

## Determination 2007/52

### Refusal of a code compliance certificate because of concerns over internal moisture and durability for a 12-year-old house at 1506 Ngunguru Road, RD3, Whangarei



#### 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, Mrs L Bohles (“the applicant”), and the other party is Whangarei 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 12-year-old house because it is not satisfied that it complies with clauses B2 “Durability” and E3 “Internal Moisture” of the Building Code<sup>2</sup> (First Schedule, Building Regulations 1992).

---

<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: Internal moisture**

The interior wall surfaces of the service areas of this house (“the surfaces”) require an impervious coating to achieve compliance with clause E3 “Internal Moisture” of the Building Code. By “the wall surfaces of the service areas” I mean those surfaces in rooms or areas containing sanitary fixtures and sanitary appliances.

**1.3.2 Matter 2: The durability considerations**

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

1.4 I note that the condition of some of the roof cladding was raised during the final inspection (refer paragraph 3.2), and I also note that this matter is being addressed by the applicant as outlined in paragraph 3.11. Apart from the issue of the warranty period for the roof cladding (which is covered within Matter 2, beginning at paragraph 6.1), the repairs to the roof do not appear to be in dispute and I will therefore not consider them further in this determination.

1.5 In making my decision, I have considered the submissions of the parties, the report of the consultant commissioned by the applicant to advise on this dispute (“the consultant”), and the other evidence in this matter. (I consider that the consultant is an acknowledged specialist on earth building construction as outlined in paragraph 4.5.1, and I note that he was also the architect of this house.)

1.6 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 is a one and a half storey detached house of earth brick and rammed earth construction. The building work in dispute consists of the interior earth walls in the kitchen, bathroom, toilet and laundry area.

2.2 The kitchen is open plan to the living areas, and has an L-shaped benchtop against the external wall, which has timber windows with sills at about 400mm above the bench. A 120mm high clear-finished timber plate forms a continuous upstand at the back of the benchtop, with the remaining walls being unsealed earth brick or rammed earth.

2.3 The bathroom accommodates a bath, shower, and a vanity unit. The toilet accommodates a toilet pan, cistern and wash hand basin. Large glazed ceramic tiles are installed behind the vanity unit to a height of about 1200mm and extending past the unit by at least 400mm at the side. The shower area is fully tiled, and the lower tiles continue as a splashback behind the bathtub to a height of about 900mm. The toilet has clear-finished timber boarding behind the pan and cistern. Remaining wall areas of both rooms are unsealed earth brick or rammed earth.

- 2.4 The laundry facility is in a corner of the garage, with earth brick walls behind the tub and washing machine.

### **3 Sequence of events**

- 3.1 It appears that the territorial authority issued a building consent (No. 6485) in 1994 and the house was completed early in 1995. A warranty for the membrane roof was issued by the manufacturer on 24 May 1995.
- 3.2 The territorial authority carried out a “recheck final” inspection on 19 October 2006, which noted that all items identified in an earlier final inspection had been completed apart from several outstanding issues including sealing the internal brick surfaces in the service rooms and repairs to the membrane roof (refer paragraph 1.4).
- 3.3 I am not aware of further correspondence between the applicant and the territorial authority until 2006, when the applicant sought the consultant’s support for her application for a code compliance certificate.
- 3.4 In a letter to the territorial authority dated 22 November 2006, the consultant outlined his involvement with the house and his experience in earth construction. The consultant explained that he had been asked to comment on the service room wall surfaces, and stated that he considered that the surfaces should not be sealed as:
- Earth walls are hygroscopic – i.e. they absorb excess humidity harmlessly, and then release this humidity when conditions reverse. The result is that earth walls in service rooms do not get condensation forming on them, so mould growth does not occur. Sealing the walls would, in fact, make the formation of surface condensation, and therefore mould growth, much more likely and is therefore detrimental.
- 3.5 In a response to the consultant dated 28 November 2006, the territorial authority noted that, while the points raised by the consultant were acknowledged and understood, the wall surfaces must be impervious as:
- ...our position is ensuring the building is code compliant and as previously explained to [the applicant] we don’t believe the service areas (i.e. bathroom, kitchen etc) have an impervious finish to walls as required by E3, which impacts on hygiene also.
- 3.6 The consultant responded in a letter to the territorial authority dated 5 December 2006, noting that the consent documents had not specified any surface coatings to the earth walls, impervious splashbacks had been provided where necessary, the earth walls could be scrubbed clean if necessary and the surfaces had proved satisfactory for more than 10 years of use.
- 3.7 In a response to the consultant dated 14 December 2006, the territorial authority noted that the service areas had been evaluated against the 1992 code requirements, in which clause E3 required “impervious” surfaces within immediate rooms or areas, and therefore:
- ...the building in our opinion although it may have performed for about 10 years, as you have suggested, has not complied with the above E3 of NZBC and we therefore cannot issue a Code Compliance Certificate.

- 3.8 The consultant subsequently sought advice from an architect with 10 years past experience in interpreting, reviewing and advising on compliance with clause E3 (“the advisor”). In a letter to the territorial authority dated 24 January 2007, the advisor described her experience, explained the structure of clause E3 and included the following summarised comments on the E3 requirements:
- While compliance is based on the code not the Acceptable Solution, the clause does not require impervious surfaces for all wall areas within the service rooms.
  - The relevant objective of safeguarding against harm from moisture is met by providing impervious surfaces adjacent to sanitary fixtures or appliances.
  - The photographs show that this has been achieved within the service rooms, with no evidence of accumulated internal moisture.
  - After 11 years of use, the earth bricks and rammed earth surfaces must either be impervious and easily cleaned, or they are not sufficiently adjacent to sanitary fixtures or appliances to warrant needing protection.
  - While surfaces likely to be splashed must be impervious, other surfaces must withstand moisture from condensation.
  - Condensation moisture is not an issue, as this type of construction is not prone to condensation problems (and the areas are also well ventilated).

The advisor concluded that:

In my opinion it is strong proof of compliance with clause E3 that after 11 years the surfaces in these rooms are not showing any damage that could cause *illness, injury or loss of amenity* from the accumulation of internal moisture as required to comply with the objective, and therefore the CCC should be issued.

- 3.9 In a response to the advisor dated 27 February 2007, the territorial authority maintained its position that the house did not comply with the requirements of clause E3 and suggested that a determination on the matter be sought.
- 3.10 The Department received an application for a determination on 26 March 2007.
- 3.11 In a letter to the Department dated 19 March 2007, the applicant explained that the second issue for determination (refer paragraph 4.1) related to repairs required to the membrane roof areas. The applicant explained that she has arranged for the roofing manufacturer to inspect the roof, but the roof cladding has only 3 years remaining of the original 15-year warranty and the territorial authority ask for a 10-year warranty when the roof is repaired. As outlined in paragraph 1.4 this issue is addressed within the general durability considerations in Matter 2 (beginning at paragraph 7.1).

## 4 The submissions

- 4.1 Within the application, the applicant noted that issues for determination were the territorial authority’s requirement to seal the earth walls in the service areas, and also that “the Butynol roof has only 3 years warranty left” (refer paragraph 3.11).

4.2 The applicant forwarded copies of:

- the drawings and parts of the specification
- the final inspection checklist
- the correspondence with the territorial authority
- the consultant's report dated 30 January 2007
- various other statements.

4.3 The territorial authority made no submission.

4.4 Copies of the applicant's submission and other evidence were provided to the territorial authority, which made no submission in response.

#### **4.5 The consultant's report**

4.5.1 As discussed in paragraph 1.5, the applicant has supplied an consultant's report on the condition of the internal walls of the service rooms in the house. The consultant was the founding Chairman of the Earth Building Association of New Zealand and also chairs the Standards Committee responsible for the suite of building standards on earth building. I therefore consider him to be an expert in earth building construction.

4.5.2 Although the consultant was also the architect for the house (which was designed 13 years ago), I am prepared to accept his assessment (and photographic records) of the current condition of those building elements that are subject to the determination.

4.5.3 The consultant inspected the house on 12 January 2007, and furnished a report that was completed on 30 January 2007. The consultant noted that all of the interior earth surfaces appeared "dense and tight, and of good overall finish and workmanship".

4.5.4 The consultant noted that, with regard to the elements relevant to the matters in dispute, the building work conformed to the consent drawings.

4.5.5 The consultant inspected the interior of the house and no evidence of moisture-related problems were observed on the earth walls or surrounding areas on any of the interior surfaces in the service areas.

4.5.6 Commenting specifically on the service areas, the consultant noted that:

##### **Kitchen**

- there is a timber upstand (with a polyurethane finish) behind the benchtop
- the earth walls behind the bench (and elsewhere in the kitchen) show no sign of problems associated with surface condensation, mould growth or any other contamination
- all walls appear pristine and in an "as-new" condition

### **Bathroom and Toilet**

- the walls of the walk-in shower are tiled, with further tiles behind the bath and around the vanity unit
- the wall behind the pan and cistern (in the toilet) is lined with timber boarding with a polyurethane finish
- despite 11 years of occupation and use, the ceilings and earth walls show no sign of surface condensation, mould growth or any other contamination
- the painted ceilings are clean.

### **Laundry area**

- the laundry tub and washing machine are in the corner of the garage
- the exposed earth walls appear pristine.

4.5.7 The consultant concluded that, based on his inspection, the wall surfaces of the service areas comply with the requirements of clause E3.

4.5.8 The consultant also noted that:

...sealing the walls with something like polyurethane as suggested by the WCC Building Inspector to make them impervious is, in my experience, likely to prevent the hygroscopic earth from being able to cope with excess humidity if this should arise in these areas, leading to the possibility of moisture condensation on the walls and subsequent promotion of the growth of mould – the very thing that the Building Code is endeavouring to prevent.

4.6 A copy of the draft determination was sent to the parties on 1 May 2007. The draft was issued for comment and for the parties to agree a date when the building complied with Building Code clause B2 Durability.

4.7 The territorial authority accepted the draft. The applicant accepted the draft and noted that the bathroom and the toilet are separate rooms. The applicant also noted the dates of the final inspection in March 2005 and the “recheck final” inspection in October 2006, and also the date of the invoice and the warranty for the membrane roof. I have amended the determination accordingly.

4.8 Both parties nominated June 1995 as the date when compliance with clause B2 was achieved.

## **Matter 1: Internal moisture**

### **5 Discussion**

5.1 I consider the consultant’s report (including the attached photographs) establishes that the wall surfaces to the service areas of the house are in good condition. I therefore accept that the surfaces currently achieve the objectives in clause E3 of preventing moisture-related harm.

- 5.2 As the surfaces appear to be in excellent condition after more than 12 years of use, I can see no reason that they should not continue to meet the objectives of clause E3.
- 5.3 I have considered the territorial authority's position about the lack of impervious surfaces to earth walls in the service areas, but I take the view that adequate impervious surfaces are provided to areas adjacent to the sanitary fixtures and appliances concerned. I consider that the impervious surfaces have proved effective in preventing moisture damage from water splash, and that the current condition of the remaining walls have shown that the earth surfaces do not require additional protection in order to prevent moisture damage.
- 5.4 I also note the consultant's comments on the risks of sealing earth walls, and accept that sealing this type of wall may result in condensation problems on the wall surface.
- 5.5 I consider that there are reasonable grounds to conclude that not all the interior surfaces of the service areas of this house require to be made impervious in order to comply with clause E3 of the Building Code.
- 5.6 I emphasise that each determination is conducted on a case-by-case basis. Accordingly, the fact that particular interior surfaces have been established as being code compliant in relation to a particular building does not necessarily mean that the same surfaces will be code compliant in another situation.

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

### **6 Discussion**

- 6.1 The applicant has concerns about the durability, and hence compliance with the building code, of certain elements of the building (specifically the membrane roof cladding) taking into consideration the completion of most of the building work by the beginning of 1995.
- 6.2 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).
- 6.3 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.

- 6.4 It is not disputed, and I am therefore satisfied that all the building elements installed in the house complied with clause B2 on 1 June 1995. This date has been confirmed by the applicant and the territorial authority, refer paragraph 4.8.
- 6.5 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.
- 6.6 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 listed 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 1995.
- 6.7 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.

## **7 The decision**

- 7.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the interior wall surfaces of the house comply with clause E3 of the Building Code.
- 7.2 I also determine that:
- (a) all the building elements installed in the building complied with clause B2 on 1 June 1995.
  - (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 June 1995 instead of from the date of issue of the code compliance certificate for all building elements.
  - (c) following the modification set out in (b) above, the territorial authority is to issue a code compliance certificate in respect of the building consent as amended.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 22 May 2007.

John Gardiner  
**Manager Determinations**