MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Determination 2017/018

Regarding the refusal to issue a code compliance certificate for a 10-year-old house with plywood, stone veneer and horizontal weatherboard cladding at 35 Frizzell Court, Springfield, Canterbury

Summary

This determination concerns the compliance of a 10-year-old house with plywood, stone veneer, and horizontal weatherboard cladding. This determination considers the authority's reasons for refusing to issue the code compliance certificate, and whether the house complies with the requirements of the Building Code.

1. The matters to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004[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 Thomas and C Rayward ("the owners") acting through the licensed building practitioner for the house, L Townsend ("the builder")
- Selwyn 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 10-year-old 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); in particular in regard to the weathertightness of the external building envelope, given the age of the house.

[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 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 letter dated 17 October 2016. 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 wall cladding, 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 as it applies to the weathertightness of the house. I consider this in paragraph 6.

(b) Whether other items identified by the authority comply with relevant parts of Building Code Clauses B1 Structure, C1 Outbreak of Fire, E1 Surface Water and G11 Gas as an Energy Source. I consider this in paragraph 6.3.

1.5 In making my decisions, 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.

1.6 Matters outside this determination

1.6.1 In its refusal to issue a code compliance certificate, the authority limited its concerns to items associated with the clauses outlined above (see paragraph 3.2.1). Apart from several items noted by the expert during his inspection, this determination does not address other clauses of the Building Code.

1.6.2 I also note that the owners 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 September 2006. I leave this matter to the parties to resolve after other matters are satisfactorily resolved.

2. The building work

2.1 The building work consists of a three-bedroom house which is two-storeys high in part and is situated on a level site in a specific design ("SD") wind zone[4] for the purposes of NZS 3604[5]. The expert has taken the bi-fold doors as facing north and this determination follows that convention.

2.2 Construction is generally conventional light timber frame, with concrete foundations and floor slab, aluminium windows and profiled metal roofing. Wall claddings are a mix of plywood, stone veneer, and horizontal weatherboards. The drawings call for timber framing to be 'H1.2 treated' and, given the date of construction in 2006, I accept that the external wall framing is likely to be treated to provide some resistance to decay.

2.3 Two bedrooms are accommodated within the slope of the 45^{o} pitch gable roof, with a dormer window above the east stairwell. The upper roofs have verges of less than 300mm and eaves of about 400mm overall. A lower pitched lean-to roof on the east elevation has no verge overhangs and extends out by about 2m to form a canopy over a wood storage area. A low timber deck extends to the north from the living area.

[3] Under sections 177(1)(b) and 177(2)(d) of the Act
[4] The consented drawings give an ultimate service state (ULS) wind speed of 56m/s and the bracing design uses an SD wind zone. However, the inspections carried out in 2006 and 2016 state the site is in a very high wind zone.
[5] New Zealand Standard NZS 3604:1999 Timber Framed Buildings

2.4 The primary wall cladding is 12mm thick H3.1 treated rough sawn plywood fixed through 20mm timber battens and the building wrap to the framing, with a cavity formed between the plywood sheets and the building wrap. 90 x 25mm timber battens with weathergrooves are fixed over joints and at intermediate positions to give the appearance of 'board and batten' cladding. Horizontal joints include a metal Z-flashing beneath a horizontal batten, with slopes to the top for drainage. The cladding is finished with an acrylic stain coating.

2.5 The dormer window and apex of gable end walls are clad with horizontal bevelback cedar weatherboards fixed over cavity battens. On the north elevation, stone veneer extends by about 1m from the bi-fold doors around the NE and NW corners - terminating against window jambs on the east and west, with the top of stonework aligned with the tops of joinery and plywood sheets. The horizontal joint batten continues above joinery and stone, with the Z-flashings replaced with head flashings.

2.6 The specification calls for the stone cladding to be a proprietary stone veneer system incorporating stone on 9mm fibre cement backing sheets, which are fixed through horizontal and vertical timber battens and the building wrap to the framing. The castellated profile of the proprietary battens is intended to provide drainage and air movement within the cavity. The drawings call for the stone veneer cladding to be fixed with veneer ties at 300mm horizontal and 350mm vertical centres, with a 'peel and stick' bituminous/asphalt membrane applied over the backing sheets. The manufacturer provides detail sheets for windows, edges and other junctions.

3. Background

3.1 Construction

3.1.1 The authority issued a building consent (No. 051508) to the owners on 16 February 2006 under the current Act. The consent conditions listed 10 inspections required during construction of the house, which included the following:

- **Inspection 4**
  Inspection of building wrap, DPM, and flashings prior to veneer construction. Cavity battens and flashings in place, prior to cladding being fixed. (Stone veneer)
- **Inspection 5**
  Veneer mid height inspection for cavity width, tie fixing...
- **Inspection 6**
  Cavity battens and flashings in place, prior to cladding being fixed. [Plywood cladding]

3.1.2 Although I have seen no records, it appears that the authority carried out the required inspections during construction of the house (see paragraph 3.3.1). The authority carried out the first final inspection on 8 September 2006 and the record identified a number of outstanding items and documentation, noting that re-inspection was required. The builder apparently completed the work without re-inspection but a code compliance certificate was not applied for.

3.2 2016 final inspections

3.2.1 The authority carried out the second final inspection on 12 May 2016, and the inspection notice recorded the outstanding items from the 2006 inspection that were 'now completed' but also noted several items that still required attention. The inspection record also noted:

> Consent plans show [fibre cement backing product had been substituted]. Provide means of compliance (item 5)
>
> Windows marked High Wind only. Very High Wind area (item 6)

3.2.2 The builder applied for a code compliance certificate on 15 May 2016 on behalf of the owners and a further final inspection was carried out on 22 June 2016. The inspection recorded that no re-inspection was required and outstanding items were 'now completed'. The record noted outstanding documentation and stated:

> When documentation above received consideration by [the authority] for issue of code compliance certificate will be given (taking into account of time lapsed since first final inspection).

3.3 The first refusal to issue a code compliance certificate

3.3.1 The builder provided various producer statements and certificates. The authority's submission also included its internal 'Code Compliance Certificate Sign-off Prompt Sheet' dated 22 August 2016, which reviewed and ticked inspection records and documentation as satisfactory, but recommended that the code compliance certificate be declined due to:

> Time lapsed from first final inspection to last final inspection and related E2 issues 8/9/06 to 22/6/16. Code clauses issues B1, E2 (B2).

3.3.2 The authority wrote to the owners on 3 October 2016[6], noting the dates of the first and third final inspections, and stated that due to the time elapsed between the date of the building consent and the final inspection, the authority considered that it was 'unable to meet its statutory obligation in terms of section 94' of the Act because it:

> ...cannot now be satisfied on reasonable grounds that the building work and elements will continue to satisfy the durability provisions of the Building Code for the prescribed period after the Code Compliance Certificate has been issued.

3.3.3 Following a telephone discussion on 6 October 2016, the builder wrote to the authority on 10 October 2016, noting that the reason for the refusal was apparently 'on the basis that the water proofing elements to the stone wall were not satisfactory'. The builder included the following comments (in summary):

- The stone cladding feature is not part of the structure, with backing sheets and flashing in line with the exterior face so no water can penetrate the structure. The flashing has a 5^{o} fall away from the building.
- The footing under the stonework is 100mm below and the bottom of fibre cement backing sheets are more than 50mm below the finished floor slab level.
- The exterior cladding and flashings were inspected during construction.
- There is no evidence of moisture penetration and a producer statement can be provided covering the durability of the exterior building envelope and stone work flashing system.

3.4 The second refusal to issue a code compliance certificate

3.4.1 In a letter to the owners and builder dated 17 October 2016, the authority noted that it had reviewed the information, records and photographs, which had revealed (in summary, with the authority's reference numbers in brackets):

[6] The authority noted that the letter should have been dated 3 October 2016 but had been incorrectly dated 9 December 2013

- The producer statement for the windows is not acceptable as the windows are marked as suitable for a high wind zone, not for a wind speed of 56m/s. (Item 1)
- The pipe from the gas cylinder lacks a sleeve where it enters the wall, the cylinder lacks a cover to protect the regulator, and the gas cylinder is too close to the drain and gully trap (Item 2)
- The dormer roof lacks spreaders as shown in the consent drawings and there is debris at the junctions with the main roof which will impede drainage. (Item 3)
- The chimney flue flashing does not comply with E2/AS1 figure 54. (Item 4)
- The flue stays are loose, so do not adequately restrain the flue. (Item 5)
- The consent documents called for a proprietary stone cladding system (see paragraph 2.4.3) but a different backing sheet and flashing has been substituted. The stone veneer also lacks weep holes. (Item 6).

3.4.2 The authority concluded that:

> Some of the items have a bearing on weathertightness and maintenance. They also have a direct impact on durability and due to the time that they have been non-compliant may have compromised hidden elements within the building.
>
> This letter replaces our earlier letter and confirms that the Code Compliance Certificate is refused as we cannot be satisfied that the building complies with the New Zealand Building Code Clauses B1-Structure, B2-Durability, C1-Outbreak of Fire and E2-External Moisture.

3.4.3 Despite further correspondence, the builder was unable to resolve the situation and applied to the Ministry for a determination on 19 October 2016.

4. The submissions

4.1 The builder outlined the background to the situation, noting that the minor remedial items requested by the authority had been attended to and 'the dwelling is in excellent condition', with 'regular maintenance being carried out by the home owner'. The builder noted that 'no moisture is evident in the building', which he considered had been 'performing well above expectation for the climate it is situated in.' The builder added that he and the owners were seeking a resolution as to 'what items need remedial work (if any)'.

4.2 The builder provided copies of:

- the consent drawings
- the building consent dated 16 February 2006
- the application for a code compliance certificate dated 15 May 2016
- the third final inspection notice dated 22 June 2016
- the authority's refusals to issue a code compliance certificate dated 3 and 17 October 2016
- correspondence with the authority
- various photographs, producer statements and certificates.

4.3 The authority set out the recent background to its refusal, noting that the first refusal had been based on its inspector's concerns regarding the length of time between the

first final inspection and the third, and the weathertightness, structural and durability issues related to that delay. Following a review, the decision was confirmed, with additional reasons for the refusal added.

4.4 The authority forwarded documentation pertinent to this determination including:

- the consent documentation
- the first final inspection notice dated 8 September 2006
- the second final inspection notice dated 12 May 2016
- the code compliance certificate 'Sign-off Prompt Sheet' dated 22 August 2016.

4.5 A draft determination was issued to the parties for comment on 15 February 2017.

4.6 Response to the draft determination

4.6.1 The builder accepted the determination on 20 February 2017 and made no additional submission.

4.6.2 The authority did not accept the draft on 27 February 2017 and provided additional comments:

- The wind zone is SD and not VH ('very high') for the purposes of NZS 3604:1999. The design engineer 'stipulated' a wind speed of 56m/s which is greater than the requirements for extra high wind zone in NZS 3604:2011.
- ULS and SLS wind pressures were quoted for SD and VH wind zones. There was insufficient evidence to show the windows meet Clause B1 and the building may not have 'experienced its maximum design wind pressure'.
- The manufacturer of the stone cladding system specified named fibre cement backing sheets that have 'superior anti-delamination properties' compared to other fibre cement boards. A letter dated 'March 2004' from the manufacturer of the named fibre cement backing sheets, submitted by the authority, stated that it would no longer warrant its products when used as backing to a stone substrate.
- The determination does not address the 'non-approved' changes to the building consent (items 3, 4, and 16).
- Clause G11 was not included as a reason for refusing the issue the code compliance certificate and gas work 'was never part of the building consent'. Its concerns are based on the requirements of AS/NZS 1596[7] and not NZS 5261[8]. Appendix G of NZS 5261 is a 'summary' of the requirements of AS/NZS 1596 which is why these requirements are 'informative' in NZS 5261.
- The submission noted grammatical and reference errors in the draft.

4.7 The responses to the authority's submission are noted as follows unless covered elsewhere in the determination:

- I note that the design engineer has provided a Producer Statement - Design (PS1) covering the structure for a 56m/s wind speed. If the area was an SD wind zone, the cladding systems and windows would have been outside the scope of NZS 4211: 1985[9], NZS 4223[10], and NZS 3604, and therefore outside

[7] Australia New Zealand Standard AS/NZS 1596:2008 *The storage and handling of LP Gas*
[8] New Zealand Standard NZS 5261:2003 *Gas installation*
[9] New Zealand Standard NZS 4211:1985 *Specification of windows*

the scope of E2/AS1[11]. The design of the window units for this wind zone, along with compliance with other performance clauses related to wind, should have been considered by the authority at consent stage.

- The manufacturer has confirmed that the windows comply with the Building Code's current requirements. There have been several severe wind storms in the Canterbury region in the period since the house was built[12], with wind gusts of up to 150km/h recorded by NIWA, and a previous determination for a building in the region also referenced a 2014 storm[13]. I consider that it is likely the windows have experienced maximum design pressure and the in-service history is evidence that the windows have not failed to meet Clause B1 and B2.
- The letter from the manufacturer of the fibre cement backing states that it does not warrant the product for use as a substrate to stone cladding because there are no 'specific regulatory standards' and it does not have any 'recommendations or specifications' for such applications. It does not state that the product cannot be used as a substrate to stone cladding systems.
- G11/AS1[14] that was in force at the time the consent was issued cites NZS 5261 as a means of compliance with Clause G11; AS/NZS 1596 is not a cited standard.

5. The expert's report

5.1 General

5.1.1 As mentioned in paragraph 1.6, I engaged an independent expert to assist me. The expert is a member of the New Zealand Institute of Building Surveyors and inspected the house on 24 November 2016, providing a report dated 25 January 2017, and a copy of which was forwarded to the parties.

5.1.2 The expert noted that the scope of his inspection was to 'provide an assessment of the matters' raised by the authority and to 'form a view as to compliance' while taking into account the 'age, risk profile and performance in use since completion' of the house. The expert noted that his report assessed compliance with Building Code Clauses B1, B2 and E2 (with some comment noted in regard to items related to C1, E1 and G11).

5.1.3 The expert noted that the house form and plan generally appeared to conform to the consent drawings. The expert considered the interior finish was generally acceptable and the exterior envelope was 'generally to an acceptable standard' except for defects identified in the stone cladding. The expert also observed that the two valley flashings to the dormer window were operating effectively, and considered that 'valley flashing terminations have been well executed (even though a little untidy) and are not reliant upon flexible sealant'.

5.2 Item 6: Stone cladding moisture investigation

5.2.1 The expert inspected the stone veneer corner cladding, noting the following:

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[10] New Zealand Standards NZS 4223 Parts 1 and 2:1985 *Code of practice for glazing in buildings*
[11] Acceptable Solution E2/AS1 *External moisture*, 3rd edition, amendment 2, erratum 1 (effective from 1 December 2005 to 21 June 2007)
[12] Searching the NZ Historic Weather Events website at https://hwe.niwa.co.nz
[13] Determination 2014/003 *Regarding the refusal to issue a code compliance certificate for a relocated house at 543 Weedons Ross Road, West Melton* (Ministry of Business Innovation and Employment) 27 January 2014
[14] Acceptable Solution G11/AS1 *Gas as an Energy Source* Amendment 2, effective from 28 February 1998

- the flashing at the top lacks a drip edge and coloured water testing showed that water pooled on the top of the flashing
- soil covered the base of the stone and the north timber decking was almost at the interior floor level, with sand and debris trapped at the stone/deck junction
- there were no weep holes to provide drainage at the bottom of the stone veneer.

5.2.2 The expert took invasive moisture readings from the inside, using probes through skirtings into bottom plates behind the stone cladding. Observing elevated moisture readings; the expert removed skirtings beside the bi-fold door and drilled holes to take readings at 20mm from the outer face of the bottom plates, noting:

- at the NE corner cladding:
  - 86% at the corner
  - 23% beside the door jamb
  - 18% at the south end of the cladding (via probes through skirting)
- at the NW corner cladding:
  - 24% at the corner
  - 19% beside the door jamb
  - 21% at the south end of the cladding (with skirting removed)

5.2.3 The expert considered that the results showed that:

- decay is inevitable at the NE corner
- moisture levels at the NW corner are 'high enough to initiate decay'
- the remaining moisture levels are 'sufficient to sustain active decay'.

5.2.4 The expert considered that further destructive investigation is required to resolve the source(s) 'of the moisture ingress and to remediate the moisture compromised materials.' (I note that such investigation may reveal decay damage to the timber framing – see paragraph 6.2.2.)

5.3 Item 1: Windows (B1 Structure)

5.3.1 The expert noted that there was no evidence that joinery was failing to meet the requirements of Clause B1 in the 10 years since installation. The expert contacted the window manufacturer to seek confirmation that the labels of 'NZS 4211:1985 Wind Zone H Level 2' equated to NZS 4211:2008[15] requirements for very high wind zones. The expert also attached photographs of every window of the house.

5.3.2 The window manufacturer responded that the 'net result of the changes under the 2008 code was in the region of 15%' (increases) and all windows shown in the exterior photographs would comply with the current requirements – except one which would need to incorporate an interior box back mullion in order to comply.

5.3.3 The builder provided the window manufacturer with interior photographs, which showed a box profile at the mullion, as opposed to a T-shape that would be used in lower wind zones. The manufacturer confirmed that the window was 'boxed back' and on that basis met the 2008 requirements for very high wind zones.

[15]New Zealand Standard NZS 4211:2008 Specification for performance of windows

5.4 Item 5: Flue restraints (C1 Outbreak of fire[16])

5.4.1 The expert noted that what appeared in the photographs to be loose restraints to the chimney flue are actually metal pipes which have been bent to suit the length required. The pipes are fairly stiff and have been performing satisfactorily over the past 10 years.

5.4.2 However, as a maintenance measure the expert recommended that the pipes be replaced or straightened. Straightening the existing pipes would entail raising the flue collar to suit the longer length.

5.5 Items 3, 4, 6 (E2 External moisture, B2 Durability)

5.5.1 The expert inspected the external building envelope of the house, taking into account the age of the building work and the items identified by the authority.

5.5.2 In regard to the dormer roof (Item 3), the expert noted:

- the main gable roofing runs beneath the eaves of the dormer, with the sheet edge in line with the dormer wall and an apron flashing at the junction
- the valley flashing extends past the sheet overlap by 5 corrugations and, although 'not the tidiest valley termination', it is weathertight
- the valley termination has no reliance on sealants and the laps are in the correct direction with good overlaps
- there are no visible gaps for vermin to enter into the roof space
- the short gutters to the dormer fall towards the main roofing and discharge directly onto the centre of the roofing sheet below, about 400mm from the wall
- a downpipe as per the consent drawings would discharge closer to the vulnerable wall/roof junction, which would increase the risk of moisture entry
- there is wind-blown debris at the bottom of the valleys, which requires clearing and leaf guard protection is recommended.

5.5.3 In regard to the chimney flue flashing (Item 4), the expert sprayed water onto the roof around the flue before inspecting the roof space. The expert noted:

- no signs of moisture entry into the roof space below, with no marks on timber, insulation or the top of the ceiling lining
- light surface rust on the flue support is likely due to condensation dripping from the roof where the flue penetrates the underlay
- the 45^{o} pitch of the roof does not allow any significant water to pool in troughs at the top of the rubber boot.

5.5.4 In regard to the stone veneer cladding (Item 6), the expert noted that the moisture investigations outlined in paragraph 5.3 showed that the stone cladding had failed to meet the performance and functional requirements of Clause E2.

5.6 Item 2: The LPG Gas cylinder (G11 Gas as an energy source)

5.6.1 The expert noted that gas installation standards include information on LPG cylinder locations within Appendix G to NZS5261[17], which is noted as 'informative' only. The relevant recommendations to this house are:

[16] In force at the time the consent was issued on 16 February 2006

- the cylinder should not be located within 1m from any drain (Figure G3)
- the cylinder should be installed on a firm, level, non-combustible base (for example, a paving slab), soil is not considered to be an acceptable base (G3.2)
- regulators should be protected from rainwater (G6 (c)).

5.6.2 The expert inspected the cylinder and observed that:

- the cylinder is 1.1m from the gully trap and 4m from the nearest surface water riser
- the cylinder is sitting on the soil
- the regulator is not protected from rainwater
- the gas pipe penetration is sealed against the plywood cladding and penetrates just below the timber framing – so appears to slope towards the outside as it passes through the cavity, allowing any moisture to escape to the outside.

5.6.3 However, I do not consider the compliance of the gas cylinder a reason for the authority to refuse to issue a code compliance certificate. The authority's concerns as based upon AS/NZS 1596[18] which is not a cited Standard. Therefore, I am of the opinion that the owners are not required to carry out the expert's recommendations, and the authority cannot require these items to be rectified in order to issue a code compliance certificate.

5.7 The expert's conclusions

5.7.1 The expert concluded that the stone veneer corner cladding did not comply with Clause E2 and Clause B2 of the Building Code.

5.7.2 The expert also observed that the following items required maintenance to ensure compliance with Clause B2:

- the wind-blown debris around the dormer
- a bird's nest and signs of rodent entry into the west roof space.

5.7.3 The expert noted that the wall insulation was dislodged within the roof space, and the ceiling insulation had moved above the kitchen and was not replaced. The expert has recommended that this be addressed as part of the maintenance of the building.

6. Discussion

6.1 Clause E2 External moisture

6.1.1 Generally, wall and roof claddings appear to have been installed in accordance with good trade practice and the manufacturer's instructions at the time. Apart from the stone veneer cladding at the NE and NW corners, the house appears to have remained weathertight for more than 10 years.

6.1.2 However, the expert's investigation of the stone veneer has revealed significant moisture penetration, with the likelihood of associated decay in the adjacent timber framing. Taking account of the expert's report, I consider that attention is required for these cladding areas, which should include:

- investigation into the moisture entry and the extent of underlying damage

[17] New Zealand Standard NZS 5261:2003 Gas installation: Appendix G: LPG Cylinder Locations (Informative)
[18] Australia New Zealand Standard NZS 1596:2008 The storage and handling of LP Gas

- timber testing and repair of any decayed timber or other damaged materials
- establishment of the cause(s) for the moisture entry
- repair of the defects or replacement of the cladding.

6.1.3 I also note the expert's comments in regard to the weathertightness of:

- the dormer roof discharge and valley junctions (see paragraph 5.6.2)
- the chimney flue flashing (see paragraph 5.6.3)

and I accept that these areas are adequate in the circumstances described.

6.2 Weathertightness conclusion

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

6.2.2 Given the very high moisture levels, I am also satisfied that the stone veneer cladding has not complied with Clause E2 for some time. The likelihood of current decay to the bottom plate at the NE corner, together with the possibility of undiscovered damage to framing behind the stone veneer also satisfies me that the adjacent timber framing may not comply with Clause B1 of the Building Code.

6.2.3 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, 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.

6.2.4 Although roof and wall claddings are now 10 years old, the expert's investigations indicate moisture ingress over an extended period. Because of the likelihood of decay to the bottom plate at the NE corner and the possibility of further undiscovered damage, I am satisfied that the timber framing has not complied with Clause B2 insofar as it applies to Clauses B1. The evidence of current and past moisture penetration also satisfies me that the stone veneer cladding has not complied with Clause B2 insofar as it applies to Clause E2.

6.2.5 Because the identified moisture penetration and stone cladding faults occur in two discrete areas, I am able to conclude that satisfactory investigation and rectification of the stone veneer areas as outlined in paragraph 6.1.2 will result in the house being brought into compliance with Clauses B1, B2 and E2 of the Building Code.

6.2.6 I consider that the expert has found the changes from the consent documentation for items 3, 4 and 16 as 'adequate' and have been performing as required by the Building Code. A minor variation under section 45A for these identified alterations from the consent documentation should be supplied to the authority.

6.3 The remaining matters of compliance

6.3.1 Taking account of the expert's report, I am satisfied that the house as constructed is likely to comply with the relevant part of the other clauses considered by the expert during his inspection: namely Clauses B1 Structure, C1 Outbreak of Fire, and G11 Gas as an energy source, as summarised in Table 1 below.

6.4 Maintenance

6.4.1 Although the house generally appears to have been well maintained over the past 10 years, the expert has identified a number of items that require maintenance in order to ensure compliance with Clause B2 Durability. Taking account of the expert's report, I therefore consider that attention is required in regard to the areas outlined in paragraph 5.8.2.

6.4.2 Effective maintenance of the house is important to ensure ongoing compliance with the Building Code and is the responsibility of the building owner. The Ministry has previously described maintenance requirements associated with the external building envelope, 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[19]).

6.5 Conclusion

6.5.1 Taking account of the expert's report, Table 1 summarises my conclusions on the authority's concerns identified for this house, together with other items noted by the expert during his inspection. Table 1 also identifies areas where maintenance is required or recommended.

Table 1

Areas of concern		Comments	Conclusions	
			Compliance	Maintenance
B1 Structure				
1	Window wind zone marked as 'H' not 'VH' as required	(Paragraph 5.3) • Photographs supplied to manufacturer • Windows confirmed as meeting requirements for very high wind zone	Adequate	
6	Timber framing to stone veneer	(Paragraph 5.2) • Very high moisture levels in timber framing behind stone cladding • Likely to be decay in some framing	**Investigation, testing and repair required**	
C1 Outbreak of Fire				
5	Roof flue restraints loose	(Paragraph 5.4) • Restraints are metal pipe • Pipe bent to provide restraint to flue • Appears satisfactory	Adequate in circumstances	Maintenance advised
E1 Surface Water				
3	No downpipes /spreaders to dormer gutter	(Paragraph 5.5.2) • Gutter discharges on centre of roof sheet • Fitting downpipes and spreaders would move discharge closer to wall • Wind-blown debris at junctions	Adequate in circumstances	Maintenance needed

[19] Determination 2007/60 *Determination regarding a code compliance certificate for a house with monolithic and weatherboard wall cladding systems at 11A Blease Street, New Lynn, Auckland* (Department of Building and Housing) 11 June 2007

E2 External Moisture				
3	Dormer/main roof junction flashings	(Paragraph 5.5.2) • Bottom of valley flashings satisfactory • No evidence of moisture penetration into roof space after 10 years • Wind-blown debris at junctions	Adequate in circumstances	Maintenance needed
4	Chimney flue flashing	(Paragraph 5.5.3) • Roof pitch very steep so no significant pooling above flashing • Water testing showed no leaking • No evidence of moisture penetration into roof space after 10 years	Adequate in circumstances	
6	Stone veneer cladding system	(Paragraph 5.5.4) • Top flashing lacks drip edge and water able to pool on top • Soil and decking covers bottom of stone • No weep holes for cavity drainage • Very high moisture levels in bottom plates	**Investigation and repair required**	
2	LPG gas cylinder	• Pipe penetration satisfactory	Adequate	
G11 Gas as an Energy Source				
2	LPG gas cylinder	(Paragraph 5.6) • Installation standard informative only • Cylinder more than 1m from drains • Cylinder sitting on ground • No cover to regulator	Adequate	

7. The durability considerations

7.1 Clause B2.3.1 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".

7.2 In this case the 10-year delay since the substantial completion of the house in 2006 raises concerns that many elements of the building are now 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.

7.3 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 September 2006.

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

8. What happens next?

8.1 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 areas identified, produced in conjunction with a competent person with suitable experience in weathertightness remediation, as to the investigation and rectification or otherwise of the specified matters.

8.2 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.

9. The decision

9.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the stone-clad walls do not comply with Clauses E2 and Clause B2 of the Building Code that was current at the time the consent was issued and accordingly, I confirm the authority's decision to refuse to issue a code compliance certificate for the house.

9.2 There is inefficient evidence to show that the timber framing to the stone-clad walls comply with Clauses B1.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 15 March 2017.

John Gardiner
Manager Determinations and Assurance