

## Determination 2006/28

### Refusal of a code compliance certificate for a building with a “monolithic” cladding system at 51 Sowman Street, Nelson

#### 1. The dispute to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004<sup>1</sup> (“the Act”) made under due authorisation by me, John Gardiner, Determinations Manager, Department of Building and Housing, for and on behalf of the Chief Executive of that Department. The applicants are the owners, Mr and Mrs Van Lit (“the applicants”), and the other party is the Nelson City Council (“the territorial authority”).
- 1.2 The dispute for determination is whether the territorial authority’s decision to decline to issue a code compliance certificate for a 2-year-old house because it was not satisfied that the monolithic cladding complied with clauses B2 “Durability” and E2 “External Moisture” of the Building Code<sup>2</sup> (First Schedule, Building Regulations 1992) is correct.
- 1.3 The questions to be determined is whether I am satisfied on reasonable grounds that the wall cladding as installed to the external walls of the building (“the cladding”), complies with the Building Code (see sections 177 and 188 of the Act). By “the wall cladding as installed” I mean the components of the system (such as the backing sheets, the flashings, the joints and the coatings) as well as the way the components have been installed and work together.
- 1.4 In making my decision, I have considered the submissions of the parties, the report of the independent expert commissioned by the Department to inspect the house (“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. I have not considered any other aspects of the Act or the Building Code.

---

<sup>1</sup> The Building Act 2004 is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

<sup>2</sup> The Building Code is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

## 2. The building

- 2.1 The building work consists of a detached house situated on a sloping excavated site, which is in a medium wind zone in terms of NZS 3604<sup>3</sup>. Most of the house is two storeys high, with a basement garage, laundry and entry on the lower level. Construction is conventional light timber frame, with concrete foundations and floor slab to the lower level, driven timber piles to a small subfloor area, aluminium windows and monolithic wall cladding to all walls. The house shape is fairly simple, with a 20° pressed metal tile hip roof with 600 mm eaves over the upper walls. A small canopy above the entry forms a lean-to against the upper walls.
- 2.2 A deck, with membrane floor and monolithic clad balustrades, extends from the upper living area, and is supported by timber posts. A 20 mm gap is provided at the base of the inside face of the cladding, with the deck membrane turning down to provide drainage beneath the balustrade framing to the outside.
- 2.3 The expert commissioned by the Department to inspect the cladding (“the expert”) provided copies of invoices from the timber supplier indicating that the external wall framing timber is treated to H3. The drawings indicate that the deck framing is H3, with the deck posts treated to H4. The applicants maintain that the deck framing is H4, but I have seen no evidence to support this. Based on the evidence, I consider that the external wall and deck framing is likely to be treated to H3.
- 2.4 The cladding system to the building is what is described as monolithic cladding and is a “Equus Thermexx” EIFS system, with the 60 mm polystyrene backing sheets fixed directly to the framing over the building wrap, and finished with a multi-coat “Sponge Putz 2000” plaster and paint system. The system includes purpose-made flashings to windows, edges and other junctions. The cladding to the tops and sides of deck balustrades is “Harditex”, with 7.5 mm thick fibre cement sheets fixed through the building wrap to the framing, and finished with the same coating system as the walls.
- 2.5 Plaster Solutions Nelson provided a producer statement dated 15 July 2003, for the “Equus Thermexx” cladding.

## 3. Sequence of events

- 3.1 The territorial authority issued a building consent on 31 March 2003, based on drawings stamped as approved by Prime Building Compliance Ltd (“the building certifier”). I note these stamps added clarity to the requirement for pre-plaster inspections and external wall timber treatment.
- 3.2 The building certifier carried out various inspections during the course of construction, including prior to lining installation and following lining installation. Final inspections were undertaken on 19 August 2004 and 10 May 2005.

---

<sup>3</sup> New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- 3.3 On 16 March 2005 the building certifier wrote to the applicants enclosing a copy of the final building certificate, dated 11 March 2005. The certifier noted that the building had been handed over to the territorial authority for “the inspection of building work and issue of the Code Compliance Certificate”. The scope of engagement attached to the final building certificate noted an exclusion of “Exterior cladding outside scope of E2/AS1 (EIFS cladding)”.
- 3.4 The territorial authority did not issue a Notice to Rectify as required under section 43(6) of the Building Act 1991, and apparently has failed to notify the applicants in writing that a code compliance certificate will not be issued.
- 3.5 The applicants applied for a determination on 23 May 2005.

## **4. The submissions**

- 4.1 The applicants stated that the matter of doubt was the “outside cladding”.
- 4.2 The applicants forwarded copies of:
- the building plans
  - some of the building consent documentation
  - the letter from the building certifier
  - the final building inspection record
  - various producer statements and other statements.
- 4.3 The territorial authority made no submission.
- 4.4 Copies of the submissions and other evidence were provided to each of the parties. Neither party made any further submissions in response to the submission of the other party.
- 4.5 In a letter to the Department dated 19 January 2006, the applicant commented on the wind zone of the house and on the deck balustrade. I have considered these comments and have amended the draft as I consider appropriate.

## **5. The expert’s report**

- 5.1 The expert inspected the claddings of the building on 31 August 2005 and 20 October 2005, and furnished a report that was completed on 27 October 2005. The expert noted that “all external workmanship is to an acceptable standard”, with no visible cracking to the cladding, satisfactory flashings, generally adequate clearances and satisfactory flashings to windows and doors. The expert noted that control joints are not recommended by the manufacturer as necessary for the dimensions of EIFS used on the walls of this building.

- 5.2 The expert noted that the heads of most upper level windows are sheltered under the soffits; and scraped away a small section of plaster at the sill to jamb junction of a window, observing the presence of uPVC flashings. The expert also noted that uPVC jamb flashings were used at aluminium doors. I accept that the window opened up in this way is typical of similar windows around the building.
- 5.3 The expert noted that the Harditex top of the balustrade had a 10 mm slope, and that the metal handrail was side-fixed. The balustrade framing is vertically separated from the exterior walls, and horizontally separated from the deck floor with a 20 mm gap above the deck membrane. The 100 mm x 100 mm deck posts extend up to support the balustrade framing, and are flashed with butynol at the deck floor.
- 5.4 The expert took non-invasive moisture readings through linings of exterior walls at skirting level and under doors and windows, and noted no elevated readings. Four invasive moisture readings were also taken through the cladding. No elevated readings were recorded, with moisture contents varying from 11.2% to 17.8% in the wall framing. 18.2% was recorded in the corner post of the balustrade framing, and I note that this is likely to be due to the exposure of the post below the deck level.
- 5.5 The expert took non-invasive moisture readings through linings of exterior walls at skirting level and under doors and windows, and noted no elevated readings. Four invasive moisture readings were also taken through the cladding. No elevated readings were recorded, with moisture contents varying from 11.2% to 17.8% in the wall framing. 18.2% was recorded in the corner post of the balustrade framing, and I note that this is likely to be due to the exposure of the post below the deck level.
- 5.6 The expert commented that although the clearance of the cladding to the paving is only 50 mm at the lower east wall, this junction is well sheltered under the deck and the applicants have plans to enclose the area with a conservatory.
- 5.7 Copies of the expert's report were provided to each of the parties.

## **6. Evaluation for code compliance**

### **6.1 Evaluation framework**

6.1.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solution<sup>4</sup>, which in this case is E2/AS1, 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.

---

<sup>4</sup> 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](http://www.dbh.govt.nz).

- 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.

6.1.2 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 antecedents, the Building Industry Authority, have also described weathertightness risk factors in previous determinations (refer to Determination 2004/1 *et al*) relating to cladding and these factors are also used in the evaluation process.

6.1.3 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 the quality of its installation to be carefully carried out.

## 6.2 Weathertightness risk

6.2.1 In relation to these characteristics I find that the building:

- is built in a medium wind zone
- is a maximum of two storeys high
- has an enclosed deck extending out from the first floor
- is fairly simple in plan and form
- has eave projections of more than 600 mm over all upper walls
- has monolithic claddings which are fixed directly to the framing
- has external wall framing that is likely to be treated, so providing a good level of resistance to the onset of decay if the framing absorbs and retains moisture.

6.2.2 When evaluated using the E2/AS1 risk matrix, these weathertight features show that three elevations of the building demonstrate a low weathertightness risk and one a moderate risk rating. The matrix is an assessment tool that is intended to be used at the time of application for consent, before the building work has begun and, consequently, before any assessment of the quality of the building work can be made. Poorly executed building work introduces a risk that cannot be taken into account in the consent stage but must be taken into account when the building as actually built is assessed for the purposes of issuing a code compliance certificate.

## 6.3 Weathertightness performance

6.3.1 Generally the cladding appears to have been installed according to good trade practice, with well-constructed junctions, edges and penetrations.

- 6.3.2 I note the expert's comments on the clearance from the paving at the base of the cladding on the east wall of the garage; and agree that, notwithstanding the applicants' future plans to enclose the area, the clearance provided is adequate in this situation as the junction is drained and well protected by the deck above.
- 6.3.3 I note that control joints have not been provided to the Hardiflex cladding on the deck balustrade, where the 10.2 m and 7.1 m lengths exceed the the 5.4 m limit recommended by the manufacturer. Although the framing is separated by a 30 mm gap from the membrane deck floor below, I consider that control joints should be provided to the Hardiflex claddings in accordance with manufacturer's instructions.
- 6.3.4 Notwithstanding the fact that the backing sheets are fixed directly to the timber framing, thus inhibiting drainage and ventilation behind the cladding sheets, I have noted certain compensating factors that assist the performance of the cladding in this particular case:
- The cladding generally appears to have been installed to good trade practice.
  - The house is a fairly simple, two-storey building.
  - The house has eave projections that provide good protection to the cladding areas below them.
  - The external wall framing is treated, so providing a good level of resistance to the onset of decay if the framing absorbs and retains moisture.
- 6.3.5 I consider that these factors help compensate for the lack of a ventilated cavity and can assist the building to comply with the weathertightness and durability provisions of the Building Code.

## **7. Conclusion**

- 7.1 I am satisfied that the current performance of the cladding is adequate because it is preventing water penetration into the building at present. I am also satisfied that there are no cladding faults on this building that are likely to allow the ingress of moisture in the future. Consequently, I am satisfied that the cladding system as installed on the building complies with clauses E2 and B2 of the Building Code.
- 7.2 I note that effective maintenance of claddings is important to ensure ongoing compliance with clause B2 of the Building Code. That maintenance is the responsibility of the building owner. The code assumes that the normal maintenance necessary to ensure the durability of the cladding is carried out. For that reason clause B2.3.1 of the Building Code requires that the cladding be subject to "normal maintenance". That term is not defined and I take the view that it must be given its ordinary and natural meaning in context. In other words, normal maintenance of the cladding means inspections and activities such as regular checking, cleaning, re-painting, replacing sealants, and so on.
- 7.3 It is emphasised that each determination is conducted on a case-by-case basis. Accordingly, the fact that a particular cladding system has been established as being

code compliant in relation to a particular building does not necessarily mean that the same cladding system will be code compliant in another situation.

7.4 In the circumstances, I decline to incorporate any waiver or modification of the Building Code in this determination.

## **8. The decision**

8.1 In accordance with section 188 of the Act, I hereby determine that the house is weathertight now and the monolithic cladding system as installed complies with clause E2 of the Building Code. However, there is an item to be remedied to ensure that the house remains weathertight and thus meets the durability requirements of the Building Code. Consequently, I find that the house does not comply with clause B2. Accordingly, I confirm the territorial authority's decision to refuse to issue a code compliance certificate.

8.2 I also find that rectification of the item outlined in paragraph 6.3.3, to the approval of the territorial authority, along with any other faults that may become apparent in the course of that work, is likely to result in the house remaining weathertight and in compliance with clauses B2 and E2.

8.3 I note that the territorial authority has not issued a notice to fix. A notice to fix should be issued that requires the owners to bring the cladding into compliance with the Building Code, without specifying the features that are required to be incorporated. It is not for me to decide directly how the defects are to be remedied and the cladding brought to compliance with the Building Code. That is a matter for the owner to propose and for the territorial authority to accept or reject.

8.4 I would suggest that the parties adopt the following process to meet the requirements of paragraph 8.3. Initially, the territorial authority should issue the notice to fix, listing all the items that the territorial authority considers to be non-compliant. The owner should then produce a response to this in the form of a technically robust 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.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 12 April 2006.

John Gardiner  
**Determinations Manager**