



## Determination 2016/035

### Regarding the refusal to issue a code compliance certificate for a 19-year-old house with brick veneer and weatherboard claddings at 1215/2 Main South Road, Rolleston



#### Summary

This determination is concerned with the compliance of a 19-year-old brick veneer house. This determination considers the authority's reasons for refusing 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<sup>1</sup> ("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, the Mockford Family Trust ("the applicants") acting through a real estate agent ("the agent")
  - 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 the 19-year-old house. The refusal arose because the authority is not satisfied that the building work complies with certain clauses<sup>2</sup> of the Building Code (First Schedule, Building Regulations 1992).

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<sup>1</sup> The Building Act, Building Code, compliance documents, past determinations and guidance documents issued by the Ministry are all available at [www.building.govt.nz](http://www.building.govt.nz) or by contacting the Ministry on 0800 242 243.

<sup>2</sup> In this determination, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

- 1.4 The matter to be determined<sup>3</sup> is therefore 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 24 May 2012. 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.
  - (b) Whether other items identified by the authority comply with relevant Building Code clauses: namely Clauses B1 Structure, E1 Surface Water, E3 Internal moisture, G11 Gas as an energy source, G12 Water supplies, and G13 Foul Water. This includes other items noted by the expert, namely C1 Outbreak of fire, and F2 Hazardous Building Materials.

## 1.5 Matters outside this determination

- 1.5.1 When refusing to issue a code compliance certificate, the authority limited its concerns to items associated with the clauses outlined above (see paragraph 3.7.1). Apart from several other areas assessed by the expert during his inspection, this determination does not address other clauses of the Building Code.
- 1.5.2 The agent's submission in support of the determination application refers to a building consent issued on 11 September 1999, which I have not seen. This determination is limited to the building consent (No. R416313) for the house and garage.
- 1.5.3 I also note that the applicants 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 1997. I leave this matter to the parties to resolve after other matters are satisfactorily addressed.
- 1.6 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 a single-storey four bedroom house with a detached garage situated on an exposed rural site in a high wind zone for the purposes of NZS 3604<sup>4</sup>. The garage is connected to the main entry at the south of the house by a covered walkway. The house is fairly simple in plan and form and is assessed as having a low weathertightness risk.
- 2.2 Construction is generally conventional light timber frame, with concrete foundations and floor slabs, brick veneer and weatherboard wall claddings, aluminium windows and 30° pitch profiled metal roofing. The garage has a simple gabled roof and the walkway roof is clad in membrane over a plywood substrate, with the soffit aligning with the house and garage soffits.

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

<sup>4</sup> New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- 2.3 The house has a hipped roof except for a gable which projects to the north to allow a 2.7m ceiling height in the dining room (“the north gable”). Elsewhere the northern side of the main roof extends by about 1.2m to form a veranda. The remaining eaves roofs are about 600mm overall, except above the projecting south wall of a bedroom where there is no roof overhang.
- 2.4 The specification calls for wall framing to be ‘radiata H1 treated’, but laboratory testing of samples detected no treatment. Given the lack of evidence and the date of construction in 1997, I consider that external wall framing is unlikely to be treated.
- 2.5 The primary wall cladding is conventional brick veneer, which incorporates a 40mm drained and ventilated cavity. Except at the higher dining room walls, brick veneer extends up to eaves soffit height. At the gable end walls to the garage, the brick extends up to verge height, with a panel of weatherboards between.
- 2.6 Due to the dining room ceiling height, the north gable soffit is about 300mm higher than for the remaining house, which results in brickwork above the joinery and weatherboards to the full surface of the north gable end wall. At the projecting wall to the south bedroom, weatherboards form triangular infills to the projection ends.
- 2.7 The horizontal cedar weatherboards have a rusticated profile and a dark stain finish. At the north gable end wall, the board surface is set beyond the face of the brickwork below. Elsewhere, the boards are recessed back from the brick face, with the rear faces aligning with the back of the brickwork and a continuation of the brick cavity.

### **3. Background**

- 3.1 The authority issued a building consent (No. R416313) to the original owner on 6 May 1997 under the Building Act 1991 (“the former Act”). The authority carried out the following inspections:
- Foundations on 15 May 1997 (which passed).
  - Pre-pour slab on 19 May 1997 (which passed).
  - Half-height veneer on 20 June 1997 (which passed).
  - Pre-line bracing on 23 June 1997 (which passed, but noted items to complete).
  - Post-line bracing on 26 June 1997 (which passed).
  - Sanitary drainage on 7 July 1997 (which passed, but noted items to complete).
- 3.2 The progress of the above inspections indicates that the house was weathertight by July 1997 and able to be occupied before the end of 1997. However no final inspections were carried out and it appears that the original owner took some years to complete finishing work.

### **3.3 The interim code compliance certificate**

- 3.3.1 Although I have seen no record of a final inspection, the authority issued an interim code compliance certificate to the original owner on 28 July 2000 under Section 43(3) of the former Act.

3.3.2 The certificate stated that it was issued ‘in respect of part only, as specified in the following particulars, of the building work’ under building consent R416313. I note that the only particulars are set out in the following paragraph, which states:

Further building work is required to be completed as detailed in the most recent building inspection site sheet<sup>5</sup>. When all works are completed the building owner is required to notify [the authority] where a further inspection may be required to ensure compliance. When all building works approved under the above building consent comply, a full Code Compliance Certificate will be issued.

### 3.4 The 2003 final inspection

3.4.1 Despite its substantial completion in 1997, the original owner did not notify the authority of the final completion of all building work until 2003. The authority carried out a final inspection on 5 March 2003 and provided a list of eleven items together with some other items to be attended to, which included (in summary):

- 1) lack of AAV<sup>6</sup> to two vent pipes
- 2) incomplete tap connections to garage hand basin
- 3) blocked gully trap from garage hand basin discharge
- 4) compatibility of flue flashing material
- 5) north valley flashing too short
- 6) lack of cavity vent holes to bricks above north gable windows
- 7) inadequate lintel connections to some sliding doors
- 8) inadequate weatherboard/brick flashing to west gable
- 9) unsealed downlights to wet areas
- 10) lack of screen wall to gas hob
- 11) lack of earthquake restraints to hot water cylinder
- 12) lack of safety glass to main bathroom shower door
- 13) waste pipe entry
- 14) ground and paving levels
- 15) gaps in ceiling insulation, downlight clearances.

3.4.2 The inspection record noted that reinspection was required when the above items were rectified. Although it appears that some outstanding items were subsequently completed, the original owner did not call for a re-inspection.

### 3.5 Attempts at resolution

3.5.1 In 2008 the property was sold to the applicants (the current owners). When preparing the property for sale in 2015, the agent obtained the LIM<sup>7</sup> report which showed that various items required resolution.

3.5.2 The agent, applicants and a builder inspected the house in October 2015 to decide how to rectify any remaining outstanding items. Because of the time elapsed since the 2003 inspection, it was decided to seek advice from the authority.

3.5.3 The builder emailed the agent on 16 October 2015 to say that the authority had advised that, on receipt of a request from the applicants, an inspector would be sent ‘to the house for another check of the issues that remain’.

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<sup>5</sup> The last inspection records I have seen were for post-line bracing on 26 June 1997 and sanitary drainage on 7 July 1997

<sup>6</sup> Air Admittance Valves, commonly referred to as AAVs, are negative pressure-activated one-way vents used for air venting in drains.

<sup>7</sup> Land Information Memorandum

### 3.6 The 2015 final inspection

3.6.1 The authority carried out an inspection on 24 November 2015, and the inspection notice lists numerous items requiring attention, including (in summary, with the authority's reference numbers in brackets):

- E1 Surface Water:
  - lack of gutter supports (E1/1)
  - east gutter to north gable not directed to downpipes (E1/2)
  - some gutters leaking (E1/3).
- E2 External Moisture:
  - lack of slope to some brick sills (E2/1)
  - inadequate lintel connections to some sliding doors (E2/2), (2003 item 7)
  - lack of veneer vents to west elevation (E2/3)
  - cracks to foundation (E2/4)
  - north gable fascia boards penetrate roofing (E2/5)
  - numerous unsealed penetrations (E2/6)
  - damaged/loose brick veneer (E2/7)
  - mortar overhanging foundation (E2/8)
  - unfinished and damaged west soffit (E2/9, E2/10)
  - deteriorated flashing to woodburner flue (E2/11)
  - window/soffit junction incomplete (E2/12)
  - incomplete weatherboard/brick junction at southwest corner (E2/14)
  - plaster incomplete above west lintel to north gable (E2/16)
  - unsealed meter box penetration (E2/17)
  - lack of vermin protection to garage doors (E2/18)
  - deterioration to paintwork (E2/19)
  - movement of weatherboard/soffit junction at southwest corner (E2/20)
  - roof nails lifting (E2/21)
  - ridge capping lifting (E2/22).
- E3 Internal Moisture:
  - high moisture levels adjacent to main bathroom shower (E3/1)
  - unsealed fixture/wall junctions, with possible moisture ingress (E3/2, 3).
- G11 Gas as an Energy Source:
  - gas cook top too close to combustible material (G11/1), (2003 item 10)
  - gas bottle stored in unvented cupboard (G11/2).
- G12 Water Supplies:
  - lack of vermin protection to cylinder tray drain (G12/1)
  - laundry tub not secured (G12/2).

- G13 Foul Water:
  - gully trap ground clearances (G13/1)
  - inadequate gully trap grates (G13/2)
  - unsealed wastepipe foundation penetrations (G13/3)
  - lack of frost protection to vent pipe AAV (G13/4).
- Changes from consent drawings:
  - horizontal in lieu of vertical weatherboards (E2/13)
  - weatherboards to west gable end in lieu of brick veneer (E2/15).

### 3.6.2 The inspection record also stated:

Some of the issues raised above for example E1, E2, E3 have a direct bearing on New Zealand Building Code clauses B1 Structure and B2 Durability. As the areas are now closed off they are unable to be assessed for B1 and B2 compliance.

## 3.7 The refusal to issue a code compliance certificate

3.7.1 In a letter to the applicants dated 10 December 2015, the authority attached the inspection record for the 2015 final inspection and noted that the building consent had been issued in May 1997 but no application for a code compliance certificate had been made until November 2015. The authority refused to issue the code compliance certificate for the following reasons (in summary):

- the lack of compliance with the Building Code clauses identified in the 2015 final inspection (see paragraph 3.6.1)
- 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 under section 94 of the Act'.

## 3.8 Continuing correspondence

3.8.1 In a letter to the Ministry dated 3 March 2016, the agent explained the situation and sought guidance on what would be necessary to resolve the matter, noting:

The building inspector said that as the dwelling was built in 2000 it was outside its jurisdiction to issue a retrospective code compliance certificate and the inspector's suggestion was that an approach be made to [the Ministry] to determine how best to obtain a code compliance certificate for this property.

3.8.2 On advice from the Ministry, it appears that the agent wrote to the authority on 16 March 2016, requesting a review of its decision (I have not seen a copy of that letter). The authority responded on 17 March 2016, noting that the property file had been reviewed but there 'has been no change to the status of the building in question' and, as such, the authority 'is still unable to meet its statutory obligation in terms of section 94 of the Building Act 2004.'

3.8.3 The agent responded on 21 March 2016, noting that the applicants considered they were being unfairly treated by the authority on the following grounds (in summary):

- There is no explanation as to how a building signed off as compliant with the former Act can be expected to be compliant with an Act that did not exist when the consent was issued. The implication is that all houses built prior to the current Act would have to be brought up to current Building Code requirements.

- Section 436 of the Act provides transitional provisions to allow consents issued prior to that Act to comply with the Building Code ‘performance standards’ that applied when the consent was issued.
- The final inspection added more than 30 items to the 2003 inspection as being non-compliant with ‘performance standards’, but seems to make the building consent ‘come under the jurisdiction of the 2004 Building Act’.
- The building was signed off by ‘inspecting engineers that there has been no structural damage’ from the Canterbury earthquakes.

3.9 The Ministry received an application for a determination on 4 April 2016.

## **4. The submissions**

4.1 The agent outlined the background to the situation on behalf of the applicants, noting that the 2003 final inspection record may have been forwarded to the wrong builder with the result that the work was not completed. On arranging to market the property in 2015, the agent had discovered the lack of a code of compliance certificate and, after inspecting the house with the applicants and a builder, contacted the authority about any outstanding items requiring resolution.

4.2 The agent provided copies of:

- the consent drawings and specification
- the building consent No. R416313 dated 6 May 1997
- the interim code compliance certificate dated 28 July 2000
- the first final inspection notice dated 5 March 2003, the second final inspection notice dated 24 November 2015
- the authority’s refusal to issue a code compliance certificate dated 5 April 2016
- correspondence with the authority, various statements and other information.

4.3 The authority made no submission but forwarded copies of:

- the inspection records
- annotated photographs taken during the second final inspection.

4.4 The draft determination was issued to the parties for comment on 27 June 2016.

4.5 The authority accepted the draft determination on 18 July 2016, noting one typographical error that has since been corrected. The agent accepted the draft without comment on 25 July 2016.

## **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 who is a member of the New Zealand Institute of Building Surveyors. The expert inspected the house on 5 May 2016, providing a report completed on 31 May 2016. The parties were provided with a copy of the report on 7 June 2016.

5.1.2 The expert noted that the floor plan of the house generally accorded with the consent floor plan, but some of ‘the more obvious discrepancies’ included (with item references in brackets):

- horizontal rusticated weatherboards to gable end walls in lieu of vertical shiplap weatherboards (E2/13)
- weatherboards in lieu of brick veneer to the west gable end wall (E2/15).

## 5.2 Construction quality

5.2.1 The expert considered that the house interior had ‘generally been finished to an acceptable trade standard’. However, in regard to the exterior some there were a few areas where the finish of the building envelope ‘fell short of good trade practice.’

5.2.2 The expert considered that the brick work was ‘below average and the sills were not completed as per industry recommended practice’ and the quality of carpentry on the soffit linings was ‘well below average.’ Roof flashings were ‘poorly jointed at the laps but are operating effectively’.

## 5.3 Clauses B1 Structure and B2 Durability (items E2/2, E2/4)

5.3.1 Brickwork extends above ranchsliders to the north gable, in line with the 2.7m ceiling height in the dining room. In regard to the metal lintel above the windows (E2/2 and item 7 of the 2003 inspection), the expert noted that:

- a ‘shelf angle’ (metal lintel) supports brickwork above the ranchsliders
- the south end of the east window lintel terminates short of the brick, meaning that the lintel must be fixed back to the timber frame
- the weight of brickwork above the windows that is supported by the lintel is relatively light (at about 300mm high)
- the ‘unorthodox system’ of fixing shelf angles to the timber frame was apparently commonly used in the area at the time of construction in 1997 and was accepted by the authority as compliant at that time
- brickwork and lintels would have been in place when the authority carried out its pre-line and post-line inspections in June 1997, the lintels performed as expected and the veneer has remained undamaged despite significant seismic events.

5.3.2 The expert noted that a timber roof truss has been cut through to allow the installation of the flue to the solid fuel heater. The truss has been supported either side of the cut portion, and the expert considered this was adequate as the roof has withstood ‘numerous storms and earthquakes’ in the time since construction.

5.3.3 Taking into account the series of earthquakes experienced in the region since the house was built, the expert noted no signs of significant movement in the structure, with no doors sticking, no step cracking to the brick work and no evidence of significant settlement of the foundations (E2/4). However, the expert also noted that cracking adjacent the external corners to the foundation in two locations could compromise the longer term durability of the concrete cover to the reinforcing, risking corrosion over time (E2/4), and recommended these cracks be repaired.



5.3.4 The expert considered that decayed timber found in walls around the laundry and bathroom indicates that some framing associated with the moisture damage is unlikely to be structurally sound and durable (refer paragraph 5.7.6.)

#### **5.4 Clause C1 Fire Safety (items G11/1, G11/2)**

5.4.1 The expert noted that the gas cook top is too close to the protected combustible wall lining (G11/1 and item 10 of the 2003 inspection).

5.4.2 The expert observed that seismic restraints had not been fitted to the free-standing solid fuel heater. The Acceptable Solution C1/AS1 references AS/NZS 2918<sup>8</sup>, which requires seismic restraints to such appliances.

#### **5.5 Clause E1 Surface Water (Items E1/1, E1/2, E1/3)**

5.5.1 In regard to the items raised by the authority, the expert observed the following:

- Spacing of gutter brackets is 'excessive in places' and requires attention (E1/1).
- Although the east gutter to the north gable lacks a downpipe, the gutter falls towards a gap of about 50mm at the gable/main roof junction - which allows disbursement onto the main roof and into the gutter system (E1/2).
- Gutter corner joints are not currently leaking as sealant has been applied (E1/3).
- Although water pools in the gutters by up to 10mm deep in places, there are no signs of corrosion after more than 15 years.

5.5.2 The expert concluded that, given gutter durability is limited to 5 years 'the spouting has long since met the mandatory Performance Criteria of Code clause B2 Durability and continues to do so.'

#### **5.6 Clauses E2 Weathertightness and B2 Durability (Items E2/1, E2/3 to E2/12, E2/14, E2/16 to E2/22)**

5.6.1 The expert inspected the external building envelope of the house, taking into account the age of the building work and the risks at particular junctions and intersections.

5.6.2 The expert noted no evidence of moisture penetration on the interior of external walls, with semi-invasive readings into skirtings, linings and below jamb/sill junctions 'well within an acceptable range' and no evidence that the joinery had ever leaked. The expert also inspected the ceiling space, paying particular attention to the framing and ceiling insulation, and noted no evidence of past moisture penetration.

5.6.3 The specification called for construction to comply with NZS 3604:1999. The expert noted that at the time of construction, masonry details were provided in Figure 11.3 of that standard, which showed a sloping masonry sill noted as 'Sill tile. Min. 15° slope and 30 – 50 overhang'.

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<sup>8</sup> AS/NZS 2918: 2001 Domestic Solid Fuel Burning Appliances – Installation as a means of compliance.

## The building envelope

5.6.4 Commenting specifically on the external envelope and taking account of the age of the claddings and the lack of moisture penetration to date, the expert noted:

- brick sills to joinery varied in slope from 5° to 16°, except at the garage rear door where the slope was from 0° to 4° – but there was no evidence of associated moisture penetration (E2/1)
- although penetrations through soffits are unsealed, these are very sheltered and have not lead to moisture penetration into the framing to date and are very unlikely to do so in the future (E2/6)
- mortar overhung the foundations in a few areas, but this is cosmetic and does not compromise weathertightness or durability (Item E2/8)
- the unfinished/damaged areas of soffits are cosmetic and unlikely to compromise weathertightness (Items E2/9, E2/10)
- although brick/weatherboard junctions lack back flashings, boards are fixed to 45mm battens in order to align with the bricks and any moisture penetrating the inter-cladding junction would drain down the cavity (Item E2/14)
- deterioration to the garage door reveals shown in the authority's photographs had been repaired – as the timber has since been repainted (E2/19)
- although one brick/weatherboard junction above the soffit appears to have moved slightly at some time, boards are firmly fixed and there is no indication of damage or recent movement when viewed from the roof space (Item E2/20).

5.6.5 Although the expert recommended repairs as part of ongoing maintenance (see paragraph 5.12), he noted that the following areas appeared to have remained weathertight to date as there was no evidence of associated moisture penetration:

- The brick vents missing from some areas on the north elevation (E2/3).
- Although a fascia board on the north gable is embedded by about 5mm into the brickwork, the junction is sheltered under the eaves and the cavity would drain any moisture back to the outside (E2/5).
- Although a loose half brick at the top of a window jamb is sheltered from rain and unlikely to be subject to rainwater, brickwork should be repaired as it could allow water to penetrate if the windows or wall are hosed (E2/7).
- Although mortar gaps are sheltered from rain and unlikely to be subject to rainwater, mortar should be repaired to avoid water penetrating if windows or walls are hosed (E2/16).
- Although the door generally prevents rainwater entering, it would be prudent to seal cable penetrations at the bottom of the meter box (E2/17).
- Although the top flashing to the west garage brick lacks fall, the brick cavity can drain any water that penetrates. However, it would be simple to remove the bottom weatherboard and prop the flashing to increase the fall.
- Although there is no evidence of vermin access via gaps at the bottom of the garage door, a metal strip or mesh should be installed to prevent access (E2/18).

- Although there is no evidence of moisture penetration through the roofing via lifting roof nails or ridge joints, these should be attended to in order to avoid risks in the future (E2/21, E2/22)
- There is corrosion at the flue, which is poorly flashed with lead sheet that is not compatible with colour-coated steel. Although there is no evidence of moisture penetration to date, the flashing should be replaced to avoid risks in the future.

### **The expert's conclusions**

5.6.1 The expert concluded that, despite 'numerous areas/details of the construction where more care and attention to detail' would currently be expected during construction, there was no evidence of moisture penetration after more than 15 years.

### **5.7 Clause E3 Internal moisture (Items E3/1 to E3/3)**

5.7.1 During its final inspection, the authority had identified high moisture levels in walls near the shower and possible moisture penetration via unsealed laundry fittings. The expert therefore paid particular attention to the bathroom and laundry areas on the south side of the house.

#### **Internal investigation**

5.7.2 The expert observed swollen skirtings to walls associated with the laundry and bathroom and recorded high semi-invasive moisture readings within those rooms and also on the other sides, within the adjacent toilet and hallway.

5.7.3 The expert removed skirtings and small sections of lining from the external wall to the laundry and to the hallway partition beside the bath/shower area, taking sample 1 from the laundry and sample 2 from the hallway partition. The expert observed:

- 'black sooty mould' on the plasterboard and the back of the skirtings
- dark water stains to the laundry exterior bottom plate and wet stained timber to the hallway/shower partition
- crumbling timber indicating advanced decay in the hall partition bottom plate.

5.7.4 To investigate timber condition, the expert took timber samples from the bottom plates for analysis and the laboratory report dated 12 May 2016 reported that:

- Sample 1: laundry bottom plate – either untreated or boron leached out  
'Advanced fungal soft rot decay throughout' with traces of toxigenic mould and replacement likely to be required.
- Sample 2: hall/bathroom bottom plate – untreated or boron leached out  
'Advanced fungal soft rot and brown rot decay throughout' with traces of toxigenic mould and replacement likely to be required.

5.7.5 The expert also noted:

- Although there is no sign of current plumbing leaks at the laundry tub or washing machine, the tub is not secured to the wall and past dislodgement could have caused a pipe leak in the past.
- In the laundry, damage appears has spread to the other side of the exterior door and into the adjoining toilet/laundry partition.
- In the bathroom, sealant to the bath/tile junctions is 'old and detaching from the bath', which is likely to result in continuing leaking at junctions.

- Exposure and investigation of all associated framing will be needed in order to determine the extent and significance of damage.

5.7.6 The expert concluded that the house did not comply with Clause E3, and had also not complied in the past. The level of timber damage revealed indicated that framing associated with the moisture ingress also did not comply with Clauses B1 and B2.

## **5.8 F2 Hazardous building materials**

5.8.1 The expert noted that when the house was constructed in 1997, glazing needed to conform to the relevant standard at that time NZS 4223<sup>9</sup>, which covered safety requirements for glass, including the requirement for safety glass in ranchsliders and full height fixed glazing. The glass in the dining room could easily be mistaken for an open door.

5.8.2 The owner either need to verify the glass was safety glass, or provide some form of vision rail. The expert noted that at the time the house was built there was no requirement for permanent safety markings to safety glass and adhesive ‘stickers’ were an accepted means of identification.

## **5.9 G11 Gas as an energy source (Item G11/2)**

5.9.1 The gas cylinder is stored in an unventilated cupboard (G11/2). Although at the time of construction there was no requirement to vent the cupboard to the exterior, the cupboard was still required to be ventilated into the room.

## **5.10 Clause G12 Water supplies (Items G12/1, G12/2)**

5.10.1 The expert considered that the lack of vermin protection to the cylinder tray drain did not compromise compliance, but noted that ‘a prudent maintenance measure’ would be to insert wire mesh into the end of the pipe (Item G12/1).

5.10.2 The expert observed that the laundry tub was not secured to the wall and could have been dislodged in the past, causing a plumbing leak. When repairing the timber damage to the laundry, the tub will need to be moved and can then be fixed when repairs are complete (Item G12/2).

## **5.11 Clause G13 Foul water (Items G13/1 to G13/4)**

5.11.1 The expert noted that the ground levels around gully traps have now been lowered and covers fitted to improve protection against debris. The expert considered the gully traps were now acceptable in the circumstances (Items G13/1 and 2).

5.11.2 The expert considered that the following items should be attended to:

- the unsealed wastepipe penetrations through the foundations allow waste and foul water to enter under the foundation slab (Item G13/3). The foundation penetrations should be sealed.
- The ground around the gully traps had been lowered, existing covers / grating to the gully traps were adequate.
- the missing frost protection cap to one of the vent pipe AAV (Item G13/4).

<sup>9</sup> NZS 4223.3 1985 Code of practice for glazing in buildings - Human impact safety requirements

## 5.12 Maintenance summary

5.12.1 The expert observed that ‘very little maintenance’ had been carried out, noting:

- numerous patches of moss and lichen on the roof
- small areas of paint coating missing, which is an ‘aesthetic defect only’ because the galvanising continues to protect the steel
- the deterioration of the garage door reveals in the authority’s photographs had been repaired as the timber had since been repainted (E2/19)
- there is evidence that the building had not ‘been particularly well maintained’ and most of the defects highlighted in the second final inspection ‘are worthy of attention and should be included in an imminent maintenance program.’

5.12.2 The expert recommended that the following should be attended to as part of ongoing maintenance of the house (in summary):

- gutter falls and spacing of gutter brackets
- lack of vents to some areas of the brick veneer on the north elevation
- loose brick and some mortar gaps
- unsealed cable penetrations in the meter box
- gaps at the bottom of the garage door
- lifting roof nails, ridge overlaps and deteriorating flue flashing.

## 5.13 The expert’s conclusion

5.13.1 The expert concluded that the following areas did not comply with the Building Code at the time the house was constructed or have become non-complaint subsequently (with the relevant clauses shown in brackets):

- damaged timber framing around the laundry and bathroom (B1, B2)
- cracks to the foundations risked deterioration of reinforcing (B2)
- the lack of seismic restraints to the woodburner (C1)
- the gas cook top and storage cylinder (C1, G11)
- internal moisture penetration from the bath and laundry (E3)
- the glazing to the dining room – requiring verification of compliance (F2)
- the laundry tub pipe fixing (G12).

5.13.2 The expert considered that:

Taking account of the building’s condition, its risk profile, its age, and performance in use since completion, the building is meeting the mandatory requirements of many of the NZBC clauses. However, most of the defects highlighted in [the authority’s] Inspection Notice of 24/11/2013 are worthy of attention and should be included in an imminent maintenance program.

## **6. Discussion**

### **6.1 Compliance generally**

6.1.1 The building consent was issued under the former Act, and accordingly the transitional provisions of the Act apply when considering the issue of a code compliance certificate for work completed under this consent. 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 this house, I must therefore consider whether the house complies with the provisions of the Building Code that applied when the consent was issued.

### **6.2 Clause E2 External moisture**

6.2.1 Inspection records indicate that the exterior claddings were installed by July 1997 (see paragraph 3.1) and I have taken that into account when considering the weathertightness performance of the external envelope as the wall and roof claddings appear to have continued to perform for more than the 15 years required.

6.2.2 Although the expert reported that there were 'a few areas where the finish of the external building envelope fell short of good trade practice', his investigation has found no evidence of moisture penetration to date. The low risk nature of the design and construction appears to have offered sufficient protection against moisture ingress despite defects identified by the authority that were confirmed by the expert.

6.2.3 I consider the expert's report establishes that the current performance of the building envelope is adequate because there is no evidence of moisture penetration into the timber framing over the past 19 years. Consequently, I am satisfied that the external building envelope complies with Clauses E2 and B2 of the Building Code.

6.2.4 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. 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.

6.2.5 Although the external building envelope is now about 19 years old and the lack of evidence of past or current moisture penetration means that the claddings have already exceeded the durability requirements of Clause B2, I comment in paragraph 6.6 on the need for maintenance to ensure protection of the building framing.

### **6.3 Clause E3 Internal moisture**

6.3.1 The expert's investigation revealed significant internal moisture penetration into framing associated with the bathroom and laundry, with advanced decay found in the timber samples. Exposure and investigation of all associated framing will be needed to determine the extent of timber damage and repairs required (refer paragraph 5.7).

6.3.2 Taking account of the expert's report and the laboratory test results, the level of timber damage indicates that significant internal moisture penetration has occurred over an extended period of time, which is likely to have spread to surrounding framing. The timber samples were found to be structurally unsound and needing

replacement. I therefore consider that the framing in the vicinity of internal moisture ingress also does not comply with the durability provisions of the Building Code (refer paragraph 5.3.4).

## **6.4 The remaining code clauses**

6.4.1 In summary, taking account of the expert's report, I conclude that investigation and/or remedial work is necessary in respect of the following areas:

### **Clause B1 Structure**

- the cracks to the foundation which may compromise the durability of reinforcing
- investigation and repairs to damaged timber framing likely to have been affected by moisture penetration from laundry and bathroom leaks

### **Clause E3 Internal moisture**

- inadequate sealing of junctions around the bath
- securing the laundry tub to prevent movement of associated pipe work

### **Clause C1 Outbreak of fire**

- the lack of seismic restraint to the woodburner
- the proximity of the gas cook top to the wall lining

### **Clause F2 Hazardous building materials**

- the installation of safety glass to the dining room windows is to verified

### **Clause G11 Gas as an energy source**

- the lack of ventilation to the gas cylinder storage cupboard

### **Clause G12 Water supplies**

- the laundry tub was not adequately fixed
- lack of vermin protection to the pipe penetrations to the soffit

### **Clause G13 Foul water**

- one terminal event AAV has no frost protection
- drain pipe penetrations through the concrete foundation are unsealed.

## **6.5 Conclusion**

6.5.1 Taking account of the expert's report, Table 1 summarises my conclusions on the authority's concerns regarding the house.

**Table 1**

Areas of concern per S95A refusal (in summary using item numbers)		Comments	Conclusion	
			Compliance (paragraph 6.4.1)	Maintenance (paragraph 6.6.2)
<b>E1 Surface Water</b>				
E1/1	Gutter supports	<ul style="list-style-type: none"> <li>Spacing excessive in places</li> </ul>	Compliant	Maintenance advised
E1/2	North gable gutter not directed to downpipes	<ul style="list-style-type: none"> <li>Falls towards main roof</li> <li>Disperses onto main roof</li> </ul>	Compliant	
E1/3	Some gutters leaking	<ul style="list-style-type: none"> <li>Sealants now applied</li> <li>No current leaks</li> </ul>	Compliant	Maintenance advised
<b>E2 External Moisture</b>				
E2/1	brick sill slope	<ul style="list-style-type: none"> <li>No evidence of leaking</li> </ul>	Compliant	
E2/2	lintel connections to sliding doors	<ul style="list-style-type: none"> <li>Shelf angle fixed to framing</li> <li>Common practice at time</li> <li>Inspected during construction</li> <li>No sign of damage after 19 years</li> </ul>	Compliant	Maintenance to mortar gaps
E2/3	No veneer vents to west elevation	<ul style="list-style-type: none"> <li>No evidence of leaking</li> </ul>	Compliant	Maintenance item
E2/4	Cracks to foundation	<ul style="list-style-type: none"> <li>No current structural significance</li> <li>Could risk durability of reinforcing</li> </ul>	Not compliant	
E2/5	North gable fascia boards penetrate roofing	<ul style="list-style-type: none"> <li>Junction sheltered</li> <li>Cavity protection</li> <li>No evidence of leaking</li> </ul>	Compliant	
E2/6	Unsealed penetrations	<ul style="list-style-type: none"> <li>On underside of soffits</li> <li>No evidence of leaking</li> </ul>	Compliant	
E2/7	Loose brick	<ul style="list-style-type: none"> <li>Sheltered from rain</li> <li>No evidence of leaking</li> </ul>	Compliant	Maintenance item
E2/8	Mortar overhanging foundation	<ul style="list-style-type: none"> <li>Cosmetic only</li> <li>No affect on compliance</li> </ul>	Compliant	
E2/9 E2/10	Unfinished soffit	<ul style="list-style-type: none"> <li>Cosmetic only</li> <li>No evidence of leaking</li> </ul>	Compliant	Maintenance item
E2/11	Deteriorated flashing to woodburner flue	<ul style="list-style-type: none"> <li>No evidence of leaking</li> </ul>	Compliant	Maintenance item
E2/12	Window/soffit junction	<ul style="list-style-type: none"> <li>Cosmetic only</li> <li>No evidence of leaking</li> </ul>	Compliant	Maintenance item
E2/13	Horizontal in lieu of vertical weatherboards		Parties to resolve	
E2/14	Weatherboard/brick junction at SW corner	<ul style="list-style-type: none"> <li>No back flashing</li> <li>Cavity behind boards</li> <li>No evidence of leaking</li> </ul>	Compliant	



Areas of concern per S95A refusal (in summary using item numbers)		Comments	Conclusion	
			Compliance (paragraph 6.4.1)	Maintenance (paragraph 6.6.2)
E2/15	Weatherboards to gable end in lieu of brick		Parties to resolve	
E2/16	Missing mortar	<ul style="list-style-type: none"> <li>No evidence of leaking</li> </ul>	Compliant	Maintenance item
E2/17	Unsealed meter box penetration	<ul style="list-style-type: none"> <li>No evidence of leaking</li> </ul>	Compliant	Maintenance item
E2/18	Vermin protection to garage doors	<ul style="list-style-type: none"> <li>No evidence of vermin</li> </ul>	Compliant	Maintenance item
E2/19	Paint deterioration	<ul style="list-style-type: none"> <li>Garage door reveals now painted</li> </ul>	Compliant	
E2/20	SW weatherboard/soffit junction movement	<ul style="list-style-type: none"> <li>Signs of past movement</li> <li>Boards now firmly fixed</li> <li>No damage or recent movement</li> </ul>	Compliant	
E2/21	Roof nails lifting	<ul style="list-style-type: none"> <li>No evidence of leaking</li> </ul>	Compliant	Maintenance item
E2/22	Ridge capping lifting	<ul style="list-style-type: none"> <li>No evidence of leaking</li> </ul>	Compliant	Maintenance item
	Flue flashing	<ul style="list-style-type: none"> <li>2003 inspection item (4)</li> <li>No evidence of leaking</li> </ul>	Compliant	Maintenance item
<b>E3 Internal Moisture</b>				
E3/1	High moisture levels adjacent to main bathroom shower	<ul style="list-style-type: none"> <li>Significant decay found</li> </ul>	Not compliant, investigation required	
E3/2 E3/3	Unsealed fixture/wall junctions	<ul style="list-style-type: none"> <li>Moisture able to enter</li> </ul>	Not compliant, investigation required	
<b>G11 Gas as an Energy Source</b>				
G11/1	Gas too close to combustible material	<ul style="list-style-type: none"> <li>Non-compliant with Clause C</li> </ul>	Not compliant	
G11/2	Gas bottle stored in unvented cupboard	<ul style="list-style-type: none"> <li>Cupboard requires ventilation</li> </ul>	Not compliant	
<b>G12 Water Supplies</b>				
G12/1	Vermin protection to cylinder tray drain	<ul style="list-style-type: none"> <li>No affect on compliance</li> <li>No evidence of vermin</li> </ul>	Compliant	Maintenance item
G12/2	Laundry tub not secured	<ul style="list-style-type: none"> <li>Evidence of past leaking</li> </ul>	Not compliant	
<b>G13 Foul Water</b>				
G13/1	Gully trap ground clearances	<ul style="list-style-type: none"> <li>Ground levels lowered</li> <li>Clearances now sufficient</li> </ul>	Compliant	
G13/2	Gully trap protection	<ul style="list-style-type: none"> <li>Covers now fitted</li> </ul>	Compliant	
G13/3	Wastepipe foundation penetrations		Not compliant	
G13/4	Protection to vent pipe AAV		Not compliant	

## 6.6 Maintenance

- 6.6.1 Although a modification of durability provisions will mean that most components and elements have already exceeded the minimum life required by the Building Code, the expected life of the building as a whole is considerably longer. Careful maintenance is therefore needed to ensure that elements such as claddings, gutter systems and interior waterproof linings continue to protect the underlying framing for its minimum required life of 50 years for the structure.
- 6.6.2 The expert has noted that very little maintenance had been carried out until recently and concluded that most of the items identified in the authority's final inspection need attention as part of 'an imminent maintenance program'. I concur with that view and consider that maintenance is overdue for (in summary):
- gutter falls and spacing of gutter brackets
  - lack of vents to some areas of the brick veneer on the north elevation.
  - loose brick and some mortar gaps
  - unsealed cable penetrations in the meter box
  - vermin protection for gaps at the bottom of the garage door
  - lifting roof nails, ridge overlaps and deteriorating flue flashing.
- 6.6.3 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).

## 7. What happens next?

- 7.1 I note that the building consent was issued to the former owner of the house, and as noted in Determination 2014/035<sup>10</sup>, no notice to fix is able to be issued to the current owners in respect of breaches of the Act or Regulations for building work carried out by previous owners.
- 7.2 The applicants should develop and submit a detailed proposal to the authority to address the matters of non-compliance noted herein. The proposal should be produced in conjunction with a suitably qualified person and should include appropriate investigation and timber sample testing to determine the extent and significance of damage to the timber framing. The proposal should be submitted to the authority for its consideration and approval. A code compliance certificate will be able to be issued once these matters have been rectified and the durability modification is resolved. Any outstanding items of disagreement can be referred to the Chief Executive for a further binding determination.
- 7.3 I also note there are variations in the as-built house from the consent drawings (see paragraph 5.1.2), and I leave appropriate documentation of those changes to the parties to resolve.

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<sup>10</sup> Determination 2014/035: The issue of a notice to fix for weathertightness remedial work carried out by a previous owner (*Ministry of Business, Innovation and Employment*) 15 August 2014.

## 8. The decision

8.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the following items do not comply with the relevant clauses of the Building Code that was in force at the time the consent was issued:

- some of the timber framing to the laundry and bathroom walls – Clauses B1 and B2
- cracks to foundations – Clause B2 insofar as it applies to Clause B1
- the lack of seismic restraint to the woodburner – Clauses C1
- tiled bathroom junctions – Clauses E3 and B2
- the laundry tub fixing – Clauses E3, G12 and B2
- the gas cook top and gas cylinder – Clauses C1 and G11

Accordingly, I confirm the authority's decision to refuse to issue a code compliance certificate.

8.2 I have insufficient evidence to make a decision whether the glazing to the dining room complies with Clause F2 of the Building Code.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 1 August 2016.

John Gardiner

**Manager Determinations and Assurance**