



Determination 2015/076

Regarding the refusal to issue a code compliance certificate for 11-year-old extension to a house with stucco wall cladding at 14 Durham St, Riversdale

Summary

This determination considers the authority's decision to refuse to issue a code compliance certificate; the grounds for the refusal were the authority's concerns regarding the performance of the exterior cladding in terms of weathertightness and durability. The determination reviewed the reasons given for the refusal and considered whether the items identified in the refusal comply with 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 current owner of the house, Mr S Gullick ("the applicant")
 - Southland 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 issue a notice to fix and to refuse to issue a code compliance certificate for the 11-year-old house extension because it was not satisfied that the building work complied with certain clauses² of the Building Code (First Schedule, Building Regulations 1992). The authority's concerns about the compliance of the building work relate to the weathertightness and durability of the stucco cladding, given its incomplete coverage and signs of cracking on the surface.
- 1.4 The matter to be determined³ is therefore the authority's exercise of its powers of decision in refusing to issue a code compliance certificate for the extension. I take the items listed in the notice to fix to be the reasons for the refusal.

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 current Act and references to clauses are to clauses of the Building Code.

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

- 1.5 In deciding this matter, I must consider whether the monolithic wall cladding (“the stucco cladding”) to the house complies with Clause B2 Durability and Clause E2 External Moisture of the Building Code that was current at the time the consent was issued. The stucco cladding includes the components of the system (such as the plaster, the backing sheets, the flashings and the junctions with adjacent elements), as well as the way the components have been installed and work together.
- 1.6 Matters outside this determination: it is noted the applicant is not disputing the authority’s requirements with respect to the flue to the solid fuel appliance. This matter is not considered in the determination’s decision; however, it is included in the discussion for the benefit of the parties (see paragraph 6.5).
- 1.7 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 63 m² extension to a single-storey detached house set on a flat site, which is in a low wind zone⁴. The expert takes the deck addition as facing north, and this determination follows that convention. The house extension is a simple rectangle and is assessed as having a low weathertightness risk.
- 2.2 Construction is generally conventional light timber frame, with a concrete perimeter foundation and suspended timber framed floor on piles. The house has aluminium exterior joinery, and a corrugated steel gable-end roof with good eaves protection to all elevations. A low timber deck has been constructed to the north elevation of the addition, abutting the wall under a large sliding door. The extension appears to match the original construction in all respects.
- 2.3 The cladding is a monolithic cladding system described as stucco plaster over a rigid backing. In this instance it consists of 4.5mm fibre-cement backing sheets fixed through the building wrap directly to the framing timbers, and covered by a slip layer of building wrap, mesh-reinforced solid plaster and a paint finish.
- 2.4 Given the date of the construction the timber framing is likely to be to be boron treated. The expert noted a cut-off from the subfloor timber was H3-treated.

3. Background

- 3.1 The authority issued building consent No. BLD/2002/23186/1 on 14 March 2002 under the Building Act 1991 (“the former Act”). The consent requirements noted that the plaster work was to conform to NZS 3604:1999⁵ section 11.
- 3.2 The works started in 2002 and continued into early 2004. Construction was carried out by the applicant with the help of family members. According to the applicant the the stucco cladding was undertaken by a qualified tradesman plasterer.
- 3.3 Six inspections were carried out by the authority during the construction period. During an inspection on 28 March 2003 the authority passed the rigid backing installation, exterior joinery flashings and manufacturer compliance. It records the approval ‘to place paper, netting and plaster’.

⁴ According to the maximum design wind speed given for the timber truss PS1

⁵ New Zealand Standard NZS3604:1999 Timber framed buildings

- 3.4 The last inspection was on 3 February 2004 when the exterior plaster was complete and painted, apart from some minor trim. The same inspection also notes:
- Advised owner at this stage because of our Insurers we will not be issuing code compliance certificates for monolithic claddings.
- 3.5 The applicant says he contacted the authority several times during 2004 and 2005 regarding the code compliance certificate for the extension. The applicant formally applied for the code compliance certificate in July 2015.
- 3.6 The authority undertook an inspection on 20 July 2015 which noted the following non-compliant items:
- Handrail not installed
 - Flue to be replaced because of age and fire unit certified
 - Roof cladding needs additional fixings at ridge and eave ends
 - Cracks in plaster down sides of windows and up sides of ranch slider doors. No sign of side flashings
 - Batten required at eave junction from existing to new
 - Expansion joints in plaster system could not be seen
 - Deck needs to be separated 12mm from cladding
 - Deck timber against wall framing with elevated plaster readings
- 3.7 At a further inspection on 22 July 2015 the authority took non-invasive moisture readings on the surface of the stucco plaster. A reference reading under eaves at the internal corner to the addition was 7%. The cladding at the base of the wall where deck boards had been removed recorded a range from 12% to 51%, with similar readings following down the deck steps. The corners of window units were 9% to 21% and plaster between windows was 9% to 26%. The weather at the time of the inspection was noted as 'fine'.
- 3.8 The authority issued a notice to fix dated 24 July 2015 which stated that the house did not comply with Clauses B2 and E2 of the Building Code, noting that
1. The Stucco plaster system terminated at floor height and did not extend down past the subfloor framing by 50mm...
 2. There are cracks in the plaster system vertically from the corners of the joinery units.
 3. Cover battens needed over eave joint from the between [the new and existing eaves]
 4. The stainless steel flue ... will need to be replaced and the heating unit certified by heating engineer [to confirm] the heating unit has further durability of five years minimum.
- 3.9 An application for a determination was received on 10 August 2015. The applicant sought a decision on items 1 and 2 in the notice to fix.

4. The submissions

- 4.1 The applicant provided a copy of the notice to fix and the application for a code compliance certificate. The applicant set out the background to the dispute in a submission received on 19 August 2015.
- 4.2 At the request of the Ministry, the authority supplied the consent documents, inspection notes and notice to fix on 10 September 2015.
- 4.3 In an email dated 27 October 2015, in response to the Ministry's request on 23 October, the authority said that reason for requirement that the flue be replaced was that the flue was over 13 years old and 'well past' the 5 years required by Clause B2 and that:

As [the 5 year durability period] will be measured from the code compliance date, we would like some sort of assurance [the flue] will have 5 years remaining life from the code compliance certificate date. As the remaining life of a flue is very difficult to determine, the most practical way of assuring 5 years durability is to replace it.

4.4 The draft determination and submissions in response

- 4.4.1 A draft determination was issued to the parties for comment on 5 November 2015.
- 4.4.2 The applicant responded on 5 November, accepting the draft but requesting further detail and consideration regarding the handrail, which was not mentioned in the notice to fix. The applicant noted that the deck is under 1m high and the steps are over 2m wide, and the applicant was of the view that no handrail was required.
- 4.4.3 In a response received on 5 November, and a further email on 11 November, the authority requested the decision include a statement regarding the compliance of the remainder of the stucco cladding once the deck abutment area had been remedied.

5. The expert's report

- 5.1 As mentioned in paragraph 1.7, I engaged an independent expert to assist me. The expert is a member of the New Zealand Institute of Building Surveyors and visited the property on 22 September 2015, providing a report received on 13 October 2015. The expert's report was issued to parties for comment on 14 October 2015.

5.2 The stucco wall cladding

- 5.2.1 The expert noted that the cladding system has been in place for 11 years and is performing as designed and consented, apart from the junction of the deck to the north wall. The standard of workmanship evident to the finished product indicates that the plaster system was applied by a 'quality tradesperson'. The cladding detailing is in accordance with the standards cited in the consent and the BRANZ Good Stucco Practice Guide.
- 5.2.2 The expert found no evidence of structural failure to the stucco plaster cladding or weathertightness failure from the visual inspection process.
- 5.2.3 The expert closely inspected the stucco and recorded some original 'predictable' shrinkage cracks in the stucco plaster, which had been repaired, and established that there had been no subsequent movement or working of past shrinkage cracks or disruption to the paint coating.

- 5.2.4 Control joint cuts were observed to every appropriate location to satisfy NZS 4251⁶ and the BRANZ Good Stucco Practice Guide. This was verified by cutting back the bituminous-based coating to expose the joint line. Every exterior joinery unit had control cuts in the plaster above and below each corner. As the return south wall was under the 4.0m maximum length between such joints, no other wall element required control joints.
- 5.2.5 At the junction between the original plaster and the more recent work a match new to old is achieved without any sign of separation or defect. The junction has been over-coated with bituminous emulsion and some slight UV effect can be seen.
- 5.2.6 The paint skin is in reasonable condition, and the applicant has advised he intended to wait for the expert's report before repainting the stucco.
- 5.2.7 The expert observed the head flashings in place and the jamb-to-joinery junctions well sealed. The eaves cover battens at both junctions to the existing dwelling have been installed but yet painted.

5.3 Moisture testing

- 5.3.1 A series of invasive external readings were taken in high risk areas below the window sills on the house extension. The framing below the sill jamb junction measured 12%, 17% and 19% which were considered acceptable. Readings were also taken on the existing stucco plaster which achieved the same results.
- 5.3.2 Some elevated readings were recorded to the plaster at the deck step board junction where moisture wicking may be occurring.
- 5.3.3 External invasive moisture readings were taken after the removal of a small section of the rigid backing to expose the subfloor framing and to identify its location with regard to the deck. The outer floor joist recorded 19% and bearer 15%. These were considered normal for H3 sub-floor timbers and there was no evidence of moisture entry from the exposed face of the rigid backing.

5.4 Deck wall junction

- 5.4.1 The 100x100 deck bearer was nailed through with large galvanised nails into the house bearer and hard against the rigid substrate. The 150x50 deck joists are mostly clear of the substrate but some are just touching.
- 5.4.2 The method of connection of the deck timbers to the addition structure has not followed NZS 3604:1999 (the standard in force at the time the consent was issued), and the contact between the deck and the cladding is an issue.
- 5.4.3 The cladding system is not complete because it finishes at the point where the deck boards meet the house wall, being 23mm above the deck joists: meaning there is a section of exposed rigid backing below this level. There is no evidence this is causing weathertightness failure or damage but some remediation is required to ensure ongoing compliance.

⁶ New Zealand Standard NZS 4251: Solid plastering; Part 1: 1998 Cement plasters for walls, ceilings and soffits

5.5 The authority's inspections

- 5.5.1 The expert referred to the non-invasive moisture readings taken by the authority and referred to in the notice to fix, noting that the use of surface moisture readings were not appropriate as it appeared from the inspection entry that a non-invasive meter was used. The expert noted that the stucco plaster and the acrylic paint system allowed the transfer of water vapour. The paint coating, while providing a weatherskin, was breathable and as stated in E2/AS1⁷ stucco plaster cannot be assumed to be completely weatherproof. There was therefore often a level of measurable moisture within stucco plaster, especially after a rainfall period. The amount varied on exposure and was commonly greater at the wall base where gravity has allowed migration to the lower levels.
- 5.5.2 The expert believed that the standard stucco control joint detailing had not been correctly identified by the authority and that the reference to cracks in the stucco were the control joints with the fine line of bituminous emulsion showing.

5.6 The flue to the solid fuel appliance

- 5.6.1 The applicant has had the fire inspected by an installer and made arrangements to have the fire certified and the flue replaced. At the time of the expert's visit the replacement had not yet occurred.

5.7 Conclusions

- 5.7.1 The expert concluded that:
- The stucco cladding has been built to a good quality trade standard and has followed the consented details. The expert considered the stucco was compliant with Clauses B2 and E2.
 - The abutment of the deck to the addition has not been constructed in a fully compliant manner. While there is no evidence this is causing weathertightness failure or damage, it was the expert's opinion that remediation is required.

6. Discussion

6.1 Compliance generally

- 6.1.1 I note that 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 if it 'is satisfied that the building work concerned complies with the building code that applied at the time the building consent was granted'.

6.2 The external envelope

- 6.2.1 In order to determine whether the authority correctly exercised its power in refusing to issue a code compliance certificate, I must consider whether the building work in dispute complies with the Building Code that was current at the time the consent

⁷ Refer Comment at Paragraph 9.3.7 of E2/AS1, Amendment 5.

was issued. The following paragraphs therefore consider the code-compliance of the stucco wall cladding.

- 6.2.2 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).

Weathertightness risk

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

Increasing risk

- the stucco cladding is fixed directly to the framing

Decreasing risk

- the house is single-storey and is simple in plan and form
- there are few complex junctions and penetrations through the cladding
- there is good eaves protection to the walls.

- 6.2.4 Using the E2/AS1 risk matrix to evaluate these features, elevations are assessed as having a low weathertightness risk rating. If current E2/AS1 details were adopted to show code-compliance, a drained cavity would be required for all elevations. However, this was not a requirement at the time of construction in 2002.

Weathertightness performance

- 6.2.5 Taking account of the expert's report, the stucco cladding appears to have been installed in accordance with good trade practice and the standards in force at the time.
- 6.2.6 All drying shrinkage in the plaster and supporting framing would have occurred during the early part of the period since construction. Control joints have been installed below the top coats of plaster. Some minor cracking is to be expected in response to environmental factors such as imposed temperature and moisture effects, wind, earthquake forces and seasonal movements. The stucco has shown no signs of significant cracking or associated moisture entry after more than 11 years.
- 6.2.7 Notwithstanding that the stucco is fixed directly to timber framing, thus inhibiting drainage and ventilation behind the cladding, I note certain factors that assist the performance in this case:
- The stucco cladding has been installed to good trade practice.
 - The cladding has good eaves protection.
 - After 11 years in use there is no evidence of timber damage to the framing due to undue moisture ingress.

Weathertightness conclusion

- 6.2.8 The expert's report provides me with reasonable grounds to conclude that the current performance of the stucco cladding is adequate with the exception of the section of exposed rigid backing adjacent the deck. The expert has noted no current evidence of non-compliance with Clause E2, however, the rigid backing material is

not intended for long term exposure to the elements and I consider this detail does not satisfy Clause B2 Durability in terms of its future performance with Clause E2.

- 6.2.9 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.

6.3 Maintenance

- 6.3.1 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 applicant. The applicant has stated that he intends to repaint the cladding once the determination has been resolved.

6.4 The durability considerations

- 6.4.1 The relevant provision of Clause B2 of the Building Code requires that building elements must, with only normal maintenance, continue to satisfy the performance requirements of the Building Code for certain periods (“durability periods”) “from the time of issue of the applicable code compliance certificate” (Clause B2.3.1).
- 6.4.2 This raises the issue of code compliance certificates being issued long after the building work has been completed and many building elements are passed or part way through the durability periods.
- 6.4.3 I have considered this issue in many previous determinations and I maintain the view that:
- (a) the authority has the power to grant an appropriate modification of Clause B2 in respect of all the building elements, if requested by an owner
 - (b) it is reasonable to grant such a modification, with appropriate notification, as in practical terms the building is no different from what it would have been if a code compliance certificate for the building work had been issued at the time of substantial completion.

I therefore leave the matter of amending the building consent to modify Clause B2.3.1 to the parties to resolve in due course.

6.5 The flue to the solid fuel appliance

- 6.5.1 Although the applicant is not disputing the need to replace the flue to the solid fuel appliance, I note the following for the benefit of the parties.
- 6.5.2 The notice to fix says the flue does not satisfy Clause B2 Durability, but compliance with the durability periods stated in B2.3.1 must be in relation to the performance requirement(s) of the flue itself, be it Clause C1 Outbreak of fire⁸, or Clause E2 External moisture: the notice to fix does not address any specific non-compliance with either clause. A breach of Clause B2 is unable to sit in isolation without reference to the other performance requirements of the Building Code (refer Clauses B2.3 and B2.3.1).

⁸ Clause C1 ‘Outbreak of fire’ that was in force at the time the consent was issued.

- 6.5.3 Assuming the consent is amended so that the durability periods in Clause B2 commence from the date of substantial completion as noted in paragraph 6.4 and the flue is currently performing adequately, there is no Building Code requirement for the flue to be replaced for the reasons stated by the authority.
- 6.5.4 If the durability periods stated in Clause B2.3.1 have passed, then the assessment for compliance is confined to the current compliance of the building element concerned, and does not rest on its future performance: this matter has been discussed in previous determinations⁹.

6.6 Handrail

- 6.6.1 Although this item was not listed in the notice to fix, it was mentioned during the final inspection and was raised in the applicant's submission on the draft determination.
- 6.6.2 It is my understanding that this issue has since been resolved by the parties.

7. What happens next?

- 7.1 It is for the applicant to provide a proposal to address the exposed rigid backing adjacent to the timber deck; any proposal should be put to the authority for its approval. The expert has offered one possible method that may be applied. Once the cladding abutting the deck has been remedied the external envelope to the extension will be compliant and the code compliance certificate can be issued.

8. The decision

- 8.1 In accordance with section 188 of the Building Act 2004 I hereby determine that the cladding adjacent the timber deck does not comply with Building Code Clause B2 in respect of Clause E2, and accordingly I confirm the authority's decision to refuse to issue a code compliance certificate.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 27 November 2015.



John Gardiner
Manager Determinations and Assurance

⁹ For example, Determination 2014/016: Regarding the refusal to issue a code compliance certificate for a 19-year-old house with monolithic cladding