



Determination 2011/055

Refusal to issue a code compliance certificate for 8-year-old alterations and additions to a house at 123A Marine Parade, Mount Maunganui



1. The matters to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ (“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 applicants are the owners, R and J Lawler (“the applicants”), and the other party is the Tauranga 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 8-year-old alterations and additions to a house, because it is not satisfied that the building work complies with certain clauses² of the Building Code (First Schedule, Building Regulations 1992). The authority’s concerns about the compliance of the building work relate to its age and to the weathertightness of the building envelope.
- 1.3 The matter to be determined³ 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, Building Code, Compliance documents, past determinations and guidance documents issued by the Department are all available at ww.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.

³ Under sections 177(1)(b) and 177(2)(d) of the Act

1.3.1 Matter 1: The external envelope

Whether the external building envelope of the altered house complies with Clause B2 Durability and Clause E2 External Moisture of the Building Code. The building envelope includes the components of the systems (such as the monolithic cladding, the windows, the deck, the roof cladding and the flashings), as well as the way the components have been installed and work together. (I consider this in paragraph 6.)

1.3.2 Matter 2: The durability considerations

Whether the building elements comply with Clause B2 Durability of the Building Code, taking into account the age of the addition. (I consider this in paragraph 7.)

1.4 I note that a building certifier inspected the construction of these alterations on the authority's behalf. The company ceased operating as a building certifier in 2005, but continued operating under a different name as the authority's agent to provide inspection services for the authority. In this determination, both entities are therefore referred to as "the authority's contractor".

1.5 In making my decision, I have considered the applicant's submission, the report of the expert commissioned by the Department to advise on this dispute ("the expert"), and other evidence in this matter.

2. The building work

2.1 The building work consists of alterations to a detached house on a flat site in a high wind sea spray zone for the purposes of NZS 3604⁴. The street frontage to the northeast is referred to as "east" in the expert's report and also within this determination. The addition is assessed as having a very high weathertightness risk (see paragraph 6.2).

2.2 The original 1980s house appears to have been a simple two-storey house ("the original house"), with concrete foundations and floor slab, concrete block lower exterior walls, timber-framed walls and floors elsewhere, brick veneer upper wall cladding, aluminium windows and a simple concrete tile hipped roof.

2.3 The alterations

2.3.1 The subject alterations carried out in 2002 include:

- additions to the house of:
 - a new deck and lounge to the upper east elevation
 - an extension to the garage at the northeast corner
- interior alterations to the ground floor including:
 - changes to the main entry area
 - a new bathroom to the ground floor rumpus room
 - an additional bedroom
- various interior alterations to the upper floor.

⁴ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

2.3.2 The additions are to the front of the house as shown in Figure 1:

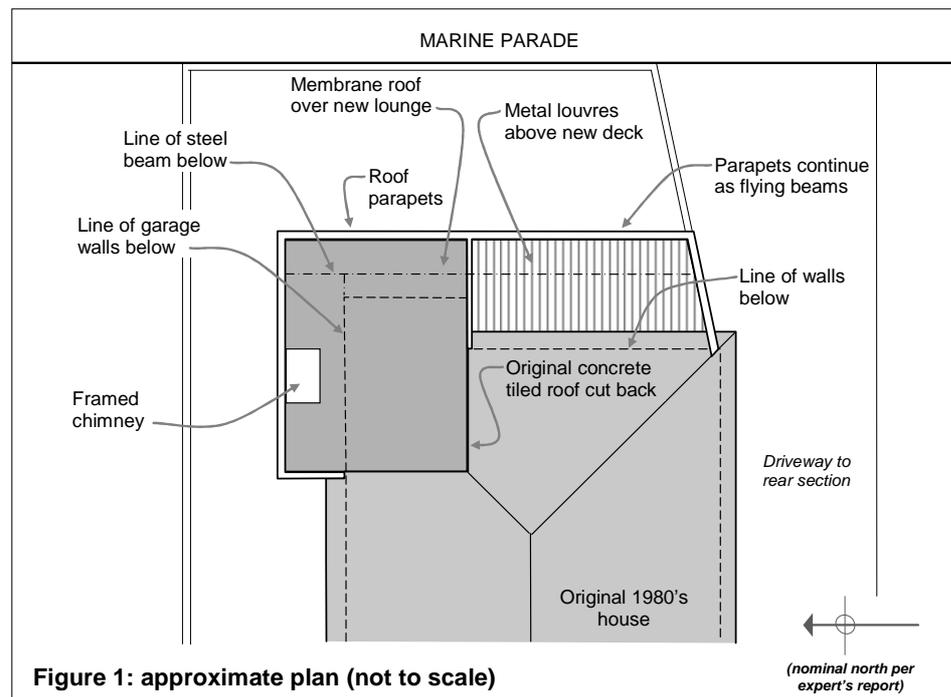


Figure 1: approximate plan (not to scale)

- 2.3.3 Construction is conventional light timber frame with monolithic wall cladding, aluminium windows and a flat membrane roof above the new lounge. The floor to the new lounge is cantilevered to the north and east from a free-standing steel beam and post structure. In line with the lounge east wall, the new deck also cantilevers beyond the steel structure. At the north wall of the lounge, a framed and clad 'chimney' structure extends through the membrane roof.
- 2.3.4 The original roof is cut back to accommodate the new membrane roof. Walls extend up to form roof parapets that continue as framed flying beams supported on clad columns, with metal louvres installed above the deck. The deck has monolithic-clad balustrades and a membrane floor overlaid with timber slats.
- 2.3.5 The cladding system is a form of monolithic cladding system known as EIFS⁵, which consists of 60mm polystyrene backing sheets fixed over the building wrap to the framing and finished with a textured coating system. The cladding system includes purpose-made flashings to windows, edges and other junctions.
- 2.3.6 The expert found no evidence of timber treatment and considered the framing very likely to be untreated given the severity of timber decay. Given the date of construction in 2002, I accept that the wall framing associated with the addition is untreated, although the original 1980s house is likely to be borax-treated.

3. Background

- 3.1 The authority issued a building consent for the alterations (No. 5852) in August 2001 under the Building Act 1991, based on a building certificate issued by the authority's contractor on 12 July 2001. I have not seen a copy of the building consent.

⁵ Exterior Insulation and Finish System

- 3.2 According to producer statements, the roof membrane was installed in September 2001 and the coating to the EIFS cladding was applied in October 2001, indicating that the building work was substantially completed during 2001. According to the authority, its contractor carried out various inspections during construction; with a final inspection in March 2002, which ‘failed as some work and producer statements were still outstanding’.
- 3.3 No further inspections were carried out until the applicants sought a code compliance certificate in 2009. The authority’s contractor carried out another final inspection on 11 June 2009; recording a list of outstanding documentation and items requiring work; including parapet cappings subsequently installed in October 2010.

3.4 The authority’s refusal

- 3.4.1 On completion of the outstanding items, the applicants again sought a code compliance certificate and the authority responded in a letter dated 23 November 2010, which noted the eight-year delay between completion and the recent work and also the lack of inspections during the additional work.
- 3.4.2 The authority concluded:

Due to these time frames and the fact that many of the details provided relate to areas of high risk in respect to external moisture penetration, the [authority] cannot be satisfied that the original building work will have been performing in accordance with the provisions of NZBC B2 (Durability) and E2 (External Moisture). This is because many of the methods of construction that were considered suitable at the time the consent was issued in 2001 have been found to be wanting in relation to weathertightness.

- 3.5 The Department received an application for a determination on 30 November 2010.

4. The submissions

- 4.1 In a letter to the Department dated 23 August 2010, the applicants explained that they had not been aware that the original builder had not applied for a code compliance certificate in 2002. At the 2009 inspection, they were given ‘a small list of jobs to be completed to satisfy the building code’. Rather than re-inspecting the alterations on completion, the authority sent the letter dated 23 November 2010.
- 4.2 The applicants provided copies of:
- some of the drawings
 - the record of the final building inspection on 11 June 2009
 - the authority’s letter dated 23 November 2010
 - exterior photographs of the alterations
 - various producer statements, certificates and other information.
- 4.3 The authority acknowledged the application and made no submission.
- 4.4 A draft determination was issued to the parties for comment on 3 March 2011. Both parties accepted the draft without comment, with applicants response received by the Department on 2 June 2011.

5. The expert's report

5.1 As mentioned in paragraph 1.5, I engaged an independent expert to assist me. The expert is a member of the New Zealand Institute of Building Surveyors and inspected the alterations on 7 February 2011; providing a report dated 14 February 2011.

5.2 General

5.2.1 The expert noted that the house was generally 'in good visual condition' and appeared to be well maintained. However, he considered that many flashings had been either omitted or ineffective.

5.2.2 The expert noted that windows are recessed by the EIFS thickness, with visible head and sill flashings and no evidence of cracking or premature deterioration relating to the window installation. Due to the results of moisture investigation (see below), the expert did not consider it relevant to further investigate the joinery installation.

5.3 Moisture levels

5.3.1 The expert inspected the interior of the house, carrying out non-invasive moisture testing, and noted no signs of moisture on the inside. However, testing on the outside indicated some elevated moisture levels, which were further investigated.

5.3.2 The expert took invasive moisture readings using probes through the EIFS cladding at locations considered at high risk. The lowest reading recorded was 62%, with the meter indicating that all remaining locations were too wet to reliably measure (likely to be over 80%). Probe drillings from five areas also showed obvious decay.

5.3.3 Locations tested were:

- into bottom plates below cantilevered walls or the deck at:
 - the northwest corner, with decay in the drillings
 - the new lounge north window
 - the east balustrade to wall junction, with severe decay in the drillings
 - the southeast corner of the deck, with severe decay in the drillings
- below the southeast column to flying beam junction
- below the flying beam to wall junction on the south elevation
- into the top plate of the clad balustrade, with severe decay in the drillings.

5.4 Commenting specifically on the external envelope, the expert noted that:

- the EIFS cladding beside the garage door extends below the paving level
- the high moisture level below the north lounge window indicates that the jamb to sill junction may not be weatherproof
- the flat membrane roof shows evidence of ponding
- the membrane capping to the chimney turns down under the coating, allowing moisture to drain behind the EIFS coating and possibly into the framing

Roof parapets and flying beams

- the recently installed parapet and beam cappings have flat tops and insufficient turndowns over the cladding, with high moisture levels in the framing below
- the cappings have over-flashings at the junctions with walls, which rely only on sealants for weatherproofing, with high moisture levels and decay apparent
- the extent of decay found in the limited testing indicates that parapets were leaking prior to capping installation in 2010, and the high moisture levels indicate that cappings continue to allow moisture into the untreated framing

The deck balustrades

- the flat tops of the balustrade lack cappings, with severe decay apparent
- the high moisture levels and severe decay indicate that balustrade to wall or column junctions have been allowing moisture entry for some time.

5.5 Due to the extent of moisture penetration and the evidence of severe and widespread decay, the expert did not carry out further cladding investigations; concluding that 'it may be necessary that the entire addition is considered for re-cladding'.

5.6 A copy of the expert's report was provided to the parties on 14 February 2011.

Matter 1: The cladding

6. Weathertightness

6.1 The evaluation of building work for compliance with the Building Code and the risk factors considered in regards to weathertightness have been described in numerous previous determinations (for example, Determination 2004/1).

6.2 Weathertightness risk

6.2.1 The section of the house with the addition has the following environmental and design features which influence its weathertightness risk profile:

Increasing risk

- the house is sited in a high wind zone
- the addition is two-storeys-high
- there is an upper level, partly cantilevered, enclosed deck with clad balustrades
- there are complex roof and wall junctions, parapets and other features
- the EIFS cladding is fixed directly to the framing
- there are no eaves to shelter the cladding
- the external wall framing is not treated to a level that provides resistance to decay if it absorbs and retains moisture.

6.2.2 When evaluated using the E2/AS1 risk matrix, these features show that the relevant elevations of the addition demonstrate a very high weathertightness risk rating. I note that, if the details shown in the current E2/AS1 were adopted to show code compliance, the EIFS cladding would require a drained cavity. However, I also note that a drained cavity was not a requirement at the time of construction.

6.3 Weathertightness performance

- 6.3.1 It is clear from the expert's report that the external envelope is unsatisfactory in terms of its weathertightness performance, which has resulted in significant moisture penetration to many areas and severe and widespread decay to the framing of the addition.
- 6.3.2 Considerable work is required to make the addition weathertight and durable and further investigation is necessary, including the systematic survey of all risk locations, to determine all of the causes and the full extent of moisture penetration, timber damage and the repairs required.

6.4 Weathertightness conclusion

- 6.4.1 I consider the expert's report establishes that the current performance of the building envelope is not adequate. Consequently, I am satisfied that the alterations do not comply with Clause E2 of the Building Code.
- 6.4.2 The building envelope 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 will continue to allow the ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.
- 6.5 I concur with the expert's conclusion in paragraph 5.5 and I am also of the opinion that this building work will likely require re-cladding. However, final decisions on whether code compliance can be achieved by remediation or re-cladding, or a combination of both, can only be made after a more thorough investigation of the external envelope and of the extent of decay in the underlying timber framing. This requires a careful analysis by an appropriately qualified expert, and should include a full investigation of the causes, extent, level and significance of the timber decay to framing, with the chosen remedial option submitted to the authority for its approval.
- 6.6 I note that the Department has produced a guidance document on weathertightness remediation⁶. I consider that this guide will assist the owners in understanding the issues and processes involved in remediation work to the cladding, and in exploring various options that may be available when considering the upcoming work required to the additions.

6.7 The structural implications of the decay

- 6.7.1 I view with concern the evidence of advanced timber decay noted in the expert's report, and consider that further opening up of the structure is likely to reveal further decay of the untreated wall framing, which could compromise the structural integrity of the additions. I am therefore also not satisfied that the additions comply with Clause B1 Structure of the Building Code.

⁶ External moisture – A guide to weathertightness remediation. This guide is available on the Department's website, or in hard copy by phoning 0800 242 243

- 6.7.2 In particular, the expert identified severe decay in wall and deck framing to cantilevered areas. I draw this to the authority's attention for its urgent investigation and instigation of any remedial work that might be required to ensure the continuing structural stability of these areas.

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 certain elements of the building taking into consideration the completion of the alterations in 2001.
- 7.2 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).
- 7.3 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, that is agreed to by the parties and that, if there are matters that are required to be fixed, they are discrete in nature.
- 7.4 Because of the extent of decay and further investigation required into the timber framing and therefore the house's structure, and the potential impact of such an investigation on the external envelope, I am not satisfied that there is sufficient information on which to make a decision about this matter at this time.

8. What is to be done now?

- 8.1 The authority should initially attend to the concerns expressed in paragraph 6.7 to ensure the safety of the cantilevered structure. When immediate concerns about safety are appropriately resolved, the authority should issue a notice to fix that requires the owners to bring the additions into compliance with the Building Code. The notice should identify the defects listed in paragraph 5.4 and refer to any further defects that might be discovered in the course of investigation and rectification, but not specify how those defects are to be fixed. It is not for the notice to fix to specify how the defects are to be remedied and the building brought to compliance with the Building Code. That is a matter for the owners to propose and for the authority to accept or reject.
- 8.2 I suggest that the parties adopt the following process to meet the requirements of paragraph 8.1. The applicant should produce a response to the notice to fix 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 matters. 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 hereby determine that:

- the additions do not comply with Building Code Clauses B1 and B2
- the external envelope of the altered house does not comply with Building Code Clauses E2 and B2

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 7 June 2011.

John Gardiner
Manager Determinations