

## Determination 2007/43

### Determination regarding a code compliance certificate for a house at 2/26A Dallinghoe Crescent, Milford, North Shore City



#### 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, Determinations Manager, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department. The applicants are the owners, Mr Kerslake and Mr Lee, acting through the builder (“the applicants”), and the other party is the North Shore 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 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:
1. The monolithic cladding as installed on 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.
  2. The elements that make up the building work comply with clause B2, taking into account the age of the building work.
- 1.4 In making my decision, I have considered the documentation received from 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.
- 1.5 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 two-storey detached house situated on an excavated sloping site, which is in a medium wind zone for the purposes of NZS 3604<sup>3</sup>. The house is relatively simple in plan and form but with some complex features. Construction is conventional light timber frame constructed on either concrete or timber-framed floors. The pitched roofs are at two main levels with hip, valley, and wall-to-roof junctions. The roofs do not have any eaves or verge projections.
- 2.2 I have received no written evidence confirming the treatment, if any, of the external wall framing timber. From what the expert was able to observe, he was of the opinion that the timber was probably untreated.
- 2.3 The external walls of the house are clad with 40mm thick “Insulclad” polystyrene sheets fixed through the building wrap to the framing and finished with texture coated and painted systems.
- 2.4 Plaster Systems Ltd issued a 15-year “Material Components Guarantee” dated 28 September 2000 for the cladding system and a 5-year Workmanship Guarantee” of the same date for the plaster application.

## **3. Sequence of events**

- 3.1 The territorial authority issued a building consent on 27 March 2000.

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

- 3.2 The territorial authority carried out various inspections from April 2000 and a final inspection was carried out on 11 September 2000. Following this final inspection, the territorial authority issued a series of memoranda requiring remedial work to be carried out. In a further memorandum dated 23 February 2006, the territorial authority noted that a water-tightness report was to be carried out and that a final water-tightness inspection should be called for prior to painting.
- 3.3 On 12 July 2006 the territorial authority wrote to the builder, stating that based on new knowledge, the inspection of cladding was now more rigorous. The territorial authority believed that, as the cladding did not comply with clauses B2 and E2, it was not able to issue a code compliance certificate. The territorial authority also listed risk factors, identified defects, and other compliance requirements. The territorial authority noted that the matters that needed to be addressed in a determination were:
- Compliance of the installed cladding system with the relevant clauses of the New Zealand Building Code.
- Compliance of all other elements incorporated in the building with clause B2: "Durability" of the New Zealand Building Code, considering the age of construction.
- 3.4 The territorial authority did not issue a notice to fix as required by section 435.
- 3.5 An application for a determination was received by the Department on 26 September 2006.

## **4. The submissions**

- 4.1 The applicants did not make a submission but forwarded copies of:
- the plans
  - the building consent
  - some inspection records
  - the correspondence with the territorial authority
  - the cladding guarantees.
- 4.2 In a fax to the Department sent on 13 December 2006, the territorial authority stated that the matters to be determined were whether:
1. the installed wall cladding systems comply with clause B2 and E2 of the New Zealand Building Code
  2. any cladding not remediated complies with clause B2 of the New Zealand Building Code, considering the age of construction
  3. all other building elements incorporated in this building comply with clause B2 of the New Zealand Building Code, considering the age of construction.

The territorial authority also noted that 2/26A is the correct address for the house in question.

- 4.3 Copies of the evidence were provided to each of the parties. Neither party made any further submissions in response to the submission of the other party.
- 4.4 A copy of the draft determination was sent to the parties on 12 February 2007. The draft was issued for comment and for the parties to agree a date when all the building elements installed in the house complied with the Building Code Clause B2 Durability.
- 4.5 The territorial authority accepted the draft. It highlighted some typographical errors and asked why some defects raised by the expert had not been addressed in the determination. I have amended the determination accordingly. The territorial authority proposed that compliance with Clause B2 was achieved on 1 November 2000 and said that this date had been agreed with the applicant.
- 4.6 The applicant accepted the draft in correspondence received on 5 March 2007. The applicant proposed that compliance with Clause B2 was achieved on 11 September 2000.
- 4.7 Given the small difference in time between the dates nominated by the parties I have taken the agreed date as being 1 November 2000.

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

- 5.1 The expert inspected the claddings of the house on 15 November 2006, and furnished a report that was completed on 20 November 2006. The expert was of the opinion that the cladding as installed did not require vertical or horizontal control joints. However, 2 control joints have been installed below the main bedroom window on the north elevation to conceal previously cracked cladding. The expert removed the cladding at several locations to observe the construction. I am prepared to accept that the exposed details would apply to other similar situations throughout the house. Decayed timber and fungal growth were evident at locations where the expert removed the cladding below two sewer pipe penetrations.
- 5.2 The expert took non-invasive moisture readings internally and only one elevated reading was noted. Invasive moisture readings were taken through the wall cladding and readings of 24% and 40% at the base of the southwest wall and 26% at the mid-floor level of the northeast wall were obtained. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.
- 5.3 Commenting specifically on the cladding, the expert noted that:
- there is extensive cracking in the cladding below the external corners of the windows

- these cracks suggested that the reinforcing mesh installation might be faulty or weakened by the alkaline content of the plaster
- the required 50mm cladding overlap at the foundations is not achieved at the rear garage door area
- the bottom of the cladding lacks sufficient ground clearance at the garage frontage
- the head flashing above a lounge room window does not project past the jamb lines
- some roof-to-wall junctions have unsealed gaps
- some penetrations are inadequately sealed
- a considerable amount of sealant has been installed around all cladding penetrations and where cracks have been repaired
- a concrete roof tile is cracked
- there is an unpainted exposed plywood support packer at the front entry roof junction.

5.4 Copies of the expert's report were provided to each of the parties on 22 November 2006.

## **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>4</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.

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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).

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, 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 the house:

- is built in a medium wind zone
- is two storeys high
- is relatively simple in plan and form but with some complex features
- generally has no eaves or verge projections
- has no decks or balconies
- has external wall framing that may not be treated to a level that provides resistance to the onset of decay if the framing absorbs and retains moisture.

6.2.2 When evaluated using the E2/AS1 risk matrix, three elevations of the house demonstrate a moderate weathertightness risk and the remaining elevation a high risk. 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 in accordance with good trade practice. However, taking into account the expert's opinion, I accept that work is necessary in respect of:

- the extensive cracking in the cladding below the external corners of the windows

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

- the possibility that the reinforcing mesh installation might be faulty or weakened by the alkaline content of the plaster
- the lack of a 50mm cladding overlap at the foundations at the rear garage door area
- the insufficient ground clearance to the bottom of the cladding at the garage frontage
- the head flashing above a lounge room window not projecting past the jamb lines
- the unsealed gaps at some roof-to-wall junctions
- the inadequately sealed penetrations
- the considerable amount of sealant installed around all cladding penetrations, and where cracks have been repaired
- a cracked concrete roof tile
- an exposed unfinished plywood support packer under the roof flashing at the front entry roof junction
- any other building elements associated with the above that are consequently discovered to be in need of rectification.

6.3.2 Notwithstanding the fact that the cladding is fixed directly to the timber framing, thus limiting drainage and ventilation behind the cladding, I have noted certain compensating factors that assist the performance of the cladding in this particular case. These are that:

- apart from the noted exceptions the cladding is installed to good trade practice
- the house has no high risk features, such as integrated decks or balconies.

6.3.3 I consider that these factors help compensate for the lack of a drained cavity and can assist the building to comply with the weathertightness and durability provisions of the Building Code.

## **7 Discussion**

7.1 I am satisfied that the current performance of the monolithic cladding is not adequate because it is allowing water penetration into the building at several locations, particularly two sewer pipe penetrations, at present. There is evidence of rotting framing timbers and the presence of fungi associated with these. Consequently, I am not satisfied that the cladding system as installed on the building complies with clause E2 of the Building Code.

7.2 In addition, 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 building to remain weathertight. Because the cladding faults are likely to allow the ingress of moisture in the future, the additions do not comply with the durability requirements of clause B2.

- 7.3 I conclude 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 clauses B2 and E2.
- 7.4 I emphasise 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 monolithic cladding) is important to ensure ongoing compliance with clauses B2 and E2 and is the responsibility of the building owner. Clause B2.3.1 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 building 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 by late 2000. I also note that the territorial authority’s inspection records do not indicate that there was non-compliance with clause B2 at the time of those inspections.
- 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 I am satisfied that all the building elements installed in the house, apart from items that have to be rectified as described in paragraph 7.3, complied with clause B2 on 1 November 2000. How this date was arrived at is discussed in paragraphs 4.5 to 4.7.

8.5 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.

8.6 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 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 had been issued in November 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 on the building does not comply with clause E2 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 1 November 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 1 November 2000 instead or from the time of issue of the code compliance certificate for all building elements, except those elements that have been altered or modified as set out in paragraph 6.3.1 of Determination 2007/43.

- (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. 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 30 April 2007.

John Gardiner  
**Manager Determinations**