MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Determination 2017/029

Regarding the refusal to grant an amendment to a building consent and issue a code compliance certificate for a 16-year-old house with plywood cladding at 433 Pukehina Parade, Te Puke

Summary

This determination is concerned with the compliance of repairs proposed to the external building envelope and considers whether the authority was correct to refuse to grant an amendment to the building consent. The determination also considers the authority's refusal to issue the code compliance certificate.

1. The matters 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 owners of the house, A and T Murray ("the applicants")
- 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 16-year-old house and its refusal to grant an amendment to the building consent for remedial building work. The authority is not satisfied that the proposed remediation is sufficient to result in the repaired house complying with the weathertightness and durability clauses[2] of the Building Code (First Schedule, Building Regulations 1992), given the age and the features of the remaining original construction.

[1] The Building Act, Building Code, Acceptable Solutions, 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, unless otherwise stated, references to sections are to sections of the current Act and references to clauses are to clauses of the Building Code.

1.4 The matters within this determination

1.4.1 The matters to be determined[3] are therefore whether the authority was correct to:

- refuse to issue a code compliance certificate for the original house (see paragraph 3.4)
- refuse an amendment to the building consent for repairs to the house (see paragraph 3.7).

1.4.2 In deciding these matters, I must consider whether:

- at the time the authority refused to issue the code compliance certificate the unrepaired house complied with Clauses B2 Durability, E2 External moisture and E3 Internal moisture, of the Building Code that was in force at the time the building consent was issued
- the building envelope if repaired as proposed would comply with Clauses B1 Structure, B2 Durability, and E2 External moisture of the Building Code.

1.4.3 In regard to the second question, the building envelope includes repair work carried out since the above refusal, the proposed repairs yet to be completed and the remaining original construction. The envelope includes the components of the systems (the wall cladding, the windows, the decks, the roof cladding and the pergolas) as well as the way components have been installed and work together. This matter includes compliance with Clause B1 Structure, insofar as it applies to weathertightness of the house.

1.4.4 In its correspondence, the authority limited its concerns to items associated with the clauses outlined in paragraph 1.4.2 above, and this determination does not consider compliance with other clauses of the Building Code.

1.4.5 I also note that the owners may apply to the authority for a modification of the durability provisions for the 16-year-old house to allow the durability periods specified in Clause B2.3.1 to commence from the date of substantial completion in 2001. While I leave this to the parties to resolve, I comment on the matter in paragraph 6.2.1.

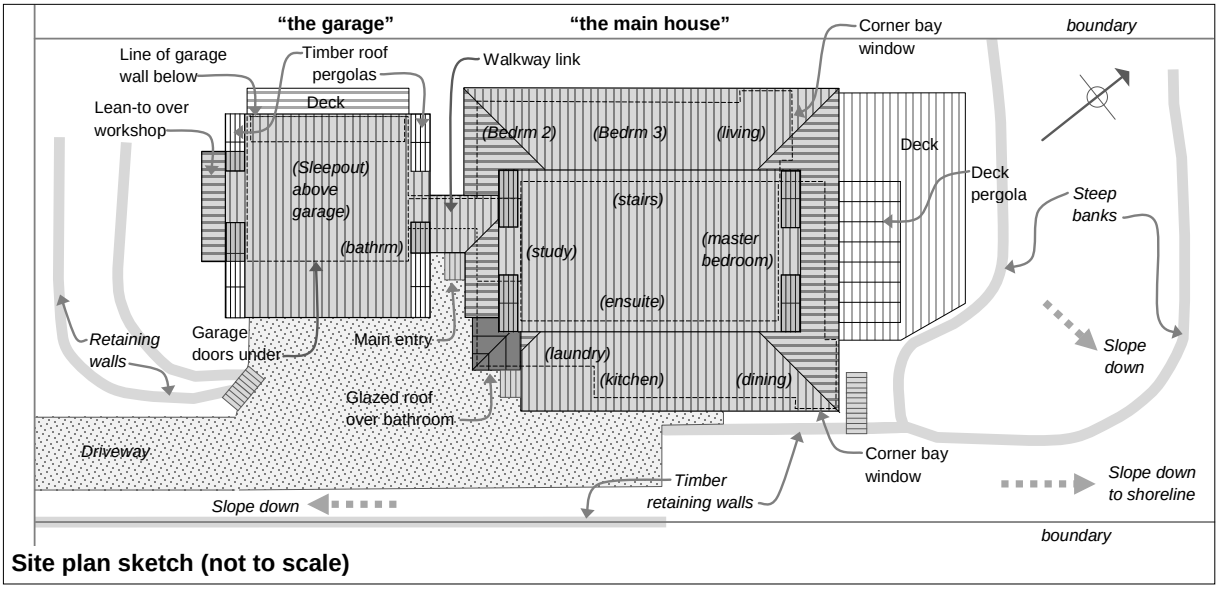
1.5 In making my decision, I have considered the submissions of the applicants, the report of the building surveyor engaged by the applicants ("the building surveyor"), the report of the expert commissioned by the Ministry to advise on this dispute ("the expert") and the other evidence in this matter.

2. The building work

2.1 The building work consists of a three bedroom house ("the main house") and a detached garage/sleepout ("the garage"), situated on a sloping coastal site in a sea spray and very high wind zone for the purposes of NZS 3604[4]. The garage is connected to the main house by a covered walkway ("the walkway") and the resulting configuration ("the house") is shown in Figure 1.

[3] Under sections 177(1)(a), 177(2)(b) and 177(2)(d) of the Act.
[4] New Zealand Standard NZS 3604:1999 Timber Framed Buildings

Figure 1: Approximate plan of the house



2.2 The main house provides:

- in the ground floor:
  - kitchen and living areas to the NE, opening onto a timber deck
  - two bedrooms in the west corner
  - bathroom and laundry in the south corner
  - a recessed main entry and foyer to the SW, with steps leading down to ground level and steps up to the covered walkway to the sleepout.
- in the upper level:
  - a master bedroom to the NE, with a void to the living area below
  - a study to the SW
  - ensuite, wardrobe and stairs between the bedroom and study.

2.3 The garage is more than a half-storey below the main house and provides:

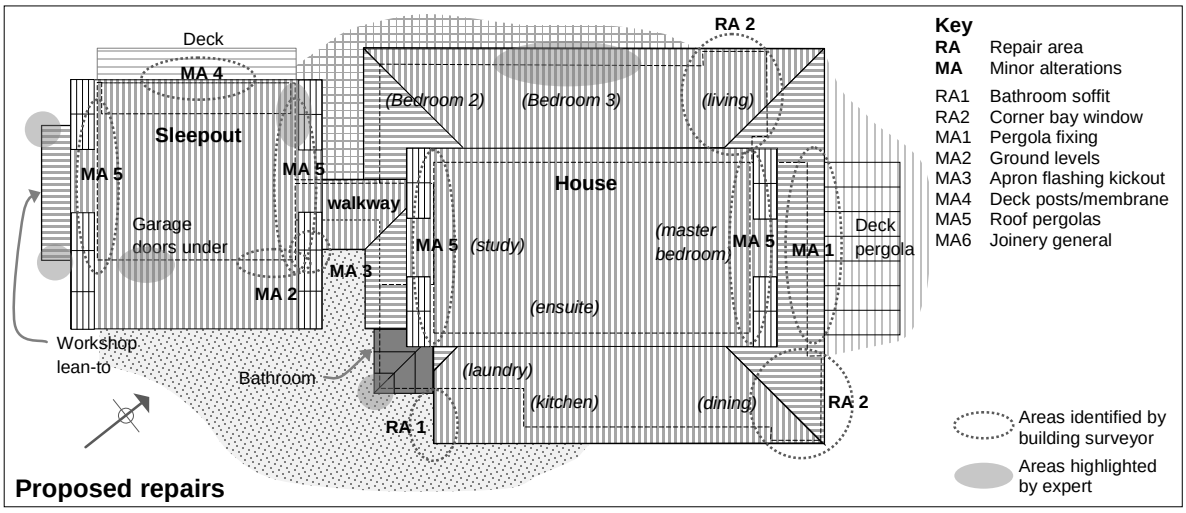
- a garage and workshop in the ground level
- an upper level bedroom and ensuite bathroom within the roof space
- an upper level timber deck, situated partly over the garage below.

2.4 Construction is generally conventional light timber frame, with concrete foundations and floor slab to the garage/sleepout, timber pole foundations to the main house, plywood wall cladding, aluminium windows and profiled metal roofing. The expert observed no timber markings on timber framing exposed during his investigation. Given the lack of evidence and the date of framing construction in 1999/2000, I consider the external framing is unlikely to be treated with preservative.

2.5 The wall cladding is H3 treated band-sawn unfinished plywood sheets fixed through the building wrap directly to the framing. 50 x 25mm timber battens (without weathergrooves) are fixed over joints and at intermediate positions to give the appearance of 'board and batten' cladding. Metal Z-flashings are installed to horizontal sheet joints. The plywood sheets are installed as 'linings' to the walkway, the recessed main entry and the upper wall to the sleepout deck; with no battens installed to most joints.

2.6 The proposed cladding repairs described in paragraph 3.6 are shown in Figure 2

Figure 2: Locations of proposed repairs (not to scale)



2.7 The roofs

2.7.1 The upper level roofs have gables, with the corrugated steel roof curved over the apex and verge overhangs of about 550mm. Decorative timber framed inserts ("the roof pergolas") are set within verge overhangs – extending from just below the curved central sections and down the 45° pitch to the gutter level, with no roof overhangs to those areas. The roof pergolas are supported on outriggers; with collar and tie beams, a king post up to the outrigger at the curved apex, and diagonal struts from the post to the ends of the collar beam.

2.7.2 The 25° pitch lower roof of the main house wraps around upper walls from the covered walkway, terminating above the south corner bathroom where a hipped glazed roof forms a lean-to against the clad ends. Eaves overhangs are about 600mm overall except above corner bay windows. A veranda extends above the SE laundry door and the end of the veranda soffit is framed and clad in plywood.

2.7.3 The roof of the garage/sleepout extends above the garage doors by about 1.8m to the SE, supported by angled timber struts. In the upper level, the roof extends to the NW to form a veranda above part of the upper deck. A 45° lean-to roof to the SE above the workshop area has no eaves or verge overhangs.

2.7.4 The walkway link has a 25° monopitched roof that turns at the house walls to form a canopy above the recessed main entry and entry steps. The walkway is open at the walls and the floor aligns with the sleepout floor, with steps down to the house level.

2.8 The decks

2.8.1 The building has three timber framed decks. The ground floor decks to the main house are spaced timber decking. The NE deck is at ground level, with no balustrades. The SE laundry veranda deck/stairs have open timber balustrades.

2.8.2 The garage/sleepout includes a 2m deep upper deck along the SW wall, which is partly situated above the garage below. The deck has open timber balustrades and the floor is butyl rubber membrane overlaid with spaced timber decking. The deck veranda is supported by wing walls at both ends with timber posts between.

3. Background

3.1 The authority issued a building consent (No. 61760) to the applicants on 9 July 1999 under the Building Act 1991 ("the former Act"). The authority carried out various inspections between September 1999 and May 2001 and the house appears to have been substantially completed by the end of 2001[5].

3.2 The 2002 and 2011 final inspections

3.2.1 Interior finishing work was completed in 2002 and the authority carried out the first final inspection on 11 September 2002. The authority's letter dated 17 September 2002 listed nine items to be completed before a code compliance certificate could be issued, which included the following items related to weathertightness:

- complete laundry landing and stairs (item 7)
- complete battening of plywood joints (item 8)
- lower ground levels around garage (item 9).

3.2.2 The applicants apparently completed landscaping and finishing work over the years but did not seek a code compliance certificate until they wished to sell the house in 2011. The authority carried out a second final inspection on 21 April 2011 and the inspection was recorded as a 'pass', with the record noting:

> Final recheck of inspection dated 17 September 2002 all items now completed.
> Note – No CCC issue due to age of consent.
> Building complies with Regulations at time of construction.

3.3 The first refusal to issue a code compliance certificate

3.3.1 In a letter to the applicants dated 28 April 2011, the authority refused to issue a code compliance certificate 'under Section 43(5)[6] of the Building Act 1991', although the authority also stated that it was:

> ...satisfied on reasonable grounds that the building work associated with the above building consent generally complies with the requirements of the Building Code in force at the time of its approval...

3.3.2 Despite acknowledging the compliance of the house, the authority explained that the reason for refusing the code compliance certificate was the time elapsed since the issue of the building consent, stating:

> The Building Act 1991 required that reasonable progress be made on building projects and although this building consent was issued on 9 July 1999, it is only 21 April 2011 that a final inspection has been requested.

3.3.3 The authority did not note that the applicants could apply for a determination if they disagreed with the decision. I also note that under section 41(b) of the former Act a building consent granted under that Act lapses and is of no effect if the building work has not commenced within six months or reasonable progress on the building work has not been made within 12 months; the delay is not a reason for refusing to issue a code compliance certificate for a completed building.

[5] QV included the house in its valuations from June 2001
[6] Section 43(5) of the 1991Act calls for the authority to provide reasons for its refusal

3.4 The 2015 final inspection

3.4.1 In 2015, the applicants again sought a code compliance certificate and the authority carried out a third final inspection on 23 February 2015, which noted the following 'failed elements' relating to the wall cladding:

> All openings and penetrations do not appear to be flashed and sealed
> - Use of sealant around most joins and flashings.
> - Exposed bay windows showing signs of possible moisture entry.
> - Cladding replaced above outside patio below master bedroom window, new head flashing also.
>
> Further investigation required.

3.4.2 In regard to 'old consent review' under the heading 'E2 Weathertightness report/investigation', the record also noted the need for a weathertightness report and, in an email to the applicants dated 23 February 2015, the authority provided 'comment in order to help with the process of obtaining the code compliance certificate', which included (in summary with the authority's reference numbers in brackets):

- (Item 1) Because of the age of the building and the moisture problems identified in the above inspection, past inspection records and a visual inspection do not provide reasonable grounds to establish compliance – and 'extensive weathertightness investigation will be necessary.'
- (Item 2) A building surveyor's weathertightness report is required as follows:
  - Report to confirm compliance with Clauses B2, E2 and E3 (Item 2a)
  - Conclusions to be based on adequate testing (Item 2b)
  - Repair proposals to be approved prior to commencing work (Item 2c)
  - Building surveyor to be agreed/confirmed prior to engagement (Item 2d).

3.4.3 The authority also attached 'further guidance and criteria to be considered as part of the weathertightness report/investigation.' The detailed notes covered the choice of a 'suitably qualified person' and minimum requirements for the report/investigation.

3.5 The building surveyor's report

3.5.1 Following the authority's advice, the applicants engaged a building surveyor to provide a report on the building work and also a builder to carry out any destructive investigation. The surveyor inspected the building on 3 December 2015 and 27 April 2016. The final report dated 11 August 2016 described the purpose of the report, noting that it was not:

> ...intended to indicate all possible areas of high moisture and all possible sites of timber decay, but establish if it fails on weathertightness based on Building Regulation E2. In addition, this report should not be used as the basis to develop the scope of any required remediation work, should that prove necessary. A full invasive and destructive investigation to the extent of any suspected water ingress and subsequent damage should always be done before any repairs are recommended [my emphasis].

3.5.2 The building surveyor's initial inspection included visual identification of potential defects and damage, with limited moisture testing carried out but no cladding or linings removed. The building surveyor noted (in summary):

- battens missing or deteriorated
- unflashed penetrations

- lack of kick-outs to apron flashings
- sealants deteriorating or missing
- deck membrane upstands require resealing
- insufficient ground clearances around the garage
- water stains and high moisture levels in the laundry veranda soffit
- very high moisture levels to corner bay windows.

3.5.3 The soffit lining was subsequently removed, revealing damaged timber where water had entered the cladding at the end of the veranda lean-to where a lower plywood sheet overlapped the upper sheet – allowing water through the horizontal joint.

3.5.4 The building surveyor also included the following general comments (in summary):

- The damage to the laundry veranda has a very clear cause and is isolated, so the limited decayed framing can be replaced and the cladding repaired.
- The high moisture levels to the bay windows require removal of cladding to establish the cause, with repair as necessary.
- There is no conclusive evidence that cladding or joinery had failed in the first 16 years, so the cladding has met the requirements of Clause E2.
- The repairs can therefore be carried out under Schedule 1 of the Act and do not require a building consent.

3.5.5 The report included a 'draft repair proposal' to remediate the identified weathertightness deficiencies and concluded that:

> Insofar as the non-invasive investigation enabled the survey, including the testing of exposed framing, the dwelling house that is the subject of this report is considered to meet the requirements of Clause E2...

3.6 The proposed repairs

3.6.1 During June and July 2016, when the limited extent of damage was revealed and the weathertightness report was being finalised, various discussions took place between the building surveyor, the builder and the authority. The authority maintained their position that drawings and building consent were required for the repairs.

3.6.2 Using copies of the original elevations, the building surveyor prepared two annotated drawings that identified the areas to be repaired (classified as 'minor alterations' or 'repairs to Areas 1 and 2') and outlined the repairs proposed (see paragraph 2.6 Figure 2). A third drawing provided limited details and specification notes.

3.6.3 Some repairs were classified as 'minor alterations' ("MA") as follows:

- MA1: pergola to NE deck to be spaced out from cladding
- MA2: ground levels to east corner of garage to be reduced
- MA3: kick-out to apron flashing to walkway roof/sleepout wall junction
- MA4: membrane to sleepout deck posts to be re-glued
- MA5: saddle flashings to roof pergola penetrations to be added
- MA6: new jamb sealants and battens to be installed to joinery.

3.6.4 The more significant repairs were to the following areas:

- Repair No. 1 ("RA1"): moisture penetration and damage to laundry soffit
- Repair No. 2 ("RA2"): moisture penetration to corner bay windows.

3.6.5 The drawings were submitted to the authority together with the final weathertightness report on 11 August 2016.

3.7 The refusal to approve the proposed repairs

3.7.1 The authority responded to the proposed repair work and the weathertightness report in an email to the building surveyor dated 24 August 2016. The authority requested further information on a number of areas to be repaired, including (in summary):

- the process for identifying and recording damage found during repairs, for deciding the necessary replacement and for allowing inspections during repairs
- the cause for the failure to the two bay windows and how the proposed repairs would fix or eliminate the cause(s)
- whether the joinery overhaul applies to all windows and doors or just the two corner bay windows
- how the re-installation of direct-fixed plywood could be justified, given the high weathertightness risks of the house
- the adequacy of the proposed saddle flashings to the roof pergola penetrations
- how the sleepout deck membrane would be re-glued at post penetrations
- the lack of specification for re-installing removed plywood cladding.

3.7.2 In regard to the weathertightness report, the authority noted its understanding that a final report would be prepared after completion of all repair work. However, the authority included the following comments (in summary):

- The purpose of the report is to provide reasonable grounds to be satisfied that the entire cladding is performing adequately, given its age.
- The high weathertightness risks of this building means that strong evidence is needed, so more extensive investigation is required, with 'strong and robust evidence of performance of the entire exterior cladding'.

3.8 Following discussions about the situation, the building surveyor wrote to the applicants on 31 August 2016, confirming his agreement with their decision to seek a determination on the matter. The surveyor noted that the authority appeared to be acting 'in an unreasonable manner by refusing to issue a code compliance certificate', given its 2011 written confirmation that the building was compliant and concluded:

> This is disappointing, in light of your agreement to have some repairs carried out that arose as a result of my survey and investigation, and despite the submission of the amendment, a repair schedule, repair drawings, and a weathertightness report.

3.9 The Ministry received an application for a determination on 23 September 2016.

4. The submissions

4.1 The applicants made a submission dated 21 September 2016, which outlined the background to the situation, noting that the lack of a code compliance certificate was impeding the sale of their property. The applicants included the following comments (in summary):

- After passing the final inspection in 2011, the authority refused to issue a code compliance certificate despite acknowledging the compliance of the work but did not mention that determination could be sought on the refusal.
- Since then all of the authority's requirements have been complied with, but the 2015 inspection resulted in a new list of requirements including a weathertightness report which has been provided.
- A builder was engaged to carry out repairs but there is now an impasse; the authority requires even more invasive testing, which we consider to be unnecessary and unreasonable given investigations carried out to date.
- The building surveyor and the builder do not believe that further testing is necessary, but the authority will not accept their professional opinions.

4.2 The applicants provided copies of:

- the drawings
- the building consent and inspection records
- the building surveyor's report dated 11 August 2016
- correspondence with the authority and the building surveyor
- a summary of events
- various other information.

4.3 The authority made no submission in response to the application.

4.4 A draft determination was issued to the parties for comment on 1 March 2017.

4.5 The applicant responded on 27 March 2017, noting that the window that had been replaced (refer paragraph 5.4.2) was due to the authority's inspection in 2011 which highlighted that the existing window was not compliant because it was too low.

4.6 Despite a reminder on 24 April 2017, the authority did not respond to the draft.

5. The expert's report

5.1 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 22 November 2016; providing a report completed on 31 January 2017, which was forwarded to the parties the next day.

5.2 The expert assessed the compliance of the building with associated parts of Clauses B1, B2, E2, and E3 of the Building Code in respect of the authority's refusal to issue the code compliance certificate, and in relation to the proposed remedial building work.

5.3 General

5.3.1 The expert noted that the A4 drawings were difficult to read but the overall 'architectural shape and form of the building appears to be largely in accordance with the consented drawings', with the following discrepancies observed:

- bay window added to north corner of living area
- east corner bay window increased in size
- various other minor joinery changes.

5.3.2 The expert considered the building work was 'tidily presented and appears to have been reasonably well maintained'. The exterior cladding and internal linings were 'generally straight and fair of finish' except for defects identified in the plywood cladding and described within his report.

5.3.3 The expert assessed the plywood cladding system against the manufacturer's instructions and recommendations by BRANZ[7] at the time of installation. The expert noted that some of the minor repairs in the repair drawings had already been undertaken. The following paragraphs cover items not included within the drawings while the proposed repairs are considered separately in Table 1.

5.3.4 The expert noted that although plywood cladding and trim is 'neatly finished' in most areas, some trim is missing on the sleepout walls. Although these unbattened areas are sheltered from rainwater, the resulting gaps can lead to rodent entry and water penetration when washing the cladding.

5.4 The windows

5.4.1 The windows had originally been face-fixed over the plywood, with metal head flashings and no sill flashings. The building surveyor had photographed sealant poorly applied to some window flanges, but there is no evidence of seals beneath jamb flanges. The expert noted that battens had recently been installed to some windows (see Table 1 for assessment).

5.4.2 The expert noted that the NE master bedroom window had been replaced (and I note that the building surveyor's photograph[8] shows the gable end wall clad in new plywood up to the battened horizontal joint). It therefore appears that this window and surrounding cladding had been replaced prior to the surveyor's 2016 inspections. The expert noted that the new window had:

- reasonably well installed head and sill flashings
- visible seal strip behind jamb flanges
- battens (with sloped tops and no weathergrooves) installed up to sill flashing.

5.5 External corner junctions

5.5.1 During his inspection of the bay windows, the expert noted and removed a loose batten at the south corner below the bathroom window sill. In order to assess other external corner junctions, he also removed corner battens from the west corner of the garage workshop and noted the following:

- some gaps in the corner building wrap

[7] Good Timber Cladding Practice published February 1997
[8] Weathertightness Report, Page 84, photograph

- gaps between sheets greater than recommended for expansion
- no metal back-flashings behind the plywood
- at the bathroom window, the angled tops to battens exposed at the sill
- exposed framing water-stained and the presence of ants indicating moisture ingress
- workshop bottom plate dark stained, with elevated moisture levels.

5.6 Horizontal flashings

5.6.1 The expert assessed horizontal flashings to the plywood cladding, noting that:

- in some areas, the upper plywood sheet is finished hard down onto the metal flashing, which does not accord with manufacturer's instructions
- although the bottom of the sheet is hard to maintain, there is no indication of moisture penetration as a result and the cladding is more than 15 years old
- the upper joint on the NE master bedroom wall is the most exposed to the shoreline – and is battened and partially sealed in contrast to more sheltered elevations, which is likely to indicate a past problem (see paragraph 5.4.2).

5.7 Cladding penetrations

5.7.1 The expert assessed cladding penetrations, noting:

- the meter box near the south corner of the workshop lacks flashings or a roof overhang above, with a ruler able to be inserted through the junction
- although the garage door lacks a head flashing, the door head is sheltered below a 2m deep roof overhang so is not considered at risk.

5.8 Clearances

5.8.1 The expert assessed clearances below the plywood cladding, noting:

- as well as ground levels to east corner of garage (see Table 1); the NE cladding at the north corner lacks clearance above the paving, with a small cut-out revealing visible decay to the bottom plate and the back of the plywood
- plywood adjacent to garage door south jamb butts against unfinished ground
- although some clearances to the NW elevation of the main house are reduced, the paving is well drained, the eaves overhang reduces exposure to rain and there is no indication of water penetration.

5.9 The proposed repairs

5.9.1 The expert investigated repair areas 1 and 2 (RA1 and RA2) and the 'minor alterations' (MA1 to MA6) as identified in the repair drawings (see paragraph 3.6). Table 1 summarises his findings and conclusions.

Table 1: Expert's comments in relation to the proposed repairs

Areas of repair (see Figure 2)		**Expert's comments**	**Expert's conclusion**
RA1	Laundry soffit framing	• Lower plywood proud of upper • Framing to clad end of soffit decayed • No visible sign of damage to lower walls, but framing needs to be exposed to check	Scope of proposed repair sufficient to address defect, but further investigation of the framing below the bulkhead is required to check for damage
RA2	Corner bay windows	• Cladding removed to expose framing • Framing below north window decayed • Framing below east window stained • No metal flashing under corner cladding • Battens were in poor condition, with tops exposed to rain penetration • Sill flashing detail still exposes batten tops • (I also note battens lack weathergrooves)	Proposed details insufficient Further bay window and corner details required
MA1	Pergola to NE deck	• Pergola plate now spaced off cladding	Satisfactory
MA2	Ground levels to east corner of garage	• Some plywood sheets replaced • Sheets fixed hard against concrete slab edge • Framing condition not verified • Clearances still limited • Not in accord with proposed details	Further areas need attention Current repair not satisfactory Scope of proposed repair work is not sufficient to address the defect
MA3	Kick-out to walkway apron flashing	• End of apron flashing underlaps plywood horizontal flashing	Scope of proposed repair sufficient to address defect
MA4	Membrane to sleepout deck	• Membrane in good condition except for turn-ups at post penetrations	Scope of proposed repair sufficient to address defect
MA5	Saddle flashings to roof pergola penetrations	• Exposed ends of beams weathered • Some flashings already installed • Proposed work allows for investigation of underlying flashing and framing • No visual evidence of failure	Scope of proposed repair sufficient to address defect
MA6	Renew joinery jamb sealants, install new jamb battens	• Timber jamb and sill battens with weathergrooves installed to some windows • Sill flashings not installed • Sill batten with flat top hard against sill flange • Moisture readings to sill low	Proposed details insufficient: Specification, Sill details, Identification of windows to be repaired

5.10 Weathertightness summary

5.10.1 The expert noted that the following items had not been covered in the proposed repair drawings:

- the need for further investigation of the timber condition
- the lack of back flashings to plywood corners
- the lack of flashings to the meter box
- the lack of cladding clearances to some further areas

- the lack of batten trim to some wall areas.

5.10.2 The expert also commented on the authority's general concerns (refer paragraph 3.7.1), and his conclusions are shown in Table 2.

Table 2: the expert's conclusions on general concerns

The authority's concerns	Expert's comments	Expert's conclusion	Para.
Whether surveyor's investigation was sufficient	• Further issues identified during investigation	**Not sufficient**	5.9.1
Whether joinery overhaul limited to bay windows only	• Bathroom joinery needs investigating • Remaining joinery performing satisfactorily • Window specification, details and locations insufficient	**Further investigation required** **Further detail required in proposal**	5.4 5.9.1
Whether reinstalling direct fixed plywood justified.	• Damage limited and localised • Leaking not systemic • Plywood allows targeted repair • Most plywood cladding has already met 15 year durability requirement	**Reinstalling justified**	5.3.2

5.11 Clause B1 Structure

5.11.1 The expert observed 'visibly decayed timber framing' in localised areas, which raises doubts about the structural compliance of framing at:

- the end wall of the laundry soffit
- the north bay window
- the garage bottom plate.

5.11.2 At the recessed entry beneath the walkway where a pole/beam configuration supports the roof, the expert also noted that:

- the larger beam is well connected to the support post with angle brackets
- the upper beam sits on top of the post with a single bolted connection to the top of the lower angle bracket, which allows the upper beam to twist.

5.11.3 The expert also observed corrosion to the sleepout roof strap bracing and to a structural connector at the laundry soffit/post junction. Other structural elements appeared well installed, although there was an inconsistent mix of stainless steel and galvanised steel connectors and bolts.

5.12 Clause E3 Internal Moisture

5.12.1 The expert inspected the bathrooms, noting the following in the ensuite shower:

- sealant is used at the junction of the shower laminate wall linings with the tiled floor, in contrast to current recommendations for a tiled upstand
- the undertile membrane is assumed to include a 150mm upstand, which would prevent any moisture penetrating the sealant joint from entering framing
- although non-invasive moisture readings were slightly elevated at the bottom of the laminate, there was no indication of delamination of the shower linings

- particle board flooring in adjacent rooms would rapidly indicate any leakage from the shower, but the material was in 'immaculate condition'.

5.12.2 Taking the above into account, the expert considered that the shower waterproofing had been performing adequately over the past 16 years, and therefore complied with Clause E3 of the Building Code. Notwithstanding the expert's conclusion as to compliance, I note the elevated moisture readings at the bottom of the shower laminate and emphasise the need to maintain sealants to wet areas to ensure ongoing compliance with Clause E3 (see paragraph 6.4.2).

6. Discussion

6.1 The refusal to issue the code compliance certificate

6.1.1 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 The authority's final inspection in February 2015 identified areas at risk of moisture ingress and recorded 'signs of possible moisture entry', and the authority reached a view it could not be satisfied on reasonable grounds that the building complied without the results of further investigation. The subsequent weathertightness investigations, and resulting report in 2016 (see paragraph 3.5), confirmed that the building envelope of the house did not fully comply with Clauses B2 and E2 at the time the authority refused to issue the code compliance certificate. I conclude that the authority was correct in its decision in 2015 to refuse to issue the code compliance certificate.

6.2 The current performance of the building

6.2.1 An application can be made to the authority for a modification of durability requirements to allow durability periods to commence from the date of substantial completion in 2001. Although that matter is not part of this determination (see paragraph 1.4.5), I have taken an anticipated modification into account that the external building envelope was completed by around June 2001 when considering the weathertightness performance of the claddings.

6.2.2 Generally the claddings appear to have been installed in accordance with good trade practice and the manufacturer's recommendations at the time of construction and have, with the exception of areas referred to in this determination, performed for the minimum 15 years required by Clause B2.

6.2.3 However, I note the expert's comments in Table 1 and paragraph 5.10.1, and I consider that the following areas require attention:

- the framed wall to the end of the laundry soffit
- the lack of back flashings to plywood corner junctions
- the corner below the bathroom window
- the lack of cladding clearances to some areas

- the lack of batten trim to some wall areas
- the sill battens to repaired windows and lack of detail for window remediation
- the horizontal joint above the master bedroom window
- the lack of flashings to the meter box
- the lack of weathergrooves to battens over critical plywood junctions
- further moisture testing and investigation into the condition of timber framing in areas with identified defects, including the condition of:
    - framing below the decayed soffit framing
    - framing below the north corner bay window
    - lower framing to the east corner of the garage
    - framing at roof pergola penetrations
    - corner framing behind unflashed plywood junctions
    - bottom plates to areas with insufficient clearances
    - framing around the recently installed master bedroom window.

6.2.4 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 a number of areas of the timber framing, with timber damage to at least three areas. Consequently, I am satisfied that the cladding does not comply with Clause E2 of the Building Code. Because of the timber damage and the potential for further hidden damage, I am also satisfied that the timber framing may not comply with Clause B1.

6.2.5 Although roof and wall claddings are now 16 years old, the building surveyor's and the expert's investigations have revealed evidence of moisture ingress over an extended period. The evidence of current and past moisture penetration therefore satisfies me that the cladding has not complied with Clause B2 insofar as it applies to both Clauses B1 and E2.

6.2.6 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:

- the structural adequacy of the post/beam connection at the recessed entry
- the corroded bolts and connectors.

6.2.7 Taking account of the expert's report and the inspection records, I am satisfied that the house complies with Clause E3 of the Building Code.

6.3 The proposed remedial building work

6.3.1 The weathertightness and durability of the building envelope, if repaired as proposed, will be dependent on: design features in this house that increase weathertightness risks; features that protect the claddings and underlying framing; features included in the cladding system; the workmanship of the installed claddings; and the consequences of any potential failure on underlying construction.

6.3.2 The original house has certain environmental and design features, which influence its weathertightness risk profile and the proposed repairs will not change that risk profile. Using the E2/AS1 risk matrix to evaluate the building's features, elevations are assessed as having a medium to high weathertightness risk rating.

6.3.3 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. 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 35 years to meet its minimum required life of 50 years.

6.3.4 In considering the proposed remedial work provided, and taking into account the expert's comments, I am of the view that the repairs proposed (in the drawings dated 3 August 2016) are not adequate to ensure that the repaired building will comply with Clauses B1 Structure, B2 Durability and E2 External moisture.

6.3.5 I consider that final decisions on whether compliance can best be achieved by either remediation or re-cladding, or a combination of both, can only be made after further investigation of the cladding and underlying timber framing. This will require careful analysis by an appropriately qualified expert, and should include an investigation of the condition of the underlying framing. Once that decision is made, the chosen remedial option should be submitted to the authority for its approval.

6.4 Maintenance

6.4.1 The expert and the building surveyor identified some areas where a lack of finishing or maintenance has lead to deterioration of claddings and components. Although a modification of durability provisions will mean that most areas of the claddings have already met the 15 years required by the Building Code, the expected life of the building as a whole is considerably longer.

6.4.2 Maintenance is also required to interior areas such as showers, where sealants protect against internal moisture penetration into the underlying timber framed walls. Careful maintenance is needed and must continue to ensure that claddings and wet area linings continue to protect the underlying framing for its minimum required life of 50 years for the structure.

6.4.3 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).

6.5 Durability modification

6.5.1 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).

6.5.2 In this case the 16-year delay since completion of the building in 2001 raises concerns that many elements of the building work are now beyond their required durability periods, and would consequently no longer comply with Clause B2 if code compliance certificates were to be issued effective from today's date.

6.5.3 I have considered this issue in previous determinations and 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 extension 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 2001.

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

7. What happens next?

7.1 I note the building consent was issued to the applicants as the current owners of the house and the authority may issue a notice to fix that requires the applicants to bring the house into compliance with the Building Code. The notice should include the investigations and defects identified in paragraphs 6.2.2 and 6.2.6; and refer to any further defects that might be discovered in the course of investigation and rectification.

7.2 The applicant can then produce a response to the notice in the form of 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. 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, in regard to the Building Code that was in force at the time the building consent was issued in 2000:

- some parts of the timber framing do not comply with Building Code Clauses B1 and B2
- some parts of the external wall cladding do not comply with Building Code Clauses E2 and B2

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 repairs proposed in the drawings dated 3 August 2016 are not sufficient to ensure that the repaired building will comply with Clauses B1 Structure, B2 Durability and E2 External moisture of the Building Code, and accordingly I confirm the authority's decision to refuse to issue an amendment to the building consent for the proposed building work.

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

John Gardiner
Manager Determinations and Assurance