

## Determination 2007/104

### Determination regarding a code compliance certificate for a house with monolithic cladding at 26 Belmont Rise, Katikati



#### 1. The matter 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, 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 house, Mr G Paul (“the applicant”) acting through an agent, and the other party is Western Bay of Plenty District Council (“the territorial authority”).
- 1.2 This determination arises from the decision of the territorial authority to refuse to issue a code compliance certificate for a 7-year-old house because it is not satisfied that it complies with clauses B2 “Durability” and E2 “External Moisture” of the Building Code<sup>2</sup> (First Schedule, Building Regulations 1992).

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<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).

1.3 The matters for determination are whether:

**1.3.1 Matter 1: The cladding**

The cladding as installed on the house (“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 backing materials, the flashings, the joints and the plaster and/or the coatings) as well as the way the components have been installed and work together.

**1.3.2 Matter 2: The durability considerations**

The elements that make up the building work comply with Building Code clause B2 “Durability”, taking into account the age of the building work.

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 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.

1.5 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.

## **2. The building**

2.1 The building work consists of a one-storey detached house situated on a flat site, which is in a high wind zone for the purposes of NZS 3604<sup>3</sup>. The construction of the house is conventional light timber frame, with a concrete slab, concrete block foundations, aluminium windows and monolithic cladding, except for 1 metre high stone veneer used on the north elevation and part of the east elevation. The house is simple in plan and form, with a 30° pitch profiled metal hipped roof that has eave projections of more than 600 mm above all walls.

2.2 The main entry to the east is recessed, with a small timber slat deck and timber post supporting the roof overhang. The living room walls on the northeast corner are angled to provide a second recessed timber deck area, also with a timber post supporting the corner of the roof overhang

2.3 The expert has noted no evidence as to timber treatment. I have received no information as to the treatment if any of the house framing, and the date of construction would permit the use of untreated timber. Given the date of construction and the lack of other evidence, I consider that the external wall framing is unlikely to be treated.

2.4 The cladding system to the building is what is described as monolithic cladding, and is a “Harditex” system with 7.5 mm thick fibre-cement sheets fixed through the building wrap to the framing, and finished with an applied textured coating system. The expert has noted that the backing sheets behind the stone veneer have been

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

coated with a “liquid waterproofing membrane”, which he was able to observe at joints in the stonework.

- 2.5 I note that the first owner (and builder) of the house (“the developer”) applied the textured coating to the cladding (refer paragraph 4.1).

### **3. Background**

- 3.1 The territorial authority issued a building consent (No 63267) to the developer on 21 June 2000 and carried out various inspections during construction, including a pre-line on 14 September 2000. The territorial authority carried out a final inspection on 15 November 2000, and the inspection summary records this inspection as “passed”.

- 3.2 It appears that no application for a code compliance certificate was made until the developer decided to sell the house in 2004. The territorial authority undertook a further final inspection on 12 May 2004 and the record notes “reinspection required”. A further final inspection was carried out on 12 July 2004, and the inspection record notes “All outstanding work now complete. Do not issue Code Compliance Certificate”.

- 3.3 On 23 July 2004, the territorial authority wrote to the developer, stating that it was unable to issue a code compliance certificate. The territorial authority also noted:

In this case the building is clad in monolithic style and Council is not satisfied on reasonable grounds that it complies with the Functional Requirement and the Performance Requirement of Building Code Clause E2 External Moisture

The territorial authority noted that the alternatives available to the developer in order to obtain a code compliance certificate were:

1. Destructive testing/checking. This is where cladding or internal lining is removed to check the condition of framing. An inspection should then be carried out by a person, experienced in this field and acceptable to Council, who is able to provide a report clearly setting out whether or not the cladding has, or is likely to, allow the ingress of external moisture...
2. Removal of the monolithic-style cladding and replacement either with alternative non-monolithic cladding, or monolithic cladding with a suitable moisture management system (a drained cavity is one possible method). Please note that this must be carried out under a building consent.  
  
An application for an amendment to the current building consent may be acceptable provided it is less than two years old.
3. You may apply to the Building Industry Authority for a Determination in this matter . .

- 3.4 In a facsimile to the territorial authority dated 3 September 2004, the solicitor acting for the applicant (“the lawyer”) explained the applicant’s intention to purchase the property from the developer and, in regard to the lack of a code compliance certificate, noted:

Both parties are considering continuing with the purchase based on the dwelling being re-clad to bring it into compliance however we require confirmation from the Council that there are no other outstanding issues which may prevent code compliance.

3.5 The territorial authority responded in a facsimile to the lawyer dated 6 September 2004, and stated:

This is to advise that the cladding is the only outstanding issue as far as the Code Compliance Certificate is concerned.

Provided all appropriate inspections are requested and carried out during a re-cladding exercise, and that the work complied with the requirements of Clause E2 of the Building Code, it is likely that a Code Compliance Certificate would be issued for the project.

3.6 It appears that the sale proceeded, with the price adjusted as compensation for the expected additional work needed to re-clad the building (refer paragraph 4.1).

3.7 I have received no further evidence of correspondence about the cladding until 2007, when the applicant decided to sell the house. I note that a handwritten memorandum, dated 16 February 2007, on the territorial authority's property file states:

No CCC issued due to cladding not meeting building code and manufacturers installation requirements. Also texture not applied by licensed applicator. Intended to be re-clad by [*the applicant*] or by agreement with [*the developer*] (this is unclear). We have received no details on a re-clad as yet.

3.8 On 16 April 2007, the Department received an application for a determination.

## 4. The submissions

4.1 In a covering letter to the Department dated 3 April 2007, the applicant noted that the territorial authority had advised and assisted with the application and briefly summarised the history of the project, including the following points:

- The developer had sought a code compliance certificate and all matters were satisfactory apart from the cladding.
- The developer, who was not a licensed applicator, had coated the cladding himself and there were several other departures from the cladding manufacturer's recommendations.
- The necessary work to the cladding was not completed in time for the sale in 2004, and a lower purchase price was negotiated in compensation.

The applicant also noted:

... the WBOP and I are not in dispute. I would just like to tidy this matter up and do the right thing.

4.2 The applicant forwarded copies of:

- the drawings and specification
- the consent documentation
- the territorial authority's inspection records and various file notes
- the correspondence with the territorial authority
- various other statements and information.

- 4.3 On 14 May 2007 I received a submission from the territorial authority giving me sufficient information to proceed.
- 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 A copy of the draft determination was issued to the parties for comment on 19 June 2007. The applicant accepted the draft without comment.
- 4.6 In an email to the Department dated 28 June 2007, the territorial authority said:
- Council would like the matter of the age of the building consent addressed in relation to the requirements of Clause B2 - Durability, and future liability. The building consent was issued in June 2000 . . .
- I have amended the determination accordingly, adding the building's durability as the second matter to be determined.
- 4.7 The second draft determination was forwarded to the parties on 6 August 2007. The draft was issued for the parties to agree a date when the building elements installed in the alterations and additions complied with Building Code Clause B2 Durability.
- 4.8 The parties both nominated 31 December 2000 as the date when compliance with Clause B2 was achieved.

## **5. The expert's report**

- 5.1 As discussed 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.
- 5.2 The expert inspected the house on 21 May 2007, and furnished a report that was completed on 7 June 2007. The expert noted that the cladding generally appeared to be installed to a satisfactory standard, noting that the "overall standard of workmanship/finish is good".
- 5.3 The expert noted that the building work generally conformed to the consent drawings. However, I note that the following items were not in accordance with the drawings:
- the metal tile roof cladding replaced with profiled metal
  - the addition of the stone veneer to some walls.
- 5.4 The expert noted that clearances from the cladding to ground and paving levels were satisfactory, there was no evidence of joint cracking or movement, and penetrations through the cladding were adequately sealed. The expert noted that he could not determine the layout of the backing sheets, as the joint positions were not visible.
- 5.5 The expert inspected the window installation, and noted that the windows were face-fixed with metal head flashings and no sill or jamb flashings. The expert probed

behind the jamb flange, and noted the lack of Inseal or sealant behind the flange, with sealant applied at the outer edge only.

- 5.6 The expert inspected and took non-invasive moisture readings throughout the interior of the house and no evidence of moisture was noted. The expert took 17 invasive moisture readings through the cladding at bottom plates and below windows, and the highest recorded reading was 15%.
- 5.7 The expert noted that there are there are no vertical control joints in the 7.1m and 8.3m west walls, the 7.2m south wall, and the 13.9m east wall, where the dimensions exceed the 5.4m limit for Harditex recommended by the manufacturer.
- 5.8 The expert also noted that the terminal vent through the roof lacked an over-flashing.
- 5.9 The expert made the following additional comments on the cladding:
- although the garage door lacks a head flashing, the door head is sheltered directly below the 600mm eaves
  - although the windows lack seals behind the jamb flanges, there is no sign of moisture penetration and the windows are well-sheltered beneath deep eaves
- 5.10 A copy of the expert's report was provided to each of the parties on 12 June 2007.

## **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 Solutions<sup>4</sup>, which will assist in determining whether the features of these houses are code compliant. However, in making this comparison, the following general observations are valid:
- Some Acceptable Solutions are written conservatively to 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.
- 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 antecedent, the Building Industry Authority, have also described weathertightness risk factors in previous determinations<sup>5</sup> (for example,

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<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).

<sup>5</sup> Copies of all determinations issued by the Department can be obtained from the Department's website.

Determination 2004/1) 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 its installation to be carefully carried out.

## **6.2 Weathertightness risk**

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

- is built in a high wind zone
- is one storey high
- is simple in plan and form
- has monolithic cladding fixed directly to the framing
- has eaves projections of more than 600mm above all walls
- has two small timber slat decks
- has external wall framing that is not treated to a level that provides resistance to the onset of decay if the framing absorbs and retains moisture.

6.2.2 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.

6.2.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 6.2.1 show that all elevations of this house demonstrate a low weathertightness risk rating. I note that, in order to comply with E2/AS1, the monolithic cladding on this building would not require a drained cavity.

## **6.3 Weathertightness performance: exterior cladding**

6.3.1 Generally the cladding appears to have been installed in accordance with good trade practice. However, I note the expert's comment in paragraph 5.7, and consider that remedial work is necessary in respect of the lack of vertical control joints in the 7.1m and 8.3m west walls, the 7.2m south wall, and the 13.9m east wall, where the dimensions exceed the 5.4m limit for Harditex recommended by the manufacturer.

6.3.2 I note the expert's additional comments in paragraph 5.9, and consider that these items are adequate in the circumstances, as there is no evidence of related moisture penetration and the areas are well sheltered beneath deep eaves.

- 6.3.3 I note that the expert could not determine the layout of the backing sheets as the joints were not visible. However, I also note that the territorial authority has indicated (in a handwritten file note) that the sheet joints line up with the window jambs which would not be in accord with the manufacturer's specifications. However, in the case of this house, the window and door heads are only about 100mm beneath 600mm deep soffits, and I therefore consider that the sheet layout is unlikely to result in moisture penetration in these circumstances.
- 6.3.4 I note that the monolithic cladding of this building would not require a drained cavity in order to comply with Acceptable Solution E2/AS1 (refer paragraph 6.2.3).
- 6.3.5 Remedial work is also required with regard to the lack of an over-flashing to the roof vent (refer paragraph 5.8).
- 6.3.6 I also note several changes to the consented plans that appear to require some action by the territorial authority (refer paragraph 5.3):
- The roof cladding changed from pressed steel tiles to corrugated colorsteel.
  - The addition of the stone veneer to some walls.

## **Matter 1: The cladding**

### **7. Discussion**

- 7.1 I consider that the expert's report establishes there is no evidence of external moisture entering the building, and accordingly, that its cladding does comply with clause E2 at this time.
- 7.2 However, the building 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 building are likely to allow the ingress of moisture in the future, the house does not comply with the durability requirements of clause B2.
- 7.3 Because the faults identified with the cladding system occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraph 6.3.1 will result in the building remaining weathertight and in compliance with clauses B2 and E2.
- 7.4 In addition, rectification is also required regarding the item in paragraph 6.3.5 to make it code-compliant.
- 7.5 I emphasize that each determination is conducted on a case-by-case basis. Accordingly, the fact that particular cladding systems have been established as being code compliant in relation to a particular building does not necessarily mean that the same cladding systems will be code compliant in another situation.



- 7.6 I decline to incorporate any waiver or modification of the Building Code in this determination.
- 7.7 Effective maintenance of claddings (in particular of monolithic claddings) is important to ensure ongoing compliance with clauses B2 and E2 of the Building Code and is the responsibility of the building owner. Clause B2.3.1 of the Building Code requires that the cladding be subject to "normal maintenance", however that term is not defined in the Act.
- 7.8 I take the view that normal maintenance is that work generally recognised as necessary to achieve the expected durability for a given building element. With respect to the cladding, the extent and nature of the maintenance will depend on the material, or system, its geographical location and level of exposure. Following regular inspection, normal maintenance tasks should include but not be limited to:
- where applicable, following manufacturers' maintenance recommendations
  - washing down surfaces, particularly those subject to wind-driven salt spray
  - re-coating protective finishes
  - replacing sealant, seals and gaskets in joints.
- 7.9 As the external wall framing of this house may not be treated to a level that will resist the onset of decay if it gets wet, periodic checking of its moisture content should also be carried out as part of normal maintenance.

## **Matter 2: The durability considerations**

### **8. Discussion**

- 8.1 The territorial 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 building at the end of 2000.
- 8.2 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).
- 8.3 These durability periods are:
- 5 years if the building elements are easy to access and replace, and failure of those elements would be easily detected during the normal use of the building
  - 15 years if building elements are moderately difficult to access or replace, or failure of those elements would go undetected during normal use of the building, but would be easily detected during normal maintenance
  - the life of the building, being not less than 50 years, if the building elements provide structural stability to the building, or are difficult to access or replace, or failure of those elements would go undetected during both normal use and maintenance.

- 8.4 It is not disputed, and I am therefore satisfied that all the building elements installed in the building, excluding the matters to be rectified, complied with clause B2 on 31 December 2000. This date has been agreed between the parties, refer paragraph 4.8.
- 8.5 In order to address these durability issues when they were raised in previous determinations, I sought and received clarification of general legal advice about waivers and modifications. That clarification, and the legal framework and procedures based on the clarification, is described in previous determinations (for example, Determination 2006/85). I have used that advice to evaluate the durability issues raised in this determination.
- 8.6 I continue to hold that view, and therefore conclude that:
- (a) the territorial authority has the power to grant an appropriate modification of clause B2 in respect of all the building elements.
  - (b) it is reasonable to grant such a modification, with appropriate notification, because in practical terms the building is no different from what it would have been if a code compliance certificate for the house had been issued in 2000.
- 8.7 I strongly recommend that the territorial authority record this determination and any modifications resulting from it, on the property file and also on any LIM issued concerning this property.

## 9. The decision

- 9.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the cladding currently does not comply with clause B2 of the Building Code, and accordingly confirm the territorial authority's decision to refuse to issue a code compliance certificate.
- 9.2 I also determine that:
- (a) all the building elements installed in the building, apart from the items that are to be rectified, complied with clause B2 on 31 December 2000.
  - (b) the building consent is hereby modified as follows:

The building consent is subject to a modification to the Building Code to the effect that, clause B2.3.1 applies from 31 December 2000 instead of from the time of issue of the code compliance certificate for all building elements provided that this modification does not apply to the elements that have been altered or modified as set out in set out in paragraphs 6.3.1 and 6.3.5 of **[this determination]**.
  - (c) once the defects set out in paragraphs 6.3.1 and 6.3.5 of this determination have been fixed to its satisfaction, the territorial authority is to issue a code compliance certificate in respect of the building consent as amended.
- 9.3 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, identifying the defects listed in paragraph 6.3.1 and paragraph 6.3.5 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 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.

- 9.4 I would suggest that the parties adopt the following process to meet the requirements of paragraph 9.3. Initially, the territorial 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.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 11 September 2007.

John Gardiner  
**Manager Determinations**