



## Determination 2011/078

# An authority's exercise of its powers in respect of a notice to fix for a tiled deck membrane to a house at 10 Cape Horn Road, Waikowhai, Auckland

### 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.
- 1.2 The following are the parties to this determination:
- The owner of the property, Mr P Brewer (“the applicant”), acting through an architect (“the architect”).
  - The Auckland Council carrying out its duties and functions as a territorial authority or building consent authority (“the authority”).
- 1.3 The dispute arises from the decision of the authority to issue a notice to fix on 25 January 2011 (“the notice to fix”). The item in dispute between the parties is item 2.2(g) on the notice which relates to the house’s deck.
- 1.4 I therefore consider the matter to be determined<sup>2</sup> is whether the authority correctly exercised its powers in issuing the notice to fix with respect to the deck.
- 1.5 I am not aware of any dispute or concerns regarding the design of the fencing to the spa pool with respect to the requirement to restrict the access of children under the age of six to the pool and immediate pool area, and in making my decision I have not considered any other aspects of the Act or of the Building Code.
- 1.6 In making my decision, I have considered the submissions of the parties, the report of the expert commissioned by the Department to advise on this dispute (“the expert”), and the other evidence in this matter.

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<sup>1</sup> The Building Act, Building Code, Compliance documents, past determinations and guidance documents issued by the Department are all available at [www.dbh.govt.nz](http://www.dbh.govt.nz) or by contacting the Department on 0800 242 243

<sup>2</sup> In terms of sections 177(1)(b) and 177(2)(f)

## 2. The building work and background

- 2.1 The building work that is the subject of the notice to fix consists of a three-storey house constructed in 2003 and which includes a continuous deck to the east and south elevations on the mid level (level 1). One area of the deck is glazed over and open ended to the south, and there is a spa pool set flush with the deck adjacent to the glazed area. The inset first floor walls adjacent to the deck have an 800mm wide eaves overhang.
- 2.2 The deck is located over a garage workshop, storage area, toilet, and the spa pump room that also accommodates the body of the spa pool. The outer edge of the deck has a face-mounted glazed balustrade with a continuous metal gutter.
- 2.3 The deck framing is constructed in a combination of timber and steel elements that are supported by concrete block walls at basement level. Part of the floor frame to the south is cantilevered, providing a 600mm soffit at the basement level, with the remainder terminating directly over the block work.
- 2.4 The deck floor consists of 19mm plywood installed over 250×50 H3 treated timber joists at 400 centres. The deck surface is constructed with 15mm thick stone tiles installed over a waterproof liquid-applied membrane system (the “LAM”). The deck has cross fall of between 1.2° and 1.6°.
- 2.5 The building consent plans show the deck membrane as butyl rubber covered with stone paving. The plans show a 100mm step-down from the level 1 floor to the deck.
- 2.6 The architect’s submission notes that the consented deck membrane was substituted with the LAM and the architect has provided a producer statement dated 6 June 2003 from the membrane installer. The LAM was manufactured by an established manufacturer and applied by a licensed applicator.
- 2.7 The owner made an application for a code compliance certificate in 2010. I am not aware of the cause for delay in the owner seeking a code compliance certificate.
- 2.8 The authority conducted a final inspection on 29 September 2010 and subsequently issued a notice to fix that included a number of items that contravened the ‘acceptable/alternative solutions approved under [the] building consent’.
- 2.9 The architect has noted that agreement was reached between the parties as to the majority of the items in the notice to fix; however, item 2.2(g) is in dispute.
- 2.10 The authority has detailed the contravention on the notice to fix as:
- 2.0 Issues Related to Cladding
  - 2.2 The following items have not been installed in accordance with the relevant acceptable/alternative solutions approved under building consent no: B/2003/3602996 also known as AC/03/02996
    - (g) ...In this instance, the deck waterproofing membrane is not accessible for maintenance as tiles have been installed over the membrane.

## 3. Submissions

- 3.1 In the initial application received on 28 February 2011, the architect, on behalf of the applicant, provided a cover letter providing some information and the background to the dispute.

- 3.2 The Department sought further information and the architect responded on 6 April 2011 with a covering letter expanding on the information initially provided and enclosing 4 photographs of the deck and copies of:
- the two letters from the authority dated 25 January 2011 enclosing the notice to fix and a photo file from the final inspection
  - a producer statement dated 6 June 2003 from the membrane installer
  - the building consent, consented drawings and specifications.
- 3.3 The authority acknowledged the application on 10 March 2011 but made no submission in response.
- 3.4 The draft determination was sent to the parties for comment on 25 July 2011.
- 3.5 The architect accepted the draft determination on behalf of the applicant in a response received on 8 August 2011.
- 3.6 The authority initially responded in a letter to the Department dated 23 August 2011; the authority did not accept the draft and requested a hearing be held. The authority disputed that the direct fixing of tiles to a membrane would meet the requirements of Clause B2 Durability and noted a number of common problems that it had identified in other cases. The authority held the view that
- The membrane is impossible to access inspect and maintain with tiles fixed directly to it. Any damage to the membrane ... will go undetected, until damage to other building elements, often-structural element (sic), becomes obvious.
- 3.7 In a further submission received on 24 August stated that it had reviewed its position in respect of the request for a hearing and also accepted the draft determination.

#### **4. The expert's investigation**

- 4.1 As mentioned in paragraph 1.6, 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. The expert inspected the house on 2 June and 13 June 2011 and provided a report dated 8 July 2011.
- 4.2 The expert noted that the house used high quality materials and had a high level of finish. The expert was only able to observe the LAM at one location but noted that the stone tiles were 'evenly and uniformly laid'. The expert carried out invasive testing at 5 locations under the deck, conducted invasive moisture testing, and gathered samples of fungal growth for analysis. The expert noted that plywood to the deck was H3 treated.
- 4.3 The expert observed the following:
- The falls in the deck range from 1.2° to 1.6°. The expert noted that there was no visual evidence of ponding on the deck.
  - No water staining was evident on the exposed surface of the plasterboard ceiling.
  - There was no visual evidence of movement control joints formed within the stone slab joints.

- The suspended ceiling void to the garage is closed and does not have any provision for ventilation and air movement.
  - A piped hot-water floor-heating system was observed in the tiled screed to the living space adjacent the deck.
  - In places there is only a small gap between the underside of the weatherboard cladding and the tiling that will trap moisture allowing. The bottom edges of the weatherboards were painted.
- 4.4 The expert carried out invasive moisture testing at five locations under the deck. The moisture levels taken for the plywood were 13, 13, 19, 24, 26, and 62%. The moisture levels taken for the floor joists were 9, 10, 14, 18, 20, and 36%. Both highest readings being taken from the soffit on the southwest elevation.
- 4.5 The expert gathered samples of fungal growth for analysis. Fungal growth (white mould spotting) was apparent in at least two locations. Analysis by a specialist laboratory showed that the fungal growth was not of a type that would cause timber decay but it indicted high humidity and poor air movement.
- 4.6 The expert considered the piped hot water floor heating system located in the tile screed in the living space, together with the closed ceiling void and the unheated workshop area have produced an environment capable of sustaining the fungal growth and the relatively high moisture readings obtained.
- 4.7 The expert also considered it was possible that a failure in the LAM is contributing to the elevated moisture readings in the deck frame. The expert considered further investigation was necessary to determine the cause of the elevated readings.
- 4.8 The expert's report was sent to the parties for comment on 12 July 2011. The authority acknowledged receipt of the report. The applicant responded to the report saying it was fair and accurate, that the areas where problems had been identified 'should be easily fixed', and agreed that further investigation was appropriate.

## **5. Discussion**

### **5.1 General**

- 5.1.1 The applicants have sought a determination about whether the authority was correct to issue the notice to fix with respect to the tiled deck. The following considers:
- the code-compliance of the deck
  - the notice to fix
  - previous determinations and the authority's powers under the Act.

### **5.2 The code-compliance of the deck**

- 5.2.1 I accept the expert's opinion that the deck is not code-complaint, and I conclude that the deck does not presently comply with Clause B2 Durability and E2 External moisture. I consider further investigation is required in respect of:
- the cause of the high moisture readings, including verification of timber strength to those areas with high readings
  - the need and provision for movement joints in the tiles

- consideration of the possible defects identified by the expert in paragraph 4.3.

### **5.3 The notice to fix**

- 5.3.1 The provisions relating to the circumstances in which notices to fix can be issued are described in subpart 8 of the Act.
- 5.3.2 Notices to fix are to be issued in respect of breaches of the Act or Regulations, or in relation to building warrant of fitness and compliance schedules. This is consistent with the central role of a notice to fix in ensuring compliance and providing effective penalties for those that do not comply.
- 5.3.3 In my view the notice to fix does not meet the requirements Act in all respects as it refers to:
- work not being installed in accordance with manufacturers requirements
  - compliance matters that the authority was unable to confirm onsite
  - compliance with documents that were not in force at the time the consent was issued
  - non-compliance with Acceptable Solutions rather than proven breaches of the Building Code.
  - changes in construction practices.
- 5.3.4 The notice to fix refers to the building work not being done in accordance with the 'relevant acceptable/alternative solutions approved under building consent'. The Acceptable Solution for E2/AS1 current at the time the consent was issued did not include decks within its scope. As advised by the expert, the work has been completed largely in accordance with the approved consent. I have also seen no evidence of inspections carried out by the authority during construction that indicates that the completed work was unsatisfactory.

### **5.4 Previous determinations and the authority's powers under the Act**

- 5.4.1 The authority's position, as described in item 2.2(g) of the notice to fix, is that it is unable to confirm the continuing performance of the LAM because tiles have been laid over it.
- 5.4.2 I have recently issued a number of determinations, to which the authority has been a party, that have canvassed various issues relating to decks including the fixing of tiles to deck membranes. These determinations include 2010/78, 2010/102, 2010/106, 2010/143 and 2011/029. These determinations noted that:
- In general, leaks to membrane decks or roofs, by their very nature, are not readily detectable. It is questionable, however, whether the presence of tiles on a deck will, of itself, make a defect to the deck membrane less easy to detect.
  - The likely maintenance as a result of a membrane being tiled can be offset by the reduced risk of the membrane being punctured and the reduced exposure to the elements. Appraisals of deck membranes have concluded that in these circumstances, membranes do not require maintenance.

- The presence of tiles on a deck membrane does not, of itself, prevent the maintenance of the membrane, i.e. the removal of the tiles is not deemed necessary to maintain the membrane.
- The failure of the tiles or sagging will be readily observable. Any loose and broken grout at failed tile joints should be corrected as a matter of regular maintenance.

5.4.3 I do not accept that the consequence of the presence of tiles on a deck is that the authority cannot reach a decision about Building Code compliance. The authority appears to have applied a “blanket policy” rather than turn its mind to the compliance of this particular deck and what information it required in order for it to form a view as to compliance.

5.4.4 I note that previous determinations have discussed in detail the factors that can be considered in order to form a view about Building Code compliance, namely:

- the quality and type of materials used
- the quality of the workmanship
- the size of the tiles and the number of control joints
- whether the deck sheds water
- the accessibility to the underside of the deck
- the evidence available about the efficacy of the LAM; such as the product used, the installer, and whether producer statements and similar have been provided
- the deck’s history of performance in use.

5.4.5 In Determination 2011/70 I considered it was within the authority’s power either to undertake inspections of this nature or to require the owner to obtain the necessary information or evidence: in this case the authority has done neither.

5.4.6 Under section 164 of the Act, the authority is required to have reasonable grounds to issue a notice to fix. Based on the actions of the authority evident from the reasons given in respect of item 2.2(g), I conclude that the authority did not make an adequate decision about the compliance of the deck because the assessment it carried out was inconsistent with the Act’s intent that such decisions be based on being satisfied on reasonable grounds.

## 5.5 Conclusion

5.5.1 In light of the above, I therefore consider that the authority incorrectly exercised its powers in respect of the inclusion of item 2.2(g) on the notice to fix as it is currently worded and that the notice to fix shall be modified accordingly.

## 6. What happens next?

6.1 The authority should reissue the notice to fix, taking account of the information provided in the expert’s report and considering any further investigation that the authority deems necessary to establish the compliance or otherwise of the tiled deck.

## **7. The decision**

- 7.1 In accordance with section 188 of the Act, I hereby determine that the authority incorrectly exercised its powers in respect to item 2.2(g) on the notice to fix. The notice to fix is to be amended to take account of the findings of this determination.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 25 August 2011.

John Gardiner  
**Manager Determinations**