MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Determination 2017/013

Regarding the refusal to issue a code compliance certificate for 11-year-old additions and alterations to a house at 56 Hollywood Avenue, Titirangi

Summary

This determination is concerned with the compliance of 11-year-old additions and alterations to a 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 2004[1] ("the current 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 house, H Te Aika ("the applicant")
- 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 a code compliance certificate for 11-year-old additions and alterations to a house. The refusal arose because the authority is not satisfied that the building work complies with certain clauses[2] of the Building Code (First Schedule, Building Regulations 1992).

1.4 The matter to be determined[3] is therefore the authority's exercise of its powers of decision in refusing to issue a code compliance certificate for the reasons given in its

[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 current Act and references to clauses are to clauses of the Building Code.
[3] Under sections 177(1)(b) and 177(2)(d) of the Act

letter dated 18 February 2016 (see paragraph 3.8). In deciding this matter, I must consider:

(a) 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 consent was issued. The building envelope includes the components of the systems (such as the brick veneer, the weatherboards, the windows and the roof cladding) as well as the way the components have been installed and work together. This includes compliance with Clause B1 Structure insofar as it applies to the weathertightness of the alterations. I consider this in paragraph 6.2.

(b) Whether other items identified by the authority comply with relevant Building Code clauses: namely B1 Structure, D1 Access Routes, F4 Safety from falling, and H1 Energy efficiency. I consider these in paragraphs 6.3, 6.4, 6.5 and 6.6.

1.5 In its refusal to issue the code compliance certificate, the authority has limited its concerns to items associated with the clauses outlined above; this determination is limited to the matters outlined above (refer also paragraph 3.8).

1.6 I also note that the owner will be able to 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 durability of the claddings.

1.7 In making my decision, I have considered the submissions of the parties, the report of the expert commissioned by the Ministry to advise on this dispute ("the expert"), and the other evidence in this matter.

2. The building work

2.1 The building work consists of significant additions and alterations to a detached house situated on a long narrow site in a "low" wind zone as described in NZS 3604[4].

2.2 A driveway slopes down toward the street at the front, with the house sited on the crest of the hill and the land falling away at the rear. The expert takes the carport as facing west and this determination follows that convention.

2.3 The original cottage

2.3.1 The original simple two-bedroom cottage was built in about 1955. Construction was conventional light timber frame on pile footings, with weatherboard cladding, timber joinery and a hipped concrete tile roof.

2.3.2 Various unauthorised additions and alterations were apparently carried out over the next 40 years; including interior alterations, a deck to the west, the development of a basement garage and externally accessed laundry, and a lean-to extension to the east of the living room opening onto a timber deck.

2.4 The altered house

2.4.1 The alterations have more than doubled the size of the original cottage, and the completed house is complex in plan and form, with a high weathertightness risk. The

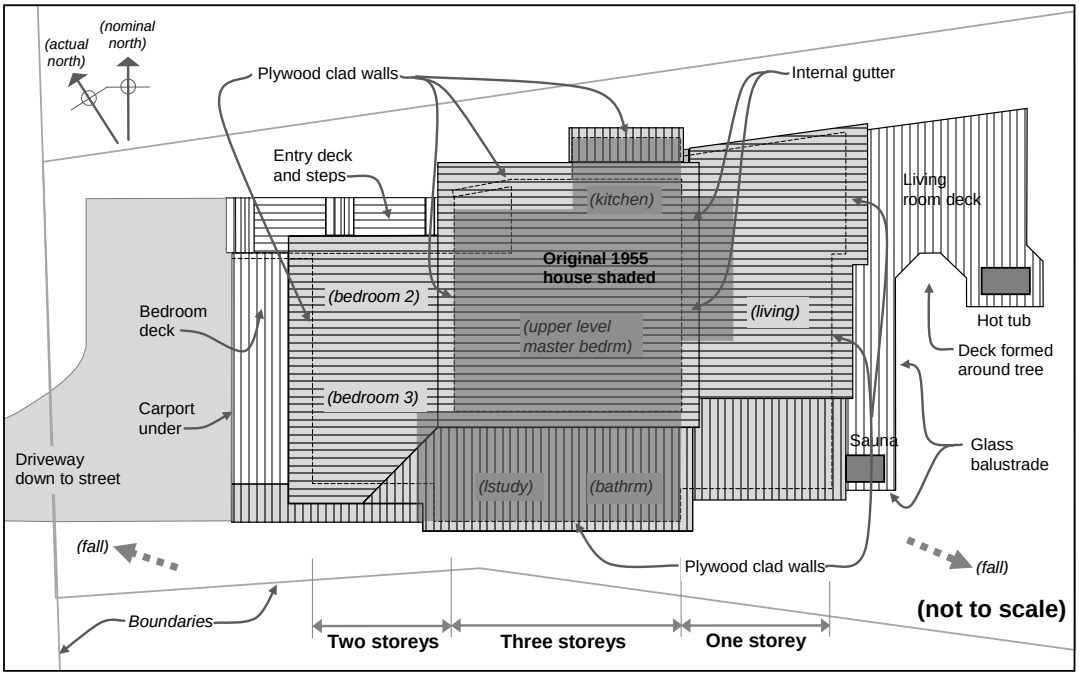
[4] New Zealand Standard NZS 3604:1999 Timber Framed Buildings

alterations are shown in Figure 1 and include additions and alterations to all elevations that have left few remaining visual indications of the original cottage.

2.4.2 The completed house comprises a multi-level building with monopitch roofs and decks at various levels. Including changes made during construction, the house now provides:

- Level 1: Carport, with original basement storage area to the east.
- Level 2: Two bedrooms and deck to the west, entry deck/steps and 2-storey high entry hall to the north, study and bathroom to the south, and the kitchen, living/dining and deck to the west.
- Level 3: Master bedroom and ensuite.

Figure 1: Approximate site plan



2.4.3 Construction of the alterations is generally conventional light timber frame with some specifically engineered elements. The house now includes concrete foundations and slabs to the basement levels with pile foundations elsewhere, concrete block retaining walls, plywood and profiled metal wall claddings, profiled metal roofing and aluminium joinery.

2.4.4 The 8^{o} pitch monopitch roofs have eaves and verge overhangs that vary from about 400mm to 600mm, except for lean-to roofs where there are no verge overhangs. The roof overhangs include exposed timber rafters or outriggers with corrugated steel installed as soffit lining.

2.5 The wall claddings

2.5.1 The plywood clad walls are noted in Figure 1 and the cladding system appears to be a proprietary cladding product. The cladding comprises 12mm thick bandsawn-faced plywood sheets finished with an acrylic paint coating, which are fixed through 20mm timber battens and the building wrap to the framing. The timber battens form a cavity between the plywood sheets and the building wrap. Vertical joints are rebated, horizontal joints include a metal Z-flashing and timber battens are installed over external corners. According to various bracing calculations, the plywood cladding is

also used as bracing (in conjunction with additional plywood bracing to some internal walls).

2.5.2 The relevant manufacturer's instructions at the time of construction are no longer available as these were updated in 2007. However, E2/AS1[5] details were available from June 2004 (although not implemented until 2005), which included:

- horizontal Z flashings at plywood horizontal joints
- vertical shiplap joints without cover battens
- battens with weathergrooves at external corners
- optional battens at internal corners
- aluminium windows and doors face-fixed over the ply, with head flashings and seals beneath jamb flanges.

2.5.3 The horizontally installed corrugated steel wall cladding is generally fixed through timber cavity battens and the building wrap to the framing. However, the expert has observed that a small section of wall cladding appears to be fixed through the building wrap directly to the framing. Proprietary folded metal flashings are installed at corners, windows and other junctions.

2.6 The decks

2.6.1 The decks to the original cottage were removed when the east and west additions were constructed. New timber slat decks were installed to the east ("the bedroom deck") and to the west ("the living room deck"). In addition, a stepped timber deck leads up to the Level 2 north entry ("the entry deck").

2.6.2 The entry deck and the bedroom deck have spaced timber slat floors and balustrades of corrugated steel fixed to timber posts and rails. The bedroom deck is supported on timber framed wing walls at the north and south, with a steel post in the middle. Corrugated steel forms a drained soffit beneath the timber decking.

2.6.3 Corrugated steel fixed to the timber posts and rails is also used for fencing around the living room deck which extends from the north junction with the house to the deck projection for the hot tub. Frameless glazed balustrades are installed to the remaining perimeter of the living room deck, with a 'door' in the south end.

2.7 Timber treatment

2.7.1 Given the age of the original cottage, I consider that any remaining original framing is likely to be rimu[6] or boric treated. Consent drawings for the alterations include limited notes that call for 'H3' timber for some deck framing and wet area bottom plates, with 'H1' elsewhere.

2.7.2 The expert noted that some deck framing was marked 'H3.2', but no evidence of treatment marks to wall framing exposed within the carport. However, he considered that some unmarked timber was likely to be treated, given the lack of apparent damage despite moisture entry. Given the lack of evidence for the alteration work and the date of framing installation in 2005, I am unable to determine whether all of the wall framing is treated to a level that will provide resistance to fungal decay.

[5] Acceptable Solution E2 External Moisture
[6] Noted in the 1955 'Specification notes'

3. Background

3.1 Prior to selling the property to the applicant, the former owner of the original cottage attempted to resolve the building's legal status. The authority carried out a 'safe and sanitary' inspection that identified various unauthorised additions and alterations, some of which were considered to be unsafe and issued a 'Safe & Sanitary Report' dated 6 January 2003.

3.2 The applicant purchased the cottage in March 2003. The applicant engaged designers to develop drawings for the subject alterations and applied for resource and building consents for the proposed work in late 2003.

3.3 The building consent

3.3.1 The authority issued a building consent (No. ABA 20040618) to the applicant on 13 April 2004 under the Building Act 1991 ("the former Act").

3.3.2 The consent drawings did not include specific joinery or wall details; with limited 'specification notes' provided on some drawings and copies of manufacturers' standard window details included as part of the documentation. The latter showed plywood and steel fixed directly to framing and it therefore appears that drained cavities under the claddings were not originally intended.

3.3.3 In the meantime various updates and advice were issued by the predecessor of the Ministry regarding the upcoming implementation of the third edition of the revised compliance documents for Clause E2 External Moisture[7] (E2/AS1); initially giving an implementation date of 1 February 2005, which was subsequently extended to 1 July 2005. In regard to existing building consents, the update of 2 November 2004[8] referred to the policy intent of the Building Act and stated:

> These buildings will therefore be assessed against the conditions of the original building consent and hence the old Acceptable Solution.

3.4 Construction

3.4.1 Commencement of the work was delayed and a subsequent note on the consent dated 20 October 2004 stated that the consent was 'extended for work to commence prior to 13th April 2005'. Work appears to have commenced on foundations and retaining walls in early 2005.

3.4.2 The authority carried out various inspections during the alterations, with a bond beam inspection on 7 March 2005 referring to the use of '20mm cavity battens.' A subsequent 'building wrap and cavity' inspection on 1 April 2005 noted:

> Only 1 layer of paper required. Please remove top layer to expose cavity. Amended plan required to show cavity construction.

3.4.3 No amended drawings were received and the last inspection recorded was for a pre-line plumbing inspection on 12 July 2005. It appears likely that the alteration work was substantially completed and the house was occupied during 2005 although no final inspection was requested.

[7] Approved Document for New Zealand Building Code Clause E2 External Moisture Third Edition
[8] BIA Update 42 – Implementation of Acceptable Solutions B2/AS1 and E2/AS1 2 Nov 2004

3.5 Post-construction

3.5.1 The expert reports that the living room deck balustrade glass was purchased on 19 October 2009, so it is likely that the balustrade was installed shortly after that date. In a pro-forma letter to 'the property owner/occupier' dated 19 January 2010, the authority noted that a code compliance certificate had not been issued and notified the applicant that an inspection by its 'environmental monitoring officer' had identified some resource consent conditions that had not been met.

3.5.2 The authority's file note of a phone call from the applicant on 13 September 2010 in regard to the remaining conditions included the following note:

> Advised Building Consent is more important. [The applicant] will get final inspections for B/C instead. First to see what is actually required for sign off.

3.6 The 2011 site meeting

3.6.1 The inspection records note that a site meeting was held at the applicant's request on 29 March 2011 to 'clarify what is required to obtain a code compliance certificate' and to identify 'items that need to be addressed prior to a final building inspection being carried out', which 'may result in more items to rectify'.

3.6.2 The preliminary list included (in summary):

- amended drawings required for:
  - bathroom layout
  - elevations showing cladding types
  - details of cavity system
  - omission of deck to Level 3 master bedroom
  - changes to entry subfloor
- subfloor insulation
- deck fixings and connections
- foundation pile to deck
- diagonal bracing to subfloor
- weathertightness flashings to west
- handrail to stairwell
- master bedroom window restrictors
- various producer statements and certificates required.

3.7 The 2016 final inspection

3.7.1 It appears that some of the above items were attended to and the applicant formally applied for a code compliance certificate which was received by the authority on 14 January 2016 and the authority carried out a final inspection on 27 January 2016.

3.7.2 The authority's 'Durability final inspection checklist' failed the following items:

- roof barge flashings
- cladding/flashing clearances
- cladding/paving clearances

- cladding/decking clearances
- downpipes/spreaders
- smoke alarms.

3.7.3 The record also noted that photographs had been taken (although copies of these have not been provided to the applicant or for this determination) and recorded that the work 'may be in breach of' Clauses B1, B2, E2 and F4, with a 'peer review to complete with team leader'.

3.8 The refusal to issue a code compliance certificate

3.8.1 The authority wrote to the applicant on 18 February 2016 to advise that 'under Section 95A of the Building Act 2004 a code compliance certificate cannot be issued at this stage.' The authority stated that:

> Following the site inspection and subsequent 'peer review' process, [the Authority] could not be 'satisfied on reasonable grounds' that building works comply with the NZ Building Code, or that it is performing as intended.

3.8.2 The authority recommended that the applicant engage the services of a suitably qualified individual e.g. a Building surveyor to investigate the performance of the building and provide a 'scope of works' and recommendations to the authority.

3.8.3 In regard to areas identified at the site meeting on 29 March 2011 (see paragraph 3.6), except for the installation of deck foundation pile (item 4), the remaining items remained outstanding. In regard to items identified during the final inspection, the authority added further areas that required attention.

3.8.4 In addition to outstanding as-built drawings (items 1 and 18) and other documentation required (items 9 and 26), the authority's total list of non-complying areas included (in summary, with the authority's reference numbers in brackets):

- B1 Structure:
  - deck fixings and connections (3)
  - subfloor diagonal bracing (5)
  - deterioration of steel posts and beams (14)
  - straps to braces not completed (21)
- D1 Access Routes:
  - handrail to stairwell (7)
- E2 External Moisture:
  - unfinished flashings to west (6)
  - lack of battens over ply joints (13a)
  - incomplete/defective box corners to corrugated steel (13b)
  - defective cavity construction (13c)
  - cladding clearances to paving, decking and roofing (13d)
  - foam scribers incomplete (13e)
  - head flashings (13f and 13g)
  - joinery layout varies from consent (13h and 13i)
  - lack of sill flashings (13j)
  - downpipe clips (15 and 16)

- lack of spreaders (17)
- roof not inspected, solar panel (20)
- water stains to floor framing (22)
- inter-cladding flashings (23)
- internal gutter (25)

- F4 Safety from Falling:
  - lack of restrictors to master bedroom windows (8)
  - gaps to entry deck balustrade (12)
  - gap to living room deck balustrade (19)
- H1 Energy Efficiency:
  - subfloor insulation (2).

3.8.5 The applicant subsequently engaged a building consultant ("the consultant") and some discussions with the authority's inspector followed which provided limited clarification of some items. In a letter to the authority dated 16 May 2016, the consultant attached a table of the items identified with that clarification, together with his comments/questions and space for the authority's response.

3.8.6 The authority rejected the consultant's approach and suggested a determination be sought, and the applicant and the consultant met with the authority on 7 July 2016. According to the applicant the authority still 'refused to be explicit on what was acceptable evidence' and little progress was made.

3.9 The Ministry received an application for a determination on 18 July 2016.

4. The submissions

4.1 In a statement dated 8 July 2016, the applicant outlined the background to the situation, noting the difficulties experienced in trying to get the authority to clarify specific areas considered non-compliant and also resolving the level of evidence required to show compliance.

4.2 The applicant provided copies of:

- the authority's refusal to issue a code compliance certificate dated 18 February 2016
- the consultant's response and table dated 16 May 2016
- an expanded list titled 'Clarification by Council re issues: S95A'
- 2016 email correspondence between the parties.

4.3 The authority forwarded a CD-Rom, entitled 'Property File', which contained documents pertinent to this determination including:

- the original 1955 cottage plans and building permit
- the consent documentation, the inspection records and summary
- the site meeting record dated 29 March 2011
- the final inspection notice dated 27 January 2016
- various calculations, statements and other information.

4.4 A draft determination was issued to the parties for comment on 9 November 2016.

4.5 The authority responded on 17 February 2017, accepting the draft without further comment.

4.6 The applicant responded to the draft and the expert's report in emails on 9 November, 11 November and 28 November, seeking clarification regarding the items identified as requiring remedial work and how to progress. An officer of the Ministry responded on 27 November, advising the applicant seek the assistance of a suitably experienced building surveyor to assist in further investigations and preparing a detailed proposal for the authority's consideration (refer paragraph 7.1).

4.7 On 22 February 2017 the authority provided further clarification regarding items 5, 21, 22, and 27 (refer Table 1 paragraph 5.6.1).

5. The expert's report

5.1 General

5.1.1 As mentioned in paragraph 1.7, 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 23 September 2016, providing a report completed on 11 October 2016. The parties were provided with a copy of the report on 11 October 2016.

5.1.2 The expert considered that the consent documentation was incomplete and inconsistent, with some changes made during construction that appear to have been accepted by the authority during inspections although no documentation was provided. The more significant changes included:

- distribution of metal and ply claddings changed
- cavities added behind metal and ply claddings
- all deck balustrades differ from consent details
- in Level 1:
    - basement south window not in elevations
    - corrugated steel soffit lining added under bedroom deck
    - wing walls to carport clad in spaced timber boards
- in Level 2:
    - bedroom deck floor open timber slats in lieu of membrane
    - concrete entry steps/landing changed to timber
    - wing wall added to north side of entry recess
    - glazed balustrade with gate added to living room deck
    - living room louvers omitted
    - living room deck extended to accommodate hot tub
    - southern half of living room deck on piles in lieu of cantilevered
    - bathroom layout changed
- in Level 3:
    - master bedroom deck not constructed
    - east roof extended with internal gutter at junction
    - east joinery changed from doors to windows.

5.2 Moisture testing

5.2.1 The expert inspected the interior, observing that the internal linings were 'free from mould, stains, swelling or other signs of moisture ingress.' The expert took non-invasive moisture readings adjacent to windows and doors, with all readings low except under the lower end of the sloping head to the living room north window.

5.2.2 The expert took invasive moisture readings using long probes from the inside below the living room north window and at various other sample locations considered at-risk, with some holes drilled from the outside. The expert recorded:

- 20% in the bottom plate beneath the living room north window
- 19% and 32% in bottom plates to the carport wing walls.

5.2.3 Readings over 18% generally indicate that moisture is entering the framing and further investigation is needed. The expert also noted that his inspection followed periods of heavy spring rain and readings therefore represented the peak of expected seasonal variation, with lower readings expected during drier months.

5.2.4 In regard to the high moisture levels measured beneath the lower end of the raked window to the living room, the applicant advised the expert that this could have been due to flooding from a water filter tap left on overnight. This had flooded the adjacent kitchen floor and is the subject of an insurance claim. The expert noted that this needed to be confirmed as an alternate cause could be defect(s) in window flashings above, exacerbated by cladding that appears to be direct-fixed.

5.2.5 Although the exposed carport framing lacked treatment markings, the expert saw no signs of decay in the wing wall bottom plates despite regular wetting. He therefore considered that some (if not all) of that wall framing is likely to be treated.

5.3 Cladding clearances

5.3.1 The expert noted that, although tiles are installed over the base of the plywood in the recessed entry porch this had not caused problems (with readings below 17%), due to the shelter provided and the fall of the paving away from the junctions.

5.3.2 The expert noted that the plywood cladding to the north elevation extended down over the jack studs to sub-floor areas. In regard to base details, he noted:

- clearances to the ground generally varied from about 60mm to 100mm[9]
- shiplap joints are not always aligned to vertical cavity battens
- horizontal bottom battens lack slope for drainage, are flush with the bottom edge of the plywood and provide gaps to the vertical battens of less than 50mm.

5.3.3 The expert also noted that corrugated steel cladding either extends below boundary joists or continues down over the jack studs as sub-floor cladding. In regard to base details, he noted:

- because cavity battens do not fully extend to the cladding bottom, there are few fixings into the bottom 300mm of the cladding
- the bottom of the cladding is approximately 65mm above garden soil, which is less than 175mm as set out in E2/AS1, with leaf debris touching the edge in some areas.

[9] Minimum clearance above paving is set out in E2/AS1

5.4 Joinery and other flashings

5.4.1 The expert inspected joinery installed in plywood walls and noted that visible details generally accorded with the manufacturer's details and E2/AS1 details for cavity construction, with:

- metal head flashings that extend past the jambs
- joinery face-fixed against plywood sheets, with sealant or compressible foam seals installed beneath jamb flanges
- no sill flashings installed, as set out in E2/AS1 details.

5.4.2 The expert inspected joinery installed in corrugated steel walls and noted that visible details generally accorded with the manufacturer's details, with:

- metal head flashings with 6mm stop ends and a drainage gap
- profiled compressible foam installed beneath purpose-made jamb flashings
- sill flashings, which terminate under the jamb flashings
- details that do not satisfy E2/AS1 are:
    - jamb flashings not returned to underlap cladding
    - compressible foam therefore exposed to driving rain.

5.4.3 The expert also assessed the other flashings installed in the corrugated steel wall cladding and noted that they generally appear satisfactory, with:

- pre-formed internal corner flashings satisfies E2/AS1 Figure 96(d)
- pre-formed external corner flashings that do not return to underlap cladding and protect foam seals as shown in E2/AS1 Figure 96(c)
- pre-formed inter-cladding flashings that return to underlap both claddings in a similar form to that of jamb flashings shown in E2/AS1 Figure 99(c).

5.4.4 The expert noted that one inter-cladding junction to the south west external corner of the Level 2 study terminates above the parallel apron flashing to the lower lean-to roof. A metal flashing underlaps corrugated steel and overlaps the apron upstand - continuing past the plywood face. Timber battens form a boxed corner, with battens scribed over the flashings. Taking account of low moisture readings in framing below and the drained cavity behind the plywood, the expert considered the junction was performing satisfactorily.

5.5 Roof flashings

5.5.1 The expert also assessed roof flashings and noted that they generally appear satisfactory, with:

- 150mm soft-edge transverse apron flashings as set out in E2/AS1 Table 7
- parallel apron flashings as set out in E2/AS1 Table 7
- reverse slope flashings to soffits as set out in E2/AS1 Figure 8(a).

5.5.2 The expert also observed that reverse slope rafter/outrigger penetrations through plywood wall claddings appeared satisfactorily flashed, with collar flashings, soffit/rafter flashings and metal end caps installed.

5.6 The authority's list of concerns

5.6.1 The expert also assessed the list of concerns identified by the authority in its S95A refusal to issue a code compliance certificate; and the following table summarises the expert's responses (also taking the consultant's comments into account).

Table 1:

The authority's concerns

Areas of concern in S95A refusal (in summary using item numbers)		Expert's comments	Conclusion	
			Compliance	**Relevant paragraphs**
Outstanding documentation				1.5
1(a)	Bathroom layout	Layout changed		
1(b)	Cladding types	Cladding types changed		
1(c)	Cavity details	Not clear where cavities used		
1(d)	Omission of deck	Upper roof deck changed to gutter		
1(e)	Entry subfloor	Changed from concrete to timber		
9(a)	Electrical certificate			
9(b)	Bathroom membrane			
9(c)	Membrane gutter	Not applicable - now metal lined		
9(d)	PS4 for retaining walls	Retaining walls to carport – no signs of distress after 11 years		
9(e)	PS4 for other elements			
10	Upper deck omitted	To be covered by as-built drawings		
12	Entry deck balustrade	Not included in consent details		
13(h)	Upper level joinery	To be covered by as-built drawings		
13(i)	Basement south window	To be covered by as-built drawings		
B1 Structure/B2 Durability				
3	**Deck fixings**			6.3.1
	Piles/deck framing Deck boundary joists	• Galvanised straps fitted to piles and deck framing but exposed to rain under slat deck • Vulnerable to corrosion • Deck double boundary joists nailed	**Investigation and/or repair required**	
	Joist hangers, bolt fixings	• Joist hangers, bolt fixings appear to be stainless steel	Adequate	
5	Subfloor diagonal bracing	• One subfloor diagonal brace not installed.	**Brace to be installed**	6.3.1

Areas of concern in S95A refusal (in summary using item numbers)		Expert's comments	Conclusion	
			Compliance	Relevant paragraphs
12	Bedroom deck balustrade	• Differs from consent details • 90x90 posts at 1.37mm spacing • Spacing and fixings not per NZS 3604 fig.7.10 (c)	**Structural verification required**	6.3.1
14	Deterioration of steel posts and beams	• Steel post rusting at top and bottom • Top exposed to runoff from CCA treatment • Base buried below tar seal – rusting below ground • Needs more than normal maintenance	**Repairs required**	6.3.1
21	Straps to braces not completed	• Strap brace not fixed to subfloor framing	**Repair required**	6.3.1
26	Glass balustrade	• No design details or calculations • Need calculations for glass and fixings • Some fixings appear insufficient	**Structural verification required**	6.3.1
D1 Access Routes				
7	Handrail to stairwell	• No handrail fitted	**Attention required**	6.5.1
E2 External Moisture/B2 Durability				
6	Weathertightness of front (west)	• Wing walls under bedroom deck • Carport side clad with open slats	**Repairs required**	6.2.5
13(a)	Lack of battens over ply joints	• Shiplap joints with weathergroove • Battens not required by manufacturer	Adequate	2.5.2
13(b)	Incomplete/defective box corners to corrugated steel	• One section missing	**Repairs required**	6.2.5
13(c)	Defective cavity construction	• 50mm gap not always achieved • Gaps present	Adequate in circumstances	5.3
13(d)	Cladding clearances to paving, decking and roofing	• Ground clearances less than 175mm • Entry porch sheltered and well drained • No associated moisture entry	Adequate in circumstances	5.3
13(e)	Foam scribers incomplete	• Profiled foam missing SW carport	**Repairs required**	6.2.5
13(f) 13(g)	Head flashings	• Generally compliant • Visible parts satisfy E2/AS1 Figure 99	Adequate	5.4
13(i)	Basement window lacks head flashing	• Lacks head flashing	**Repairs required**	6.2.5

Areas of concern in S95A refusal (in summary using item numbers)		Expert's comments	Conclusion	
			Compliance	Relevant paragraphs
13(j)	Lack of sill flashings	• Manufacturer's ply detail in consent shows direct-fixed with sill flashing • Satisfies E2/AS1 Figure 116	Adequate	5.4
15 16	Downpipe clips	• Deteriorating with corrosion stains • Need compatible repairs	**Repairs required**	6.2.5
17	Lack of spreaders	• Downpipe to south lean-to discharges onto flashing	**Repairs required**	6.2.5
20	Roof not inspected, solar panel	• Solar panels now removed • Roof installation appears sound • Some gutter corrosion	**Gutter repair required**	5.5 6.2.5
22	Water stains to floor framing	• Authority clarified as wet framing below open deck. • treated framing. Same situation as timber supporting an open deck	Adequate in circumstances	-
23	Inter-cladding flashings	• Ply/corrugated steel junction at Level 2 SW corner – scribed over base flashing • Moisture levels not elevated	Adequate in circumstances	5.4.3 5.4.4
25	Internal gutter	• No membrane gutter • Metal gutter liner sound with coating intact despite some ponding	Adequate in circumstances	
F4 Safety from falling				
8	Lack of restrictors to master bedroom windows	• Lock does not satisfy F4/AS1 • Needs stop fitted to sliding sash	**Attention required**	6.5.1
11	Gaps to entry deck balustrade	• Maximum fall 950mm • Does not need to comply (Clause F4.3.1)	Adequate in circumstances	6.5.2
19	Gap to living room deck balustrade	• Door to glazed balustrade opens above fall of about 1.8m • Door currently blocked by sauna • Needs permanent fastening.	**Attention required**	6.5.1
• H1 Energy efficiency				
2	Subfloor insulation	• Some areas incomplete • Original floorboards visible • Upgrading not required	Complies (S112 of Act)	6.6
• General				
27	Illegal subfloor work [laundry relocation]	• Plumbing fittings to be noted on as-built drawing, etc.	-	-

5.7 Summary

5.7.1 The expert concluded that the authority's decision not to issue the code compliance certificate was correct because not all of the work complies with the Building Code.

6. Discussion

6.1 General

6.1.1 I note that the building consent considered in this determination was issued under the former Act, and accordingly the transitional provisions of the current 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'.

6.1.2 In order to determine whether the authority correctly exercised its power in refusing to issue a code compliance certificate for the building work, I must therefore consider whether the alterations comply with the provisions of the Building Code that applied when the consent was issued in 2004.

6.2 Clause E2 External moisture

6.2.1 The evaluation of building work 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 2004/1).

Weathertightness risk

6.2.2 The altered house has the following environmental and design features, which influence its weathertightness risk profile:

Increasing risk

- the house is three storeys high in part, with roofs at multiple levels
- the completed house is complex in plan and form, with two wall claddings, oblique eaves, attached decks and other complex junctions
- external wall framing may not all be treated to provide resistance to decay if it absorbs and retains moisture.

Decreasing risk

- the house is in a low wind zone
- wall claddings are generally fixed over drained cavities
- there are roof overhangs to shelter some of the wall cladding.

6.2.3 Using the E2/AS1 risk matrix to evaluate these features, elevations are assessed as having a high weathertightness risk rating and incorporate drained cavities, with the exception of one isolated low risk wall face.

Weathertightness performance

6.2.4 Inspection records indicate that the external building envelope was completed by about September 2005 and I have taken that into account when considering the weathertightness performance as the wall and roof claddings have generally continued to perform for more than 11 years of the minimum 15 years required by Clause B2 of the Building Code.

6.2.5 Generally the claddings appear to have been installed in accordance with good trade practice and manufacturer's recommendations at the time of construction. However, I note the expert's comments in paragraph 5.2 and in Table 1 and I consider that the following areas require attention:

- the carport wing walls, with moisture penetration into the framing.
- confirmation of the cause for elevated moisture levels in the bottom plate below the raked window to the north wall of the living room
- debris against the bottom of the north corrugated steel sub-floor cladding
- the unfinished metal box corner flashing and seals to the south east corner
- the lack of profiled foam to the south west carport corner
- the lack of a head flashing to the basement window
- deteriorating downpipe fixings
- the lack of a downpipe spreader above the south lean-to roof
- the gutter corrosion below the removed solar panels.

6.2.6 I also note the expert's additional comments in paragraph 5.3.1 and in Table 1 and I accept that these areas are adequate in the particular circumstances.

Weathertightness conclusion

6.2.7 I consider the expert's report establishes that the current performance of the building envelope is not adequate because there is evidence of ongoing moisture penetration into at least two areas of the timber framing. Consequently, I am satisfied that the cladding does not comply with Clause E2 of the Building Code.

6.2.8 Although roof and wall claddings are now 11 years old, the expert's investigations revealed evidence of moisture ingress into the carport wing walls over an extended period. Because of the possibility of hidden damage to the carport's untreated framing, I am therefore satisfied that the timber framed wing walls may also not comply with Clause B1. The evidence of current and past moisture penetration also satisfies me that the carport wing walls and cladding have not complied with Clause B2 insofar as it applies to both Clauses B1 and E2.

6.2.9 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, and that includes the requirement 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. Because the expected life of the underlying structure is considerably longer, claddings need to protect the underlying structure of the house for a further 39 years to meet its minimum required life of 50 years.

6.2.10 Because the identified moisture penetration and cladding faults occur in discrete areas, I am able to conclude that satisfactory investigation and rectification of areas outlined in paragraph 6.2.5 will result in the external envelope being brought into compliance with Clauses B1, B2 and E2 of the Building Code.

Maintenance

6.2.11 The expert has identified some areas where a lack of maintenance has led to deterioration of claddings and components. Although a modification of durability provisions will mean that most areas of the claddings have already met 11 of the 15 years required by the Building Code, the expected life of the building as a whole is considerably longer. Careful maintenance is needed and must continue to ensure that claddings continue to protect the underlying framing for its minimum required life of 50 years for the structure.

6.2.12 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, 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).

6.3 Clause B1 Structure

6.3.1 Taking account of the expert's comments as outlined in Table 1, I am satisfied that the following areas require structural verification and/or appropriate repairs:

- One missing diagonal subfloor brace
- Strap brace not fixed to subfloor framing
- the durability of galvanised straps fitted between piles and deck stringers
- the lack of bolted connections to double boundary deck joists
- the structural adequacy of the bedroom deck balustrade construction
- the corrosion and durability of the bedroom deck steel post
- the structural adequacy of the glazed balustrade to the living room deck.

6.4 Clause D1 Access Routes

6.4.1 Taking account of the expert's comments as outlined in Table 1, I am satisfied that the following areas require attention:

- the lack of a handrail to the stairwell.

6.5 Clause F4 Safety from falling

6.5.1 Taking account of the expert's comments as outlined in Table 1, I am satisfied that the following areas require attention:

- the lack of a handrail to the stairwell
- the lack of restrictors to the master bedroom sliding east windows
- the opening door to the living room deck glazed balustrade.

6.5.2 I also note the expert's comments in Table 1 regarding the entry deck balustrade, and accept that this is adequate in the circumstances described.

6.6 Clause H1 Energy

6.6.1 I also note the expert's comments regarding incomplete insulation to the original cottage floor and as alterations under Section 112 of the Act, I am satisfied that this area complies with Clause H1 of the Building Code.

6.7 Other Matters

6.7.1 The authority has also noted 'illegal' subfloor work, but the expert was unable to locate what the authority was referring in its description of item 27. I therefore consider that the authority must provide further explanation and clarification as to the specific location of the alleged 'illegal' work (I also note that some of the subfloor and basement areas were part of the original cottage).

6.8 The durability considerations

6.8.1 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).

6.8.2 In this case the 11-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.

6.8.3 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 alterations had been issued at the time of substantial completion in 2005.

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

7. What happens next?

7.1 There are issues with the building work, listed in Table 1, that need to be addressed by the applicant. The applicant can provide a detailed proposal to specifically address the matters of non-compliance and investigation for the areas identified, produced in conjunction with a competent and suitably experienced person, as to the investigation and rectification or otherwise of the specified matters. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.

8. The decision

8.1 In accordance with section 188 of the Building Act 2004, I hereby determine that, in regard to the Building Code that was in force at the time the building consent was issued in 2004:

- there is insufficient information to establish that the following comply with Clause B1:
  - the bedroom deck framing and balustrade
  - the glazed balustrade to the living room deck
- the galvanised straps to deck piles and the corroding steel post to the bedroom deck do not comply with Clause B2, insofar as it applies to B1

- the exterior building envelope does not comply with Clauses B1, B2 and E2
- the lack of a stairwell handrail does not comply with Clause D1
- the following do not comply with Clause F4:
  - the east windows to the master bedroom
  - the door to the glazed balustrade;

and accordingly I confirm the authority's decision to refuse to issue a code compliance certificate for the house.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 8 March 2017.

John Gardiner
Manager Determinations and Assurance