

# Determination 2006/11

## Issue of a code compliance certificate and notice to rectify for a house at 9A Margaret Way, RD2, Waipu, Northland

### 1 The dispute to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004 (“the Act”) made under due authorisation by me, John Gardiner, Determinations Manager, Department of Building and Housing, for and on behalf of the Chief Executive of that Department. The applicant is Mr John Allen, the previous owner, acting on behalf of the current two joint owners, Dr and Mrs Crawford (“the owners”), and the other party is the Whangarei District Council (“the territorial authority”).
- 1.2 The matters for determination are:
- the decision by Approved Building Certifiers Ltd (“ABC”) to issue the code compliance certificate on 5 February 2004;
  - the decision taken by the territorial authority to issue the notice to rectify on 4 June 2004.
- 1.3 In relation to both matters for determination, I have considered that it is necessary to determine whether I am satisfied on reasonable grounds that the shiplap boarding and the monolithic wall cladding as installed to the timber-framed external walls of the house (“the cladding”) comply with the Building Code (see sections 177 and 188 of the Act), given that the building’s cladding is the focus of the application for determination. By “the monolithic wall cladding as installed” I mean the components of the system (such as the backing sheets, the flashings, the joints and the plaster and/or the coatings) as well as the way the components have been installed and work together.
- 1.4 In making my decision, I have not considered any other aspects of the Act or the Building Code.

## 2 Procedure

### The building

- 2.1 The building is a two-storey split-level house with an attached single-storey garage, situated on an excavated sloping site that is in a very high-wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. The house is of a relatively complex shape on plan with pitched roofs at three main levels that have some wall-to-roof junctions. The exterior walls are of conventional light timber-frame construction built on concrete ground floor slabs. With the exception of the south elevation wall, which is lined with vertical cedar boarding, the external walls are sheathed with monolithic cladding. There are 600mm wide eaves and verge projections to the higher-level roofs but the roof to the garage area has no eaves or verge projections. The top level of the house overhangs the lower level at one elevation. A small cantilevered flat roof is situated over the main entrance.
- 2.2 A close-boarded timber deck is constructed at the first floor level of one elevation of the house and this is supported on timber posts and beams. This deck has a metal and glazed balustrade. A pergola consisting of timber posts, beams, and rafters is constructed over part of the deck.
- 2.3 The timber supplier has provided a “Certificate of Compliance” dated 21 July 2005, stating that H1 LOSP treated timber was supplied for the house.
- 2.4 The cladding system to the majority of the exterior walls is what is described as monolithic cladding and consists of 4.5mm “Hardibacker” fibre-cement backing sheets fixed directly to the framing over the building wrap, to which a 20mm thick, metal lath reinforced, two-coat solid plaster is applied. The plaster is finished with a paint coating system. I note that the south elevation is now entirely clad with vertical shiplap Cedar boarding and that this change has not been recorded in any of the consent or inspection documentation forwarded to me.

### Sequence of events

- 2.5 The territorial authority issued a building consent on 22 October 2002, based on a building certificate dated 17 October 2002 issued by Building Certifiers (Whangarei) Ltd (“BCW”). There were no conditions attached to this consent.
- 2.6 BCW carried out various inspections during the course of construction. BCW issued a building certificate on 7 March 2003 for “footings, blockwork slab”. Then in a “Field Advice Notice” dated 26 March 2003, BCW noted:
- All mesh installed and flashings installed. OK to plaster all exterior walls
- 2.7 According to “Job Report[s] for Council” dated 5 May 2003 and 11 August 2003, and provided to the territorial authority, BCW issued a certificate dated 15 April 2003 for ABC to take over the inspection process.
- 2.8 ABC carried out various inspections during the course of construction. “Job Reports for Council” dated 5 May 2003 and 11 August 2003 both included the notation “14/04/2003: all solid plastered walls approved”.

- 2.9 ABC then issued a final code compliance certificate dated 5 February 2004 in respect of all of the building work under the building consent.
- 2.10 After this code compliance certificate was issued, ABC undertook further inspections of the building work. The field advice note issued in 11 February 2004 in respect of this work notes ‘amended plan received’ and “Council [is] to check exterior cladding”.
- 2.11 The territorial authority carried out a final inspection on 24 February 2004. The “Field Advice Notice” for this inspection noted some deficiencies in the cladding including a comment that there was not a cavity behind the plaster.
- 2.12 The territorial authority wrote to the previous owner on 5 March 2004, stating that it was unable to issue a code compliance certificate on the grounds that all the consents and inspections had been processed by a building certifier. Following its inspection, the territorial authority was unable to confirm that the cladding complied with the Building Code as regards “moisture durability”. In order to issue a code compliance certificate, the cladding would have to be removed and reinstalled using a cavity system.
- 2.13 The territorial authority issued a Notice to Rectify dated 4 June 2004. The “Particulars of Contravention” attached to the Notice listed seven cladding issues but did not mention the requirement for a cavity.
- 2.14 The territorial authority issued a letter dated 13 October 2004, which stated that the code compliance certificate, issued by ABC on 5 February 2004 was invalid because it had been issued before a final inspection had been carried out.
- 2.15 Lawyers acting for the owners wrote to the territorial authority on 24 January 2005, noting that the owners had purchased the house in reliance on the code compliance certificate issued by ABC. The dwelling had been signed off by that building certifier and a copy of the code compliance certificate had been forwarded to the territorial authority. The territorial authority was requested to immediately confirm that the code compliance certificate “stands unequivocally on the property record”.
- 2.16 The territorial authority wrote to the owners on 2 February 2005, noting that the territorial authority was of the opinion that the cladding did not comply with clauses E2 and B2 of the Building Code. Accordingly, the Notice to Rectify would remain in place.
- 2.17 The Department received this application for a determination on 7 April 2005.

### **3 The submissions**

- 3.1 In a covering letter to the Department dated 3 March 2005, the previous owner noted that the house was completed in September 2003 and described the inspection processes that had been undertaken by the two building certifiers and the territorial authority.

- 3.2 The owner supplied copies of:
- the plans and specifications
  - the building consent and inspection details
  - the correspondence with the territorial authority
  - the building certifier's code compliance certificate
  - the Notice to Rectify
  - some manufacturer's recommendations.
- 3.3 A statement from the plasterer noting that all the work was carried out in accordance with NZS 4251: 1998 and that it passed the required "Council" inspections at the time of construction. The plasterer stated that control joints were installed prior to the application of the last coat and then plastered over. In respect of this statement, I am of the opinion that ABC, rather than the territorial authority, would have inspected the plaster work. Such control joints would not have complied with NZ 4251.
- 3.4 The copies of the submissions and other evidence were provided to each of the parties. Neither the owner nor the territorial authority made any further submissions in response to the submissions of the other party.
- 3.5 In a letter to the Department dated 27 April 2005, the territorial authority set out the background to the inspection process. The territorial authority was of the opinion that the code compliance certificate had been issued by the building certifier in error. This was because it was issued before the final inspection took place, the final inspection was incomplete, and the territorial authority's inspection showed non-compliance with the Building Code. The territorial authority believed that the house did not comply with the Building Code for the reasons stated in its Notice to Rectify.
- 3.6 The owners emailed the Department regarding the first draft determination that was issued early in 2006. The owners had been informed that the Building Code did not have a requirement for any clearance between the base of the cladding and the timber decking at the time of installation.
- 3.7 The owners also emailed the Department on 10 January 2006, stating that an independent inspector had surveyed the house. The inspector was of the opinion that the vertical shiplap boarding was not nailed off to a satisfactory standard for a high wind and high weather-exposed house. The e-mail also provided comment from a supplier of Cedar weatherboard products.
- 3.8 The owners emailed the Department on 1 February 2006 listing some suggested minor changes that the owners considered should be made to the second draft Determination. I have taken cognisance of these comments and have amended the draft as I consider appropriate.

## 4 The relevant provisions of the Building Code

- 4.1 The matters for determination are the decision by ABC to issue the code compliance certificate on 5 February 2004 and the decision taken by the territorial authority to issue the notice to rectify on 4 June 2004. In relation to both matters for determination I have considered that it is necessary to determine whether I am satisfied on reasonable grounds that the monolithic wall cladding as installed to the majority of the timber-framed external walls of the house (“the cladding”), complies with the Building Code (see sections 177 and 188 of the Act).
- 4.2 At the time the consent was issued on 22 October 2002, the Acceptable Solution E2/AS1 (relating to external moisture) was that issued on 28 February 1998. E2/AS1 requires solid plaster work to be carried out in accordance with NZS 4251.
- 4.3 It appears that the building was originally designed to be built in compliance with E2/AS1. However, it appears that plans changed during construction and the building was not in fact built in accordance with E2/AS1 because it did not comply with NZS 4251. Accordingly, the building must be evaluated as an alternative solution.
- 4.4 In several previous determinations, the Department has made the following general observations, which remain valid in this case in my view, about evaluating alternative solutions.
- Some Acceptable Solutions cover the worst case, so that they may be modified in less extreme cases and the resulting alternative solution will still comply with the Building Code; and
  - Usually when there is non-compliance with one provision of an Acceptable Solution, it will be necessary to add some other provision to compensate for that in order to comply with the Building Code.

## 5 The expert’s report

- 5.1 The Department commissioned an independent expert (“the expert”) to inspect the cladding of the building. The expert carried out an inspection on 18 July 2005 and furnished a report that was completed on 1 August 2005. The expert’s noted that the high-build paint coating is discoloured in places and looks unsightly. The expert was of the opinion that house will require repainting, preferably with a regular paint system rather than a high-build paint system, once repairs have been carried out. The expert removed the plaster coating to reveal the window flashing details at one location and noted that jamb flashings with base “kickouts” are installed. The expert also removed the plaster to check on the junction between the cladding and the cedar boarding. The expert made the following comments regarding the cladding.
- The 6-mm drainage gap to the base of the cladding, which is recommended by the backing sheet manufacturer, has not been installed.

- There is no evidence that vertical control joints or horizontal mid-floor joints are installed in the cladding.
- There are cracks in the plaster at various locations.
- Sill flashings, sill tape and sill trays are not installed to the external joinery units and the plaster finishes hard down onto the head flashings of these units.
- There is insufficient clearance between the base of the cladding and the timber decking.
- As the pergola ribbon plate is fixed directly to the cladding, no drainage gap is present and the bolt fixings are inadequately sealed.
- The tops of the garage parapet cappings lack adequate cross-falls.
- The electrical meter box is ineffectively sealed.
- The exhaust vent is not hooded.

5.2 The expert also commented on the fact that the plaster was only a two-coat application and thus did not comply with the requirements of the relevant plastering standard. At one location the plaster was waterlogged and crumbling, which could indicate problems with the plaster mix or its curing.

5.3 The expert took non-invasive readings at the interior linings of the exterior walls and only one abnormal reading was obtained, adjacent to the switchboard. A further six invasive readings were taken into the exterior wall framing. Only two of these readings were over 18% and these were at the side of the entrance and at the garage parapet, where 20% was recorded at each location. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.

5.4 The expert also noted that the substrate fixings under the butyl-rubber membrane to the south side of the house were “pouting” and a vent pipe passing through this roof were ineffectively sealed. In addition, the flat roof over the entrance has water ponding on it.

5.5 Copies of the expert’s report were provided to each of the parties. The territorial authority responded in a letter to the Department dated 12 December 2005. The territorial authority noted that the expert had not referred to the following items that the territorial authority had considered in its Notice to Rectify as being non-compliant:

1. Lack of wall to parapet junction flashings at garage
2. Lack of adequate fixing and sealing of handrail to stair at garage
3. Inadequate weathering between cladding junction of vertical shiplap weatherboards and plaster system
4. Inadequate weathering of shiplap boards on 45 degree corners.

5.6 To address the territorial authority's comments and the concerns of the owners regarding the nailing of the weatherboards (described in paragraph 3.6), the expert was engaged to undertake a further inspection of the property and this took place on 30 and 31 January 2006. On this occasion, the owners were not willing to allow any destructive investigation to take place. The expert described the inspection in an e-mail to the Department dated 31 January 2006 as follows.

- While the saddle flashing to the parapet capping over the garage is inadequate, the parapet is partly sheltered by an eave.
- The handrail to the garage is not spaced away from the cladding and the screw fixings are not sealed.
- The polythene strip between the shiplap boarding and the monolithic cladding is not an effective detail.
- The 45 degree corner to the shiplap boarding lacks a backing strip.
- 95% of the nailing to the shiplap boarding is at 500mm centres and "all appears normal".

5.7 Copies of the expert's email were forwarded to the parties.

## 6 Discussion

### General

6.1 I have considered the submissions of the parties, the expert's report and the other evidence in this matter. The approach in determining whether building work complies with clauses B2 and E2 is to examine the design of the building, the surrounding environment, the design features that are intended to prevent the penetration of water, the cladding system, its installation, and the moisture tolerance of the external framing. The Building Industry Authority and the Department have described the weathertightness risk factors in previous determinations (refer to Determination 2004/01 *et al*) relating to monolithic cladding, and I have taken these comments into account in this determination.

### Weathertightness risk

6.2 In relation to the weathertightness characteristics, I find that the house:

- has, apart from the garage roof, 600mm wide eaves and verge projections, upper floor projections, and a higher-level deck, which all provide good protection to the cladding areas below them
- is in a very high wind zone
- is a maximum of two storeys high

- is of a complex shape on plan with roofs that have some wall-to-roof junctions
- has no balconies but has a deck installed at the first floor level
- has a pergola constructed over the deck
- has external wall framing that is treated to a level that is not effective in resisting decay if it absorbs and retains moisture.

### **Weathertightness performance**

6.3 Generally, the cladding appears to have been installed according to reasonable trade practice, but some junctions, edges, and penetrations are not well constructed. These areas are described in paragraph 5.1, and in the expert's report, as being the:

- lack of a 6-mm drainage gap to the base of the cladding
- lack of vertical control joints or horizontal mid-floor joints in the cladding
- cracks in the plaster at various locations
- lack of sill flashings, sill tape, and sill trays to the external joinery units and the plaster finishing hard down onto the head flashings of these units
- insufficient clearance between the base of the cladding and the timber decking
- pergola ribbon plate being fixed directly to the cladding and the inadequately sealed bolt fastenings
- inadequate cross-falls to the tops of the garage parapet cappings;
- ineffectively sealed electrical meter box
- lack of a hood to the exhaust vent
- inadequate saddle flashing to the parapet capping over the garage
- handrail to the garage not being spaced away from the cladding and the unsealed screw fixings
- ineffective polythene strip between the shiplap boarding and the monolithic cladding
- lack of a backing strip to the 45 degree corner to the shiplap boarding.

6.4 I find that the following compensating factors assist the performance of the cladding in this particular case, despite the fact that the backing sheets are fixed directly to the timber framing (thus inhibiting drainage and ventilation behind the cladding sheets).

- The house has 600mm wide eaves and verge projections, upper floor projections and a deck, which all afford protection to the cladding below them.



- The house has no balconies.

These factors also help to compensate for the lack of a drainage and ventilation cavity and can assist the house to comply with the weathertightness and durability provisions of the Building Code.

- 6.5 I note that all elevations of the building demonstrate a medium weathertightness risk rating as calculated using the E2/AS1 risk matrix. The matrix is an assessment tool that is intended to be used at the time of application for consent, before the building work has begun and, consequently, before any assessment of the quality of the building work can be made. Poorly executed building work introduces a risk that cannot be taken into account in the consent stage but must be taken into account when the building as actually built is assessed for the purposes of issuing a code compliance certificate.

## 7 Conclusion

- 7.1 I am satisfied that the current performance of the shiplap boarding and the monolithic cladding on the building is not adequate because they are allowing water penetration into the house in at least two locations, which could affect the cladding. Consequently, I am not satisfied that the cladding systems as installed on the building complied with clause E2 of the Building Code when ABC issued the code compliance certificate on 5 February 2004.
- 7.2 In addition, the building also is required to comply with the durability requirements of clause B2. Clause B2 requires that a building continues to satisfy all the objectives of the Building Code throughout its effective life, and that includes the requirement for the building to remain weathertight. Because the cladding faults on the building have already allowed the ingress of water, or will allow the ingress of moisture in the future, I am satisfied that the building did not comply with the durability requirements of clause B2 of the Building Code when ABC issued the code compliance certificate on 5 February 2005.
- 7.3 Subject to further investigations that may identify other faults, I consider that, because the faults that have been identified with the claddings by the expert occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraphs 6.3 and 7.4 are likely to result in the building being weathertight and in compliance with clauses B2 and E2.
- 7.4 I also draw the parties' attention to the comments of the expert regarding the flat roof substrate "pouting" and the inadequately sealed vent pipe passing through the roof. In addition the expert has found evidence of water damage in the plaster itself at one location. I therefore recommend that these items be further investigated and suitable rectification be carried out if deemed necessary.
- 7.5 Referring to the owners' comment regarding the cladding clearance to the timber decking, I note that the Building Code has not changed since the consent was issued for the house. The current Approved Document E2/AS1 requires a minimum 12 mm

gap at such locations. The owner has also queried the nailing of the shiplap boarding. Based on the expert's second report, and noting that the territorial authority has not raised this item as an issue, I am prepared to accept that the boarding is adequately nailed.

- 7.6 I note that effective maintenance of monolithic claddings is important to ensure ongoing compliance with clause B2 of the Building Code. That maintenance is the responsibility of the building owner. The Building Code assumes that the normal maintenance necessary to ensure the durability of the cladding is carried out. For that reason clause B2.3.1 of the Building Code requires that the cladding be subject to "normal maintenance". That term is not defined, and I take the view that it must be given its ordinary and natural meaning in context. In other words, normal maintenance of the cladding means inspections and activities such as regular cleaning, repainting, replacing sealants, and so on. This is particularly relevant taking into account the expert's comment that the cladding requires to be completely repainted.
- 7.7 There are some issues with the fact that ABC issued a code compliance certificate, but then subsequently asked the territorial authority to "check exterior cladding" and that the territorial authority did proceed to carry out such an inspection. I can only conclude ABC's issue of a code compliance certificate was an error and that ABC actually intended to issue a building certificate covering all the building work excluding the cladding and the work previously certified by BCW. If I am correct, then ABC recognised that certifying cladding not covered by E2/AS1 was outside the scope of its approval at that time. In any event, I do not consider that I need to rely on this point in making my decision in this case.
- 7.8 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.
- 7.9 I decline to incorporate any waiver or modification of the Building Code in this determination.

## **8 The decision**

- 8.1 In accordance with section 188 of the Act, I hereby determine that the shiplap boarding and monolithic cladding as installed did not comply with clauses B2 and E2 of the Building Code when ABC issued the code compliance certificate on 5 February 2004.
- 8.2 I have decided to modify the decision of ABC to issue the code compliance certificate to a decision to issue a building certificate covering all building work excluding the cladding and the building work covered by BCW's building certificate dated 7 March 2003.

- 8.3 The Notice to Rectify issued by the territorial authority on 4 June 2004 set out a number of issues that the territorial authority had identified with the claddings. The expert's report, however, provides a more current picture of issues with the claddings.
- 8.4 I am satisfied that rectification of the items outlined in paragraphs 6.3 and 7.4 to the approval of the territorial authority, along with any other faults that may become apparent in the course of that work, will consequently result in the house being weathertight and in compliance with clauses B2 and E2.
- 8.5 Accordingly, I reverse the territorial authority's decision to issue the Notice to Rectify dated 4 June 2004. The territorial authority should issue a new notice to fix including the items outlined in paragraphs 6.3 and 7.4 above. If any other faults become apparent in the course of that fix-up work, the territorial authority may need to issue a further notice to fix.
- 8.6 It is not for me to decide directly how those faults are to be remedied and the cladding brought into compliance with the Building Code. The owners should produce a response to the notice to fix in the form of a technically robust proposal, produced in conjunction with a competent and suitably qualified person, as to the rectification or otherwise of the specified issues.
- 8.7 Following the satisfactory completion of the items in the notice to fix, the territorial authority should be able to rely on its own final inspection in relation to the cladding, as well as the building certificates from BCW and ABC, as a basis on which to issue a code compliance certificate.
- 8.8 Finally, I consider that the cladding will require ongoing maintenance to ensure its continuing code compliance.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 20 February 2006.

John Gardiner  
**Determinations Manager**