Determination 2008/97

Determination regarding the code compliance of alterations to a house at 385 Plummers Point Road, RD2, Tauranga

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, Mrs Y Roberts ("the applicant"), acting through her son, Mr W Roberts ("the agent") and the other party is the Western Bay of Plenty District Council ("the authority") carrying out its duties and functions as a territorial authority or building consent authority.

1.2 The matter arose because Bay Building Certifiers ("the building certifier"), which was duly registered as a building certifier under the former Building Act 1991, ceased operating as a certifier before it had issued a code compliance certificate for the building work it had supervised. Consequently the authority declined to issue a Code Compliance Certificate for the work.

1.3 I take the view that the matter for determination is whether 3-year old alterations and additions ("the alterations") to the house comply with the requirements of the

[1] The Building Act 2004 is available from the Department's website at www.dbh.govt.nz.

Building Code[2] (Schedule 1, Building Regulations 1992) and consequently whether a Code Compliance certificate should be issued.

1.4 In order to determine whether a building is code-compliant, I must address the following questions:

(a) Is there sufficient evidence to establish that the building work as a whole complies with the Building Code?

(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 these questions in paragraphs 5 and paragraph 8.

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. I have evaluated this information using a framework that I describe more fully in paragraph 7.1.

2. The building

2.1 The building work consists of extensive alterations and additions to a detached house situated on a flat rural site, which is in a high wind zone for the purposes of NZS 3604[3]. The original 3-bedroom split-level house was built in the 1970's, with light timber framing, concrete foundations and slab to a basement garage, concrete block basement and perimeter foundation walls with suspended timber floors elsewhere, brick veneer wall claddings and a gabled roof.

2.2 The alterations

2.2.1 The alterations consist of major additions to all elevations of the house, together with associated interior alterations. The work included new roof framing and cladding over new and existing areas, which has provided a higher pitched hipped roof.

2.2.2 The extensions include an addition to the master bedroom, a new entry, a new upper deck from the family/dining area, a new lounge wing to the northwest, and a new bedroom and games room wing to the southwest.

2.2.3 Construction is conventional timber frame, with concrete block perimeter foundations, suspended timber floors, plastered lightweight concrete panel wall cladding, aluminium windows and asphaltic shingle roof claddings. The new 25^{o} pitch hipped roof has eaves projections of about 600mm, with recesses above entries and a veranda to the western corner.

2.2.4 The new upper deck extends to the northeast and is supported by reinforced concrete block columns. The deck floor has tiles laid over membrane, and the balustrades are metal with glass panels.

[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.

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

2.2.5 Three timber slat decks have been added at ground floor level, to the northwest bedrooms, the new lounge and the new games room. The latter deck extends back into a recess at the west corner, accommodating a spa pool under the veranda.

2.3 The cladding

2.3.1 The wall cladding system to the additions is a form of monolithic cladding, and is a "Celcrete CS75" system that consists of lightweight concrete panels fixed over a 25mm cavity to the framing. The panels are 75mm thick and 600mm wide, with "tongue-and-groove" joints joined with mortar glue and finished with a 2-coat mesh-reinforced textured plaster system. The foundation walls, the existing concrete block garage walls and the existing brick walls have been plastered to match.

2.3.2 The expert has noted that he was unable to confirm whether the wall framing is treated. Given the age of the original house, the original timber framing is likely to be boric treated. The specification calls for the new exterior wall framing to be boric-treated. Given the requirements for treatment when the alterations were undertaken in 2004, I consider that the wall and deck framing of this house is likely to be treated to a level that will provide resistance to fungal decay if the framing becomes wet and is unable to dry out.

3. Background

3.1 The authority issued a building consent (No. 71176) on 22 July 2004, under the Building Act 1991, based on a building certificate issued by the building certifier on 8 June 2004.

3.2 During construction, the building certifier went into voluntary liquidation and the authority contracted Bay Inspections Ltd ("the contractor") to complete outstanding inspections on the building certifier's projects and to make recommendations regarding the issuing of code compliance certificates.

3.3 The building certifier and the contractor carried out the following inspections:

- drainage on 2 August 2004 (which passed)
- footings on 10 August and 13 August 2004 (which passed)
- blockwork reinforcing on 20 August 2004 (which passed)
- building and plumbing pre-lines on 13 November 2004 (which passed)
- pre-stopping on 10 December 2004 (which passed)
- deck footings on 24 January and 7 February 2005 (which passed)
- solid fuel heater on 17 February 2005 (which passed)
- final inspections on 25 November 2005 (which passed).

The inspection summary for the final inspection notes that various producer statements were required which, apart from drainage, were subsequently provided.

3.4 The contractor issued a "Statement of compliance with the NZ Building Code" for the building work on 31 January 2006. However, in a letter to the applicant dated 1

February 2006, the contractor noted that it could not recommend the authority to issue a code compliance certificate as:

> A producer statement is required from the drainlayer confirming that the septic tank and effluent field were installed in accordance with the design submitted and approved for consent.

3.5 The drainlayer provided a producer statement dated 17 February 2006, which confirmed that it "carried out the septic tank and effluent system in accordance with the plans and specifications provided".

3.6 Due to the applicant's personal circumstances, the matter of the code compliance certificate could not be followed up until later in 2006. The authority carried out another final inspection of the building work on 30 November 2006.

3.7 In a letter to the applicant dated 12 December 2006, the authority noted that fencing was required to the spa pool, as-built plans were required and also that:

> The septic tank and effluent drainage design does not comply with Environment BOP's Onsite Effluent Treatment Plan which is based on the number of bedrooms or rooms that can be used as bedrooms.
>
> The 2700 litre septic tank is only compliant for a three-bedroom dwelling. Your dwelling must be classed as 4 or 5 bedrooms as the games room must be considered as a possible bedroom as well as the office if a large family purchased the building.
>
> The amount of effluent drainage defined on the plans is only sufficient for a 3 bedroom dwelling with Type 3 soil.

3.8 The authority also stated that:

> It should also be noted that on completion of the remedial work Council will not issue a Code Compliance Certificate for the building. That being the case, Section 91 of the [Act] requires that you apply for a Certificate of Acceptance...
>
> If Council then decides it is able to issue a Certificate of Acceptance it will only cover those elements of the building that can be readily inspected and compliance with the Building Code determined.

3.9 Fencing was subsequently provided around the spa pool and as-built drawings were provided. It also appears that the applicant followed up the matter of the septic tank size with Environmental Bay of Plenty Regional Council ("the regional authority").

3.10 In a letter to the authority dated 24 October 2007, the regional authority noted that the effluent disposal field met its requirements for a three bedroom dwelling. However, the regional authority noted that the letter was also intended to notify current and future owners that the system would require upgrading prior to any changes likely to increase the number of people residing in the house.

3.11 As the applicant wanted a code compliance certificate for the alterations, rather than a certificate of acceptance, the Department received an application for a determination on 8 May 2008. The Department sought clarification on the matter to be determined, which was received on 23 May 2008.

4. The submissions

4.1 In an email to the Department dated 23 May 2008, the agent outlined the history of the project and explained that, although all requirements had been met, the authority would not issue a code compliance certificate as it did not carry out the inspections. The agent stated that the applicant wanted a code compliance certificate, concluding:

> The house is a large expensive house that I know if you viewed it you'd see there has been no short cuts, and it is a well built house. As far as I'm concerned, with [the applicant] spending so much money on building a million plus dollar house, and the required work being completed all the way through the process, the least we should get is a code of compliance [sic] issued.

4.2 The agent forwarded copies of:

- the drawings and specification
- the consent documentation
- the building certifier's inspection summary
- the contractor's statement of compliance dated 31 January 2006
- the letter from the authority dated 12 December 2006
- the letter from the regional authority dated 24 October 2007
- the electrical certificate of compliance and various producer statements.

4.3 Copies of the applicant's submission and other evidence was provided to the authority, which made no response.

4.4 A draft determination was issued to the parties for comment on 26 August 2008.

4.5 The authority did not accept the draft, saying, in a letter to the Department dated 18 September 2008, that septic tank capacity and the size of the effluent disposal field had not been resolved and should be included in the notice to fix. I have amended the determination accordingly. The applicant accepted the draft on 29 September 2008.

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 provided by the applicant consists of the summary of inspections carried out by the building certifier and contractor, the producer statements and electrical certificate of compliance, and the statement of compliance issued by the contractor.

5.3 However, the authority does not believe it can rely on the building certifier's reports and so any decision it makes with respect to compliance is limited by what items it is able to inspect.

5.4 I note that the inspection summary indicates that 12 inspections were required for the project, and these were carried out and passed by the building certifier and the contractor. I first need to decide if I can rely on those inspections, particularly in regard to inaccessible building components.

5.5 In the absence of any evidence to the contrary, I take the view that I am entitled to rely on the inspections undertaken by the building certifier and the contractor. However, before deciding whether or not to rely on the inspection record, I consider it important to look for evidence that corroborates that record.

5.6 In this particular case, corroboration comes from the visual inspection of the accessible components by the expert (refer to paragraph 6, "The expert's report"), which can be used to verify whether the building certifier's and contractor's inspections were properly conducted.

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

- The summary of inspections carried out by the building certifier and contractor, which indicates satisfactory inspections of the inaccessible components (refer paragraph 3.3).
- The contractor's statement of compliance dated 31 January 2006, which indicates compliance of all building elements (refer paragraph 3.4).
- The letter from the regional authority dated 24 October 2007, which indicates compliance of the effluent disposal system (refer paragraph 3.10).
- The electrical certificate of compliance and various producer statements, 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 house on 14 July 2008 and supplied a report that was completed on 31 July 2008.

6.2 The expert noted that the house appeared to be largely in accordance with the amended consent drawings, except that:

- two "dutch gables" had been changed to hips
- showers were tiled in lieu of acrylic cubicles.

6.3 The expert described the building as well-maintained, with "high quality materials and very good standard of workmanship".

6.4 The building envelope

6.4.1 The expert noted that the cladding is installed over a cavity and is "well fixed and aligned", with no evidence of cracking or premature deterioration. The expert noted that the cladding manufacturer specifies control joints for walls over 10m, and no walls exceeded this length.

6.4.2 The expert also noted that the roof shingles appear to be well aligned and fixed, with all penetrations appropriately flashed. The ends of apron flashings have satisfactory uPVC diverters fitted.

6.4.3 The expert noted that the windows were recessed by the thickness of the panels, with metal head flashings that are well protected by the 600mm soffits. I note that, although the sill flashings are not visible, the manufacturer's details within the specification indicate the installation of uPVC "flashing strips" that underlap the sill flange of the window, with a note stating "coating extends over the weatherstrip". There was no sign of any moisture penetration.

6.4.4 The expert inspected the interior of the house, taking numerous non-invasive moisture readings internally, and no evidence of moisture was observed. As there was no indication of any moisture problems and no obvious at-risk areas, the expert did not consider it necessary to carry out invasive moisture testing.

6.5 Compliance with the remaining code clauses

6.5.1 The expert also assessed compliance with other relevant building code clauses, and made the following comments on those clauses relevant to this house:

- **B1 Structure**

The expert inspected the sub-floor spaces and noted no evidence of dampness or other problems. The inspection record notes adequate inspections of the footings and blockwork, and the internal and external visual inspection showed no signs of problems.

- **C1 Outbreak of fire**

The producer statement for the solid fuel heater indicates that the installation meets the requirements, and no problems were observed.

- **E1 Surface water**

Roof water is collected and disposed of in soak holes beneath downpipes. A cesspit in front of the garage door prevents surface water from entering the garage. No problems were noted.

- **E3 Internal moisture**

The tanking to the showers could not be inspected, but there were no elevated moisture levels or signs of leaking detected. I am advised that the tiling is a change to the consent drawings, it appears that a producer statement for the underlying membrane was not requested.

- **F2 Hazardous building materials**

The expert noted that the glass in the balustrades is marked as complying with the relevant standards. I note that the glass to the shower doors has not been verified as safety glass.

- **F4 Safety from falling**

The expert noted that the deck balustrade and spa pool fence appear to comply.

- **F7 Warning systems**

The expert has confirmed that there are permanently wired smoke alarms adjacent to all bedrooms.

- **G1, G2 and G3 Personal hygiene, Laundering and Food preparation**

The expert noted that all facilities are in good working order and adequate provision has been made to comply with the requirements.

- **G4 Ventilation**

Requirements for natural ventilation are met, but the kitchen extract fan is vented into the ceiling space rather than to the outside.

- **G9 Electricity**

An electrical certificate of compliance has been provided.

- **G12 and G13 Water Supplies and Foul Water**

The building certifier's inspection summary indicates that satisfactory plumbing and drainage inspections were undertaken, and the as-built drainage plan was supplied. The expert noted that all fixtures appear to be in good operating condition with no evidence of leaks.

- **G14 Industrial liquid waste (on-site effluent disposal)**

The expert noted that

The expert noted that the septic tank currently installed meets the Regional council's requirements for a 3 bedroom dwelling. However, the recent alterations increased the number of rooms that could be used as a bedroom to 4 or 5. Accordingly it did not appear that the existing septic tank system would cope with additional wastewater.

- **H1 Energy Efficiency**

The building certifier's inspection summary indicates that satisfactory preline inspections were undertaken implying that thermal insulation was observed in the wall cavities. The expert viewed the blanket type insulation within the ceiling space.

6.6 A copy of the expert's report was provided to the parties on 4 August 2008.

Matter 1: The building envelope

7. Evaluation for code compliance

7.1 Evaluation framework

7.1.1 I have evaluated the code compliance of this building by considering the following two broad categories of the building work:

- The weathertightness of the external building envelope (Clause E2) and durability (Clause B2 in so far as it relates to Clause E2).
- The remaining relevant code requirements.

In the case of this house, weathertightness considerations are addressed first.

7.1.2 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solutions[4], 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 some other provision to compensate for that in order to comply with the Building Code.

7.2 Evaluation of external building envelope 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[5] (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.

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.

[4] 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.
[5] Copies of all determinations issued by the Department can be obtained from the Department's website.

7.3 Weathertightness risk

7.3.1 In relation to these characteristics I find that this house:

- is built in a high wind zone
- has a deck extending from the upper level
- is a fairly simple building that is 2-storeys in part
- has plastered lightweight concrete panels cladding over a drained cavity
- has plastered brick and concrete block walls to the original construction
- has eaves and verge projections of at least 600mm above all walls
- has external wall framing that is treated to a level that provides resistance to the onset of decay if the framing absorbs and retains moisture.

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. Higher levels of risk will require more rigorous weatherproof detailing; for example, a high risk level is likely to require a particular type of cladding to be installed over a drained cavity.

7.3.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 7.3.1 show that one elevation of the house demonstrates a medium weathertightness risk rating and the remaining elevations a low rating.

7.4 Discussion

7.4.1 Generally the claddings appear to have been installed in accordance with good trade practice and the manufacturer's recommendations. Accordingly, I accept that the claddings installed on the alterations to this house comply with Clauses B2 and E2.

7.4.2 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 (for example, Determination 2007/60).

Matter 2: Compliance with the remaining code clauses

8. Other Building Code requirements

8.1 Discussion

8.1.1 Based on the expert's comments as outlined in paragraph 6.5.1, I consider that the following items require attention:

- The venting of the kitchen extract fan to the outside rather than into the ceiling space.

- Verification of the installation of a membrane to the tiled showers.
- Verification that the glazing to the shower is safety glass.
- Verification of the adequacy of the on-site effluent disposal system.

8.1.2 Taking account of the expert's assessment of visible components of the building together with the inspection records and the other documentation, I consider that the building complies with the provisions of the remaining relevant Building Code clauses

8.2 Conclusion

8.2.1 I consider that the expert's inspection and comments as outlined in paragraph 6.5.1 establishes that the building work does not comply with Clause G4 of the Building Code. However, rectification of this item will result in the building work being brought into compliance with Clause G4.

8.2.2 I have received insufficient information or verification regarding the three remaining items (the installation of the membrane under the tilling to the showers, the glazing to the shower, and the adequacy of the on-site effluent disposal system) and I therefore cannot form a view as to compliance with E3, F2 and G14.

8.2.3 I consider that the expert's inspection and comments as outlined in paragraph 6.5.1 establishes that the building work complies with Clauses B1, C1, E1, F4, F7, G1 to G3, G9, G12, G13 and H1 of the Building Code.

9. The appropriate certificate to be issued

9.1 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.

9.2 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.

9.3 In this instance, I have not received any evidence that the applicant has applied for a certificate of acceptance. On the contrary, the submission as outlined in paragraph 4.1 indicates that the applicant wants a code compliance certificate, rather than a certificate of acceptance.

9.4 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.

10. What is to be done now?

10.1 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 8.1.1 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. The notice to fix should not specify how the house should be brought into compliance with the Building Code. That is a matter for the owner to propose and for the authority to accept or reject.

10.2 However, before such a notice is issued the owners may wish to address the matters outlined in paragraph 8.1.1 as outlined in paragraphs 8.2.1 and 8.2.2.

10.3 I also note that several changes from the consent drawings have been identified and I leave the matter of appropriate documentation of these changes to the authority for resolution with the applicant.

11. The decision

11.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the alterations do not comply with the Building Code and confirm the authority's decision to decline to issue a code compliance certificate.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 15 October 2008.

John Gardiner
Manager Determinations