



Determination 2017/053

Regarding the refusal to issue a code compliance certificate for a 20-year-old house clad with rusticated fibre-cement weatherboards at 1/24 Halyard Place, Te Atatu Peninsula, Auckland



Summary

This determination is concerned with the compliance of the building envelope to a 20-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 matter to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ ("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, H Wang ("the owner") acting through an agent ("the agent")
- Auckland 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 code compliance certificate for a 20 year-old house. The refusal arose because the authority is not satisfied that the building work complies with certain clauses² of the Building Code (First Schedule, Building Regulations 1992); specifically the external envelope.

¹ The Building Act, Building Code, compliance documents, past determinations and guidance documents issued by the Ministry are all available at www.building.govt.nz or by contacting the Ministry on 0800 242 243.

² 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 determined³ is the authority's exercise of its powers of decision in refusing to issue a code compliance certificate for building consent No. 95/6905. In deciding this matter, I must consider whether the building work complies with Clauses B2, D1, E1, E2, and E3.
- 1.5 In making my decision, I have considered the submissions of the parties, the report of the independent expert commissioned by the Ministry to advise on this dispute ("the expert") and the other evidence in this matter.
- 1.6 I also note that the owners have applied 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 practical completion in late 1997. Although I leave this matter to the parties to resolve in due course, I have taken the anticipated modification into account when considering cladding durability.

2. The building work and background

2.1 General

- 2.1.1 The building work considered in this determination consists of a new two-storey house, located on a relatively flat site. It is in a medium wind zone, and corrosion Zone D for the purposes of NZS3604⁴.
- 2.1.2 The house is constructed with timber walls and flooring framing, and is supported on timber pile foundations, with a combination of anchor and ordinary piles. The gable roof is constructed with timber rafters and has varying pitches ranging from 8° to 44°, and is clad with trapezoidal metal roofing. The house is clad with direct fixed rusticated fibre-cement weatherboards with a paint finish.
- 2.1.3 The expert sent samples of the timber framing for laboratory testing, which detected timber treatment to the bearers, but not to the ground floor joists.
- 2.1.4 A timber slat deck at ground level has been constructed on the north side, below a lean-to veranda. A freestanding steel framed carport is adjacent to the building, and is clad with trapezoidal metal roofing.
- 2.1.5 The consented plans show on the lower floor the lounge, dining room, bathroom, laundry, separate toilet and a bedroom. The upper floor plan shows two bedrooms, and a bathroom.
- 2.1.6 The authority issued building consent No. 95/6905 for a 'New Building' on 21 April 1995 under the Building Act 1991. The following inspections were carried out by the authority:
- Foundations and Siting– 13 June 1995 (satisfactory)
 - Preline – 17 July 1995 (satisfactory)
 - Drainage tested – 6 August 1995 (satisfactory)
 - Carport – 26 November 1995 (satisfactory)
 - Surface water tested – 10 April 1996 (satisfactory)
 - Plumbing and drainage final – 23 September 1996 (satisfactory)

³ Under sections 177(1)(b) and 177(2)(d) of the current Act

⁴ New Zealand Standard NZS 3604:1999 *Timber Framed Buildings*

2.2 Final inspections

- 2.2.1 On 9 September 1996 the owner at the time (“the previous owner”) wrote to the authority with concerns regarding the quality of the building work, and the compliance of the construction to the consented drawings. The previous owner also expressed concerns regarding the particle board flooring, which she claimed was affected by prolonged exposure to the elements during construction.
- 2.2.2 In a letter dated 17 September 1996, the authority replied to the previous owner stating that the building work was built as specified in the building consent. The authority noted that if the particle board flooring had been affected by weather exposure, verification would be required to confirm that the flooring will meet performance requirements.
- 2.2.3 On the 18 September 1996 the authority advised the previous owner in a letter that there were areas that required further attention:
1. Seal under all windows sills and Edges.
 2. Seal pipe penetrations
 3. Complete rear door landing and stairs.
 4. Provide base access, to all areas to subfloor area.
 5. Provide complying floor coverings to all wet areas.
 6. Provide ventilation to laundry area.
 7. Seal vanity tops.
 8. Provide “backing to wall mirror in bathroom”.
 9. Please advise if the carport has been erected with the authority of a Building Consent.
 10. Provide Nogs @ 1.8
- 2.2.4 The manufacturer of the particle board flooring wrote to the building company (“the builder”) in a letter dated 4 October 1996. The letter stated that the flooring had been tested and inspected, and although weathered, it is ‘structurally sound’ and would meet the durability requirements of the Building Code.
- 2.2.5 The builder wrote to the authority on 7 October 1996 in response to the letter dated 18 September 1996 which listed the outstanding issues that had arisen from the final inspection. The builder responded to several points, stating that it complied, or providing further information.
- 2.2.6 On 7 March 1997 the builder wrote to the authority to finalise the code compliance certificate, stating that it had completed the outstanding items previously identified.
- 2.2.7 Another final inspection on 10 April 1997 was undertaken by the authority who informed the previous owner of the outcome in a letter dated 11 April 1997. The letter stated that all items had been satisfactorily resolved excluding the following:
1. Complete rear landings and stairs.
 2. Provide floor coverings to all wet areas.
 3. Fit a “backing” to the wall mirror.
 4. Correspondence received from [previous owner] indicated some dissatisfaction of the flooring material. As stated in [the authority’s] letter of 17 September 1996, to [previous owner], the manufacturer must provide written confirmation that the flooring system has not been adversely effected by water.

2.2.8 In a letter dated 19 June 1997, the builder wrote to the authority to seek clarification as to why they had not yet received the code compliance certificate. The authority responded in a letter dated 25 June 1997 saying it could issue a code compliance certificate once the items listed in its letter dated 11 April 1997 were resolved.

2.2.9 The builder responded to the authority in a letter dated 7 July 1997 noting the following:

- The completion of the rear landing and stairs was not part of their building contract or the building consent application
- The providing of floor covering to wet areas was not part of the building contract or in the specifications when applying for the building consent
- The requirement for a backing to the wall mirror is not a requirement under the Building Code, and this had been accepted by the authority.
- A letter from the manufacturer had been sent to the authority and it stated that the flooring material used and remedial work had been carried out to the satisfaction of the owner.

As the building work had been completed, the builder requested the code compliance certificate to be issued.

2.2.10 No further inspections were carried out by the authority and a code compliance certificate was not issued.

2.3 The refusal to issue the code compliance certificate

2.3.1 On 9 June 2016 the owners, through the agent, applied for a code compliance certificate and a modification of Clause B2. The agent submitted a letter dated 8 June 2016 with the application, which addressed the outstanding items noted in the authority's letter dated 11 April 1997. The agent stated that Items 1 and 2 had been 'attended to', Item 3 was not required, and Item 4 had been resolved with a letter from the manufacturer dated 4 October 1996. A site inspection had been carried out, which confirmed that no outstanding issues were evident, and the structure has not had any failures or issues since its construction 20 years ago.

2.3.2 On 28 July 2016 the authority issued a letter under section 95A of the Act that refused the issue of the code compliance certificate for the following reasons:

Various concerns regarding B1 Structure⁵, B2 Durability, E1 Surface Water, E2 External Moisture...

1. Change of pitch flashings not installed
2. Back steps showing signs of decay
3. [Lack of] Down pipe diffusers
4. Fascia ends decayed
5. Cladding penetrations
6. Proximity of joists to ground - <600mm – Provide proof of integrity of floor joists
7. Base skirts not fitted
8. Meter box flashing not installed
9. No steps off laundry

⁵ It appears compliance with B1 Structure is related to the integrity of the floor joists. This is considered herein under Clauses B2 and E2. There has been no observed failure of Clause B1.

10. Car port roof discharge to ground
11. Moisture ingress evident to corners of ranch sliders both sides of house – Further investigation required
12. Seal kitchen units
13. Seal laundry tub
14. No hand rail fitted to lower internal steps to first floor
15. Evidence of moisture ingress to first floor shower walls at threshold corners – Further investigation required
16. Weather board to fascia junction (Lap) under fascia – Insufficient cover – Building wrap stops short of framing – evidence of moisture ingress – Further investigation required
17. Bulging to [plasterboard] – Bedroom three mid wall under window at bottom – Further investigation required

The authority said the following documentation was required:

Evidence glass complies with NZS4223 - PS3 for installation/compliance

Site specific maintenance plan which covers, roof, roof/deck membranes, exterior cladding and gutters – To be signed by existing owners, and passed on to new owners if property is sold.

- 2.4 The Ministry received an application for a determination on 23 August 2016.

3. The submissions

- 3.1 In a submission attached to the application, the agent wrote that the owners consider some items listed on the section 95A letter from the authority were ‘unreasonable’ and responded to the various items as follows:

- Items 3, 4, 5, 8, 9, 10, 12, 13, 14, and 17 were maintenance items
- Regarding Item 11, the lower linings had been removed to investigate the bottom plate and they had supplied photos that showed no decay or deterioration.
- Items 2, 15 and 16 they considered to be ‘normal and fair ageing’ for the building
- Items 1, 6, 7 and 16 were passed at the time of the previous authority’s inspections.

- 3.2 The agent attached copies of the following documents:

- building consent No. 95/6905, plans and specifications
- correspondence between the parties
- application for code compliance certificate and durability modification
- inspection list

- 3.3 The authority acknowledged the determination application but made no submission in response.

- 3.4 A draft determination was issued to the parties for comment on 12 April 2017.

3.4.1 On 2 May 2017 the authority responded saying it did not accept the draft determination. It provided a marked-up copy of the determination plus 7 photographs of the house to support its position. The following was noted (in summary):

- There was evidence of moisture ingress (water staining) at the change of roof pitch. The authority's photographs show water staining in areas where the expert said there was no evidence of water ingress.
- Daylight could be observed through some wall / roof junctions.
- Building wrap does not lap fully under weatherboard / fascia junctions.
- Elevated moisture readings taken by the expert indicate there may still be an issue.

3.4.2 On 17 May 2017 the agent responded that it accepted the determination subject to the approval of proposed remedial work. (I note that any proposals the applicant has in regard to remediating the building must be put to the authority for its consideration.)

4. The expert's report

4.1 General

4.1.1 As mentioned in paragraph 1.5, I engaged an independent expert to assist me. The expert is a member of the New Zealand Institute of Building Surveyors and inspected the house on 18 October 2016. The expert's report was received on 5 December 2016, and was sent to the parties on 21 December 2016.

4.1.2 The expert observed the following variations existed between the constructed house and the building consent:

- The consented specification noted that the required subfloor space was 450mm minimum to allow for a crawl space. While, the drawings specify a clearance of 600mm between the floor level and the ground level. However, neither of the two ground clearances have been achieved.
- The consented drawings show cladding extending over the boundary joist, but this has not been constructed.

4.2 Moisture testing and invasive investigation

4.2.1 The expert inspected the interior of the timber framed walls and carried out destructive testing by removing internal linings.

4.2.2 The expert obtained the following moisture content readings from invasive testing:

- East elevation: 3 readings - 15, 18 and 19%, with the 19% reading taken from the underside of a boundary joist.
- South elevation: 2 readings - 18 and 19% taken from boundary joists, 19% reading taken from soffit framing at the building's corner.
- West elevation: 2 readings at 19% both taken from boundary joists.
- North elevation: 5 readings ranging from 11% - 20% - the 2 marginal or elevated readings (18 and 20%) taken from exposed timber framing at ends of the verandah.

- 4.2.3 The expert included the moisture content bands in the report. The relevant moisture content bands are defined⁶ as:
- Up to 18% - generally this level will not support timber decay
 - 18% - 24% - indicate that problems exist, and a warning that remedial action is required.
- 4.2.4 To further investigate the framing, the expert made cut-outs through the lining, and investigated current cut-outs. The destructive testing was undertaken at several locations:
- Location 1 South elevation beside door: historic staining to the varnished particle board flooring identified. The moisture content to bottom plate was 19%, and 15% to a timber stud immediately above the bottom plate.
 - Location 2 North elevation under verandah: historic staining to the varnished particle board flooring. The moisture content to bottom plate was 19%, and 17% to a timber stud immediately above the bottom plate.
 - Location 3 East elevation: destructive testing to the timber framing between window joinery. The moisture content of the stud immediately adjacent the sill/jamb junction was 15%.
- 4.2.5 The expert noted that visual inspection and the selected destructive testing confirmed that general aspects of the external envelope have been constructed in accordance with manufacturer's technical literature at the time of installation. The expert noted that the investigations did not identify any current or past evidence of moisture ingress through the existing roof and wall claddings. The claddings appear to have performed to meet the minimum 15-year durability requirements of the Building Code.
- 4.2.6 However, while the wall cladding has met the minimum required durability, the expert noted that should the first two recommended repairs not be carried out, there was potential for damage to occur to the structural framing:
- Sealing the cladding at the ends of flashings
 - Sealing of junctions between the joinery and the cladding
 - Installation of cladding over the northern boundary joist
- 4.2.7 The expert noted that the subfloor clearances ranged from 200mm – 300mm, which is below the required distance stated in the building consent. The lack of clearance increases the potential for undue dampness and damage to occur during the life of the building.
- 4.2.8 The expert sent two samples from a boundary joist and an end bearer to a laboratory for analysis. The testing indicated that the bearer had been treated to H3 level, but the boundary joist had no treatment detected. The results indicated that the two samples had been exposed to conditions 'very close to those conducive to decay' meaning that decay nearby was possible and future severe decay was likely in the absence of suitable remedial measures being taken.
- 4.2.9 However, the expert noted because of the lack of clearances, it was not possible to obtain readings from the framing within the centre of the subfloor, where ventilation will be reduced and the elements more susceptible to undue dampness and damage.

⁶ Refer *Weather-tightness: Guide to the Diagnosis of Leaky Buildings* (May 2011), Department of Building and Housing

4.2.10 The expert noted that the following items had been rectified since the authority's last inspection (also refer to comment in table 1):

- Fascia ends have been replaced, and soakers were fitted to the ends of the fascia (Item 4)
- The cladding penetrations were observed to be sealed (Item 5)
- The meter box has been sealed with sealant (Item 8)
- The external stairs to the laundry have been installed (Item 9)
- The drainage from the carport roof connects to the surface water system (Item 10)
- The kitchen benches have been sealed, although the sealant has cracked in places there was no evidence of damage to the unsealed junctions was observed (Item 12)
- The laundry has been sealed to the adjacent wall with sealant. No current or historic water damage was observed below or adjacent to the laundry sink (Item 13)
- The handrail to the lower internal steps to the first floor has been installed (Item 14)

The expert's comment against other items raised by the authority are included in Table 1.

4.2.11 The expert did not see any evidence to suggest that building was failing to satisfy Clause E3 Internal moisture. The expert investigated the first floor shower and observed that three sides were laminated sheet wall linings, and a shower curtain was used to enclose the shower cubicle. The expert observed minor peeling of the wall paper adjacent to the threshold of the shower, however non-invasive readings were low and no evidence of damage was observed (Item 15.)

4.2.12 The expert observed markings that noted safety glazing to the panes of glass in the opening doors, and windows that were required to use safety glass to satisfy NZS 4223⁷ (documentation required).

4.3 The expert's conclusions

4.3.1 The expert observed that the fibre-cement rusticated cladding is in a 'reasonable condition' given its age, and there was no evidence of current or past moisture ingress. However, there are aspects of the installation, regarding the clearances between the subfloor framing and the adjacent ground that are inadequate. The expert notes that without remediation, there is potential for undue dampness and damage, which is contrary to Clause E2, to occur within the 50-year durability period as required by Clause B2.

4.3.2 The expert recommended maintenance including:

- sealing the cladding at the ends of flashings, and the installation of cladding over the northern boundary joist
- replacement of sealant generally and repainting the cladding
- replacement of sealant to the jambs of the exterior joinery.

⁷ New Zealand Standard NZS 4223:1993

- checking and resealing corner mitres and drainage channels to the aluminium joinery

4.4 Responses to the expert's report

4.4.1 The authority, in an email dated 11 January 2017, stated that the expert's report did not adequately cover the following items:

- Item 1 – Change of pitch flashing to the roof
- Item 11 – Moisture ingress to ranch sliders
- Item 16 – Weatherboard fascia junction
- Item 17 – Bulging to plasterboard to a wall.

4.4.2 The agent in response to the authority's response submitted a letter on 16 January 2017 stating:

- The agent disputed the authority's comment that the expert report did not 'properly address the items', and noted that a 'suitably qualified expert' conducted the investigation of the building.
- Although defects were identified in the subfloor clearances and flashing details, there was no evidence of decay or degradation of the timber members.
- The expert's recommendations were 'typical' for a building of 'this design and a 21 year vintage' and noted that an 'anti-fungal solution' could be applied to the subfloor framing.
- The authority identified only 'minor remedial items' at the time of its inspections, and there have been no performance issues with the building to date.

4.4.3 In response, the expert noted that the proposal to apply an 'anti-fungal solution' to the subfloor framing may not be sufficient to ensure the 50-year durability period of the framing. The expert stated the following in response to the authority's email:

- Item 1 – The upper roof overhangs the lower roof and stop-ends have been installed. The junction has been performing for 20 years adequately, as there is no evidence of moisture staining or damage that would be expected at the junction (the authority has submitted a photo that it says 'shows [water] staining').
- Item 11 – Referred the authority to his original comments (see summary table at paragraph 5.4.1).
- Item 16 – The as-built detail was observed and invasive testing was completed in the areas below the junction, which revealed no evidence of moisture ingress and damage. A weathertight detail has been provided by the lapped weatherboards and the fascia extended over the weatherboard junction. Given the lack of evidence to that the junction is failing, the expert does not consider that further investigation comprising the removal of the internal lining and/or claddings to be justified at the time (the authority has submitted a photo that it says 'indicates [water] ingress').
- Item 17 – The expert noted that he lifted the carpet below the wall where the 'bulging' plasterboard was observed by the authority. There were no signs of moisture ingress to the flooring, and no elevated readings recorded.

5. Discussion: Compliance with E2 External moisture, and B2 Durability

5.1 General

- 5.1.1 The building consent was issued under the former Act, accordingly the transitional provisions of the Act apply when considering the issue of the code compliance certificate for building work completed under this consent. Section 436(3)(b)(i) of the transitional provisions require the authority to issue a code compliance certificate if it 'is satisfied on reasonable grounds that the building work complies with the building code that applied at the time the building consent was granted'.
- 5.1.2 In order to determine whether the authority correctly exercised its power in refusing to issue the code compliance certificate because of its concerns about weathertightness, durability, and safety from falling; I must consider whether the building work complies with the Building Code that was in force at the time the consent was issued.

5.2 The wall and roof claddings

- 5.2.1 The relevant Building Code Clauses in relation to the wall and roof claddings are:
- E2.3.1** Roofs must shed precipitated moisture. In locations subject to snowfalls, roofs must also shed melted snow.
 - E2.3.2** Roofs and exterior walls must prevent the penetration of water that could cause undue dampness, damage to building elements, or both.
- 5.2.2 The expert observed that the roof claddings and wall claddings showed no evidence of past or current moisture ingress. I am satisfied that the roof and wall claddings comply with Clause E2, and have also met the 15-year minimum durability period required by Clause B2.

5.3 The subfloor framing

- 5.3.1 The relevant Building Code Clauses E2.3.3, and E2.3.4 state that:
- E2.3.3** Walls, floors, and structural elements in contact with, or in close proximity to, the ground must not absorb or transmit moisture in quantities that could cause undue dampness, damage to building elements, or both.
 - E2.3.4** Building elements susceptible to damage must be protected from the adverse effects of moisture entering the space below suspended floors.
- 5.3.2 The expert noted that it appeared that unpaved ground levels have been raised after the construction and that the subfloor clearances were insufficient. Laboratory analysis indicated that timber samples were exposed to conditions that were conducive to decay, and it was likely that 'decay nearby was possible'.
- 5.3.3 I consider that based upon the expert's observation, the as-built construction, and the laboratory analysis, it is likely the subfloor framing does not comply with Clause E2.3.3, and quantities of moisture being transmitted or absorbed could cause dampness and/or damage.
- 5.3.4 Also, the subfloor framing is required to be protected from the adverse effects of moisture entering the space underneath the suspended floor. I consider that the as-built construction does not comply with Clause E2.3.4 because the ground levels are raised, which restricts the ventilation to the subfloor space and increases the risk of dampness and and/or damage.

5.4 Conclusions

5.4.1 Taking into account the expert's report, the following table summarises my conclusions on the compliance matters identified for this house by the authority:

Table 1: Response to the authority's concerns

Authority's area of concern (section 95A letter)	Expert's comments	Compliance (relevant code clause in brackets)
1. Change of pitch flashings not installed	<ul style="list-style-type: none"> Change of pitch occurs at the junction of the veranda and main roof, over the deck. Not occurring over a habitable space. The as-built detail matches the approved detail, with no flashing shown on the drawings. No visible evidence of moisture ingress. 	Complies (E2)
2. Back steps showing signs of decay	<ul style="list-style-type: none"> Signs of early surface deterioration observed, but the structural integrity of the steps has not been comprised. No timber treatment specified. The external steps have performed adequately to meet the 15 year durability period required by Clause B2. 	Complies (B1, B2)
3. Down pipe diffusers	<ul style="list-style-type: none"> Only downpipe on north elevation has a spreader. South, west and east elevations do not have spreaders. Downpipes in gable ends do not extend sufficiently past roof cladding to ensure rainwater is collected appropriately. No evidence of moisture ingress, damage or deterioration of the roofing sheets. 	Does not comply, remediation is required (E2)
4. Fascia ends decayed	<ul style="list-style-type: none"> Fascia ends have been replaced, and soakers have been fitted to the ends. Junction between original and new barge boards have been sealed with unpainted sealant. 	Complies (B2, E2) Recommended that the sealant be painted to provide improved resistance to UV breakdown
5. Cladding penetrations	<ul style="list-style-type: none"> No moisture ingress evident, and the wall claddings and flashings have performed to meet durability requirements of Clause B2. Most cladding penetrations have been sealed, but some fixing holes require sealing. 	Does not comply, remediation is required (B2, E2)
6. Proximity of joists to ground - <600mm – Provide proof of integrity of floor joists	<p>(Paragraph 5.3.4)</p> <ul style="list-style-type: none"> Ground clearances between 200mm – 300mm, lack of crawl space. Likely untreated subfloor framing. <p>Corrosion to the galvanised nail plates and wire dogs, possible due to the dampness, preservative treatment⁸ used or a combination of both.</p>	Does not comply, remediation is required (B2, E2) Combination of one or more of: ground to be lowered, ventilation improved or DPM installed

⁸ In E2/AS1 Table 21: Compatibility of materials in contact - galvanized steel should not be in contact with CCA treated timber. It is reasonable to consider that the incompatibility of the materials is causing the steel structural fixings to corrode, and fail to meet their durability requirements.

Authority's area of concern (section 95A letter)	Expert's comments	Compliance (relevant code clause in brackets)
7. Base skirts not fitted	<ul style="list-style-type: none"> Subfloor boarding has been installed Adequate ventilation is provided (had adequate ground clearances been provided) Unclear why subfloor was required to be enclosed 	Complies (E2)
8. Meter box flashing not installed	<ul style="list-style-type: none"> Meter box has been sealed. No requirement for flashing shown in the consent documentation. No moisture ingress observed. Has met the 15-year durability period for the cladding. 	Complies (E2)
9. No steps off laundry	<ul style="list-style-type: none"> Timber stairs have been installed. No current performance issues identified. 	Complies (D1)
10. Car port discharge to ground	<ul style="list-style-type: none"> Roof drainage has been amended and runoff connects to the surface water system. 	Complies (E1)
11. Moisture ingress evident to corners of ranch sliders both sides of house – Further investigation required	<ul style="list-style-type: none"> Historic staining to the particleboard is an aesthetic issue, and does not compromise the integrity of the flooring. Openings are well protected (one under a wide verandah), staining considered to be caused by condensation, not an E2 failure. Destructive testing showed no signs of historic or current ingress to framing. The corner mitres / drainage channels to joinery should be checked, resealed. 	Complies (E2)
12. Seal kitchen units	<ul style="list-style-type: none"> Kitchen bench tops have been sealed, some cracking in places. Normal ongoing maintenance to the sealant should occur. No evidence of damage to the unsealed junctions. 	Complies (E3)
13. Seal laundry tub	<ul style="list-style-type: none"> Sealant to the laundry/wall junction has been installed. No current or historic water damage noted below or adjacent to the sink. Normal ongoing maintenance to maintain the integrity of the seals should occur. 	Complies (E3)
14. No hand rail fitted to internal steps to first floor	<ul style="list-style-type: none"> Handrail has been installed. <p>(The current edition of D1/AS1 does not require an handrail to the external steps.)</p>	Complies (D1)
15. Evidence of moisture ingress to first floor shower walls at threshold corners – Further investigation required	<ul style="list-style-type: none"> Lined with laminated sheet linings and enclosed with a shower curtain. No elevated non-invasive moisture readings. Minor peeling of the wallpaper adjacent to the threshold, with some mould staining. No evidence of water damage, current or past, adjacent and below the shower. 	Complies (E3)

Authority's area of concern (section 95A letter)	Expert's comments	Compliance (relevant code clause in brackets)
	<ul style="list-style-type: none"> The linings have met the 15-year durability period required by Clause B2. Normal ongoing maintenance required. 	
16. Weather board to fascia junction (Lap) under fascia – Insufficient cover – Building wrap stops short of framing – evidence of moisture ingress – Further investigation required	<ul style="list-style-type: none"> Unclear which junction being referred to. High-risk junctions investigated and no evidence of moisture ingress. The claddings have met the minimum durability period of 15 years, as required by Clause B2. 	Complies (E2)
17. Bulging to GIB – Bedroom three mid wall under window at bottom – Further investigation required	<ul style="list-style-type: none"> Moisture readings from the walls inside the bedroom did not indicate performance failure. 	Complies (E2)

5.5 My response to the authority's submission on the draft determination

- 5.5.1 Clause E2.3.2 is satisfied so long as moisture ingress does not cause undue dampness or damage or both to the building elements. While water staining may be present, it is not known what event lead to the staining nor how long it has been there. Apart from some discolouration of the timber framing there is, as noted by the expert, no evidence to suggest the envelope is failing Clause E2.3.2. This opinion also applies in respect of instances noted by the authority where daylight was able to be observed entering the roof space though apparent gaps in the cladding.
- 5.5.2 The authority has referred to elevated moisture readings taken by the expert as an indication that there may be issues regarding moisture ingress. The determination has been amended to include the locations where the moisture readings were taken, and other readings added that were not previously recorded (refer paragraphs 4.2.2 and 4.2.4).
- 5.5.3 The marginal or elevated readings are almost all associated with either the subfloor framing (x5), exposed timber to the verandah (x2) or immediately adjacent timber that has a marginally high elevated readings (x2). One marginally elevated reading (at 19%) was recorded to soffit framing. No damaged or decayed framing was noted by the expert apart from comment in relation to the exposed subfloor framing (refer paragraph 4.2.8). I consider this information provides adequate grounds to be satisfied that the cladding is performing satisfactorily.

5.6 The documentation required in the section 95A notice

5.6.1 In the section 95A letter, the authority included a list of additional documentation that was required (see paragraph 2.3.2).

Producer statements

5.6.2 In regard to the requirement for a PS3 for the window glazing, I have stated before in previous determinations, the authority should not solely rely on producer statements to demonstrate code compliance. There are other means of establishing compliance available to it, and in this instance I note that the expert identified safety glazing markings to the appropriate glazing.

Maintenance plan

5.6.3 As noted in paragraph 2.3.2 above, the authority also required the owners to provide a site specific maintenance plan. I note that while maintenance is expected to be carried out by the owners of a building, there is no requirement under the Building Act to produce a maintenance plan and one cannot be required by the authority as a condition of issuing the code compliance certificate.

5.6.4 However, I do note the need for specific items of maintenance identified by the expert and as noted in paragraph 6.5. Effective maintenance of claddings is important to ensure ongoing compliance with Clauses B2 and E2 of the Building Code and is the responsibility of the building owner. 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 2007/060).

6. Discussion: Modification of the durability periods in Clause B2.3.1

6.1 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).

6.2 In this case the 20-year delay since the completion of the house in 1997 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.

6.3 I have considered this issue 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 building work had been issued at the time of substantial completion in 1997.

I therefore leave the matter of amending the building consent to modify Clause B2.3.1 to the parties once outstanding matters are resolved.

- 6.4 A modification of the Code's durability provisions will allow the durability periods stated in B2.3.1 to commence from the date of substantial completion in 1997. This means that the wall claddings have already met the 15-year minimum durability period required by the Building Code. However, the expected life of the building itself is a minimum of 50 years and careful attention to the performance of the claddings is needed to ensure that the external envelope continues to protect the underlying structure for its minimum required life of 50 years.
- 6.5 In the case of this particular house, and for the benefit of the applicant, I note the house design includes a number of high risk features, which require careful attention to their performance in order to ensure ongoing weathertightness of the cladding system as noted by the expert (refer paragraph 4.3.2). Particular attention should be paid to:
- sealing the cladding at the ends of flashings, and the installation of cladding over the northern boundary joist
 - replacement of sealant generally and repainting the cladding
 - replacement of sealant to the jambs of the exterior joinery
 - checking and resealing corner mitres and drainage channels to the aluminium joinery.

7. What happens next?

- 7.1 The owners should produce a response in the form of a detailed proposal to specifically address the matters of non-compliance and investigation for the area identified, produced in conjunction with a competent person, as to the investigation and rectification or otherwise of the matters requiring remediation as described in Table 1.
- 7.2 A code compliance certificate will be able to be issued once these matters have been rectified and the matter of amending the building consent to modify Clause B2.3.1 has been resolved.

8. The decision

- 8.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the subfloor framing has not been constructed in accordance with Building Code Clauses E2 and B2, and the collection of surface water from the roof does not comply with Building Code Clause E1, and accordingly, I confirm the authority's decision to refuse to issue a code compliance certificate for the house.
- 8.2 I also determine that the wall and roof cladding complies with Building Code Clauses B2 Durability, and E2 External moisture; and the consented work complies with Clauses E3 Internal moisture, and D1 Access routes.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 11 July 2017.

John Gardiner
Manager Determinations and Assurance