

## Determination 2006/125

### Refusal of a code compliance certificate for building alterations with a monolithic cladding system at 7 Meyrick Place, Meadowbank, Auckland



#### 1. The matters 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 (“the Department”), for and on behalf of the Chief Executive of that Department. The applicant is the owner, Mrs Merrett (“the applicant”) and the other party is the Auckland City Council (“the territorial authority”).
- 1.2 The matter for determination is the territorial authority’s decision to refuse to issue a code compliance certificate for a 6-year old house alteration because it was not satisfied that it complied 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 to be determined are whether:

**Matter 1: The cladding**

The monolithic cladding as installed on extensions to the building complies with clause E2 “External Moisture” of the Building Code (First Schedule, Building Regulations 1992). By “the monolithic 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.

**Matter 2: The durability considerations**

The elements that make up the building work comply with clause B2, taking into account the age of the building work.

1.4 **Other compliance issues**

1. The territorial authority notes in its submission (refer paragraph 4.3) and in a notice to fix dated 22 June 2006 (refer paragraph 3.5), that some aspects of the building work contravene Building Code clauses B1, D1, E3, F7, G4, G12 and H1.
2. I note that there are no items within the notice to fix (or within the correspondence from the territorial authority to the applicant) that relate to clause B1 or clause H1. I have received no other evidence relating to a dispute about clause B1 or clause H1.
3. I also note that the remaining clauses relate to items within the notice to fix listed as “Other Building Related Issues”. The independent expert commissioned by the Department to advise on this dispute (“the expert”) has noted that the owner advised him that these items are either covered by proposals submitted to, or are the subject of current consultation with, the territorial authority, and are therefore not in dispute. I therefore consider that those matters are best left to the parties for resolution.

1.5 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. As regards the cladding, I have evaluated this information using a framework that I describe more fully in paragraph 6.1.

1.6 In this determination, unless otherwise stated, references to section 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 minor extensions to a detached one and a half storey high house situated on a sloping site, which is in a medium wind zone for the

purposes of NZS 3604<sup>2</sup>. The original house was constructed in 1961, with a concrete block partial basement floor, an upper level concrete terrace to the north and 870mm eaves projections to the roof. The building work considered in this determination consists of extensions to two ground floor bedrooms on the south and east (as projecting “boxes” beneath the original eaves) and a small upper level addition to the north over part of the original concrete terrace (including a 12° pitch hipped roof extension to match the original roof). The resulting house is conventional light timber frame with a concrete slab and concrete block basement walls, profiled metal roof cladding, new aluminium windows, monolithic cladding to new walls and original rusticated timber weatherboards to the remaining upper floor walls.

- 2.2 New timber slat decking is overlaid onto the existing concrete terrace and the new deck projects to the north, with open timber balustrades and timber supports. Timber steps lead down to a lower level deck – and then to paving and a pool area (which together were constructed under a separate building consent and were not included in the application for determination, see paragraph 3.2.)
- 2.3 The expert was unable to sight the wall framing. I have received no evidence as to the treatment, if any, of the external wall framing timber. Given the lack of evidence and the date of construction, I consider that the external wall framing of the extensions is unlikely to be treated.
- 2.4 The cladding system to the walls of the extensions 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 a 4mm cement-based textured plaster coating system. This textured coating has been extended down over the existing concrete block basement walls.
- 2.5 I have seen no evidence of producer statements or warranties for the cladding systems.

### **3. Sequence of events**

- 3.1 It appears that the territorial authority issued a building consent (No 09621) on 19 November 1999. I have received no evidence of what inspections were undertaken by the territorial authority during construction but the expert notes that a pre-line inspection was undertaken on 28 June 2000, and it appears that the work was substantially completed during 2000.
- 3.2 A second building consent (No 06649) was issued on 27 August 2003 for construction of a spa pool, with associated paving and fencing adjoining the new timber decks to the north of the house. It appears that a code compliance certificate was subsequently issued for this building work (which is not part of this determination).

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<sup>2 2</sup> New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- 3.3 The territorial authority carried out a final inspection of the additions and alterations on 11 November 2004, and the territorial authority's "Final checklist" notes several outstanding items. It appears that the owners did not apply for a code compliance certificate for the extensions until 2006, and the territorial authority subsequently carried out an inspection of the building work on 3 April 2006.
- 3.4 In a letter to the owners dated 23 June 2006, the territorial authority explained the requirements of clauses B1 "Structure", B2 "Durability" and E2 "Weathertightness", attached a notice to fix (with photographs of defects), and concluded that it could not be satisfied that the building work complied with the building code.
- 3.5 The notice to fix, dated 22 June 2006, noted that the work was "in breach of clauses B1 Structure, B2 Durability, D1 Access routes, E2 External Moisture, E3 Internal Moisture, F7 Warning systems, G4 Ventilation, G12 Water supplies, and H1 Energy efficiency". (As outlined in paragraph 3, I note that the owner is currently consulting the territorial authority with regard to the items listed in the notice to fix under "Other building related issues"). The matters relating to the wall cladding were:
- clearance of the cladding above the ground or paving
  - the clearance of the cladding above horizontal flashings
- The notice to fix also outlined durability requirements for all of the building elements, noting that the required periods were timed from the date of issue of the Code Compliance Certificate and not from the date of construction.
- 3.6 An application for a determination was received by the Department on 1 September 2006.

#### **4. The submissions**

- 4.1 Within the application, the applicant noted that:
- The matter for determination is that the council is unable to be satisfied that the building will continue to meet the requirements of clause B2 of the NZ Building Code.
- 4.2 The applicant forwarded copies of:
- the letter from the territorial authority dated 23 June 2006
  - the notice to fix dated 22 June 2006.
- 4.3 In a letter to the Department dated 31 August 2006, the territorial authority noted that the notice to fix related to nine clauses of the building code. (As outlined in paragraph 3, I note that the owner is currently consulting the territorial authority with regard to the items listed under "Other building related issues" so this determination is restricted to clauses B2 and E2.)
- 4.4 The territorial authority forwarded copies of:
- the consent application

- the drawings
- the notice to fix dated 22 June 2006
- the photographic record of the final inspection
- the letter to the applicant dated 23 June 2006.

4.5 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.

4.6 The draft determination was sent to the parties on 6 December 2006. The draft determination was issued for comment and for the parties to agree a date when all the building elements installed in the house, apart from items that have to be rectified as described in paragraph 6.3.1 complied with the Building Code Clause B2 Durability. Both parties accepted the draft citing 31 July 2000 as the time when compliance with B2 was achieved. I have amended the determination accordingly.

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

5.1 The expert inspected the claddings of the building on 10 October 2006, and furnished a report that was completed on 12 October 2006. The expert noted that the new work generally appeared to have been finished to a good standard, with adequate junctions between the weatherboards and the Harditex, and no issues relating to roof flashings or pipe penetrations through the cladding. The expert noted that control joints are not specified by the manufacturer as necessary for the dimensions of Harditex used on the walls of the extensions.

5.2 The expert noted that the construction generally conformed with the consent drawings, except for some minor variations including:

- the removal of the east chimney
- changes to the games room window
- the extension of Harditex to the end of the games room window
- the addition of an offset to the bathroom/laundry dividing wall.

5.3 The expert noted the new windows were face-fixed against the claddings, with the heads abutting and sealed against soffits or overhangs (without sill and head flashings). The expert removed a small section of coating at the sill to jamb junction of a window, and noted 4mm thick sealant between the sealed fibre-cement sheet and the back of the window flange. I accept that the location opened is typical of similar locations elsewhere in the house.

5.4 The expert took non-invasive moisture readings through internal linings of exterior walls throughout the house, and no elevated readings or signs of moisture were

noted. The expert took 8 invasive moisture readings through the new external cladding at various risky areas, and all readings were recorded at less than 14%. The expert noted that the readings were taken after a period of heavy rain, and considered that they were likely to be “peak values”.

- 5.5 The expert obtained a copy of a construction photograph of the south elevation, which showed the fibre-cement backing sheets overlapping a membrane flashing that extended down over the existing concrete foundation wall.
- 5.6 The expert also noted that the owner provided him with copies of details that had been supplied to the territorial authority, which proposed work to remedy the cladding clearance and the horizontal flashing defects identified in the notice to fix.
- 5.7 The expert made the following additional comments:
- While the overlaid decking butts against the cladding, the slats are angled with the gaps between the boards allowing adequate drainage through to the membrane-covered original concrete terrace below
  - While it was not possible to extend the coating on the bedroom extensions to underlap the original fascia board, the junction is protected by the fascia and the continuous gutter above.

## Matter 1: The Cladding

### 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>3</sup>, in this case 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.
- 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

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<sup>3</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).

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>4</sup> (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 its installation to be carefully carried out.

## 6.2 Weathertightness risk

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

- are built in a medium wind zone
- are a maximum of two storeys high
- are fairly simple in plan and form, with two types of wall cladding
- have attached timber slat decks
- have eaves projections that are more than 800mm over most walls
- have monolithic cladding that is fixed directly to the framing
- have external wall framing that is not likely to be treated to a level that will provide resistance to the onset of decay if the framing absorbs and retains moisture.

6.2.2 When evaluated using the E2/AS1 risk matrix, all elevations of the extensions to this house demonstrate a low weathertightness 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.

6.2.3 I note that the monolithic cladding to the walls of the extensions to the house falls within the scope of E2/AS1 as not requiring the provision of a drained cavity.

## 6.3 Weathertightness performance

6.3.1 Generally the cladding appears to have been installed in accordance with good trade practice. However, I accept the expert's opinion that remedial work is necessary in respect of the following:

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<sup>4</sup> Copies of all determinations issued by the Department can be obtained from the Department's website.

- There is no clearance from the bottom of the cladding to the paving at the front entry and bedroom extension on the south elevation.
- The horizontal Z flashing to the junction of the Harditex with the plastered original concrete block basement wall on the west elevation is inadequate (as the walls are out of line).
- The northwest corner junction of the Harditex with the original basement wall appears to lack a flashing, with the plaster coating continuous over both areas.
- There are several cracks in the coating (including at the above junction).
- The coating is not continuous behind the downpipe brackets.
- Any other building elements associated with the above that are consequently discovered to be in need of rectification.

6.3.2 I note the expert's additional comments in paragraph 5.7, and accept that these features are adequate in the circumstances.

6.3.3 The expert has noted (as outlined in paragraph 5.6) that the applicant has submitted detailed proposals to remedy the cladding-related items identified in the notice to fix (items 2.1 and 2.2 in the notice to fix), and I leave these matters to the territorial authority for its consideration.

## **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 monolithic 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 additions to remain weathertight. Because the cladding faults on the extensions 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 I consider that, 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 clause B2. I have given further consideration to the question of B2 compliance under matter 2 of this determination.

7.4 It is emphasized 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.



- 7.5 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.
- 7.6 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.
- 7.7 As the external wall framing of the extensions to this house is unlikely to 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 by June 2000. I also note that the territorial authority's inspection records indicate compliance with clause B2 at the time of those inspections.
- 8.2 According to the applicant, the alterations were virtually completed by early June 2000. On 28 June 2000, an officer of the territorial authority visited the site and was prepared to undertake a final inspection. However, the builder considered that this inspection should take place two weeks later. It therefore appears that the work was substantially completed in June 2000.
- 8.3 The relevant provision of clause B2 of the Building Code recognises 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).
- 8.4 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.

8.5 It is not disputed, and I am therefore satisfied, that all the building elements installed in the house, apart from items that have to be rectified as described in paragraph 6.3.1, complied with clause B2 on 31 July 2000. This date has been confirmed by both the applicant and the territorial authority since the publication of the draft determination.

8.6 In order to address these durability issues, I sought some clarification of general legal advice about waivers and modifications. I have now received that clarification and the legal framework and procedures based on this clarification are described in previous determinations (for example, Determination 2006/85) and are used to evaluate the durability issues raised in this determination.

8.7 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 the listed elements if the applicant applies for such a modification.
- (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 had been issued in 2000.

8.8 I strongly recommend that the territorial authority record this determination and any modifications resulting there from, 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 on the building 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 house, apart from the items that are to be rectified, complied with clause B2 on 31 July 2000.

- (b) should the applicant so request, the territorial authority must modify its decision to issue the building consent to the effect that the building consent is amended 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 July 2000 instead of from the time of issue of the code compliance certificate for all building elements except those elements set out in paragraph 6.3.1 of Determination 2006/125.

- (c) once the defects set out in paragraph 6.3.1 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 as required by section 435. A notice to fix should be issued that requires the applicants to bring the building into compliance with the Building Code, identifying the defects listed in paragraph 6.3.1, but not specifying how those defects are to be fixed. That is a matter for the applicants to propose and for the territorial authority to accept or reject. It is important to note that the Building Code allows for more than one method of achieving compliance.

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 new 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 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 21 December 2006.

John Gardiner  
**Determinations Manager**