



Determination 2016/055

Regarding the refusal to issue a code compliance certificate for a 14-year-old house with monolithic cladding at 5 Oakwood Mews, Prebbleton



Summary

This determination concerns the compliance of a 14-year-old house with monolithic 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 2004¹ ("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, W and D Clouston ("the applicants")
 - 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 14-year-old house. The refusal arose because the authority is not satisfied that the building work complies with certain clauses² of the Building Code (First Schedule, Building Regulations 1992); 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 determined³ is therefore the authority's exercise of its powers of decision in refusing to issue the code compliance certificate for the reasons given in its letter dated 17 March 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.
 - (b) Whether other items identified by the authority comply with relevant Building Code clauses: namely E1 Surface Water, E3 Internal moisture, G11 Gas as an energy source and G13 Foul Water.
- 1.5 This determination is limited to compliance of the building work as outlined above and does not consider matters associated with the original building contract for the house construction, which are beyond the scope of section 177 of the current Act.
- 1.6 During its final inspection, the authority limited its concerns to items associated with the clauses outlined above (see paragraph 3.3.1). This determination does not address other clauses of the Building Code, such as the compliance of a spa pool. The installation of the spa pool does not appear to be part of the consented work and I leave that matter to the parties to resolve.
- 1.7 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 May 2002. I leave this matter to the parties to resolve after the building work is brought into compliance.
- 1.8 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 situated in a high wind zone for the purposes of NZS 3604⁴. The house is fairly simple in plan and form and is assessed as having a low to moderate weathertightness risk (see paragraph 6.2.3).
- 2.2 Construction is generally conventional light timber frame, with concrete foundations and floor slab, monolithic wall cladding, aluminium windows and 25° pitch profiled metal roofing. The hipped roof has eaves of about 600mm overall, except for a projecting wall with no roof overhang to about half of the southeast elevation.
- 2.3 An entry canopy extends above the southwest entry doors, with its roof penetrating the eaves and meeting the main roof at about 600mm above the level of the main gutters. The canopy is supported on EIFS-clad timber framed 'columns' and 'beams' that form complex junctions with the roof cladding.
- 2.4 The specification calls for wall framing to conform to relevant standards of the time, and laboratory testing of wall framing samples detected no treatment. Given the lack

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

⁴ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

of evidence and the date of construction in 2002, I consider that external wall framing is unlikely to be treated.

- 2.5 The cladding system is a form of monolithic cladding system known as EIFS⁵. In this instance, the cladding is a recognised proprietary system consisting of 60mm polystyrene backing sheets fixed directly to the framing over the building wrap, to which a mesh-reinforced modified plaster system has been applied. The system includes purpose-made flashings to windows, edges and other junctions.
- 2.6 The cladding was subject to BRANZ appraisal 257B (1998), which has since been withdrawn. The appraisal called for the EIFS system to be installed in accordance with the manufacturer's manual and relevant data sheets, which included window details provided in data sheets dated October 1997.

3. Background

3.1 General

- 3.1.1 The authority issued a building consent (No. 011572) to the applicants on 15 January 2002 under the Building Act 1991 ("the former Act").
- 3.1.2 Although it was issued to the applicants as the owners, the building consent was addressed to the building company, which acted on the applicants' behalf during the consent application and construction of the house ("the building company").
- 3.1.3 The building consent conditions did not include the requirement for a specific cladding inspection but stated that:

NOTE: A Construction Statement confirming the exterior plaster cladding system has been completed in accordance with the manufacturers specification or NZS 4251 for solid plaster will facilitate [my emphasis] the issue of the Code Compliance Certificate.

- 3.1.4 The authority carried out the following inspections during construction of the house:
- Foundations and floor slab during February 2002 (which passed).
 - Plumbing and drainage on 15 March 2002 (passed pending items to complete).
 - Pre-line bracing on 25 March 2002 (which passed).
 - Post-line bracing on 28 March 2002 (which passed).

3.2 The 2002 and 2003 final inspections and outcome

- 3.2.1 The authority carried out a first final inspection on 3 May 2002 and the record was ticked as being a code compliance certificate 'partial' inspection. The inspection record noted that reinspection was required when items (listed below) were rectified and also that a 'gas heating unit inspection' was required:

Outstanding work to date:

1. Gas fire requires hearth
2. Stormwater wastepipe discharges
3. Gully traps – all 3 to replace and redo barriers
4. Vent top end of drain to complete and put Studor Valve on to vent toilet. Plumber advised.
5. Ceiling insulation to tidy up around downlights

⁵ Exterior Insulation and Finish System

6. Roof flashing under door entry canopy and garage roof section.
7. Gas hob. Wall barrier panel to also complete.
8. [...] hot water cylinder to complete.

All other work complies.

3.2.2 The building company apparently completed the work with no re-inspection, and provided the applicants with a 'Construction Certificate' dated June 2002 that stated the building contract was complete. It appears that the applicants took some time to complete painting and finishing, and the authority did not re-inspect the building work until 2003.

3.2.3 The authority re-inspected the house on 11 August 2003 and passed most items identified in the first final inspection. The inspection record did not record that the builder was present, but noted 'owner on site' and that further re-inspection was required. The record stated:

Outstanding work to date:

1. Additional seismic restraints (250 litres).
2. Roof flashing re valley and under soffit.
3. Studor AAV⁶ requires weather barrier.

Other issues looking OK.

3.2.4 The applicants prepared to sell the house in 2014 and an inspection company visually inspected the house, with the report dated 9 September 2014 highlighting no significant problems. About the same time, the applicants also discovered the house lacked a code compliance certificate and entered into discussions with the building company.

3.2.5 In an email to the authority dated 15 October 2014, the building company attached an application for a code compliance certificate with some other documentation, noting that no producer statement for the EIFS could be located so a copy of the cladding invoice was attached and that the building work had been completed on 3 May 2002 (see paragraph 3.2.1).

3.2.6 The authority's computer records include an entry dated 3 December 2014, which noted a final inspection had been booked for 4 December 2014, but had been cancelled at the building company's request.

3.2.7 It appears that there was ongoing debate over the outstanding work and it was not until early January 2016 that the building company began work. The building company attempted to obtain a producer statement for the EIFS cladding but it appeared the company concerned no longer existed.

3.2.8 In an email to the building company dated 14 January 2016, the authority attached a copy of the 11 August 2003 inspection record and confirmed that 'due to the elapsed time since that inspection, a further full Practical Completion Inspection will be required.' The authority added that the incomplete guarantee for the EIFS cladding was not accepted:

...in lieu of the document required as a condition [my emphasis] of the building consent as demonstrating compliance with the relevant performance requirements of the New Zealand Building Code in force at the time the consent was issued.

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

3.2.9 The applicants noted that in early January 2016 the building company had ‘started to work with us at fixing the issues, all before going into receivership earlier this year’.

3.3 The 2016 final inspection and outcome

3.3.1 The authority carried out the third final inspection on 16 March 2016, and the inspection notice lists numerous areas requiring attention, including (in summary, with the authority’s reference numbers in brackets):

- B1 Structure:
 - roof nails lifting (1.2.1)
- E1 Surface Water:
 - Stormwater drainage from ensuite down pipe (1.5.3)
- E2 External Moisture:
 - roof nails lifting (1.2.1)
 - signs of moisture penetration at TV aerial (1.2.2)
 - signs of moisture penetration at entry canopy (1.2.3)
 - bottom of apron flashings (1.2.4)
 - valley gutter at entry canopy (1.2.5)
 - flashings at entry canopy (1.2.6)
 - gas flue penetration (1.2.7)
 - shrinkage/embrittlement of roof underlay (1.3.1)
 - ground clearances (1.4.1)
 - gas cylinder deflector fixings through cladding (1.4.2)
 - unsealed penetrations in meter box (1.4.3)
 - bedroom 2 window seal split and detached (1.4.4)
 - producer statement for EIFS cladding lacking (1.4.5)
 - deterioration to entry door paintwork (1.5.1)
 - high moisture levels to ensuite external wall (1.6.2)
- E3 Internal Moisture:
 - shrinkage/embrittlement of roof underlay (1.3.1)
 - high moisture levels to bathroom wall beside shower (1.6.1)
 - high moisture levels to ensuite external wall (1.6.2)
 - cracked lining from top of garage door (1.6.3).
- G11 Gas as an Energy Source:
 - lack of support to gas pipes in roof space (1.3.2)
 - wiring in contact with gas pipes in roof space (1.3.3)
- G13 Foul Water:
 - lack of protection to vent pipe AAV (1.5.2).

3.3.2 In a letter to the applicants, dated 17 March 2016, the authority refused to issue the code compliance certificate for the following reasons (in summary):

- the lack of compliance identified in the final inspection with Building Code clauses B1 Structure, B2 Durability, E1 Surface Water, E2 External Moisture, E3 Internal Moisture, G11 Gas as an Energy Source and G13 Foul Water.
- due to the time elapsed between the date of the building consent and the final inspection.

3.4 On 25 August 2016, the applicants applied to the Ministry for a determination.

4. The submissions

4.1 The applicants outlined the background to the situation, noting that the building company had not completed ‘the small list of items’ resulting from the 2003 final inspection. When offering the property for sale in 2014, the applicants had discovered the lack of a code of compliance certificate.

4.2 The applicants explained that the ‘biggest issue on the list is that there was no PS3’ for the EIFS cladding. The applicants noted that the authority had instructed the applicants to either provide the PS3 or bring the building work into compliance, and that their understanding was that:

Even though the external cladding was built to code and was inspected and passed by the inspector the code has since changed and so we would be required to remove the cladding and replace all because the council do not have a document.

4.3 The applicants provided copies of:

- the consent drawings and specification, the building consent dated 15 January 2002
- the inspection records, the first final inspection notice dated 3 May 2002
- the building company’s ‘Construction Certificate’ dated June 2002
- the second final inspection notice dated 11 August 2003
- the third final inspection notice dated 16 March 2016
- the authority’s refusal to issue a code compliance certificate dated 17 March 2016
- the authority’s computer records of internal file notes
- other correspondence from the authority, various computer file records, statements and other information.

4.4 The authority acknowledged the application but made no submission.

4.5 A draft determination was issued to the parties for comment on 25 October 2016.

4.6 The authority responded on 7 November 2016, noting some minor typographic errors and submitting the following:

- The authority had not received a copy of the building company’s ‘construction certificate’ (refer paragraph 3.2.2).
- Notwithstanding the current performance, the authority remained concerned about possible underlying damage to concealed building elements from poorly executed flashings and terminations.

- The authority is concerned that the testing of the downpipes (refer paragraph 5.5.1) may not adequately reflect conditions in high rainfall events that would result in overflow and wetting of the bottom plate; there may have been damage caused during past events.
- While outstanding items may have been attended to (refer paragraph 5.6.2), the authority remains concerned there may be undetected damage to building elements.
- The authority disagrees with the finding in Table 1 (item 1.4.1 ground clearances generally) that the clearances are “adequate”; the cladding does not comply with Clause E2.

4.6.1 The applicants responded on 8 November 2016, accepting the draft determination without further comment.

4.6.2 In response to the authority’s concerns; I am of the view that the expert’s observations and moisture measurements were thorough and sufficient for me to form the view that the previously lifting roofing nails, the cladding clearance (generally), the unsealed service holes in the external meter board, and the split/detached window weather seal, have not resulted in non-compliance with Clause E2 such as to cause undue dampness or damage to underlying building elements. I acknowledge the authority’s concerns with regard to the equivalency of the expert’s test of the downpipes against high rainfall events; however I consider that the moisture readings taken by the expert are sufficient for me to reach the conclusion that the building work complies in this respect.

5. The expert’s report

5.1 General

5.1.1 As mentioned in paragraph 1.8, 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 16 September 2016, providing a report dated 24 September 2016 (and finalised on 13 October 2016). The parties were provided with a copy of the report on 14 October 2016.

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, E1, E2, E3, G11 and G13.

5.1.3 The expert noted that the form and plan of the house generally appeared to conform to the consent drawings. However, he noted that drawings were very limited; with the interior framed ‘false chimney’ above the gas fire not shown.

5.2 Construction quality

5.2.1 The expert considered the interior finish was generally acceptable and the exterior envelope was ‘generally to an acceptable standard (apart from the bottoms of the valley flashing terminations and the apron flashing terminations). Although currently ‘operating effectively’, the expert considered that roof valley flashing terminations had ‘been poorly executed and are reliant upon flexible sealant’.

- 5.2.2 The roof underlay was deteriorating, with gaps visible from the roof space. Although he did 'not observe any breach of the mandatory' performance requirements of the Building Code as a direct result, the expert recommended that preventative maintenance be carried out in the form of replacing underlay and rectifying flashings over time.

5.3 Moisture investigations (Clauses B1, E2 and E3)

- 5.3.1 The expert inspected the interior and roof spaces, taking semi-invasive readings into skirtings, linings, window reveals and below jamb/sill junctions. He noted the following signs of past or current moisture penetration at:

- window reveals, likely entering via aluminium window mitre joints
- the bottom of framing beside the garage door
- the bottom of framing to the two EIFS-clad entry columns
- the framing of the hall/bathroom partition adjacent to shower
- the top batten to the main roof ridge, with visible watermarks
- under the bottom of canopy valley flashing, where a bucket was wedged.

- 5.3.2 The expert carried out the following destructive investigations:

- at the flue penetration, dye-testing showed water seeping through the rubber boot flashing into the roof space then dripping down the flue within the framed false chimney and onto the top of the gas fire casing
- lining removed from hallway wall, revealing high moisture levels and light mould on the bottom plate
- small section of EIFS removed from entry column where cladding base buried in soil, revealing high moisture levels but no 'obvious decay' in framing
- timber sample extracted from water stained roof batten under aerial (sample 1)
- garage door revealing elevated moisture levels and signs of decay, with timber samples removed (samples 2 and 3).

- 5.3.3 The expert forwarded the three samples for analysis and the laboratory report dated 22 September 2016 noted the following:

- sample 1 from the roof batten was CCA-treated, while samples 2 and 3 from the bottom plates were 'most likely untreated perishable pine'
- samples 1 and 3 'contained prolific fungal growths but no structurally significant decay' but had been 'exposed to conditions close to those conducive to decay', with such samples 'typically found in moisture compromised wall cavities and other locations'
- sample 2 contained 'advanced decay' which had 'probably caused loss of the bulk of the original structural integrity' and replacement is recommended.

5.4 Clauses B1 Structure and B2 Durability (item 1.2.1, 1.4.1)

- 5.4.1 Taking into account the series of earthquakes experienced in the region since the house was built, the expert observed no signs of significant movement in the structure, with no doors sticking and 'very few hairline cracks' in the internal linings.

The expert also observed that roof nail fixings appeared ‘to have been driven home or replaced’, with no raised nails now visible (item 1.2.1).

- 5.4.2 The expert considered that decayed timber found in the bottom plate beside the south east garage door where clearances are insufficient indicates that some framing associated with moisture damage is unlikely to be structurally sound and durable – see paragraph 5.3.3 (item 1.4.1).

5.5 Clause E1 Surface Water (Item 1.5.3)

- 5.5.1 The expert could not locate the outfall for drains from the downpipes, which the authority had indicated discharge into soakholes. However, he tested the stormwater drains for about 20 minutes with a hose producing about 10 litres/minute and observed that drains were ‘working efficiently’ (item 1.5.3).

5.6 Clauses E2 External moisture, and B2 Durability (Items 1.2.1 to 1.2.7, 1.3.1, 1.4.1 to 1.4.5, 1.5.1, 1.6.2)

- 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 applying for particular junctions and intersections.

- 5.6.2 The expert noted that the following items on the authority’s inspection list appeared to have been satisfactorily attended to:

- Roof nail fixings appeared ‘to have been driven home or replaced’, with no raised nails visible (Item 1.2.1).
- The canopy above the gas cylinder is now securely fixed and sealed against the wall cladding (Item 1.4.2).
- Holes in the bottom of the meter box are now sealed (Item 1.4.3).
- The detached window seal is now fixed back to the sash with sealant and the sash closes satisfactorily against the rubber seal (Item 1.4.4).

- 5.6.3 Commenting specifically on the external envelope in regard to the authority’s concerns (taking account of the age of the claddings), the expert noted:

- the TV aerial cable penetrates roofing, with a hole in the sealant (Item 1.2.2)
- there is evidence of past leakage at the bottom of the valley gutter to the entry canopy, although a heavy application of sealant had temporarily stopped moisture penetration into the roof space (Items 1.2.3, 1.2.5 and 1.2.6)
- the bottom of apron flashings lack effective kickouts to divert water into gutters, allowing water to pool against the flashing turn-up (Item 1.2.4)
- the flashings at the junction of the canopy with the main roof are not weathertight, with gaps visible, very heavy reliance on sealant and evidence of past moisture penetration (Item 1.2.6)
- dye-testing at the flue penetration revealed water seeping through rubber boot flashing into the roof space and dripping down the flue within the framed false chimney and onto the top of the gas fire casing (Item 1.2.7)
- the soil against the bottom of the cladding at one entry column and beside garage door had resulted in moisture penetration

- the lack of cladding clearance beside the garage door had resulted in moisture penetration, fungal growth and decay – see paragraph 5.3.3 (Item 1.4.1).

5.6.4 Although the expert recommended some repairs as part of ongoing maintenance, he noted that the following areas appeared to have remained weathertight to date as there was no evidence of associated moisture penetration:

- Although the roof underlay has shrunk and created gaps, the particular product is prone to shrinkage and there was no evidence of associated moisture entry after more than 14 years (Item 1.3.1).
- Apart from areas beside garage door and at one entry column, the limited ground clearances appear satisfactory given the eaves shelter and paving fall away from the junction (Item 1.4.1).
- Although the entry door edge is unpainted, the door is sheltered beneath the canopy and the lack of paint has had no effect on weathertightness (Item 1.5.1).
- At the southeast wall of the ensuite, semi-invasive testing at 400mm centres into skirting and plasterboard lining of showed readings ‘well within an acceptable range’, with no visual evidence of moisture damage (Item 1.6.2).
- Although there is no evidence of vermin access via gaps into the canopy roof space, mesh or similar should be installed to prevent future access.

5.7 **Clause E3 Internal moisture (Items 1.3.1, 1.6.1 to 1.6.3)**

5.7.1 The expert carried out invasive moisture investigation of the hall/bathroom partition as described in paragraph 5.3.2 (second bullet point) and found high moisture levels and light mould. No plumbing leaks were observed but when the shower rose was directed at the base of the hose and tap, water was seen seeping down plasterboard, so further investigation and repair is required.

5.7.2 The roof underlay was deteriorating, with numerous gaps visible from the roof space. Although he did not observe any drip marks on insulation or ceiling lining, the expert also noted that it was not possible to inspect every possibility for condensation marks as this would require removing at least half of the ceiling insulation to inspect the underlying lining (see paragraph 5.2.2).

5.7.3 The expert made the following comments:

- Although the roof underlay has shrunk and created gaps, the particular product is prone to shrinkage and there is no evidence of associated moisture entry after 14 years (Item 1.3.1).
- Semi-invasive testing at 400mm centres into skirting and plasterboard lining of southeast ensuite wall showed readings ‘well within an acceptable range’, with no visual evidence of moisture damage (Item 1.6.2)
- Cracked lining joints above garage laundry door corner do not result from internal moisture and are considered ‘not a compliance issue’ (Item 1.6.3).

5.8 G11 Gas as an energy source (Items 1.3.2 to 1.3.3)

5.8.1 The expert noted that:

- gas pipes in the roof space are now adequately supported (Item 1.3.2)
- electrical cable in the roof space is now tied to the top truss chord to keep it away from gas pipes (Item 1.3.3).

5.9 Clause G13 Foul water (Item 1.5.2)

5.9.1 The expert noted that satisfactory frost protection had now been fitted over the AAV to the vent pipe (Item 1.5.2).

5.10 The expert's conclusion

5.10.1 The expert concluded that the following areas do not comply with the Building Code that was current at the time the house was constructed (with relevant clauses shown in brackets):

- Damaged timber framing beside the garage door (B1, B2).
- Roof flashings, junctions and intersections to the entry canopy (E2, B2).
- Roof penetrations at the gas flue and TV aerial cable (E2, B2).
- Clearances to EIFS beside the garage door and the entry column (E2, B2).
- Internal moisture penetration from the bathroom shower (E3).

6. Discussion

6.1 The compliance of the house

6.1.1 I note that the building consent considered in this determination was issued under the former Act, and accordingly the transitional provisions of the current Act apply when considering the issue of a code compliance certificate for work completed under this consent. Section 436(3)(b)(i) of the transitional provisions of the current Act requires the authority to issue a code compliance certificate only if it 'is satisfied that the building work concerned complies with the building code that applied at the time the building consent was granted'.

6.1.2 In order to determine whether the authority correctly exercised its power in refusing to issue a code compliance certificate for this house, I must therefore consider whether the house complies with the provisions of the Building Code that was in force when the consent was issued.

6.1.3 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 May 2002. Although that matter is not part of this determination (see paragraph 1.7), I have taken the anticipated modification into account when considering the compliance of the house.

6.2 Clause E2 External moisture

6.2.1 The evaluation of building work for compliance with the Building Code and the risk factors considered in regards to weathertightness have been described in numerous previous determinations (for example, Determination 2004/1).

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

Increasing risk

- the house is in a high wind zone
- although fairly simple in form, the roof includes some complex junctions
- walls have monolithic cladding fixed directly to the framing
- external wall framing is not treated to provide resistance to decay if it absorbs and retains moisture.

Decreasing risk

- the house is single storey with no attached decks
- there are roof overhangs to shelter most of the monolithic wall cladding.

6.2.3 Using the E2/AS1 risk matrix to evaluate these features, the elevations are assessed as having a low to medium weathertightness risk rating. If details shown in the current Acceptable Solution E2/AS1 were adopted to show code compliance, a drained cavity would be required for the monolithic cladding at all risk levels. However, this was not a requirement at the time of construction.

6.3 Weathertightness performance

6.3.1 Inspection records indicate that the first final inspection was carried out in May 2002 (see paragraph 3.2.1) 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 14 years of the minimum 15 years required by Clause B2 of the Building Code.

6.3.2 Although the expert reported that some roof junctions had ‘been poorly executed and are reliant on flexible sealant’ and cladding clearances that were well under EIFS manufacturers’ recommendations, his investigation has found limited evidence of moisture penetration to date. The low risk nature of the design appears to have offered sufficient protection against widespread moisture ingress despite defects identified by the authority.

6.3.3 Generally the EIFS wall claddings appear to have been installed in accordance with the manufacturer’s instructions at the time, with the roofing installed to average trade practice. However, I note the expert’s comments in paragraph 5.6.3 on items requiring attention to ensure ongoing weathertightness and I consider the following areas require attention:

- The moisture penetration into and timber damage to the bottom of walls beside the garage door, including investigating the extent of damage.
- The moisture penetration into the bottom of the framed entry column.
- The gas flue and aerial penetrations through the roof.
- For the junction of the entry canopy roof with the main roof:
 - the bottom of the valley gutters
 - the bottom of the apron flashings.

6.3.4 I also note the expert’s comments in paragraph 5.6.4, and accept that these areas are adequate in the particular circumstances.

6.4 Clause E2 conclusion

- 6.4.1 I consider the expert's report establishes that the current performance of the building envelope is not adequate because there is evidence of moisture penetration into several areas of the timber framing. Consequently, I am satisfied that the cladding did not comply with Clause E2 of the Building Code that was current at the time the building consent was issued.
- 6.4.2 Given the damage to the garage bottom plate, I am also satisfied that the cladding has not complied with Clause E2 for some time. The level of obvious decay damage to the bottom plate and the likelihood of further hidden damage to untreated framing behind linings also satisfy me that the timber framing may not comply with Clause B1 of the Building Code.
- 6.4.3 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.
- 6.4.4 Although roof and wall claddings are now 14 years old, the expert's investigations revealed evidence of moisture ingress over an extended period. Because of the decay damage apparent to the bottom plate and the likelihood of further undiscovered damage, I am therefore 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 satisfy me that both the wall and roof claddings have not complied with Clause B2 insofar as it applies to E2.
- 6.4.5 Because the identified moisture penetration and cladding faults occur in discrete areas, I am able to conclude that satisfactory investigation and rectification of areas outlined in paragraph 5.6.3 will result in the house being brought into compliance with Clauses B1, B2 and E2 of the Building Code.
- 6.4.6 It is emphasised that each determination is conducted on a case-by-case basis. Accordingly, the fact that a particular cladding system has been established as being code-compliant in relation to a particular building does not necessarily mean that the same cladding system will be code-compliant in another situation.

6.5 Clause E3 Internal moisture

- 6.5.1 The expert's investigation revealed internal moisture penetration into framing associated with the bathroom shower. Further investigation will be needed to determine the source of the moisture and the plumbing repairs required (refer paragraph 5.7.1).
- 6.5.2 I also note the expert's comments in paragraph 5.7.3, and accept that these areas are adequate in the circumstances described.
- 6.5.3 I note the expert's comments on the lack of evidence of condensation resulting from shrinkage and gaps in the roof underlay and I concur with his recommendation that maintenance over time be carried out in the form of replacing underlay and rectifying flashings to avoid longer term moisture problems.

6.6 The remaining Building Code clauses

6.6.1 Taking account of the expert's report, I am satisfied that the house as constructed is likely to comply with those other clauses considered by the expert during his inspection: namely E1 Surface Water, G11 Gas as an energy source, and G13 Foul Water.

6.7 Conclusion in respect of the matters raised by the authority

6.7.1 Taking account of the expert's report, Table 1 summarises my conclusions on the compliance matters identified for this house by the authority:

Table 1: Conclusions on compliance matters

Areas of concern (in summary using item numbers)		Comments	Conclusion
			Compliance
B1 Structure			
1.2.1	Roof nails lifting	<ul style="list-style-type: none"> Now rectified, no raised nails visible No visual evidence of undue dampness or damage resulting from lifting nails 	Adequate
1.4.1	Cladding clearances beside garage door	<ul style="list-style-type: none"> Elevated moisture on both sides Decay in bottom plate confirmed for one sample 	Investigation and repairs required
E1 Surface Water			
1.5.3	Ensuite downpipe discharge	<ul style="list-style-type: none"> Tested drain with 10L/min hosed water for 20 minutes No overflow from drain observed 	Adequate
E2 External Moisture			
1.2.1	Roof nails lifting	<ul style="list-style-type: none"> Now rectified, no raised nails visible No visual evidence of undue dampness or damage resulting from lifting nails 	Adequate
1.2.2	TV aerial penetration	<ul style="list-style-type: none"> Gap at TV cable penetration Underlying CCA batten water-marked but lab reported sound 	Repair required
1.2.3	Entry canopy	<ul style="list-style-type: none"> Evidence of past leaks Gaps visible from roof space Current moisture levels not elevated 	Repair required
1.2.4	Apron flashings	<ul style="list-style-type: none"> Lack kickout to divert water to gutters Flashing turnups pool water against cladding junctions Current moisture levels not elevated 	Repair required
1.2.5	Canopy valley gutters	<ul style="list-style-type: none"> Valley flashings poorly installed Terminate beneath roofing Heavy use of sealants Bucket in roof space but no current leaking 	Repair required
1.2.6	Canopy/main roof junction flashings	<ul style="list-style-type: none"> Heavy use of sealants 	Repair required
1.2.7	Gas flue penetration	<ul style="list-style-type: none"> Sealant repairs ineffective Dye testing revealed leaking 	Repair required

Areas of concern (in summary using item numbers)		Comments	Conclusion
			Compliance
1.3.1	Gaps in roof underlay	<ul style="list-style-type: none"> Numerous gaps - horizontal and down roof slope Product prone to shrinkage No evidence of condensation water dripping onto insulation/lining Unable to check under all insulation 	Adequate in short term Maintenance advised in longer term
1.4.1	Ground clearances (generally)	<ul style="list-style-type: none"> Well under recommendations 	Adequate
	Cladding clearances beside garage door	<ul style="list-style-type: none"> Elevated moisture on both sides Decay in bottom plate confirmed for one sample 	Investigation and repairs required
	Canopy column	<ul style="list-style-type: none"> Cladding of west corner column buried into garden Elevated moisture level but no obvious decay 	Repair required
	Other areas	<ul style="list-style-type: none"> No evidence of moisture penetration Most areas beneath 600mm eaves Paving falls away from foundations 	Adequate in circumstances Lower remaining planted areas in longer term (maintenance)
1.4.2	Gas cylinder shelter	<ul style="list-style-type: none"> Now rectified Securely fixed and sealed to cladding 	Adequate
1.4.3	Gaps within meter box	<ul style="list-style-type: none"> Now rectified Holes sealed 	Adequate
1.4.4	Bedroom 2 window seal	<ul style="list-style-type: none"> Now rectified Seal fixed to sash with sealant 	Adequate in circumstances
1.4.5	Producer statement for EIFS cladding	<ul style="list-style-type: none"> Not consent condition Not a compliance requirement 	Adequate once repaired satisfactorily
1.5.1	Entry door paintwork	<ul style="list-style-type: none"> Door sheltered by canopy Door edge unpainted but not exposed 	Adequate in circumstances Maintenance advised
1.6.2	Ensuite SE wall	<ul style="list-style-type: none"> Semi-invasive testing at 400mm c/c All readings within acceptable levels No evidence of moisture penetration from inside or outside 	Adequate
E3 Internal Moisture			
1.3.1	Gaps in roof underlay	<ul style="list-style-type: none"> Numerous gaps - horizontal and down roof slope Product prone to shrinkage No evidence of condensation water dripping onto insulation/lining Unable to check under all insulation 	Adequate in short term Maintenance advised in longer term
1.6.1	Bathroom shower / hall partition	<ul style="list-style-type: none"> Removal of lining showed evidence of leaking into framing No obvious leaks in plumbing pipes Tested with shower rose - leaking at shower lining/fittings junction(s) 	Investigation and repair required
1.6.2	Ensuite SE wall	<ul style="list-style-type: none"> Semi-invasive testing at 400mm c/c All readings within acceptable levels No evidence of moisture penetration from inside or outside 	Adequate
1.6.3	Cracked lining above garage door	<ul style="list-style-type: none"> Not associated with moisture Not considered a compliance issue 	Adequate

Areas of concern (in summary using item numbers)		Comments	Conclusion
			Compliance
G11 Gas as an Energy Source			
1.3.2	Unsupported gas pipes in roof space	<ul style="list-style-type: none"> • Now rectified • Pipe clips fix to truss chords 	Adequate
1.3.3	Wiring contacts gas pipes	<ul style="list-style-type: none"> • Cable tied to top chord of trusses to keep clear of gas pipes 	Adequate
G13 Foul Water			
1.5.2	Protection to vent pipe AAV	<ul style="list-style-type: none"> • Frost protection cover now fitted 	Adequate

6.8 Maintenance

- 6.8.1 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 wall claddings, windows, flashings, roofing and gutter systems continue to protect the underlying framing for its minimum required life of 50 years.
- 6.8.2 I note that many items identified in the authority's inspection record and photographs indicated that the house had not been well maintained over the past 14 years, which had resulted in signs of past moisture penetration in some areas. Although most items have recently been rectified, I have noted some other areas where maintenance is needed (see Table 1) to ensure that the claddings continue to protect the framing.
- 6.8.3 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).

6.9 The producer statement for the EIFS cladding

- 6.9.1 The building consent did not include a requirement for a producer statement for the EIFS cladding, but noted that a 'Construction Statement confirming the exterior plaster cladding system has been completed in accordance with the manufacturers specification ... will facilitate the issue of the Code Compliance Certificate'. By 2016, the subject EIFS system had been superseded and the cladding installer was no longer in business; a completed producer statement is therefore unable to be obtained.
- 6.9.2 The authority is of the view that a producer statement is required to establish compliance. There is no basis in the Act 2004 for an authority to demand a producer statement as a condition for establishing compliance and for issuing a code compliance certificate, particularly if it had not made the receipt of one a condition of the consent. Though the authority is entitled to accept a producer statement if one was offered, it should not rely on that to the exclusion of other evidence that demonstrates compliance. The receipt of a producer statement by an authority does not lessen its liability in establishing code compliance. An authority accepts a producer statement at its discretion in the belief that the author of the producer statement is creditable.

- 6.9.3 It is apparent from the background and other evidence that the particular proprietary EIFS system specified in the consent documents had been installed in 2002 by an applicator approved by the cladding manufacturer. The wall cladding was passed without comment during the authority's first final inspection in May 2002 and again in the second final inspection in August 2003.

7. What happens next?

- 7.1 I note that the building consent was issued to the current owners of the house (the applicants), and a notice to fix is able to be issued to the applicants in respect of breaches of the Act or Regulations. Any notice to fix should take into account the findings of this determination, identifying the investigations and items listed in Table 1 and referring to any further defects that might be discovered in the course of investigation and rectification, but not specifying how those defects are to be fixed. It is important to note that the Building Code allows for more than one means of achieving compliance.
- 7.2 The applicants should produce a detailed proposal to address the matters of non-compliance and investigation for the areas identified herein, produced in conjunction with a suitably competent person. Any items of disagreement can then be referred to the Chief Executive for a further binding determination.
- 7.3 A code compliance certificate will be able to be issued once these matters have been rectified and the matter of amending the building consent to modify Clause B2.3.1 has been resolved.

8. The decision

- 8.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the house does not comply with the Building Code that was current at the time the consent was issued in respect of:

- some timber framing to a garage wall does not comply with Clauses B1 Structure and B2 Durability
- the building envelope does not comply with Clauses E2 External moisture and Clause B2 Durability
- the shower partition wall does not comply with Clauses E3 Internal moisture and B2 Durability,

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

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 17 November 2016.

John Gardiner
Manager Determinations and Assurance