



## Determination 2010/138

# The refusal to issue a code compliance certificate for a 5-year-old house at 444A Sea View Road, Waiheke Island



### 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, Manager Determinations, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department.

1.2 The parties to the determination are:

- the owner of the property, Mr K Kite (“the applicant”), acting through a firm of architects (“the applicant’s consultants”)
- the Auckland City Council (“the authority<sup>2</sup>”) carrying out its duties and functions as a territorial authority and a building consent authority.

1.3 The matter arises from the authority’s decision to issue a notice to fix in respect of a house that was consented in 2004 because it believed the house did not comply with certain clauses<sup>3</sup> of the Building Code.

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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> After the application was made, and before the determination was completed, Auckland City Council was transitioned into the new Auckland Council. The term authority is used for both.

1.4 I take the view that the matter to be determined<sup>4</sup> is whether the authority's decisions to refuse to issue a code compliance certificate and to issue a notice to fix were correct. In deciding this I must consider whether the house complies with Clauses B2 Durability, E2 External Moisture of the New Zealand Building Code (Schedule 1 of the Building Regulations 1992).

## 1.5 Matters outside this determination

1.5.1 The notice to fix cites contraventions of Clauses B1 Structure, E3 Internal Moisture, and H1 Energy Efficiency. There are no specific identified items relating to these clauses in the notice to fix. In addition the applicant advises that a barrier has been provided to the retaining wall in order to comply with Clause F4 Safety from falling. This determination is therefore limited to the building's compliance with Clauses B2 Durability and E2 External moisture.

1.5.2 The notice to fix also outlined requirements for durability of building elements given the building's completion in or after 2004, and stated that the applicants may apply to the authority for a modification of the requirements to allow durability periods to commence from the date of substantial completion. I leave this matter to the parties to resolve.

1.6 In making my decision, I have considered the submissions of the parties, a moisture content investigation report and additional photos provided by the consultant, and the other evidence in this matter.

## 2. The building work

2.1 The building work is a detached two-storey house built on an excavated sloping section. The house is timber-framed with some concrete masonry basement walls and is constructed on concrete ground floor slabs and footings and intermediate timber-framed floors. The house is of a relatively simple shape and form and the roofs, which are constructed at varying levels, have eaves and verge overhangs ranging from 500mm to 700mm.

2.2 The exterior wall linings consist mainly of fibre-cement weatherboards direct fixed to the wall framing over a rigid wind barrier. An area of the east elevation of the house and other narrow areas of the exterior walls are clad with compressed fibre-cement sheet cladding fixed over a ventilated and drained cavity.

2.3 A large tiled concrete deck with a glazed steel balustrade is constructed over an external water tank. A timber-framed balcony of approximately 16m<sup>2</sup> at the upper level, has a 20mm thick plywood substrate with tiles laid on a liquid-applied glass fibre reinforced membrane. There is also a glazed balustrade around this balcony. The balustrade ends are attached with glazing brackets to the end walls, and the posts are fixed to the top of a small up-stand.

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<sup>3</sup> 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.

<sup>4</sup> In terms of sections 177(1)(b), 177(2)(d), and 177(2)(f) of the Act

- 2.4 I have not received any information as to the actual treatment, if any, of the exterior wall framing although I note that the specification calls for this framing to be H1.2 treated.

### 3. Background

- 3.1 The authority issued a building consent (No BLD20040899301) under the Building Act 1991 (“the former Act”) for the house on 25 June 2004.
- 3.2 The authority inspected the house in at various times from 25 August 2004. Following a final inspection, the authority issued a “Residential final checklist” dated 17 January 2006. The list passed all the building elements but noted that the following were required:
- Engineer’s observation report for
    - (1) Grade B Masonry
    - (2) Foundations
  - Gas certificate
- 3.3 A registered clerk of works wrote to the applicant on 1 February 2006. The letter listed the inspections of structural engineering elements of the house that he had carried out from 28 July 2004 to 23 September 2005. These included the foundations and slabs, waterproof membranes, and concrete masonry walls. The clerk of works noted that the inspections were carried out on behalf of the project engineer and also stated that he had:
- ...observed and inspected all other aspects of the building process including the exterior walls for ventilated cavities, cladding, window and door installation, pre-lining, including checking bracing elements, insulation and completion of all structural and finishing work.
- 3.4 The clerk of works also certified that:
- All structural work has been carried out in accordance with the design, drawings, specifications and relevant geotechnical reports and material codes as required.
- 3.5 The authority inspected the house on 17 March 2010 and failed various building elements. Following the inspection, the authority issued a notice to fix dated 16 April 2010 listing the particular details of contravention or non-compliance as, in summary (the corresponding code clause is shown in brackets):
- the lack of a downpipe spreader (E2)
  - lack of vermin proofing at bottom edge of the cavity to the fibre-cement cladding (E2)
  - lack of a barrier to the retaining wall (F4)
  - as-built internal gutter to the upper level deck in place of the perimeter spouting as consented (E2)
  - lack of confirmation that the required flashings has been installed, and some junctions appeared to rely on sealant (E2)

- condition, and durability, of membranes to the decks as these has been covered by tiles (B2, E2)
- requirement for a minimum of 35mm clearance between the cladding and the deck membrane (E2)
- size of the surfacewater discharge through parapet less than described in E2/AS1)
- requirement for a minimum of a 100mm step down from the adjoining floor to deck (E2)

Additional documentation was also requested. Attached to the notice were photographs illustrating the above

3.6 The applicant applied for a code compliance certificate on 15 July 2010. The following documents in respect of the building work were also produced on behalf of the applicant:

- A “Producer Statement –Construction Effluent Drainage” dated 1 June 2005 from a consulting civil engineer.
- A “Producer statement Construction – plumbing dated 31 May 2010 from a certifying plumber, gasfitter, and drainlayer.
- A performance warranty from the aluminium external joinery manufacturer dated December 2005.

3.7 The application for a determination was received by the Department on 30 August 2010.

## **4. The submissions**

4.1 In a covering letter to the Department, the applicant’s consultants set out the background and history of the dispute. The consultants commented on the contraventions listed by the authority on its notice to fix as follows:

- Based on attached calculations the consultants considered that a single 74mm downpipe serving the upper roof and the single 100mm downpipe serving both the upper and lower roofs were of sufficient size. The spreader was 1200 wide and directs the rainwater down the roof slope. As the gutters are external of the fascia boards, rainwater from them cannot enter the building.
- The internal gutter to the upper deck was submitted to the authority as an amendment to the building consent which was subsequently approved.
- There were no specific details provided by the authority to back up its assertion that the flashings were improperly installed. There were no saddle flashings required in the house and the consultants were not aware of any malfunctioning flashings.
- The deck membrane and the covering tiles were laid in accordance with the building consent documentation and a producer statement for the membrane had been supplied. There was no evidence of leaking, and the tile system was ‘an approved system’ at the time that the building consent was issued.

- The only location where the cladding is closer than 35mm from the adjacent surface was a 400mm length of the compressed fibre-cement sheet cladding at the bedroom terrace, where the distance is 20mm.
- While the surfacewater overflow to the bedroom terrace ‘is smaller than ideal’, the lip of the terrace is 70mm below the adjacent floor level and acts as a ‘foolproof’ overflow.
- The only area of external lining with a cavity is the relatively small area of compressed fibre-cement sheet and vermin proofing has now been installed to these linings.
- It was accepted that the 100mm set-down required by E2/AS1 paragraph 8.5.8.1 was not met at the bedroom terrace. However, at the worst case it is 60mm and this increases to 100mm within 2400mm. As the terrace perimeter is below the main floor level all round, the terrace is protected from flooding.
- A code-compliant barrier has been installed to the retaining wall.

4.2 The consultants had also completed a risk matrix for each elevation, based on the current requirements of E2/AS1 and the highest score was 12. According to an independent testing organisation, the direct fixed fibre-cement weatherboard is suitable for risk scores of 0 to 12 and the fibre-cement sheet cladding over a drained and ventilated cavity is suitable for risk scores of 0 to 20. Accordingly, both systems as installed on the house were appropriate systems.

4.3 The applicant’s consultants forwarded copies of:

- the plans and specifications
- the building consent
- the authority’s inspection details
- the applications for a code compliance certificate
- the various reports and statements set out in paragraph 3.6
- the consultants’ risk matrix and downpipe dimension calculations
- the correspondence with the authority
- the independent testing authority’s appraisal certificates for the external linings
- photographs showing some aspects of the house construction.

4.4 The authority supplied a copy of its property file relating to the house. This contained documentation concerning the building consent, the authority’s inspection procedures, the notice to fix, and relevant correspondence.

4.5 A draft determination was issued to the parties for comment on 14 October 2010. This was accepted by the applicant. The authority accepted the draft in respect of non-compliance with Clause B2, but reiterated their concerns regarding maintenance of membranes overlaid with tiles. I have discussed this matter in previous determinations but have included additional comment here with respect to this issue.

## 5. The moisture content investigation

- 5.1 As set out in paragraph 1.6, I requested the applicant's consultants provide additional photographs of the house and carry out a series of invasive moisture checks at high risk locations adjacent to areas that were of concern to the authority. These included below deck balustrade posts and window jamb sill areas.
- 5.2 The consultants inspected the property on 29 September 2010, and provided me with a report dated 30 September 2010. The report described the five locations where the invasive moisture tests had been carried out and recorded that the readings ranged from 12% to 16%. The consultants concluded that the moisture readings were "low and consistent". It was also noted that none of the shavings from the drilled holes showed signs of moisture or discolouration.
- 5.3 The consultants also noted that there had been no apparent movement in the balcony tiling as there were no signs of cracking of the grout between tiles.

## 6. Discussion

- 6.1 The majority of the matters raised by the authority with respect to Clause E2 External Moisture are requirements of the Third Edition of the Acceptable Solution<sup>5</sup> for Clause E2, E2/AS1, which was effective from 1 July 2005. In any event, the Third Edition of E2/AS1 was not in effect at the time the consent was issued in June 2004.
- 6.2 I note that, according to the applicant's consultants, the applicant has addressed the concerns of the authority with regard to the vermin-proofing of the external lining cavity and the lack of a barrier to the retaining wall. This will require inspection by the authority to verify code-compliance.
- 6.3 I accept that the cross-area of the lower gutter is slightly less than is stated in E2/AS1. In so doing, I note that the requirements of E2/AS1 are not mandatory, being one way but not the only way of establishing code-compliance. In this case the consultant provided calculations to show the drainage would be adequate, in addition I consider the deck drainage has demonstrated its adequacy for over five years.
- 6.4 The house was constructed five years ago and the moisture tests carried, out as described in paragraph 5.2, indicate that external moisture has not affected risk areas in the building to date. This leads me to believe that the house in general, including the decks, has met the weathertightness performance requirements of the Building Code Clause E2.
- 6.5 As pointed out by the consultants, the authority has not referred to any specific location where it considers flashings to be non-compliant. Nor does the authority's reference to the lack of saddle flashings appear to be relevant to these balustrades. Accordingly, I do not accept the authority's contention that the external linings, including the flashings, may not be code-compliant.

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<sup>5</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)

- 6.6 I note the applicant's observations regarding the comments on the notice to fix being unclear and I concur with that view. A notice to fix needs to clearly and accurately describe what matters are not compliant and why.
- 6.7 The authority notes that it was unable to verify the condition of the deck waterproof membrane, as tiles have been laid over it, and that the Building Code required the membrane to be accessible for maintenance. The authority passed the membrane in its final checklist, so it seems that the authority had no concerns about its condition in 2006. Nor were any concerns raised about the tiles laid over the membrane. I note the lower deck is over a concrete water storage tank, and it appears the authority did not take this into account when considering the required performance of the deck membrane at this location.
- 6.8 The membrane is intended to be overlaid with tiles and the tiles protect the membrane from traffic damage and UV light. However, to avoid physical damage to the membrane, regular maintenance by way of inspection to ensure the deck has not subsided, there are no broken tiles and there are no signs of deterioration of the grout between tiles caused by movement, will be required. At present the deck has demonstrated compliance with Clause E2 but must also comply with the durability Clause B2.
- 6.9 In this case the ceramic tiles are approximately 300 mm square and as such are more subject to movement damage than smaller tiles. To avoid possible future damage and to comply with Clause B2, I consider there should be sufficient movement joints incorporated into the tiles to prevent future damage. Guidelines to location of movement joints are that there should be no dimension over three metres without a joint and that joints should extend out at right angles from corners.
- 6.10 Based on my observations set out in paragraphs 6.2 and 6.9, I am of the view that the authority was justified in not issuing the code compliance certificate at the time the application was made. However, the notice to fix arising from the refusal to issue the code compliance certificate should be amended to take into account the documentation supplied, the work carried out to date and the findings of this determination.
- 6.11 Once the authority has confirmed its acceptance of the remedial measures undertaken by the applicant concerning the vermin-proofing, the retaining wall barrier and the installation of movement joints in the deck tiles, the house will meet the requirements of the Building Code and a code compliance certificate may be issued on application.

## **7. The decision**

7.1 In accordance with section 188 of the Building Act 2004, I hereby determine that;

- the house complies with Clause E2 External Moisture of the Building Code
- the house does not comply with Clause B2 Durability of the Building Code, insofar as it relates to Clause E2 External Moisture, and

accordingly I confirm the decision of the authority to refuse to issue a code compliance certificate.

7.2 I also determine that the authority is to modify the notice to fix, dated 16 April 2010, 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 22 December 2010.

John Gardiner  
**Manager Determinations**