give them an opportunity to check the accuracy of the facts and note any errors or omissions.

4.6 Both parties accepted the draft in a letter to the Department dated, and the applicant requested a correction to a detail in the summary of the expert's report. I have amended the draft accordingly.

5. Grounds for the establishment of code compliance

5.1 In order for me to form a view as to the code compliance of the building work, I need to establish what evidence is available and what can be obtained, considering that the building work is completed and some of the elements are not able to be cost-effectively inspected.

5.2 In this case the evidence includes:

- the building certifier's inspection records (refer paragraph 3.2)
- the building certifier's advice of completion, building certificate and interim code compliance certificate (refer paragraph 3.3)
- the other certificates and documentation.

5.3 In the absence of any evidence to the contrary, I take the view that I am entitled to rely on the inspection records and certification of those building elements that were within the building certifier's scope of approval at the time.

5.4 With regard to the cladding, which was not covered by the building certifier's final certificates, evidence of compliance comes from the expert's report.

5.5 In summary, I find that the following evidence allows me to form a view as to the code compliance of the building work as a whole:

- the records of inspections carried out by the building certifier, which indicate satisfactory inspections of the inaccessible components
- the building certifier's final certificates and other information, which indicate compliance of certain building elements
- the expert's report as outlined below.

6. The expert's report

6.1 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 cladding on 27 November 2008 and furnished a report that was completed on 7 December 2008.

6.2 The expert noted that the consent drawings showed solid plaster applied over the polystyrene backing sheets, but this had been replaced with a textured coating.

6.3 The expert noted that the cladding generally appeared to be installed to a "good standard" and had been reasonably maintained, with no cracking and the paintwork in good condition.

6.4 The expert noted that the windows have satisfactory metal head flashings, and considered that invasive moisture testing carried out at sills of windows and doors indicated that the jamb and sill junctions were performing adequately.

6.5 The expert inspected the interior of the house, taking non-invasive and invasive moisture readings internally, and no evidence of moisture was observed. The expert took 17 invasive reading through the cladding below window sills, in bottom plates and below apron flashings and noted the following elevated readings:

- more than 50% in the framing below the gutter to wall junction at the left hand side of the front entry
- 20% in the framing below the below the gutter to wall junction at the right hand side of the front entry.

I note that the remaining readings were all below 13%. Moisture levels that vary significantly generally indicate that external moisture is entering the structure and further investigation is required.

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

- clearances from the bottom of the cladding to the soil are insufficient along the east and west elevations
- the chimney cap is face-fixed through the top, falls towards the inside and lacks a drip edge to the turndown over the cladding

- the ends of gutters are embedded in the cladding in some areas
- the apron flashings at the entry gable are not weatherproof, with no kickouts, heavy reliance on sealants and moisture entry apparent
- the drillings at the east end of the entry gable indicated decay in the framing
- there is damage to the bottom of the cladding at the southwest corner
- the garden wall to the west elevation is fixed hard against the cladding. (The applicant notes that he has applied sealant between the wall and the cladding and has painted over it)

6.7 The expert also noted that, although there is little clearance from the bottom of the cladding to the paved areas, the junctions are sheltered beneath the eaves and the paving is well-drained away from the walls.

6.8 I note that control joints are not normally required for this type of EIFS cladding for the wall dimensions in this house.

6.9 A copy of the expert's report was provided to the parties on 17 December 2008.

7. Evaluation of the cladding for code compliance

7.1 Evaluation framework

7.1.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solutions[5], which will assist in determining whether the features of this house are code compliant. However, in making this comparison, the following general observations are valid:

- Some Acceptable Solutions cover the worst case, so that they may be modified in less extreme cases and the resulting alternative solution will still comply with the Building Code.
- Usually, when there is non-compliance with one provision of an Acceptable Solution, it will be necessary to add one or more other provisions to compensate for that in order to comply with the Building Code.

7.2 Evaluation for E2 and B2 Compliance

7.2.1 The approach in determining whether building work is weathertight and durable and is likely to remain so, is to apply the principles of weathertightness. This involves the examination of 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. The Department and its antecedent, the Building Industry Authority, have also described weathertightness risk factors in previous determinations[6] (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.

[5] An Acceptable Solution is a prescriptive design solution approved by the Department that provides one way (but not the only way) of complying with the Building Code. The Acceptable Solutions are available from The Department's Website at www.dbh.govt.nz.
[6] Copies of all determinations issued by the Department can be obtained from the Department's website.

7.2.2 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.

7.3 Weathertightness risk

7.3.1 The house has the following environmental and design features in relation to its weathertightness risk profile:

Increasing risk

- monolithic cladding fixed directly to the framing
- external wall framing that is unlikely to be treated to a level that is effective in helping resist decay if it absorbs and retains moisture

Decreasing risk

- built in a low wind zone
- a fairly simple single-storey building
- eaves and verge projections of more than 450mm to protect the cladding
- no decks or balconies.

7.3.2 The house 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 claddings can be used on a building in order to comply with E2/AS1.

7.3.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 7.3.1 show that all elevations of the house demonstrate a low weathertightness risk rating. I note that, if the details shown in the current E2/AS1 were adopted to show code compliance, the cladding on this house would not require a drained cavity.

7.4 Weathertightness performance

7.4.1 Generally the cladding appears to have been installed in accordance with good trade practice and the manufacturer's recommendations, but some areas have not been satisfactorily completed. Taking account of the expert's report, I conclude that remedial work is necessary in respect of the areas outlined in paragraph 6.6.

7.4.2 I also note the expert's comment in paragraph 6.7, and accept that the clearances of the cladding above the paved areas are adequate in the circumstances. However, I also note that the levels of garden areas require attention as noted in paragraph 6.6.

Matter 1: The cladding

8. Discussion

8.1 I consider the expert's report establishes that the current performance of the cladding is not adequate because it is allowing water penetration into the building. Consequently, I am satisfied that the house does not comply with Clause E2 of the Building Code.

8.2 In addition, 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 cladding faults on the house are likely to allow the ingress of moisture in the future, the building does not comply with the durability requirements of Clause B2.

8.3 Because the faults identified with the cladding occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraph 6.6 will result in the house being brought into compliance with Clauses B2 and E2.

8.4 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 applicant. 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).

8.5 I note that although the EIFS cladding system was the subject of a BRANZ appraisal, like other EIFS systems of that time, there was a reliance on sealant to provide weathertight joints to the window joinery, rather than use of purpose-made flashings. The sealant should therefore be the subject of regular inspection, and replacement as necessary, to ensure the joinery remains weathertight.

Matter 2: The remaining Building Code clauses

9. Discussion

9.1 In considering the compliance of this house with other relevant Building Code clauses, I have taken into account the consent drawings, the inspection records, the building certifier's final certificates and the other evidence. (I also note that the expert has raised no issues beyond those relating to compliance of the cladding.)

9.2 The building certifier issued a building certificate and an interim code compliance certificate on 30 April 2001, and handed the project to the authority for the approval of Clause E2, which was outside his scope. All other relevant clauses were within the certifier's scope and are included in the interim code compliance certificate. I am therefore satisfied that the house complies with the other relevant clauses of the Building Code.

10. The appropriate certificate to be issued

10.1 Having found that the building can be brought into compliance with the Building Code, I must now determine whether the authority can issue either a certificate of acceptance or a code compliance certificate.

10.2 Section 437 of the Act provides for the issue of a certificate of acceptance where a building certifier is unable or refuses to issue either a building certificate under section 56 of the former Act, or a code compliance certificate under section 95 of the current Act. In such a situation, a building consent authority may, on application, issue a certificate of acceptance. In the case of this house, the owner has not sought a certificate of acceptance, and is seeking a code compliance certificate.

10.3 In this situation, where I have reasonable grounds to conclude that the consented building work can be brought into compliance with the Building Code, I am of the view that a code compliance certificate is the appropriate certificate to be issued in due course.

11. What is to be done now?

11.1 A notice to fix should be issued that requires the owners to bring the house into compliance with the Building Code, identifying the items listed in paragraph 6.6 and referring to any further defects that might be discovered in the course of investigation and rectification, but not specifying how those defects are to be fixed. It is not for the notice to fix to stipulate 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.

11.2 I suggest that the parties adopt the following process to meet the requirements of paragraph 11.1. Initially, the authority should issue the notice to fix. The owner should then 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 issues. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.

12. The decision

12.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the building does not comply with Clauses B2 and E2 of the Building Code, and I accordingly 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 3 March 2009.

John Gardiner
Manager Determinations