



Determination 2016/049

Regarding the refusal to issue code compliance certificates for an 18 to 20-year-old house with monolithic cladding at 53 Courage Road, Amberley



Summary

This determination is concerned with the compliance of a 20-year-old 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 matter 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 owner of the house, the Parish Family Trust ("the applicant")
 - Hurunui District Council ("the authority"), carrying out its duties as a territorial authority or building consent authority.
- 1.3 This determination arose from the decision of the authority to refuse to issue code compliance certificates for the 18- to 20-year-old house because it was not satisfied that the building work complied with certain clauses² of the Building Code (First Schedule, Building Regulations 1992). The authority expressed its concerns regarding compliance of the building work in relation to the age of the building and the weathertightness of its claddings.
- 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 certificates. In deciding this, I must consider:

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, unless otherwise stated, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

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

1.4.1 Matter 1: The external envelope

Whether the external building envelope of the completed house complies with Clause B2 Durability and Clause E2 External Moisture of the Building Code that was current at the time the building consents were issued. The building envelope includes the components of the systems (such as the monolithic and plywood claddings, the windows, the roof cladding and the flashings), as well as the way the components have been installed and work together. I consider this in paragraph 6.

1.4.2 Matter 2: The durability considerations

Whether the building elements comply with Clause B2 Durability of the Building Code that was current at the time the building consents were issued, taking into account the age of the house. I consider this in paragraph 7.

1.5 I have taken the authority's letter to the applicant dated 6 August 2014 as a refusal to issue the code compliance certificates for the house (see paragraph 3.4.4). In that letter, the authority limited its concerns to the weathertightness of the claddings as outlined in Matter 1. In addition to the matters set out in paragraph 1.4 above, I have addressed some additional items observed by the expert during his inspection. This determination does not address any other relevant clauses of the Building Code.

1.6 The completed house considered in this determination ("the house") includes building work carried out under the following building consents:

- Consent No. BC960312 issued on 13 August 1996 to 'erect a garage/sleepout' ("the original building").
- Consent No. BC980328 issued on 27 October 1998 for 'alterations and additions to dwelling' ("the alterations").

1.7 I note here that the two subject building consents were issued under the Building Act 1991 ("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 those consents. Section 436(3)(b)(i) requires the authority to issue a code compliance certificate if it 'is satisfied that the building work concerned complies with the building code that applied at the time the building consent was granted'.

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.

1.9 Matters outside this determination

1.9.1 This determination is limited to the above building consents and does not consider the following building consents issued for other buildings constructed on the same site (see Figure 1):

- Consent No. BC980040 issued on 2 March 1998 for a garden shed.
- Consent No. BC990153 issued on 14 May 1999 for a garage/workshop building.

1.9.2 This determination does not consider the effect of any remedial work that may have been carried out subsequent to the issue of the draft determination (refer paragraph 4.5).

2. The building work

2.1 The building work consists of a single-storey detached house situated on a large rural site in a high wind zone for the purposes of NZS 3604⁴. The completed house is made up of an original building constructed in 1996 and extensive alterations and additions carried out in 1998 and 1999. The house is assessed as having a low-to-moderate weathertightness risk.

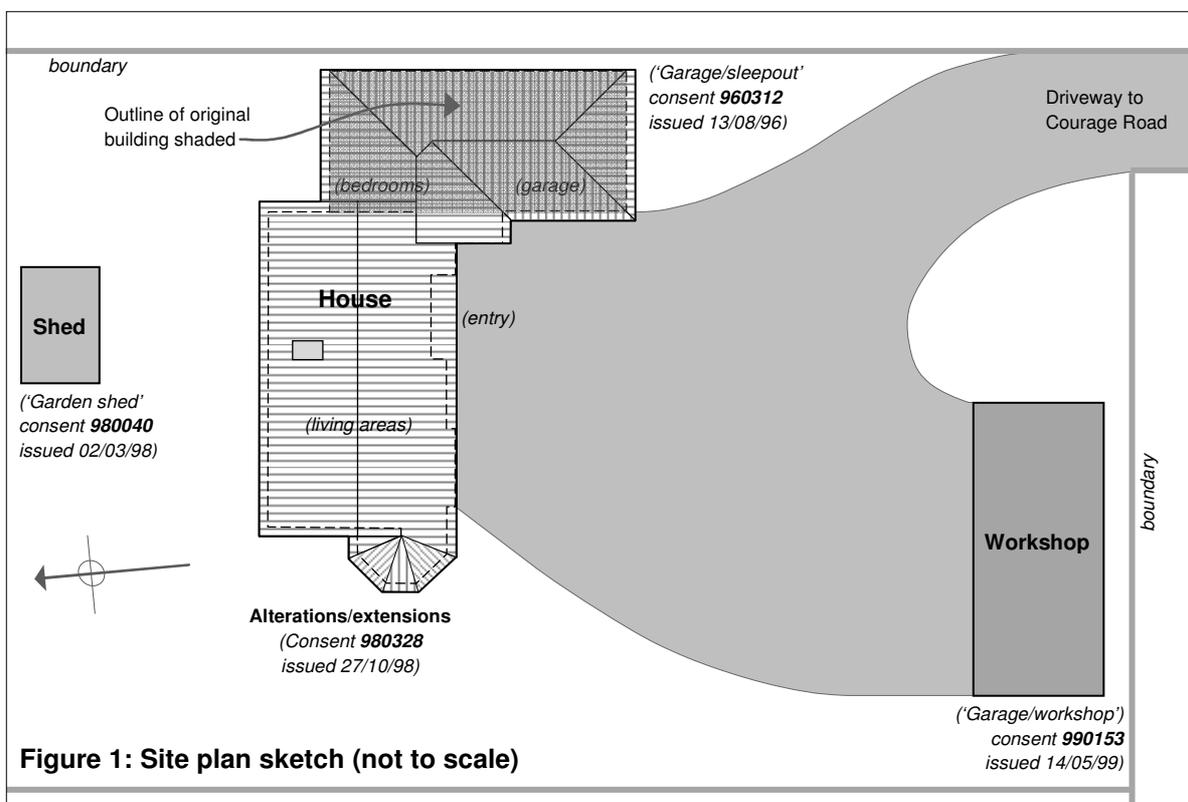
2.2 Construction is generally conventional light timber frame, with concrete foundations and floor slab, monolithic and plywood wall claddings, profiled metal roofing and aluminium joinery. The 18° pitch hipped roofs have eaves of 600mm or more, except for the east wall of the original building and several projections on the north elevation with verge overhangs varying from about 50mm to 550mm.

2.3 The alterations and additions

2.3.1 The original building was a proprietary garage/sleepout with a simple rectangular plan and gable roof. The 1998 extensions more than doubled the floor area and included:

- removal of a veranda that had been added to the west of the original building in 1997
- addition of a new wing to the west, providing living, dining and kitchen areas
- alterations of the original building to provide 4 bedrooms and 2 bathrooms
- new roof framing, roofing and cladding to most walls of the original building.

2.3.2 The resulting house is shown in the site plan sketch in Figure 1:



⁴ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

2.4 The specification calls for wall framing to be ‘treated No.1 Radiata Pine to H1’, although the expert was unable to observe any treatment markings on framing exposed at two cut-outs. Given the lack of evidence and the date of wall framing installation in 1996 and 1998, I consider that the timber wall framing is likely to be untreated.

2.5 The wall claddings

2.5.1 On the east elevation, the wall cladding is plywood, with timber battens covering vertical joints. It appears that this cladding remains from the original sleepout/garage building, with plywood to some other walls used as backing for areas of solid plaster cladding.

2.5.2 The expert’s report states that there are two forms of monolithic cladding applied elsewhere to the building, although the report does not identify where each is used. The cladding types are:

- a system known as EIFS⁵ consisting of polystyrene backing sheets fixed directly to the framing over the building wrap, to which a plaster coating has been applied. (I consider it likely that EIFS is applied to most walls of the completed building.)
- a solid plaster system, which I have assumed to be over a solid backing fixed through the building wrap directly to the framing timbers. I have seen no information as to slip layers or plaster reinforcing.

2.5.3 There is no specification or details of the EIFS cladding and no producer statements from a manufacturer or installer which would identify a particular proprietary EIFS system. The EIFS to this house may therefore not include purpose-made flashings to windows, edges and other junctions.

3. Background

3.1 The original building

3.1.1 The authority issued building consent No. 960312 for the original building on 13 August 1996 under the former Act, and carried out four inspections during construction with the last recorded inspection on 2 October 1996.

3.1.2 An extension to the building, in the form of a lean-to veranda to the west wall, was stamped as approved on 11 April 1997 presumably as an amendment to the original building consent. No final inspection was recorded and there is no record that a code compliance certificate was issued for the original building.

3.2 Alterations to the original building

3.2.1 The authority issued building consent No. 980328 on 27 October 1998 under the former Act for extensive additions and alterations. It appears that the authority carried out four inspections of the alterations and additions, although the copies of three site inspection reports are illegible and there is no record of a final inspection.

3.2.2 The applicant has stated that the plaster wall cladding was completed in 1999. It appears that the house was substantially completed by April 1999 because the application for building consent for the garage/workshop building, which was issued on 14 May 1999, includes a site plan that shows the outline of the ‘existing house’.

⁵ Exterior Insulation and Finish System

3.3 The final inspections

- 3.3.1 In a letter to the applicant dated 29 July 2004, the authority noted that no code compliance certificate had been issued for the building work, adding that a code compliance certificate ‘must be obtained’. The authority asked the applicant to arrange an inspection and erroneously stated that ‘not obtaining a code of compliance certificate before [31st March 2005] could mean either serious rectification to bring the building works up to the current building code regulations, or never being able to obtain the final code of compliance certificate...’
- 3.3.2 It appears that an inspection was requested, which the authority carried out on 19 April 2005. The site inspection record noted the following outstanding items:
- Complete sealing around pipes exiting through exterior cladding and wastes into gullies.
 - Provide gas certificates and as-laid drainage plan.
 - Remove packing between terrace and plastered walls of house.
- 3.3.3 There is no record of further correspondence until 2010, when the authority re-inspected the house on 13 May 2010 and confirmed that the first two outstanding items had been attended to.

3.4 The refusal to issue a code compliance certificate

- 3.4.1 The applicants formally applied for a code compliance certificate on 6 July 2011 and the authority carried out a further inspection on 7 July 2011 which confirmed that the remaining item had been completed. The inspection record also noted ‘field inspections completed’, with no further inspection required.
- 3.4.2 The authority assessed the application and in a letter to the applicant dated 17 November 2011 noted:
- Further information is required with regard to the following:
 1. Please provide us with a plaster certificate
 2. Electrical certificate required
 3. Pressure test declaration required.
- 3.4.3 The applicant subsequently provided a ‘pressure test declaration’ dated 19 December 2011 and an electrical certificate of compliance dated 30 December 2012. However no statement could be obtained for the cladding as the plasterer was apparently no longer in business.
- 3.4.4 In a letter to the applicant dated 6 August 2014, the authority noted that its records showed that the wall cladding was a direct fix monolithic cladding and no ‘cladding certificate’ had been provided. I have taken this letter as a refusal to issue a code compliance certificate under Section 95(A) of the Act as the authority went on to state:
- As this cladding type is considered by [the authority] as high risk of non-compliance with the code, the [authority] now needs to be satisfied that the cladding is in fact performing as required by the code. Please supply evidence of this by providing a weather tightness report from a suitable qualified person e.g. a member of the NZ institute of building surveyors. Once [the authority] has considered this report we may be able to once again consider this project for a code of compliance certificate.
- 3.5 I have seen no records of further correspondence between the parties. The Ministry received an application for a determination on 13 October 2014 and sought further information, which was received on 16 October 2014.

4. The submissions

- 4.1 The applicant made no submission with the application, but provided copies of the following:
- the consent documentation for the original building and the alterations
 - consent documentation for the other two buildings on the site
 - correspondence from the authority
 - the authority's inspection records
 - various certificates, producer statements and other information.
- 4.2 The authority made no submission and submitted no information in response to the application.
- 4.3 A draft determination was issued to the parties for comment on 8 December 2014.
- 4.4 The authority accepted the draft determination in a response dated 24 December 2014.
- 4.5 On 19 February 2015 I sought a response from the applicant. In response, by email on 24 February 2015, the applicant requested the determination be put "on hold". The applicant confirmed that request in a further email on 3 March 2015, noting that remedial work was being planned.
- 4.6 In a form received on 3 October 2016 the applicant accepted the draft without further comment.

5. The expert's report

- 5.1 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. The expert inspected the house on 31 October 2014, providing a report dated 13 November 2014 which was forwarded to the parties on 13 November 2014.

5.2 General

- 5.2.1 The expert noted that his assessment was in order to provide an opinion on the compliance of the claddings with Clauses E2 and B2 of the Building Code, but that he had also provided comment on Clauses G12 and G13.
- 5.2.2 The expert noted that the EIFS cladding was 'generally straight and fair of finish', but that he considered the plywood cladding to the east wall was well below an acceptable standard. The expert also noted that some areas of the roof and flashings had been incorrectly installed and 'now the ridge looks unsightly due to buckling.'
- 5.2.3 The expert observed that the plan and form of the building is generally in accordance with the consent drawing but the following changes were noted:
- The lounge and bedroom 1 are reduced in area, in order to provide an additional bedroom in lieu of the walk-in wardrobe shown in the floor plan, with an additional window to the north wall.
 - Monolithic wall claddings are EIFS and stucco in lieu of flush-finished fibre-cement noted on the drawings.

(In addition, I note that the east wall of the original building has plywood cladding, which is not shown in the original garage/sleepout drawing, and that a gas fire is installed to the lounge, with a timber-framed chimney penetrating the north slope of the roof above.)

5.3 Moisture testing

5.3.1 The expert's report noted no specific signs of moisture in the interior of the house. However the expert observed the following areas on the exterior considered at risk of moisture penetration into timber framing associated with:

- the bottom of apron flashings to roof/wall junctions
- unsealed penetrations through the cladding
- window/wall junctions
- cladding and floor clearances to outside ground and paving
- cladding clearances to roof claddings.

5.3.2 In order to investigate the above junctions, the expert took invasive moisture readings through linings at sample locations. Two small sections of lining were removed ("the cut-outs") to allow the expert to observe underlying framing in the west wall of the dining room beneath the bottom of the apron flashing at the junction between the bay window roof and the west wall of the dining area.

5.3.3 The expert noted the following:

- mould to the back of the lining and 'obvious decay' to framing exposed at cut-outs to the west wall of the dining area
- a moisture reading of 24% under the south jamb/sill junction of the west window to bedroom 2, with 21% to the bottom plate below
- a moisture reading of 20% to the bottom plate of the west wall between the garage doors, where plaster is in contact with the paving
- water soaking into the bottom of the plaster on the south side of the framed chimney to the lounge.

5.4 Commenting specifically on the external envelope, the expert noted:

- plywood cladding to the east wall of the original building includes many filled knot holes, indicating that it is unlikely to be a ply that is acceptable for exterior use

Windows and doors

- windows and doors are recessed into EIFS cladding, with the flanges edges embedded into plaster and no drainage gap at the sill – high moisture levels were recorded under a sample window sill and also in the bottom plate below
- windows in the east wall are face-fixed over plywood, with battens over jamb flanges, sealant applied at the junction (indicating seals are unlikely to be installed under jamb flanges), and sill flashings lacking drip edges, which risks capillary action causing moisture penetration under the sill

Cladding penetrations

- heat pump pipes penetrate the west wall through unsealed over-size holes, with daylight visible via the lower cut-out to the dining area wall
- the bottom of the cladding to the southwest corner of the garage has been cut back to make space for the stormwater riser
- waste and water pipes enter the east wall via a large rectangular cut-out to the plywood, with the cut-out large enough to allow rodents to enter and no protection of water pipes against freezing

Roofing and flashings

- the bottom of the apron flashings are not weathertight with no diverters to direct water away from cladding and gutters embedded into plaster – moisture penetration and timber decay is apparent in the cut-outs
- the internal gutter behind the clad chimney is too small, with moss growth in the gutter and water-marked plaster where clearances are lacking
- the ends of the internal gutter above the lounge and adjacent bedroom are not weathertight, with ponding at the end where water cannot completely drain onto the lower roofs
- the ridge flashing has insufficient allowance for movement and has buckled, with creases that will eventually cause metal fracture and allow moisture penetration. Laps to ridge flashings are not constructed as expansion joints

Cladding and floor clearances

- there is insufficient clearances to the ground and paving from internal floor levels and the bottom of the cladding on all elevations, with high moisture levels recorded between the garage doors where cladding and timber jamb reveals are buried beneath concrete
- cladding embedded into ground or paving on the south and west sides of the garage, the north wall of the master bedroom, the east side of the lounge, and the concrete patio to the south entry where concrete has been poured against the bottom 40mm of the cladding
- the concrete patio to the north side of the living areas has been poured against the cladding, with the cladding embedded by about 150mm at the northeast corner of the lounge
- the north patio concrete has also been poured up to the rim of the kitchen gully trap, with cladding extending down into the gully by about 170mm, which risks grey water being drawn up behind the cladding should the gully block
- there is insufficient clearance from the chimney cladding to the roofing.

5.5 The expert concluded that the external building envelope had failed to comply with Building Code Clauses E2 and B2, the lack of frost protection to water pipes entering the east wall of the original building does not comply with Clause G12, and level of the gully trap rim to the north patio does not comply with Clause G13.

Matter 1: The external envelope

6. Discussion

6.1 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 2004/01⁶).

6.2 Weathertightness risk

6.2.1 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
- the house is fairly complex in form, with some complex junctions
- most 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

- there are roof overhangs to shelter the monolithic wall cladding.

6.2.2 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 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 The exterior claddings have not been installed according to manufacturers' instructions or to good trade practice at the time of installation.

6.3.2 I consider the expert's report establishes that the performance of the building envelope is not adequate because there is evidence of moisture penetration, with decay to untreated timber likely in a number of areas. The significant decay obvious in the single area of wall framing exposed for investigation indicates that moisture has been penetrating claddings for some time; and I am therefore satisfied that the house was not and does not comply with Clause E2 of the Building Code that was current at the time the consent was issued.

6.3.3 Considerable work may be required to make the house weathertight and durable and further specialised investigation is necessary, including the systematic survey of all identified defects and risk locations, to determine the extent of damage to the timber framing and the repairs required.

6.3.4 The building envelope is also required to comply with the durability requirements of Clause B2. Clause B2 requires that a building continues to satisfy the performance requirements of the Building Code for the periods specified in Clause B2.3.1. The durability requirements of Clause B2 include a requirement for wall claddings to remain weathertight for a minimum of 15 years. The timber damage exposed at the cut-outs indicates that identified faults have allowed moisture ingress for a

⁶ Determination 2004/01 Refusal of a code compliance certificate for a building with a "monolithic" cladding system: House 1 (*Building Industry Authority*) 11 March 2004

significant period, and it is evident that the claddings did not meet the minimum durability period set out in Clause B2.3.1. I am therefore satisfied that the building envelope does not comply with the durability requirements of Clause B2.

- 6.3.5 Given the non-compliance with Clause E2, the likelihood of a lack of treatment to the external framing, and the expert's limited investigation, the building's current and ongoing compliance with Clause B1 should be considered in any further investigation.
- 6.3.6 Because of the extent and apparent complexity of the faults that have been identified with the claddings, I am unable to conclude that fixing the identified faults, as opposed to partial or full re-cladding, could result in compliance being achieved. Final decisions can only be made after a more thorough investigation of the cladding, which will require a careful analysis by an appropriately qualified expert. Once that decision is made, the chosen repair option should be submitted to the authority for its consideration and approval.
- 6.3.7 I note that the Ministry has produced a guidance document on weathertightness remediation⁷. I consider that this guide will assist the owner in understanding the issues and processes involved in remediation work to the buildings, and in exploring various options that may be available when considering the upcoming work required.
- 6.3.8 Effective maintenance of claddings is important to ensure ongoing compliance with Clauses B2 and E2 of the Building Code and is the responsibility of the building owner. The Ministry has previously described these maintenance requirements 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 2007/60⁸).

Matter 2: The durability considerations

7. Discussion

- 7.1 The relevant provision of Clause B2 of the Building Code requires that building elements must, with only normal maintenance, continue to satisfy the performance requirements of the Building Code for certain periods ("durability periods") "from the time of issue of the applicable code compliance certificate" (Clause B2.3.1).
- 7.2 In many previous determinations I have taken the view that a modification of this requirement can be granted if I can be satisfied that the building complied with the durability requirements at a date earlier than the date of issue of the code compliance certificate, that is agreed to by the parties and that, if there are matters that are required to be fixed, they are discrete in nature.
- 7.3 However, because of the extent of further investigation required into the condition of the timber framing and therefore the structure of the house, and the potential impact of such an investigation on the external envelope, I am not satisfied that there is sufficient information on which to make a decision about this matter at this time.

⁷ Weathertightness – Guide to remediation design. This guide is available on the Ministry's website, or by phoning 0800 242 243

⁸ Determination 2007/60 Determination regarding a code compliance certificate for a house with monolithic and weatherboard wall cladding systems (*Department of Building and Housing*) 11 June 2007

8. What happens next?

- 8.1 I note that the two building consents considered in this determination were issued to the applicant who is the current owner of the house. The authority may issue a notice to fix that requires the owner to bring the building work into compliance with the Building Code, identifying the areas listed in this determination and referring to any further defects that might be discovered in the course of inspection, investigation and rectification.
- 8.2 The applicant can then produce a response to this in the form of a detailed proposal produced in conjunction with a competent and suitably experienced person, as to the rectification or otherwise of the specified matters. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.

9. The decision

- 9.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the following work does not comply with the of the Building Code that was current at the time the consent was issued:

- the exterior building envelope of the house does not comply with Clauses B2 and E2
- the lack of frost protection to water pipes does not comply with Clause G12
- the gully trap surround does not comply with Clause G13,

and accordingly, I confirm the authority's refusal to issue code compliance certificates for building consents BC960312 and BC980328.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 3 October 2016.

John Gardiner
Manager Determinations and Assurance