



## Determination 2017/047

# The refusal to issue a code compliance certificate for a 12-year-old house with mixed claddings completed under the supervision of a building certifier at 78 Ridge Road, Warkworth



### Summary

This determination is concerned with the compliance of the building envelope to a 12-year-old house. The determination considers the authority's reasons for refusing to issue the code compliance certificate and whether the house complies with the requirements of the Building Code.

### 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 and Assurance, Ministry of Business, Innovation and Employment ("the Ministry"), for and on behalf of the Chief Executive of the Ministry.

1.2 The parties to the determination are:

- the owner of the building, K Climo ("the applicant") acting through a legal adviser
- the Auckland Council ("the authority"<sup>2</sup>), carrying out its duties as a territorial authority or building consent authority.

1.3 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for a 12-year-old house. The refusal arose because the authority is not satisfied that building work complies with certain clauses<sup>3</sup> of the

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

<sup>2</sup> After the original house building was completed, Rodney District Council was transitioned into Auckland Council. The term "authority" is used for both

<sup>3</sup> In this determination, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

Building Code (First Schedule, Building Regulations 1992). The authority's concerns relate to the weathertightness and durability of the claddings.

- 1.4 The matter to be determined<sup>4</sup> is therefore whether the authority was correct to refuse to issue a code compliance certificate for the reasons given in its letter dated 24 March 2016 (see paragraph 3.3).

In deciding this matter, I must consider whether the external building envelope of the house complies with Clause B2 Durability and Clause E2 External moisture of the Building Code that was in force at the time the original building consent was issued. The building envelope includes the components of the systems (such as the wall claddings, the windows, the decks and the roof claddings) as well as the way components have been installed and work together. This matter includes compliance with Clause B1 Structure, insofar as it applies to the weathertightness of the house.

## 1.5 Matters outside this determination

- 1.5.1 In its refusal, the authority limited its concerns to items associated with the clauses outlined above (see paragraph 3.3) and this determination does not address other clauses of the Building Code.

- 1.5.2 I also note that the applicant can apply to the authority for a modification of durability provisions to allow the durability periods specified in Clause B2.3.1 to commence from the date of substantial completion in 2005. Although I leave this matter to the parties to resolve in due course, I have taken the anticipated modification into account when considering the claddings.

- 1.6 In making my decisions, I have considered

- the submissions of the applicant, including:
  - the report by the building surveyor (see paragraph 3.4)
  - the report by the roofing consultant (see paragraph 3.6)
- the report of the expert commissioned by the Ministry to advise on this dispute (see paragraph 5)
- the other evidence in this matter.

## 2. The building work

- 2.1 The building work consists of a detached house that is three-storeys-high in part and is situated on a large coastal site in a very high wind zone<sup>5</sup> for the purposes of NZS 3604<sup>6</sup>. The house is complex in plan and form and is assessed as having a high weathertightness risk. The property slopes down from Ridge Road to the north.

- 2.2 The house accommodates the following:

- Level 1 (the lower level): a three-car garage and storage area.
- Level 2 (the mid-level): the entry deck and canopy, entry foyer, stairs to the garage, family room/dining/kitchen area opening onto a deck (“the family room deck”), a home theatre above the garage and two bedrooms, bathroom and laundry.

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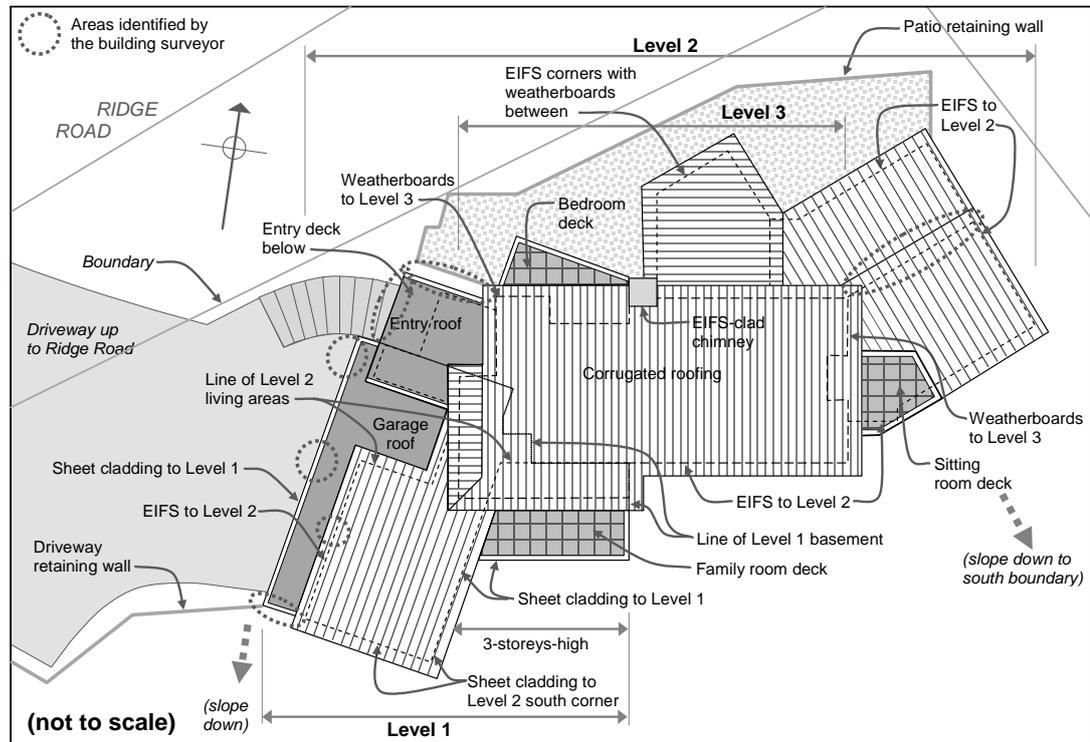
<sup>4</sup> Under sections 177(1)(a), 177(1)(b) and 177(2)(d) of the Act

<sup>5</sup> According to the bracing calculations

<sup>6</sup> New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- Level 3 (the upper level): the master bedroom, dressing room and ensuite opening onto a deck (“the bedroom deck”), with a sitting room opening onto a deck (“the sitting room deck”).

**Figure 1: Approximate site plan**



- 2.3 Construction is generally conventional light timber frame; with specifically-engineered concrete pile foundations, concrete foundations and floor slab to the garage and the northern single-storey part of Level 2, timber framed floors elsewhere, corrugated bituminous and flat membrane roofing, aluminium windows and three different wall claddings.
- 2.4 The timber supplier provided a statement in a facsimile to the builder dated 21 April 2005, which certified that timber supplied for the house was ‘H3.1 LOSP Exterior Frames & Untreated Interior Frames.’ I also note that the amended requirements for timber treatment in B2/AS1 applied from 1 April 2005. Based on this evidence, I consider that the exterior wall framing is treated to resist decay.
- 2.5 The house includes three enclosed decks, two of which are situated above enclosed areas. In Level 3, the north bedroom deck is supported by an EIFS<sup>7</sup>-clad framed column at the corner, while the sitting room deck sits above Level 2. In Level 2, the family room deck to the south sits above the basement storage area. The decks have capped upstands at the edges, with side-fixed open metal balustrades.

## 2.6 The wall claddings

- 2.6.1 The sheet cladding to Level 1 and part of Level 2 is a proprietary cladding system (“the sheet cladding”) comprising 9mm fibre-cement sheets fixed to 70 x 19mm fibre-cement battens. The battens are fixed through the building wrap and form a drained cavity behind the cladding. The system includes expressed joints between the sheets, with proprietary butyl rubber backing strips behind the vertical joints. The system includes purpose-made flashings to edges and junctions.

<sup>7</sup> Exterior Insulation and Finish System

- 2.6.2 The cladding to the remaining walls of Level 2 is a monolithic cladding system known as EIFS. The proprietary system consists of 40mm polystyrene backing sheets fixed through 20mm EPS<sup>8</sup> cavity battens and the building wrap to the framing and finished with a mesh reinforced plaster system. EIFS is also used to clad the framed column under the bedroom deck and the framed chimney structure. The system includes purpose-made flashings to windows, edges, and other junctions.
- 2.6.3 The wall cladding to Level 3 is 180 x 7.5mm thick fibre-cement weatherboards fixed horizontally through 20mm thick timber battens and the building wrap to the framing.

## 2.7 The roofs

- 2.7.1 The multi-level 10° and 25° monopitched roofs incorporate a clerestory, lean-to junctions and oblique eaves as shown in Figure 1. Eaves and verges vary from about 200mm to 600mm overall. Pitched roofs are clad in a proprietary corrugated roofing (“the corrugated roofing”) described by the manufacturer as ‘made of bitumen material and reinforced with cellulosic fibres and thermosetting resin’.
- 2.7.2 The flat roof to the single-storey garage area to the west (“the garage roof”) is butyl rubber membrane (“the membrane roof”), with the sheet-clad garage walls extended up to form roof parapets that are clad on the roof side with fibre-cement sheet fixed directly to the parapet framing. The Level 2 roof to the entry foyer and garage stairs (“the entry roof”) is also clad with butyl rubber, with parapets to the north and south.

## 3. Background

### 3.1 The consent

- 3.1.1 The authority issued the building consent (No. ABA 41424) on 7 May 2004 under the Building Act 1991 (“the former Act”). The consent was issued on the basis of a building certificate<sup>9</sup> issued by a building certifier. The building certifier’s ‘Scope of Engagement’ dated 7 May 2004 noted the certifier would carry out inspections during construction, with the exception that the authority would:

...process and inspect exterior cladding outside acceptable solutions E2 AS1 [EIFS and sheet cladding], and issue CCC.

- 3.1.2 The building consent conditions included the requirement for:

#### **Pre-Plaster Inspections (three inspections)**

1. Building Wrap – Inspection of building wrap
2. Pre-Plaster Exterior Cladding...
3. Plaster or Texture Coating ...

- 3.1.3 The third edition of the revised Acceptable Solution Clause E2 External Moisture (E2/AS1) was issued in June 2004, with an extended implementation date of 1 July 2005. The sequence of events may have resulted in confusion for the building company as to which claddings were to be inspected either by the authority or the building certifier. It is noted that all claddings used on the building were outside the scope of E2/AS1 that was in effect at the time the consent was issued on 7 May 2004.

<sup>8</sup> Expanded polystyrene

<sup>9</sup> Under Section 56 of the Building Act 1991

### 3.2 The construction

- 3.2.1 The first building certifier ceased operating as a certifier on 7 August 2004 and the remaining inspections were conducted by another building certifier (“the second building certifier”).
- 3.2.2 The combination of records from the authority’s property file and the building surveyor’s report, indicate that inspections carried out and approved during construction of the house included:
- house piles, foundations, drainage and footings during August and September 2004
  - building wrap and battens on 21 December 2004 and 11 January 2005
  - preline, insulation and plumbing on 4 March 2005
  - final plumbing on 24 June 2005.
- 3.2.3 The second building certifier’s final building inspection on 24 June 2005 failed (see paragraph 3.4.1), with the certifier noting some minor items requiring completion. The building was substantially completed by June 2005, with no pre-plaster inspections carried out by the authority.
- 3.2.4 The second building certifier issued an ‘advise of completion of building work’<sup>10</sup> dated 30 June 2005 to the authority for consent ABA 41424, which advised that:
- Part only (as specified in the attached certificates) of the building work under the above building consent is believed to have been completed to the extent required by that building consent.
- 3.2.5 A letter from the building company to the authority dated 5 July 2005 stated:
- We wish to formally hand over the above building [consent that was] previously being certified by [the building certifier]. We wish [the authority] to conduct the outstanding inspections and issuance of Code of Compliance Certificate.
- 3.2.6 In a letter to the building company dated 22 August 2005, the authority noted that it had received the files from the building certifier and a final inspection was still to be carried out. The authority requested payment for further inspections and stated ‘in the absence of the required inspections, Council may not be able to issue the Code Compliance Certificate’.

### 3.3 The 2016 refusal to issue a code compliance certificate

- 3.3.1 Because the building contract had called for the building company to be responsible for obtaining the code compliance certificate, the applicant remained unaware of any unresolved matters until preparing to sell the house in 2016 when it was discovered that no code compliance certificate had been issued.
- 3.3.2 The applicant applied for a code compliance certificate on 27 February 2016 and the authority inspected the house on 16 March 2016. The authority wrote to the applicant on 24 March 2016 to advise that ‘under Section 95A of the Building Act 2004 a CCC cannot be issued at this stage’ because it ‘could not be ‘satisfied on reasonable grounds’ that building works comply with the NZ Building Code, or that it is performing as intended’.

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<sup>10</sup> Under Section 43(1) of the Building Act 1991

### 3.3.3 The authority recommended that the owner:

... engage the services of a suitably qualified individual (Building Surveyor) ... [to] further investigate the performance of this building, also taking into account the items below and provide a 'scope of works' and any recommendations to Council for further review.

### 3.3.4 The authority listed items requiring attention, which were 'not limited to' the following (in summary using the authority's references):

- 1) Garage roof membrane falls, gutter and outlets not to consent drawings
- 2) Cladding clearances
- 3) Blocked cavity
- 4) Some elevated indicative moisture readings (e.g. at garage/stairwell area)
- 5) Lack of access to roof to inspect flashings
- 6) Level 2 deck falls, gutter and outlets not to consent drawings
- 7) Lack of evidence of compliance with Clauses B1, B2 and E2
- 8) Garage parapet not to consent drawings
- 9) Lack of access to verify Level 3 weatherboard compliance
- 10) Lack of access to inspect corrugated roof and membrane.

The authority also required additional documentation to be provided.

## 3.4 The building surveyor's report

3.4.1 The applicant engaged a building surveyor, who reviewed the property file and inspected the house on 12 April March 2016 and provided a report dated 16 April 2016. The report listed site inspections carried out and the items identified in the final inspection on 24 June 2005.

3.4.2 The building surveyor inspected the inside of the house, observing:

...no cracks in the linings that would have indicated water entry causing the framing to have become swollen...

...no indications of staining, mould or fungus that would have indicated water ingress into the wall framing.

3.4.3 The building surveyor carried out non-invasive moisture testing, which showed no abnormal moisture levels. The surveyor noted one 'isolated marginally higher reading' adjacent to the garage door beside the stair framing (as noted by the authority). However, he also noted the post to a steel portal bracing frame in that location, and considered the reading to be the result of a metal interference.

### **Wall claddings**

3.4.4 The building surveyor inspected the wall claddings, noting that the following required attention (in summary):

- a minor hair crack to EIFS at the bottom of the home theatre west wall, maybe the result of minor deflection at the mid-span of the steel support beam
- a base moulding fallen from the EIFS cladding to the east clerestorey
- the lack of a head flashing to the south meter box.

3.4.5 Apart from the above, the surveyor noted that wall claddings appeared to be in good condition, with no indication that repair work had been necessary when the house was repainted in 2014.

***The flat roofs***

- 3.4.6 The building surveyor inspected the entry/stairs membrane roof noting that:
- the roof fall is 1°, with no signs of ponding
  - membrane is turned down into the gutter, with no protection against wind uplift
  - the edge can lift in high winds, allowing rain to reach the plywood substrate.
- 3.4.7 The building surveyor inspected the garage membrane roof noting that:
- the roof fall varies from 0.2 to 1°, with signs of minor ponding, the marks left are minor suggesting that any moisture evaporates quickly
  - the edge can lift in high winds, allowing rain to reach the plywood substrate.
- 3.4.8 Apart from the minor items above, the surveyor considered that the membrane was in a 'reasonable condition having been down for 11 years and it is assessed it will continue to function for at least another 4 years to satisfy clause B2'.

***The decks***

- 3.4.9 The building surveyor inspected the decks, noting that:
- the fall to the Level 2 family room deck is from 0.2 to 0.6°, with no sign of ponding
  - the fall to the Level 3 sitting room deck is from 0.2 to 1.2°, with no sign of ponding
  - the fall to the Level 3 bedroom deck is from 0.8 to 1.2°, with no sign of ponding
  - the decks appear to drain adequately given no sign of sediment build-up at outlets.
- 3.4.10 The building surveyor noted that falls recommended in E2/AS1 took effect after the building consent was issued and, given the lack of significant ponding, the surveyor considered that the membrane roofs and the decks were performing adequately.

***The parapets and deck upstands***

- 3.4.11 The building surveyor noted that barge boards shown in the consent drawings were replaced with metal capped upstands at the north and south edges of the entry roof.
- 3.4.12 Parapet and upstand cappings have a fall of 5-6° across the top. Although the 50mm overlap is less than called for in E2/AS1, there were no signs of water ingress.

***The corrugated roofing***

- 3.4.13 The building surveyor observed that the corrugated roofing was in reasonable condition, having been repainted in 2014. The roofing had flattened over some purlins but without any adverse effect. Flashings appeared to be fit for purpose with no signs of water ingress.
- 3.4.14 The building surveyor considered that the corrugated roofing '...is in reasonable condition after 11 years and ... will continue to function for at least another 4 years to satisfy clause B2 durability of 15 years'.

### **Ground clearances**

- 3.4.15 The building surveyor noted that ground clearances under wall claddings were adequate, except:
- beside the garage doors
  - at the junction of the driveway retaining wall with the garage SW corner
  - between the patio retaining wall and the north side of the entry lobby.
- 3.4.16 The report included a 'schedule of recommended remedial work' which described defects and their recommended repair. (I note that some of the more minor items appear to have been completed.) The building surveyor concluded that the house was currently performing as required.

### **3.5 Subsequent correspondence**

- 3.5.1 Correspondence passed between the parties and meetings were held from about May until September 2016, with the authority expressing the view that the investigations did not provide sufficient evidence that the claddings were performing.

### **3.6 The roofing consultant's report**

- 3.6.1 A roofing consultancy company inspected the corrugated roofing on 28 June 2016 and provided an undated report to the building surveyor.
- 3.6.2 The roofing consultant inspected the three roof levels from the roof perimeters, observing that the roof cladding generally appeared in sound condition. The consultant compared visible installation details with manufacturer's recommendations noting that (in summary):
- roofing is on purlins at about 450mm centres which follows the manufacturer's instructions,
  - roofing appears to be securely fixed with Tek-type screws with neoprene washers and the number of fixings exceeding the minimum per sheet
  - ridge, barge, and apron flashings appear securely fixed with cover over roofing in line with recommendations
  - laps appear to accord with the recommended 200mm, a metal side apron flashing is turned down over only one corrugation
  - corrugated foam closures appear to be properly installed despite not being required by the manufacturer's instructions
  - there are slight ripples in the face of the side aprons and laps, but these appear not to be affecting performance
  - the only defect observed was where two adjacent corrugations had been fractured, apparently from foot traffic
  - two minor maintenance items were damage to the top end of a barge flashing, and adjacent to a screw in the bottom course of the lower roof
- 3.6.3 The consultant considered that the roofing had been installed in accordance with the manufacturer's requirements and was performing satisfactorily. While noting that the report did not cover the roofing's potential longer term performance, the consultant concluded:

Taking into account the present condition of the roof and its performance to date, it would seem reasonable to expect it to continue to perform satisfactorily for the minimum 15 years...

3.7 On 29 August 2016, the building surveyor provided the authority with an updated property inspection report and the roof consultant's report.

3.8 I have seen no further correspondence between the parties and the Ministry received an application for a determination on 10 February 2017, which was accepted on 27 February 2017.

## **4. The submissions**

4.1 In a submission dated 9 February 2017, the applicant's legal adviser set out the background to the situation; noting that the authority had refused to accept the building surveyor's report due to the lack of invasive investigation but would not be specific on what extra investigation was needed.

4.2 The applicant provided copies of:

- the building consent documentation and the building certifier's records
- the authority's refusal to issue a code compliance certificate dated 24 March 2016 and the durability final inspection checklist dated 16 March 2016
- the building surveyor's report dated 16 April 2016 and the roof consultant's undated report
- email correspondence with the authority, various producer statements, certificates, statements and other information.

4.3 The authority forwarded the property file material on a DVD (the same material as above). Under cover of an email to the Ministry dated 1 March 2017, the authority also forwarded a copy of 'a summary of events dated 25 January 2017', which I have incorporated in the determination. The authority noted that the chronology:

...suggests that key difference between the parties is the degree of investigation required for Council to be able to reach a sensible decision regarding the compliance of the building work.

4.4 A draft determination was issued to the parties for comment on 25 May 2017.

4.5 The applicant accepted the draft without comment on 12 June 2017. The authority accepted the draft without comment on 6 June 2017.

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

### **5.1 General**

5.1.1 As mentioned in paragraph 1.6, I engaged an independent expert to assist me. The expert is a member of the New Zealand Institute of Architects and inspected the house on 19 April 2017, providing a report dated 8 May 2017. The expert's report was sent to the parties on 9 May 2017.

5.1.2 The expert noted that the scope of his inspection was to provide an opinion about items identified in the authority's section 95A refusal to issue a code compliance certificate dated 24 March 2016, and to assess the areas identified by the authority in regard to their code compliance with Clauses B1, B2, and E2 of the Building Code.

5.1.3 The expert considered the as-built house was generally in accord with the consented plans except that the garage roof had not been tiled and was not used as a deck.

## 5.2 Moisture testing

5.2.1 The expert visually inspected internal linings to the external walls, noting these 'were free from mould, stains, swelling or other clear signs of moisture ingress' and also observed 'no evidence of water stains on the ceilings below the roofs or other signs of non-performance'. The expert tested wall linings using a non-invasive meter and readings were 'uniform and low throughout the house'.

5.2.2 The expert took 16 sample invasive moisture readings into wall and roof framing at areas at risk of moisture entry; with uncorrected readings<sup>11</sup> varying from 14% to 18%. The expert considered it likely that true readings in the LOSP H3.1 treated framing would be lower than those recorded.

5.2.3 The expert also noted that his inspection was carried out in autumn and the 'very heavy rain in the preceding two weeks<sup>12</sup>, together with the low moisture readings recorded provided 'reasonable evidence that the requirements of NZBC clause E2 were met in the period leading up to the investigation.'

## 5.3 The sheet cladding

5.3.1 The expert noted that the sheet cladding had been installed using joints shown in the manufacturer's 2003 instructions, which consisted on a butyl rubber strip with self-adhesive compressible foam strips on either side of the expressed joint. Invasive moisture readings taken within about 400mm of the joints were low, indicating adequate performance. The expert assessed other installation details of the sheet cladding, comparing these with the manufacturer's details.

5.3.2 In regard to the base details, the expert noted that:

- clearances from paving to bottom plates were generally 150mm, with 50mm cladding overhangs in line with the manufacturer's instruction
- the cladding was installed over a cavity with a vent strip at the bottom.
- all 10 moisture levels at the bottom of the cladding ranged from 15% to 18% indicating adequate performance, including in some areas where:
  - clearances are less than recommended
  - timber trims were installed to achieve overhang
  - cladding to the inner side of garage parapets was direct-fixed.

5.3.3 In regard to joinery details, the expert noted that:

- windows and doors are face-fixed to the cladding, with metal head flashings and sealant seals under the jamb flanges
- the joinery installation accords with the manufacturer's instruction (I also note that joinery also appears to accord with Figure 116 in the current E2/AS1)
- the 6 invasive moisture readings below joinery ranged from 15% to 18%, indicating adequate performance.

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<sup>11</sup> Uncorrected for timber treatment due the lack of reliable correction tables.

<sup>12</sup> Including the deluge following Cyclone Debbie

## 5.4 The EIFS cladding

5.4.1 In regard to the base details, the expert noted that:

- clearances from paving to bottom plates were generally 150mm, with 50mm cladding overhang
- a cavity closer strip was fitted at the bottom
- the 3 moisture levels at the bottom of the cladding ranged from 14% to 16% indicating adequate performance.

5.4.2 In regard to joinery details, the expert noted that:

- windows and doors are recessed by the thickness of the cladding, with uPVC head and jamb flashings
- the sloping sill is plastered over a uPVC moulding
- the joinery installation accords with Figure 128 in the current E2/AS1
- the 3 invasive moisture readings at or below joinery ranged from 14% to 16%, indicating adequate performance.

## 5.5 The fibre-cement weatherboards

5.5.1 In regard to the base details, the expert noted that most of the observable features accorded with E2/AS1 in that:

- boards are fitted over a cavity, with a cavity closer strip fitted at the bottom
- clearance to paving was 110mm, meaning that clearance to bottom plates was about 160mm, with 50mm cladding overhang
- the non-invasive moisture readings were uniformly low.

5.5.2 In regard to joinery details, the expert noted that:

- windows and doors are face-fixed over the cladding with metal head flashings and scribes fitted at the jambs
- joinery installation is similar to details in Figure 91 in the current E2/AS1
- the non-invasive moisture readings were uniformly low and the invasive reading at a high risk exposed mitred corner window to Level 3 was only 14%.

5.5.3 The expert also noted that corner back flashings were installed at internal corners as shown in E2/AS1. The expert considered that the correspondence with E2/AS1 recommendations 'in conjunction with low moisture readings and lack of evidence of moisture entry after 12 years in service can be considered reasonable evidence of compliance'.

## 5.6 The roof

5.6.1 In regard to roof flashings, the expert considered the flashings adequate, noting that:

- transverse cladding/roofing junctions have flashings with 190mm aprons and soft edges
- parallel flashings to cladding/roofing junctions are fitted with butyl rubber under flashings that extend under two corrugations, with kickouts at the bottom

- parapets are fitted with metal cappings that turn up under the cladding at wall/parapet junctions

5.6.2 In regard to the corrugated roofing, the expert noted that:

- no testing or certification is available locally
- manufacturer's verge profiles are used, with conventional metal flashings elsewhere
- the following issues were evident:
  - deformation where troughs had flattened at contact points with purlins
  - paint finish beginning to peel in several areas
- there was no sign of water stains on the ceilings below or other signs of non-performance
- the roof has remained weathertight for 12 years to date, and it is likely that it will remain so for the remaining three years required by the code (I also note that any water entry would be apparent on ceilings, which should allow repairs to be promptly carried out before further damage occurs).

## 5.7 The authority's concerns

5.7.1 The expert also assessed the remaining items identified by the authority and Table 1 summarises his responses, with my added comments shown in brackets.

**Table 1: The authority's concerns**

Areas of concern in section 95A refusal (in summary)		Expert's comments	Compliance	Determination references
1	Garage roof membrane falls, gutter, outlets not to consent drawings	<ul style="list-style-type: none"> <li>• Not grounds for refusing CCC under former Act</li> <li>• Roof drains to gutter at south end in lieu of rainhead (provides more drainage than consent drawings)</li> <li>• No sign of ponding (sheds water)</li> <li>• Invasive reading of 16% below indicates performing</li> </ul>	Adequate	Paragraph 6.1 Paragraph 3.4.7 Paragraph 5.6.1 Paragraph 5.2
2	Cladding clearances	<ul style="list-style-type: none"> <li>• Comply with manufacturer's instructions or E2/AS1</li> <li>• No elevated moisture levels in areas where clearances reduced</li> <li>• All moisture levels in bottom plates low, indicating satisfactory performance</li> </ul>	Adequate	Paragraphs 5.3.2, 5.4.1, 5.5.1  Paragraph 5.2
3	Blocked cavity	<ul style="list-style-type: none"> <li>• (some other areas covered in building surveyor's schedule of preventative repairs)</li> <li>• Assume this refers to junction with parapet capping over entry stairs</li> <li>• No elevated moisture levels, indicating satisfactory performance</li> </ul>	Adequate	Paragraph 3.4  Paragraph 5.2
4	Some elevated indicative moisture readings	<ul style="list-style-type: none"> <li>• No evidence of moisture penetration</li> <li>• No elevated non-invasive moisture readings</li> <li>• No elevated invasive moisture readings</li> </ul>	Adequate	Paragraph 5.2
5	No roof access to assess flashings	<ul style="list-style-type: none"> <li>• All flashings shed water away from building</li> <li>• (also assessed by roofing consultant)</li> </ul>	Adequate	Paragraph 5.6.1 Paragraph 3.6.2

Areas of concern in section 95A refusal (in summary)		Expert's comments	Compliance	Determination references
6	Level 2 deck falls, gutter, outlets not to consent drawings	<ul style="list-style-type: none"> <li>Not grounds for refusing CCC under former Act, where grounds are non-compliance with code</li> <li>Deck drains to rainhead as shown in drawing 4</li> <li>No sign of ponding (sheds water)</li> <li>Low invasive readings below indicates performing</li> </ul>	Adequate	Paragraph 6.1 Paragraph 3.4.9 Paragraph 5.2
7	No evidence of compliance with Clauses B1, B2 and E2	<ul style="list-style-type: none"> <li>No evidence of non-compliance with Clauses E2 and B2 (or B1 insofar as it relates to weathertightness)</li> </ul>	Adequate	Paragraph 6.1 Paragraph 5.2
8	Garage parapet not to consent drawings	<ul style="list-style-type: none"> <li>Not grounds for refusing CCC under former Act, where grounds are non-compliance with code</li> <li>Inner parapet clad in direct-fixed fibre-cement</li> <li>Low invasive readings below indicates performing</li> </ul>	Adequate	Paragraph 6.1 Paragraph 3.4.12 Paragraph 5.2
9	No access to verify Level 3 weatherboard compliance	<ul style="list-style-type: none"> <li>A change from RAB to building wrap is not grounds for refusing CCC under former Act</li> <li>Weatherboards are installed satisfactorily, with no evidence of moisture entry</li> </ul>	Adequate in circumstances	Paragraph 6.1 Paragraph 5.2
10	No access to corrugated roof and membrane	<ul style="list-style-type: none"> <li>Membrane roofing appears satisfactory, with no signs of ponding or deterioration</li> <li>Corrugated roofing starting to deform, but is likely to remain weathertight for remaining 3 years required</li> <li>(roofing consultant confirms satisfactory installation and performance)</li> <li>(any water entry would be apparent on ceilings,)</li> </ul>	Adequate in circumstances	Paragraph 5.6.2 Paragraph 3.6.3 Paragraph 5.2
<b>Documentation required</b>				
A	List of documentation attached to refusal	<ul style="list-style-type: none"> <li>No outstanding documentation identified by authority</li> <li>Nothing observed onsite which would require further documentation to establish compliance with Clauses E2, B1 or B2 of the Building Code</li> <li>(Additional documentation provided by applicant following refusal; documentation is not a reason for refusing the code compliance certificate)</li> </ul>		
B	As-built plans to be provided	<ul style="list-style-type: none"> <li>(No effect on compliance)</li> </ul>		

## 5.8 Summary

5.8.1 The expert noted that the only overdue maintenance was the paint finish to the corrugated roofing, but added that the claddings are only three years from the end of their durability requirement and 'major maintenance or replacement maybe required anytime after that.' (I note that this particularly applies to the corrugated roofing.)

5.8.2 The expert concluded that:

The evidence found during the investigation indicates that the house complies and is likely to continue to comply with the performance requirements of the NZBC clauses B1, B2 and E2 provided that normal maintenance is continued.

## 6. Discussion: compliance generally

- 6.1 The building consent considered in this determination was issued under the former Act, and accordingly the transitional provisions of the Act apply when considering the issue of a code compliance certificate for work completed under this consent. Section 436(3)(b)(i) of the transitional provisions of the current Act requires the authority to issue a code compliance certificate only if it 'is satisfied that the building work concerned complies with the building code that applied at the time the building consent was granted'.
- 6.2 In order to determine whether the authority correctly exercised its power in refusing to issue a code compliance certificate, I must therefore consider whether the house complies with the provisions of the Building Code that applied when the consent was issued in 2004.
- 6.3 In the absence of any evidence to the contrary, I take the view that I am entitled to rely on the second building certifier's inspection records, although I note that these are very limited in detail. I therefore consider it important to look for evidence that corroborates these records to verify that the second building certifier's inspections were properly carried out. In this particular case, corroboration comes from the assessment of accessible components by the expert, which can be used to verify whether the building certifier's inspections were properly conducted.
- 6.4 In summary, I find that the following evidence will allow me to form a view as to the code compliance of the house as a whole:
- the record of inspections carried out by an engineer (for the foundations), and the second building certifier, which indicates satisfactory inspections of the inaccessible components (see paragraph 3.2.2)
  - drawings, calculations, producer statements, and other technical information
  - the building surveyor's assessment of the claddings
  - the roofing consultant's assessment of the corrugated roof cladding
  - the expert's assessment of the exterior building envelope.

## 7. Compliance with Clause E2 External moisture

- 7.1 The evaluation of the external building envelope for compliance with the Building Code and the risk factors considered in regards to weathertightness have been described in numerous previous determinations (for example, Determination 2004/001<sup>13</sup>).

### 7.2 Weathertightness risk

- 7.2.1 This house has the following environmental and design features, which influence its weathertightness risk profile:

#### Increasing risk

- the house is in a very high wind zone
- the house is three-storeys high, and complex in plan and form
- the house has three different wall claddings

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<sup>13</sup> Determination 2004/001: Refusal of a code compliance certificate for a building with a "monolithic" cladding system (Building Industry Authority)

- roofs are at multiple levels, with oblique eaves and complex junctions
- there are three enclosed decks, with two located over lower spaces

**Decreasing risk**

- there are roof overhangs to shelter some of the wall cladding
- the wall claddings are fixed over drained cavities
- the external wall framing is treated to provide resistance to decay.

7.2.2 Using the E2/AS1 risk matrix to evaluate these features, elevations are assessed as having a high weathertightness risk rating. Although not a requirement in 2004, the cladding systems incorporate a drained cavity as shown in the current E2/AS1.

**7.3 Weathertightness performance**

7.3.1 The inspection records indicate that the building envelope was complete by June 2005 and I have taken that into account when considering the weathertightness performance as the wall and roof claddings are now 12 years old.

7.3.2 The expert has investigated the roof and wall claddings and found their installation and performance satisfactory. I concur with the expert's opinion that the evidence indicates that 'the house complies and is likely to continue to comply' with the weathertightness performance provisions of the Building Code.

7.3.3 Taking account of the building surveyor's report and the roofing consultant's report, I also accept the expert's comments regarding the following areas being adequate in the particular circumstances described:

- the membrane roof areas and parapets
- the corrugated roofing and associated flashings
- the wall cladding clearances
- the weatherboards to Level 3.

**7.4 Weathertightness conclusion**

7.4.1 I consider the expert's report establishes that the current performance of the building envelope is adequate because there is no evidence of moisture penetration into the timber framing. I am therefore satisfied that the house complies with Clause E2 of the Building Code and the lack of timber damage also satisfies me that the timber framing complies with Clause B1 insofar as it applies to Clause E2.

7.4.2 In addition, the house is required to comply with the durability requirements of Clause B2, which requires a building to satisfy all the objectives of the Building Code throughout its effective life. The durability requirements of Clause B2 include the requirement for wall claddings to remain weathertight for a minimum of 15 years and for timber framing to remain structurally adequate for a minimum of 50 years.

7.4.3 The roof and wall claddings are now 12 years old and the expert's investigations have found no evidence of past moisture ingress, which satisfies me that claddings have also complied with Clause B2 insofar as it applies to Clause E2; and are likely to continue to comply for the next three years.

## 7.5 Maintenance

7.5.1 In the case of this particular house, I note the following:

- The house design includes many high-risk features, which require careful consideration of maintenance requirements of the roof and wall claddings in order to ensure their ongoing weathertightness.
- A modification of the durability provisions means that the claddings have remained weathertight for 12 of the required 15-year period and the expert considers that the claddings will remain weathertight for the further three years required. However, the expected life of the building as a whole is considerably longer; and careful maintenance of the claddings is needed in order to ensure the underlying timber framing remains unaffected by moisture ingress for its minimum required life of 50 years.
- The building surveyor has provided a schedule of ‘preventative works’ and each of the three reports refer to the likely need to replace the corrugated roofing in the short term. I strongly suggest the owners plan for the implementation of these measures to ensure that the building envelope continues to perform to protect the structure of the house.

7.5.2 Effective maintenance of the house is important to ensure ongoing compliance with the Building Code and is the responsibility of the building owner. The Ministry has previously described maintenance requirements associated with the external building envelope (for example, Determination 2007/060<sup>14</sup>).

## 8. The durability considerations

8.1 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).

8.2 In this case the 12-year delay since substantial completion of the house in 2005 raises concerns that many elements of the building are now well through or beyond their required durability periods, and would consequently no longer comply with Clause B2 if a code compliance certificate were to be issued effective from today’s date.

8.3 I have considered this in many previous determinations and I maintain the view that:

- a) the authority has the power to grant an appropriate modification of Clause B2 in respect of all the building elements, if requested by an owner
- b) it is reasonable to grant such a modification, with appropriate notification, as 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 2005.

I therefore leave the matter of amending the building consent for the house to modify Clause B2.3.1 to the parties to resolve in due course.

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<sup>14</sup> Determination 2007/060 Determination regarding a code compliance certificate for a house with monolithic and weatherboard wall cladding systems (Department of Building and Housing) 11 June 2007

## **9. The decision**

- 9.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the house complies with Clauses B1, B2 and E2 of the Building Code that was in force at the time the building consent was issued in 2004, and accordingly, I reverse the authority's decision to refuse to issue a code compliance certificate for the house subject to the modification of the durability periods as noted herein.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 28 June 2017.

John Gardiner  
**Manager Determinations and Assurance**