Department of Building and Housing
Te Tari Kaupapa Whare

Determination 2008/108

Refusal to issue a code compliance certificate for an addition to a motel at 66 Trafalgar Street, Nelson

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 of the property, Munro Motels Ltd ("the owner"), acting through R Cole of Ian McCully Builders, ("the builder"), and the other party is the Nelson City Council ("the authority") carrying out its duties and functions 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 a 1-year-old addition ("the addition") because it is not satisfied that the building work complies with 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.

1.3 I consider that the matters for determination are:

1.3.1 Matter 1: The cladding

Whether the cladding as installed on the addition ("the cladding") complies with Clause E2 External Moisture of the Building Code. By "the cladding as installed" I mean the components of the system (such as the plaster, the backing materials, the flashings, the joints and the coatings) as well as the way the components have been installed and work together. (I consider this matter in paragraph 7.)

1.3.2 Matter 2: The remaining Building Code requirements

Whether the addition complies with the remaining relevant clauses of the Building Code. (I consider this matter in paragraph 8.1.)

1.4 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 6.1.

2. The building work

2.1 The building work consists of a small addition and associated alterations to a detached motel building situated on a flat urban site, which is in a low wind zone for the purposes of NZS 3604[3]. The addition is small, being only about 7.5m^2 in plan area, and extends the reception and office areas adjacent to the main entry on the north elevation. The associated interior alterations include the replacement of several partitions to suit the new reception and office area layout.

2.2 The addition is conventional timber frame construction, with a concrete slab and foundations, monolithic wall cladding, re-used aluminium windows and butyl rubber membrane to a small area of new flat roof. An existing concrete deck to the upper floor forms the roof to the remaining area, where a specifically engineered steel portal spans the opening created by the removal of the original wall.

2.3 The cladding is a type of monolithic cladding system described as stucco over a solid backing. The cladding consists of 4.5mm fibre-cement backing sheets fixed through 20mm timber battens and the building wrap to the framing and covered by a slip layer of building wrap, metal-reinforced solid plaster and a flexible paint coating. The plasterer has provided a "Producer Statement" dated 16 October 2007.

2.4 The builder has provided invoices for the materials supplied for the building work, which indicate that the exterior wall framing is treated to H1.2, the cavity battens are H3.1 and the roof framing is H3.2.

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] New Zealand Standard NZS 3604:1999 Timber Framed Buildings

3. Background

3.1 The authority issued a building consent (No. 070129), on 27 June 2007, apparently after construction work was underway. I have not been provided with a copy of the building consent. The addition appears to have been completed by early July 2007.

3.2 In a letter to the builder dated 18 July 2007, the authority noted that the building work had apparently been completed with no inspections having been called for, stating:

> A number of the inspections identified on the Site Inspection Schedule cover items that are no longer able to be seen. These include:
>
> Pre pour concrete floor slab
> Structural check of the roof and wall framing before cladding
> Check of plywood substrate prior to laying butyl rubber roofing
> Building wrap and flashing tapes
> Drained ventilated cavity construction and flashings
> Pre stucco first and second coats
> Pre-lining inspection
> Post lining inspection of fire rated elements
>
> As we cannot be satisfied on reasonable grounds that the building work complies with the Building Consent and/or the NZ Building Code, we are unable to issue a Code Compliance Certificate.

3.3 The Department received an application for a determination from the builder on 10 July 2008 and sought approval for the builder to act on behalf of the owner, which was received on 21 July 2008.

4. The submissions

4.1 The builder forwarded copies of:

- the drawings
- the building consent
- the letter from the authority dated 18 July 2008
- photographs of the underlying construction showing:
  - the timber framing
  - the cavity battens and building wrap
  - the window flashing tape and wrap
  - the butyl rubber upstand and edge
  - the backing sheet base and corner flashings
  - the slip layer and metal reinforcing
  - the fire-rated and bracing internal linings
  - the insulation in the exterior walls
- various producer statements and certificates, including:
  - the engineer's PS4 Construction Review
  - the electrical certificate of compliance dated 3 July 2007

- the producer statement for the plaster cladding dated 16 October 2007
- the producer statement for the membrane dated 18 October 2007

- the invoices for materials supplied for the building work.

4.2 Copies of the applicant's submission and other evidence were provided to the authority, which did not respond.

4.3 I forwarded copies of a draft determination to the parties for comment on 15 October 2008. Both parties accepted the draft without comment.

5. The expert's report

5.1 As mentioned in paragraph 1.4, 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 9 September 2008 and supplied a report that was completed on 16 September 2008.

5.2 Subsequently the expert confirmed by email the office front windows were safety glass as specified.

5.3 The expert noted that workmanship generally appeared to be "of good quality".

5.4 The building envelope

5.4.1 The expert noted that, except for several minor items, the cladding appeared to have been installed to good trade practice and was in very good condition, with "consideration given to sealing and weathering of the stucco cladding to prevent water entry at junctions and service penetrations".

5.4.2 The expert noted that the installation of the re-used aluminium windows appeared satisfactory, with 2-piece metal head flashings incorporating perforated flashings to allow drainage of the cavity above and metal sill flashings. The expert noted that metal jamb flashings were visible at the base of the full-length window panels.

5.4.3 The expert also noted that slot drains had been used to provide adequate clearance at the bottom of the cladding, where perforated cavity closure strips were visible. The expert laid polythene sheet over the flooring for a period of 2 days during very wet weather and noted no signs of condensation on the underside, concluding that the under floor damp proof membrane appeared to have been satisfactorily installed.

5.4.4 The expert inspected the interior of the addition, taking numerous non-invasive moisture readings internally, and no evidence of moisture was observed. Due to the cavity behind the cladding and the lack of obvious weathertightness risks, the expert considered that invasive moisture testing of the framing was not necessary.

5.4.5 Commenting specifically on the cladding, the expert noted that:

- the flashing between the alarm panel and the existing door has not been sealed at the junctions with the jamb flanges

- there is a small hole at the top of the plaster beneath the alarm panel
- there is insufficient weather protection of the service penetrations at the roof corner junction with the existing building
- the butyl rubber is inadequately adhered at the overlap onto the existing wall, allowing a small gap at a corner
- some timber formwork is visible under the soffit of the existing concrete deck.

5.5 Compliance with the remaining relevant Building Code clauses

B1 Structure
The engineer's producer statement indicates review of the foundations, the steel portal and the bracing, and confirms compliance with Clause B1. The expert's external visual inspection showed no signs of problems and the construction photographs show adequate fixings of the bottom plates to the slab and the installation of bracing.

C3 Spread of fire
Although the consent drawings are not clear, the construction photographs show the installation of fire-rated linings to the ceiling areas below the upper level accommodation and the invoices indicate that 15 sheets of 13mm "fyreline" linings were purchased for the building work. I therefore consider it likely that the fire-rating requirements have been complied with.

E1 Surface water
The slot drain at the base of the cladding drains into the existing stormwater system, and no problems were noted.

F2 Hazardous building materials
The expert has confirmed that the doors and windows have safety glass as shown in the consent drawings.

F7 Warning systems
I note that the fire alarm panel appears to have been relocated, although that is not shown in the consent drawings. The builder has confirmed that the owner arranged for the security company responsible for the building to relocate the panel. It is not clear what other work was done to the fire warning system as part of the addition to the building.

G4 Ventilation, G7 and G8 Natural and artificial light
Requirements for these clauses appear to be met.

G9 Electricity
The electrical certificate confirms compliance of the electrical work.

H1 Energy Efficiency
The construction photographs show the installation of fibreglass insulation in the exterior walls and ceiling of the addition.

5.6 A copy of the expert's report was issued to the parties on 15 August 2008.

6. Evaluation for code compliance

6.1 Evaluation framework

6.1.1 I have evaluated the code compliance of this addition 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 addition, weathertightness considerations are addressed first.

6.1.2 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 compensate for that in order to comply with the Building Code.

Matter 1: The cladding

7. Weathertightness

7.1 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 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 In relation to these characteristics I find that the addition to this building:

[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.

- is built in a low wind zone
- is a small single-storey addition
- has solid plaster cladding fixed over a drained cavity
- has no eaves projections
- 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 addition 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 all elevations of the addition demonstrate a low weathertightness risk rating. I note that the solid plaster cladding of this addition incorporates a drained cavity in accordance with the current version of E2/AS1.

7.4 Weathertightness performance

7.4.1 Generally the roof and wall claddings appear to have been installed in accordance with good trade practice. Taking account of the expert's report, I conclude that remedial work is necessary in respect of the items outlined in paragraph 5.4.5.

7.5 Weathertightness: conclusion

7.5.1 I consider the expert's report establishes that the current performance of the cladding is adequate because it is preventing water penetration into the addition at present. Consequently, I am satisfied that the building work complies with Clause E2 of the Building Code.

7.5.2 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 building work to remain weathertight. Because the cladding faults on the addition are likely to allow the ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.

7.5.3 Because the faults identified with the cladding system occur in discrete areas, I am able to conclude that satisfactory investigation and rectification of the items outlined in paragraph 5.4.5 will result in the addition being brought into compliance with Clauses B2 and E2.

7.5.4 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).

Matter 2: Compliance with the remaining code clauses

8. Evaluation for code compliance

8.1 Other code requirements

8.1.1 Taking account of the expert's assessment of visible components of the building, together with the photographs taken during construction and the other documentation as outlined in paragraph 5.5, I am satisfied that the addition complies with the other relevant provisions of the Building Code Clauses B1, C3, E1, F2, G4, G7 to G9 and H1.

8.1.2 As outlined in paragraph 5.5, the alarm panel has been relocated, and this may be associated with other work done to the alarm system as part of the addition. This work does not appear to have been verified as code compliant, by a producer statement, or similar. I leave this matter to the authority to follow up as it considers appropriate.

9. Inspection by the authority as required by the building consent

9.1 Section 40 of the Act says:

> A person must not carry out any building work except in accordance with a building consent.

9.2 Although I have not seen the building consent for the work, it is clear from the authority's correspondence to the builder (refer paragraph 3.2) that the building consent included the requirement that the builder was call for a number of inspections to be carried out by the authority during the course of the work.

9.3 No inspections were called for by the builder, which is the sole reason the application for this determination has been made. In this instance I have accepted the evidence before me that the building work, with the exception of the defects noted herein, complies with the Building Code.

9.4 However, I must note that the Department does not condone the actions of the builder in failing to follow the conditions of the building consent. Inspection during construction is to verify the compliance of the completed work. If inspections are not made, and subsequent construction covers work that was to have been inspected, the authority is limited in its ability to verify that the work has been completed in accordance with the building consent, which, in turn, will effect its ability to issue the code compliance certificate.

9.5 It is the authority's discretion whether it wishes to take its own action against the builder in respect of the failure to comply with the building consent. I also note the builder appears to have commenced construction before the consent was issued (refer paragraph 3.1).

10. What is to be done now?

10.1 A notice to fix should be issued that requires the owner to bring the addition into compliance with the Building Code, identifying the items listed in paragraph 5.4.5 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.

11. The decision

11.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the addition does not comply with Clause B2 of the Building Code, and 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 28 November 2008.

John Gardiner
Manager Determinations