



## Determination 2019/037

# The refusal to issue a code compliance certificate for a 17-year-old house with a corrugated cellulose fibre cladding system at 7B Mayor View Terrace, Waihi Beach



### Summary

This determination considers an authority's refusal to issue a code compliance certificate for a 17-year-old house principally due to concerns about its compliance with Building Code Clause E2 External moisture. The building owners had commissioned an assessment of the building's performance which the authority had declined to accept.

### 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, Katie Gordon, Manager Determinations, 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 owners of the house J and E Williams ("the owners")
  - Western Bay of Plenty District Council ("the authority"), 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 17-year-old house because it was not satisfied that the house complies with certain clauses<sup>2</sup> of the Building Code (Schedule 1, Building Regulations 1992). The authority's concerns relate primarily to the weathertightness of the corrugated cellulose fibre wall cladding.

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

- 1.4 The matter to be determined<sup>3</sup> is therefore whether the authority was correct to refuse to issue a code compliance certificate for the reasons given in its letter dated 11 September 2017 (see paragraph 3.4.2), taking into account that the house is now more than 16 years old.
- 1.5 In deciding that matter, I must consider whether the authority had reasonable grounds to be satisfied that the external wall claddings of the house complied with Clause E2 External moisture and Clause B2 Durability of the Building Code that was in force at the time the original building consent was issued. In addition, I have considered whether the tiled shower areas comply with Clause E3 Internal moisture.
- 1.6 Matters outside this determination**
- 1.6.1 This determination is limited to the matters outlined above and does not consider other elements of the house or compliance with other relevant clauses of the Building Code. I leave any remaining issues to the parties to resolve in due course.
- 1.6.2 The designer of the subject house also designed the adjacent house at No. 7 Mayor View Terrace (“the front house”), using the same materials and similar construction details. The front house was issued with a code compliance certificate in or about 2006. Although this determination does not include the front house, it has assisted in providing a context to the background of the subject house.
- 1.6.3 I also note that the applicants 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 2002. Although I leave this matter to the parties to resolve in due course, I have taken the anticipated modification into account when considering the compliance of the cladding.
- 1.7 In making my decisions, I have considered the submissions of the parties, the report of the building surveyor engaged by the applicants to carry out moisture testing (refer paragraph 4.7) and other evidence in this matter.

## **2. The building work**

### **2.1 General**

- 2.1.1 The building work consists of a three bedroom detached house that is three-storeys-high in part and situated on a south-sloping excavated coastal site in a medium wind zone<sup>4</sup> for the purposes of NZS 3604<sup>5</sup>. Although fairly simple in plan and form, the design includes complex junctions and the house is assessed as having a moderate to high weathertightness risk<sup>6</sup>.
- 2.1.2 The subject house is situated on the rear lot of the property, with street access via a driveway. The building surveyor’s report takes the garage and driveway as east-facing and this determination follows that convention. The layout of the house is as described below and shown in Figure 1.

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<sup>3</sup> Under sections 177(1)(a), 177(1)(b) and 177(2)(d) of the Act

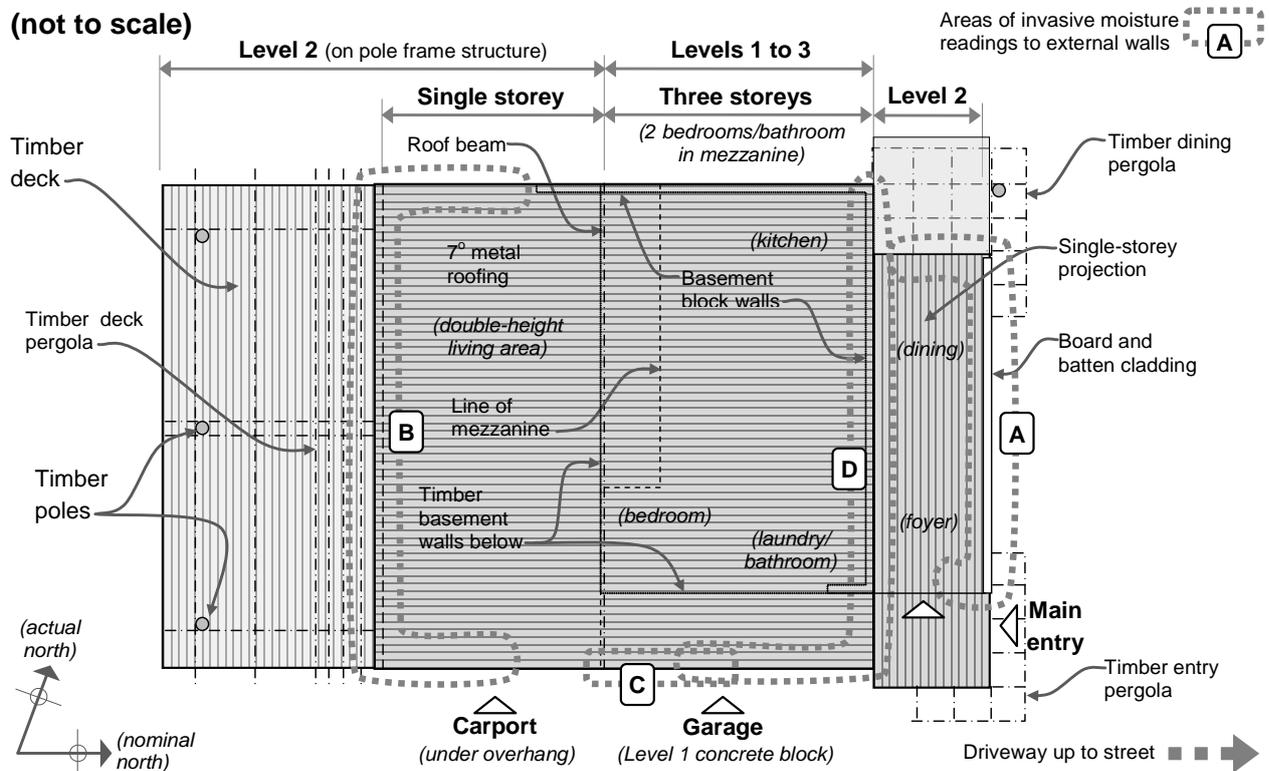
<sup>4</sup> According to the bracing calculations

<sup>5</sup> New Zealand Standard NZS 3604:1999 Timber Framed Buildings

<sup>6</sup> Acceptable Solution E2/AS1 for New Zealand Building Code Clause E2 External Moisture

## 2.1.3 The house accommodates:

- Level 1: basement garage and carport
- Level 2: entry foyer, kitchen/dining area, living area, laundry/shower/toilet, small bedroom and a large timber deck
- Level 3: two double bedrooms and bathroom, void above Level 2 living area.



**Figure 1: Approximate layout of the house**

- 2.1.4 The structure is generally specifically engineered, with a steel beam over the garage, exposed plywood bracing to walls and ceilings of timber-framed upper levels, exposed timber rafters and beams, a concrete block basement set into the slope of the site supporting the north half of the upper two-storeys and timber poles supporting the south end of the house and deck.
- 2.1.5 The remaining construction is conventional light timber frame, with timber-framed floors, profiled metal roofing, and aluminium joinery. Wall claddings are generally corrugated cellulose fibre, with some areas of weatherboard and fibre cement sheet claddings. The 7° pitch skillion roofs have no eaves or verge overhangs.
- 2.1.6 The specification called for timber framing to comply with NZS 3602<sup>7</sup> and to be 'treated to NZMP 3640<sup>8</sup>'. The building surveyor could see no evidence of the treatment level, if any, of the wall framing. Given the date of construction in 2002 and the lack of evidence, I consider the framing of this house is unlikely to be treated to a level that will provide resistance to fungal decay if it becomes wet and cannot dry out.

<sup>7</sup> New Zealand Standard NZS 3602: 1995: Specifying timber and wood-based products for use in building (which permitted the use of untreated timber until 2003)

<sup>8</sup> Standards New Zealand Miscellaneous Publication NZMP 3640: Minimum requirements of the NZ Timber Preservation Council (which classified primary risk as insect attack)

## **2.2 The wall claddings**

- 2.2.1 The single-storey entry/dining projection on the north elevation is clad in vertical board and batten cedar weatherboards fixed through the building wrap to the framing. Basement garage walls are unpainted concrete masonry and timber-framed partitions clad in painted fibre-cement sheet.
- 2.2.2 The remaining walls are clad in a proprietary corrugated sheet product manufactured from bitumen-impregnated cellulose fibre and pre-finished on the outer side with a pigmented resin (“the cellulose fibre cladding”). Corrugations are horizontal, with the sheets overlapped and fixed through the building wrap directly to the framing.
- 2.2.3 At the time of installation, the manufacturer provided recommended details for windows and other junctions. At corners, the consent detail called for 100 x 100mm metal back-flashings to be installed over the building wrap, with a 90 x 90mm aluminium angle over the cladding and profiled compressible foam installed between the angle and the corrugated cladding (the latter visible in photographs).
- 2.2.4 At the time of construction the cellulose fibre cladding had a BRANZ Appraisal Certificate No. 431 (2002) that has since been withdrawn. That certificate stated that the product may age prematurely in very warm climates ‘owing to degradation by solar heat and UV, especially if the product has not been given a protective coating system’. The cladding to this house has been painted.

## **2.3 The south deck**

- 2.3.1 The large south deck has a free-draining timber slat floor and photographs show the cellulose fibre cladding extended past the stringer, with a small drainage gap at the junction. The east and west sides of the deck have timber framed balustrades clad in board and batten weatherboards and photographs from the underside of corners show that the aluminium corner angles separate the balustrade from the cellulose fibre cladding.
- 2.3.2 The deck is supported on timber poles, which extend through the deck to support a pole pergola structure above the deck. At the south wall, pergola beams are fixed to the wall framing using specifically-engineered steel connectors formed from straps bolted to steel U-sections. The U-sections are bolted through the cladding into the wall framing and separate the pole ends from the cellulose fibre cladding, with painted ‘shaped timber packing’ at the steel/cladding junctions.

## **3. Background**

### **3.1 General**

- 3.1.1 The applicants purchased the original property in March 2001, which included a 90m<sup>2</sup> detached cottage at the front of the property. Drawings were prepared and the authority issued a building consent (No. BC65394) on 10 October 2001 for the subject house at the rear of the property.
- 3.1.2 The original property was subdivided into two freehold properties in 2004, with new freehold titles for numbers 7A and 7B issued on 29 June 2004.
- 3.1.3 The cottage was then removed and the front house was constructed, using the same design detailing and claddings as the rear house. The certificate of title recorded a sale of the completed front house in February 2006, indicating that a code compliance certificate was issued prior to that date.

## 3.2 Construction

3.2.1 The authority's records show the following inspections for the subject house:

- footings and foundations in November 2001
- concrete slab (part) and blockwork in December 2001
- pre-line framing and insulation February 2002, which noted 'job covered in, insulation in place, ready to line'
- a part-concrete slab inspection in April 2002 (likely to be the carport slab).

3.2.2 The external building envelope would have been completed by the date of the pre-line inspection in February 2002.

## 3.3 The 2017 final inspections

3.3.1 When the subject house was offered for sale in 2017, the applicants discovered that no code compliance certificate had been issued and sought a final inspection from the authority. It appears that an initial inspection of the house was carried out by the authority on 26 June 2017 along with a series of photographs. I have been provided with the photographs taken during that inspection but not the inspection report.

3.3.2 The authority carried out a final inspection on 8 September 2017, which identified the following areas where code compliance 'could not be verified'. I have not included matters from that inspection that are no longer in dispute:

- in regard to Clause E2 External moisture:
  - junctions and penetrations through wall claddings
  - direct-fixed cellulose fibre cladding
  - insufficient ground clearances to cladding
  - unknown tanking to garage retaining walls
  - lack of drainage at deck stringer/cladding junction.
- in regard to Clause E3 Internal moisture:
  - unknown shower waterproofing membrane.

## 3.4 The refusal to issue a code compliance certificate

3.4.1 The authority wrote to the applicants on 11 September 2017, referring to a 'June 26 2017' site inspection but making no reference to the above September inspection. The authority noted the 'site inspection' had assessed 'the completed building work for compliance with the Building Code and the Building Act (2004); and if the Code Compliance Certificate ... can be issued.'

3.4.2 The authority stated that, following a 'subsequent review' of the consent records, it was 'unable to issue a [code compliance certificate] for this Building Consent' adding:

...for the [authority] to be satisfied on reasonable grounds that weathertightness requirements of the building are met, extensive weathertightness investigation will be necessary...

The building design is considered a risky style under the weathertightness risk matrix. The reliance on visual inspections by [the authority] and previous inspection records is not sufficient to establish on reasonable grounds...

3.4.3 The applicants engaged a building surveyor who carried out moisture investigations of the house and provided a report dated 22 March 2018. I have summarised the building surveyor's report in paragraph 5.

### **3.5 Further correspondence**

3.5.1 The applicants forwarded the building surveyor's report to the authority on 30 March 2018; requesting a re-inspection and noting that the front house had been issued with a code compliance certificate.

3.5.2 The applicants met with the authority in May 2018 to discuss the situation. Following a series of emails requesting another inspection, the authority emailed the applicants on 21 August 2018 and noted the following (in summary):

- The building surveyor's report lacks a 'detailed in-depth cladding assessment', which will 'probably result in even more issues being identified.'
- Because the building design is considered "very high risk", the reliance on "visual inspections alone" and "historical inspection records" is insufficient evidence of compliance with Clause E2.

### **3.6 The application for determination**

3.6.1 The applicants applied for a determination on 20 February 2019. The Ministry sought additional information from the authority, which was received on 19 March and 12 April 2019. I have treated that information as the authority's submission.

## **4. The submissions**

4.1 The applicants outlined the matter noting the request for an inspection by the authority that resulted in a refusal to issue the code compliance certificate without "an invasive weathertightness investigation, testing and analysis". Following completion of the building surveyor's report and a site meeting with the authority, the applicants noted that some of the matters raised by the authority were "invalid or at the time not required in the Building Code."

4.2 The applicants provided copies of:

- the 2001 building consent
- the record of the 2017 final inspection
- the authority's refusal to issue a code compliance certificate dated 11 September 2017
- the building surveyor's report dated 22 March 2018
- the letter to the authority dated 30 March 2018.

4.3 The authority's submissions took the form of email responses to requests for information from the Ministry about the authority's reasons why the building surveyor's findings were not accepted and why it considered the building was not compliant given that the Building Code was performance-based. The two emails from the authority dated 19 March and 12 April 2019 included the following comments (in summary):

- In regard to the building surveyor's report:
  - invasive moisture readings were taken through internal linings and 'no

- invasive testing or investigation has been carried out from the exterior'
  - the building surveyor has not provided 'a detailed in depth cladding assessment'.
  - In regard to the high risk of the house design:
    - the cellulose fibre cladding is direct-fixed to the framing
    - no pre-cladding inspections were carried out during construction
    - there is insufficient clearance between the basement fibre-cement cladding and the paving
    - unable to confirm stop ends to sill tray flashings
    - some upper windows "appear" to lack sill tray flashings
    - corners to the cellulose fibre cladding rely on foam seal and compressed foam with no back flashing
    - pergola beam fixing brackets penetrate the cellulose fibre cladding
    - some joinery head flashings are unsealed
    - the deck balustrade/wall junction is "unclear".
- 4.4 In response to the Ministry's request, the authority provided a copy of its property records which included the following documents relevant to this determination:
- the consent drawings and specification
  - the consent conditions and list of required inspections
  - the inspection records
  - photographs taken during the June 2017 site visit.
- 4.5 A draft determination was issued to the parties for comment on 11 June 2019. The applicant accepted the draft without comment on 12 June 2019.
- 4.6 The authority accepted the draft on 3 July 2019 but requested that the determination acknowledge "that the moisture readings [taken by the building surveyor] were taken in late summer after a drought...".
- 4.7 In response to the authority I note that the moisture readings taken are consistent irrespective of location (i.e. varying levels of exposure to the elements) and between potential moisture sources (internal versus external moisture), and that any timber defects due to moisture ingress would have been apparent to the building surveyor when the moisture probes were placed.

## **5. The building surveyor's report**

### **5.1 General**

- 5.1.1 As mentioned in paragraph 3.4.3, the applicants engaged a building surveyor<sup>9</sup> who inspected the subject house on 14 March 2018 and provided the applicants with a report dated 22 March 2018.

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<sup>9</sup> The building surveyor is a member of the New Zealand Institute of Building Surveyors

5.1.2 The building surveyor noted that his inspection was to ‘provide information in respect to Building Code Clause E2, External Moisture only’. The building surveyor noted that his assessment was ‘based on invasive measuring of moisture content’ in selected areas of wall framing and did not include an assessment of cladding details.

5.1.3 The building surveyor made the following general comments (in summary):

- The house generally appears to accord ‘with the overall intent of the building consent documentation.’
- The aluminium joinery is face-fitted against the wall cladding.
- No evidence of timber treatment was able to be seen, and ‘untreated kiln dried timber would have complied with NZS 3602 at the time of construction’.
- The cellulose fibre cladding has been repainted regularly, so is considered ‘to be in better than average condition’ expected for that cladding.

## 5.2 Moisture investigations

5.2.1 The building surveyor noted that the corrugated cellulose fibre prevented invasive moisture testing from the outside without causing irreparable holes in the wall cladding. He therefore carried out testing from the inside by ‘inserting prongs [on] an angle on top of the skirting’ into bottom plates.

5.2.2 The building surveyor recorded the following invasive moisture readings from areas considered to be at risk of moisture penetration (refer Figure 1 for location of areas):

- Area A: Level 2 north single-storey lean-to (clad in board and batten):
  - 15% at north jamb to entry door
  - 14% and 15% beside the entry window
  - 13% to 15% beneath north window jambs
  - 15% at jambs to rear door.
- Area B: Level 2 south living area (with cellulose fibre cladding):
  - 12% and 13% at jambs to full height west window
  - 13% to 15% at jambs to north deck doors
  - 14% and 15% at jambs to full height east window.
- Area C: Level 2 east Bedroom 3 (with cellulose fibre cladding):
  - 12% to 16% beneath east window jambs.
- Area D: Level 3 north mezzanine (with cellulose fibre cladding):
  - 10% to 13% beneath east window jambs to Bedroom 1
  - 12% to 14% beneath north window jambs to Bedroom 1
  - 11% beneath north window jambs to Bedroom 2
  - 11% beneath north jamb to west window of Bedroom 2.

5.2.3 The building surveyor noted that all readings were ‘well within the acceptable margin. Readings over 18% generally indicate that moisture is entering the framing and further investigation is needed. I note that the building surveyor’s inspection was in late summer and readings are likely to represent the lower levels of expected seasonal variation, with higher readings expected during wetter months.

5.2.4 The building surveyor also took invasive moisture readings into interior walls

adjacent to tiled shower areas from adjacent rooms and recorded:

- For the Level 2 east shower room:
  - 14% in the Bedroom 3/shower room partition
  - 15% in the laundry/shower room partition.
- For the Level 3 north tiled shower:
  - 13% in the Bedroom 1/shower partition
  - 14% in the Bedroom 2/shower partition.

5.2.5 In regard to the concrete block efflorescence observed by the authority in 2017, the building surveyor noted that (in summary):

- minor efflorescence had apparently occurred due to moisture entering the top of the concrete block retaining wall
- ground levels had since been lowered and the wall re-surfaced
- there is no current evidence to suggest that moisture is entering the wall.

### 5.3 The wall claddings

5.3.1 Taking account of his moisture investigations and the current age of the house, the building surveyor noted (in summary):

- claddings are required to achieve a minimum 15 years durability and 'that time has now been exceeded' because the house was practically completed in 2002
- once the minimum period has passed, then it is assumed that ongoing maintenance of claddings will continue by current and future owners to ensure that 'the durability requirements of the structure will be met'
- the lack of evidence of past or current moisture penetration should mean that the wall claddings have exceeded the minimum durability requirements.

5.4 The building surveyor concluded:

Therefore, I believe it would be reasonable to conclude that currently the dwelling complies with B2 and E2 of the Building Code and accordingly [the authority] may consider issuing the [code compliance certificate] subject to modification of the durability clause to 2002 when the dwelling was considered practically completed.

## 6. Discussion

### 6.1 General

6.1.1 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. When the applicant requested a code compliance certificate in 2017, the 2001 consent was still 'open' and, as such, the transitional provisions of the former Act apply.

6.1.2 Section 436 of the current Act states that the application must be considered and determined as if the Act had not been passed, which includes the requirement for 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'.

- 6.1.3 In order to determine whether the authority correctly exercised its power in refusing to issue a code compliance certificate for the reasons stated in its letter of 11 September 2017, I must consider whether areas of building work identified by the authority comply with the associated clauses of the Building Code that applied at the time the consent was granted in 2001.
- 6.1.4 I note that an application can be made to the authority for a modification of the durability requirements to allow durability periods to commence from the dates of substantial completion in 2002. Although that matter is not part of this determination (see paragraph 1.6.3), I have taken the age of the house into account when considering the performance of the exterior wall claddings.

## **6.2 Compliance with Clause E2 External moisture**

- 6.2.1 In assessing the current and past weathertightness performance of the claddings, I have taken the following into account:
- the consent drawings and specifications
  - the authority's satisfactory inspections carried out during construction
  - the building surveyor's invasive moisture testing (in late summer)
  - other comments within the building surveyor's report
  - the authority's photographs taken in June 2017 (in mid winter)
  - additional photographs obtained of the interior of the house
  - the authority's final inspections
  - the authority's submissions for this determination.
- 6.2.2 Based on the building surveyor's report and the other evidence, the cellulose fibre cladding generally appears to have been constructed in accordance with average trade practice and the manufacturer's instructions at the time of construction. Wall claddings also appear to have been moderately well maintained since installation, although attention is needed to some areas.
- 6.2.3 The inspection by the building surveyor was carried out some 16 years after the building was constructed, and no evidence of moisture penetration into the timber framing, including no evidence of damage or dampness caused by moisture entry was found. Given the building surveyor's report and lack of visual signs of damage, I am also satisfied that there is no evidence of significant past moisture penetration through the external walls.
- 6.2.4 Proven performance in-use is a valid means of verifying compliance: the house is now over 17 years old. I therefore consider that the current performance of the external building envelope is adequate because there is no evidence of significant current or past moisture penetration into the timber framing. I am therefore satisfied that the wall claddings have performed and are continuing to perform as required by Clause E2 of the Building Code.

6.2.5 I have commented on the concerns raised by the authority in the final inspection records and photographs in the following table.

**Table 1: Weathertightness concerns**

	Authority's concerns	Comments	Conclusions
E2	Non-compliance with parts of E2/AS1	<ul style="list-style-type: none"> <li>E2/AS1 is one way but not the only way of complying with Clause E2.</li> <li>E2/AS1 in its current form did not apply at time of construction in 2001/2002.</li> <li>Details were specifically designed and considered adequate at the time the consent was issued in 2001.</li> <li>As-built construction details must be assessed on their own merit.</li> </ul>	<b>Adequate</b>
E2 B2	No pre-cladding inspections to verify underlying flashings	<ul style="list-style-type: none"> <li>The 2001 list of inspections required by authority did not call for pre-cladding inspections.</li> <li>The pre-line inspection record noted that the house was 'covered in', with no mention of cladding problems.</li> </ul>	<b>Adequate</b>
E2 B2	Roof weathertightness not known	<ul style="list-style-type: none"> <li>Skillion roofs lined with clear-finished plywood bracing, which would show up water marks.</li> <li>No evidence of past or current water staining.</li> </ul>	<b>Adequate</b>
E2	Carport cladding clearances	<ul style="list-style-type: none"> <li>Slab stepped down by about 150mm from garage.</li> <li>About 20mm cladding clearance provided.</li> <li>Carport wall sheltered beneath deep overhang.</li> <li>No sign that water reaches junction.</li> <li>Slab appears well drained, with winter photos showing no evidence of past or current problems.</li> </ul>	<b>Adequate</b>
E2 B2	Joinery flashings	<ul style="list-style-type: none"> <li>Photographs show head flashings.</li> <li>Drawings call for jamb and sill flashings.</li> <li>Compressible foam installed under jamb flanges.</li> <li>No evidence of problems over past 17 years, but needs maintenance attention.</li> </ul>	<b>Adequate</b> (if maintained)
E2 B2	Corner flashings	<p><u>Drawings call for:</u></p> <ul style="list-style-type: none"> <li>100 x 100mm metal back-flashings over wrap</li> <li>90 x 90mm aluminium angle over cladding</li> <li>profiled compressible foam installed beneath angle.</li> </ul> <p><u>Photographs show:</u></p> <ul style="list-style-type: none"> <li>painted 90 x 90mm aluminium angle</li> <li>painted compressible foam (some areas missed)</li> <li>no evidence of problems over past 17 years, but needs maintenance attention.</li> </ul>	<b>Adequate</b> (if maintained)
E2 B2	Deck clearances	<p><u>Photographs show:</u></p> <ul style="list-style-type: none"> <li>cellulose fibre cladding extended behind deck stringers</li> <li>timber spacers behind stringers</li> <li>small gap visible in photographs</li> <li>needs maintaining, but no evidence of problems.</li> </ul>	<b>Adequate</b> (if maintained)

	Authority's concerns	Comments	Conclusions
E2 B2	Clad balustrade/wall junctions	<p><u>Photographs show:</u></p> <ul style="list-style-type: none"> <li>clad balustrade capped with metal flashing</li> <li>corner angle extends past junction, with leg separating balustrade framing from wall cladding</li> <li>cellulose fibre cladding extended behind at corner angle</li> <li>no evidence of moisture problems to date.</li> </ul>	<b>Adequate</b>
E2 B2	Pergola penetrations through cellulose fibre cladding	<p><u>Photographs show:</u></p> <ul style="list-style-type: none"> <li>steel strap brackets bolted to beams, with about 50mm projections past pole ends</li> <li>bracket projections bolted to sides of U-sections</li> <li>U-sections bolted through cladding into framing</li> <li>painted profiled timber packing between steel/cladding</li> <li>no evidence of problems over past 17 years, but needs maintenance attention.</li> </ul>	<b>Adequate</b> (if maintained)
E2 B2	Pipe penetrations through cellulose fibre cladding	<ul style="list-style-type: none"> <li>Photos show crudely sealed pipe penetrations.</li> <li>No evidence of problems over past 17 years, but needs maintenance attention.</li> </ul>	<b>Adequate</b> (if maintained)
E2	Tanking to blockwork retaining walls	<ul style="list-style-type: none"> <li>2017 photos show small efflorescence patch to west block wing wall to carport.</li> <li>In 2018, building surveyor noted no evidence of moisture entering blockwork.</li> <li>Ground levels now reduced and patch removed.</li> </ul>	<b>Adequate</b>
B2	Reliance on paintwork / maintenance to protect some junctions	<ul style="list-style-type: none"> <li>Maintenance attention needed to some areas, but no evidence of problems over 17 years.</li> <li>Claddings have already met minimum 15-year durability requirement and will need replacing when materials deteriorate.</li> </ul>	<b>Adequate</b> (if maintained)
E2	Lack of invasive moisture testing through the cellulose fibre cladding, or other destructive investigation by the building surveyor	<ul style="list-style-type: none"> <li>It is not appropriate to damage cellulose fibre cladding by drilling holes from the outside.</li> <li>24 moisture readings were taken from inside using prongs into bottom plates.</li> <li>All readings well below levels that initiate decay.</li> <li>No water stains on clear finished wall/ceiling linings or other visible evidence of failure</li> <li>The building envelope is now 17 years old</li> <li>Considering above, there are no grounds for insisting on further destructive investigation.</li> </ul>	<b>Adequate</b>
B2	Framing condition	<ul style="list-style-type: none"> <li>There is no evidence of significant past or present moisture problems.</li> </ul>	<b>Adequate</b>

### 6.3 Compliance with Clause B2 Durability

6.3.1 The house is also 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, and that includes the requirement for the house to remain weathertight. The durability requirements of Clause B2 include a

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.

- 6.3.2 The building envelope is now some 17 years old and the building surveyor's investigations have found no evidence of moisture ingress into the timber framing over that time, with current moisture levels well below those needed to initiate timber decay. Given the building surveyor's report and lack of visual signs of damage, I am also satisfied that there is no evidence of significant past moisture penetration through the external walls.
- 6.3.3 The building surveyor's report, the authority's submissions and the other evidence<sup>10</sup> provides me with reasonable grounds to conclude that the wall claddings are adequate because they are currently preventing moisture penetration and there is no evidence of significant moisture penetration in the past. I am therefore satisfied the cladding has complied with Clause B2 insofar as it relates to Clause E2.
- 6.3.4 The cladding may have satisfied the 15-year minimum durability period required by the Building Code, but the expected life of the building itself is a minimum of 50 years and careful attention to the performance and maintenance of the cladding is needed to ensure that it continues to protect the underlying structure for its minimum required life of 50 years (In other words, meet Clause B2 insofar as it relates to Clause B1 especially given the lack of observed evidence of timber treatment in the framing).
- 6.3.5 I have noted some areas of incomplete paintwork and sealants where maintenance attention is needed. Continuing maintenance of the claddings, including replacement of the 17-year-old cellulose fibre cladding when its performance deteriorates, will be important to ensure ongoing compliance with Clauses B2 and E2 of the Building Code because the claddings must continue to protect the underlying structure.
- 6.3.6 Maintenance is the responsibility of the building owner and the Ministry has previously described these maintenance requirements, including examples where the external wall framing of the building may not be treated to a level that will resist the onset of decay if it gets wet (for example, Determination 2007/60<sup>11</sup>).
- 6.3.7 It is emphasised that each determination is conducted on a case-by-case basis. Accordingly, the fact that a particular cladding system has been established as being code compliant in relation to a particular building does not necessarily mean that the same cladding system will be code compliant in another situation.

## 6.4 Clause E3: Internal moisture

- 6.4.1 The authority was also concerned about the ability of the shower waterproofing membranes to protect the associated timber framing from moisture penetration. The building surveyor's investigations therefore included moisture readings taken from adjacent rooms into bottom plates of the shower walls as outlined in paragraph 5.2.4.
- 6.4.2 The low moisture readings in shower walls, the good condition of tiles and grout shown in photographs of the showers, and the lack of any evidence of waterproofing failure provide me with reasonable grounds to conclude that the showers comply with Clause E3 of the Building Code.

<sup>10</sup> Including the authority's inspection photographs and other interior photographs taken during 2017

<sup>11</sup> 2007/060: Determination regarding a code compliance certificate for a house with monolithic and weatherboard wall cladding systems (11 July 2007)

## **7. The decision**

7.1 In accordance with section 188 of the Building Act 2004, I hereby:

- determine that the authority did not correctly exercise its powers of decision in refusing to issue the code compliance certificate in respect of the wall cladding installation
- determine that the wall claddings as installed comply with Clause B2 and Clause E2 of the Building Code that was in force at the time the house was constructed
- determine that the tiled shower areas comply with Clause E3 of the Building Code
- reverse the authority's decision to refuse to issue a code compliance certificate for the building work and require the authority to make a new decision taking into account the discussion in this determination.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 30 July 2019.

Katie Gordon  
**Manager Determinations**