Determination 2006/37

Refusal of a code compliance certificate for a house with a "monolithic" cladding system at 11 Aspen Place, Stoke, Nelson

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 applicants are the owners Mr and Mrs Mayer acting through a firm of building consultants ("the applicants"), and the other party is the Nelson City Council ("the territorial authority").The application arises because the territorial authority has declined to issue a code compliance certificate as it considers that the monolithic cladding on a 3-year-old house may not comply with the requirements of the Building Code.

1.2 The question to be determined is whether I am satisfied on reasonable grounds that the monolithic wall cladding as installed to the timber-framed external walls, columns, and beams of the house ("the cladding"), complies with the Building Code (see sections 177 and 188 of the Act). By "the monolithic wall cladding as installed" I mean the components of the system (such as the backing sarking, the flashings, the joints and the plaster and/or the coatings) as well as the way the components have been installed and work together.

1.3 In making my decision, I have not considered any other aspects of the Act or the Building Code.

2 Procedure

2.1 The building

2.1.1 The building is a detached house that is generally two-storeys high, with some living spaces and the attached garage being single-storey. The house is situated on an excavated sloping site that is in a high wind zone in terms of NZS 3604: 1999 "Timber framed buildings". The building is of a relatively simple shape on plan and the main pitched roof has hip junctions. There are parapet walls to the roof areas over bedroom 3 and the bathroom area. The roof over the garage has a parapet wall to one end and wall-to-roof junctions. The eaves projections to the high level roof are 600mm wide, but the garage verge lacks a projection. The exterior walls are of conventional light-timber frame construction built on concrete block work foundation walls or timber-framed floors, and are sheathed with monolithic cladding.

2.1.2 A timber-framed deck is constructed at the upper level to the full length of the northwest elevations and this returns around the two adjoining elevations. One of the returns is constructed over a living space. The deck is supported on monolithic clad timber-framed beams and columns. The columns are extended upwards to form balustrade columns and a metal and balustrade is fixed between these. A concrete terrace is formed under the deck.

2.1.3 The specification calls for all non-exposed timber framing to be either Douglas Fir or H1 treated Radiata Pine. I have not received any evidence as to what timber was used for the external wall framing or what treatment, if any, is applied to this framing.

2.1.4 The timber-framed external walls of the house that are the subject of this determination are clad with a system that is described as monolithic cladding. In this instance it incorporates timber "hit and miss" sarking fixed through the building wrap directly to the framing timbers. The sheets are finished with approximately 25mm thick plaster applied over a slip layer. The expert is of the opinion that the plaster as applied is a 2-coat system. As such it does not comply with the requirements of NZS 4251. The back of the parapet walls are lined with 6mm thick fibre-cement sheets with pvc jointers.

2.1.5 I note that two elevations of the building demonstrate a medium weathertightness risk rating and two elevations demonstrate a high 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.

2.2 Sequence of events

2.2.1 The territorial authority issued a building consent in 31 January 2003.

2.2.2 Prime Building Compliance ("the building certifier) was engaged by the applicants and undertook various inspections during the construction of the house. The building certifier carried out a final inspection of the property on 8 September 2004.

2.2.3 On 22 October 2004, the building certifier wrote to the applicants, noting that once a truss design certificate and an electrical certificate number were supplied to the building certifier, a code compliance certificate would be issued.

2.2.4 The building certifier wrote to the applicants on 10 January 2005 noting that due to the limitation placed on building certifier regarding the approval of certain claddings, there was some doubt as to the issuing of a code compliance certificate for the house. It noted that one option was for the project to be handed back to the territorial authority so that it could consider the issuing of the code compliance certificate.

2.2.5 The building certifier issued a "Building Certificate" dated 2 February 2005 noting that in its view, the building work complied with the listed provisions of the Building Code on the date of certification. The building certifier also issued a "Scope of Building Certifier's Engagement Certificate" dated 2 February 2005, which stated that it was a final building certificate for all work approved under the Building Certificate, with the exclusion of the exterior cladding. The certificate also noted that the project had been handed back to the territorial authority for the inspection of the work and the issue of a code compliance certificate.

2.2.6 The building certifier wrote to the territorial authority on 4 February 2005, attaching the certificates and noting that it was handing the project back to the territorial authority as the cladding was outside the building certifier's scope. The building certifier stated that if it had been able to issue a code compliance certificate for the house it would have done so.

2.2.7 The territorial authority wrote to the applicants on 25 February 2005, noting that the project had been handed back to it due to the building certifier's change of scope. In order to issue a code compliance certificate the territorial authority had to be satisfied on reasonable grounds that the building work excluded from the building certifier's certificate complied as an alternative solution and that the territorial authority must inspect the work as it progresses and approve each stage. The territorial authority considered the house to be high risk and, as it had not been engaged to carry out any inspections, it was unable to be satisfied on reasonable grounds that the work complied with the Building Code. Accordingly, it was not in a position to issue a code compliance certificate.

2.2.8 Various e-mails were exchanged within the territorial authority during April 2005 regarding the issuing of the code compliance certificate for the house.

2.2.9 In a letter to the building certifier dated 21 June 2005, the applicants described the background to the inspections carried out on the house and were of the opinion that there had been ample time for the building certifier to issue a code compliance

certificate prior to the time that the building certifier's approval was amended. The applicants queried whether there was any way that a code compliance certificate could be issued without going through the determination process.

2.2.10 The building certifier replied to the applicants on 5 July 2005, noting that it had inspected the cladding prior to the amendment to its approval, but was unable to issue a code compliance certificate after that date. The building certifier was of the opinion that the territorial authority had to give reasons why it would not issue a code compliance certificate and should issue a Notice to Rectify giving reasons why the cladding was not code compliant. The building certifier suggested that the applicants get an independent report from a specialist and undertake necessary remedial work to satisfy the territorial authority as to the compliance of the cladding.

2.2.11 The applicants engaged a building inspection firm to review the documentation pertaining to the issuing of a code compliance certificate for the house and on 20 July 2005 this firm produced a report. This report noted that, while the building certifier had not handled the matter as well as it could have, the outcome probably would not have changed. As an alternative to a determination, the applicants could apply to the territorial authority for a Certificate of Acceptance.

2.2.12 The applicants made an application for a determination that was received by the Department on 7 October 2005.

3 The submissions

3.1 Under the "matter of doubt or dispute" the applicants noted that the building certifier was unable to issue the code compliance certificate and that the territorial authority had declined to issue it.

3.2 The applicants also forwarded copies of the:

- plans and specifications
- building consent
- building certifier's notices of inspections and certificates
- building inspection firm's report of 20 July 2005.
- correspondence between the various parties

3.3 Copies of the submissions and other evidence were provided to each of the parties. Neither the applicants nor the territorial authority made any further submissions in response to the submissions of the other party.

3.4 The applicants wrote to the Department on 7 February 2006, commenting on certain aspects of the draft Determination issued to the parties on 26 January 2006, which are summarised as follows:

- the building certifier should be included as a party to the Determination and its comments described in paragraphs 2.2.6 and 2.2.10 are worthy of further evaluation and comment

- the "As Built" stucco cladding system remains compliant with E2/AS1 pursuant to the Building Act 1991 and should not be considered as an alternative solution

- the Determination should indicate why repair and maintenance as set out in paragraph 7.4 is necessary and also should note the inadequacies of the building certifier

- the Determination needs to be more specific as to the outcome on satisfactory completion of work described in a Notice to rectify or a notice to fix

- paragraph 8.5 (now paragraph 8.7) should be amended to exclude the involvement of the territorial authority, leaving the applicants to seek suitable advice on maintenance issues from other experts as they see fit

- the Determination should make reference to the involvement and overall performance of the building certifier in respect to compliance with the Building Code.

3.5 The territorial authority faxed the Department on 30 March 2006, noting that it accepted the draft Determination.

4 The relevant provisions of the Building Code

4.1 The dispute for determination is whether the monolithic cladding complies with clauses B2 and E2 of the Building Code (First Schedule, Building Regulations 1992).

4.2 There are no Acceptable Solutions that have been approved under section 22 of the Act or section 49 of the Building Act 1991 that cover the cladding. The current Acceptable Solution, E2/AS1, allows for solid plaster systems with fibre cement backing sheets, but requires that they be fixed on battens to create a 20mm cavity between the sheet and the framing. The previous Acceptable Solution E2/AS1, which was in force when this consent was issued, allowed for mesh reinforced solid plaster to be applied to fibre cement backing sheets that were face fixed to the framing. The cladding is not currently accredited under section 59 of the Act. I am, therefore of the opinion that the cladding system as installed must now be evaluated as an alternative solution.

4.3 In several previous determinations, the Department has made the following general observations, which remain valid in this case in my view, about Acceptable Solutions and 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.

- 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 report on the cladding. The expert inspected the cladding of the building on 28 November 2005 and furnished a report that was completed on 7 December 2005. The expert noted that the building "appears to be sound and true and workmanship is generally of a good standard". The expert removed a small section of the plaster adjoining a window jamb and sill junction and found that the flashing system as installed is satisfactory. I am prepared to accept that this example applies to similar details throughout the house.

5.2 The expert took non- invasive readings through the interior linings of the exterior walls and all readings were within the acceptable range. The expert took further invasive readings and readings of between 8% and 10% were obtained. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.

5.3 The expert made the following comments regarding the cladding:

- isolated and hairline cracks are evident at some locations
- the base of the cladding is too close to the paving adjoining the garage door opening
- there is no drip edge to the plaster adjoining the entrance roof light
- the parapet flashings are inadequate
- the spouting and fascia are carried into the plaster at one location
- the apron flashings lack saddle flashings where they abut the plaster
- the window heads of the upper-floor windows are not sealed at the junction with the soffit linings
- the deck beam cap flashing lacks an overflashing at one wall junction
- the deck ribbon plates are inadequately sealed at the junction with the plaster at 2 locations
- the deck handrail bracket fixings are inadequately sealed at some locations
- the bottom plate at the base of the retaining wall is not adequately protected.

5.4 The expert also noted that there were some inadequate roof flashing details, some holes in the roofing and ridge that required sealing, and an over reliance on sealing, or inadequate sealing, at the roof flashing locations

5.5 Copies of the expert's report were provided to each of the parties.

6 Discussion

6.1 General

6.1.1 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 considered these comments in this determination.

6.2 Weathertightness risk

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

- has generally 600mm wide eaves and verge projections plus the deck overhang, all of which provide good protection to the cladding areas below them
- is in a high wind zone
- is a maximum two storeys high
- is of a relatively simple shape on plan
- has an upper floor deck, a small area of which is constructed over a living space
- has external wall framing that is unlikely to be treated to a level that is effective in helping resist decay if it absorbs and retains moisture.

6.3 Weathertightness performance

6.3.1 Generally, the cladding appears to have been installed according to reasonable trade practice, but some junctions and edges are not well constructed. These areas are described in paragraph 5.3, and in the expert's report, as being:

- The isolated and hairline cracks at some locations
- the base of the cladding being too close to the paving adjoining the garage door opening

- the lack of a drip edge to the plaster adjoining the entrance roof light
- the inadequate parapet flashings
- the spouting and fascia being carried into the plaster at one location
- the lack saddle flashings to the apron flashings
- the unsealed window heads of the upper-floor windows at the junction with the soffit linings
- the lack of an overflashing to the deck beam cap flashing at one wall junction
- the inadequately sealed deck ribbon plates at 2 locations
- the inadequately sealed deck handrail bracket fixings
- the inadequately protected bottom plate at the base of the retaining wall.

6.3.2 Notwithstanding the fact that the backing sheets are fixed directly to the timber framing, thus limiting drainage and ventilation behind the cladding sheets, I have noted certain compensating factors that assist the performance of the cladding in this particular case:

- the cladding generally appears to have been installed according to reasonable trade practice
- the house has generally 600mm eaves and the additional deck projection that provide good protection to the cladding areas below them

6.3.3 These factors can assist the house to comply with the weathertightness and durability provisions of the Building Code.

6.3.4 I note also the concerns that the expert has raised in regard to the roof cladding and its associated flashings.

7 My response to the applicant's submissions on the draft determination

7.1 As the building certifier no longer operates in that capacity, it cannot be a party to this Determination.

7.2 I acknowledge that section 436 of the Act, concerning the basis on which code compliance certificates are to be issued for building work carried out under a consent granted under section 34 of the Building Act 1991, would have allowed a code compliance certificate to be issued if the building work complied with the building code that applied when that consent was granted. However that is immaterial in this case because, firstly, the relevant clauses in the building code have not changed since the consent was granted, and secondly, as set out in paragraph 2.1.4, the expert has

noted that the plaster is a 2-coat application and did not therefore comply with the requirements of E2/AS1 at the time the work was completed.

7.3 Paragraph 7.4 clearly states that repair and maintenance is necessary to ensure the durability of the cladding. The determination process is a technical review only and is not concerned with the liabilities of any party.

7.4 I note that the Building Industry Authority in Determination 1997/4 took the view that it was not for it to decide how a building was to be brought into compliance with the Building Code. I concur with that view and this is reflected in my decision.

7.5 I have amended paragraph 8.5 (now paragraph 8.7) of the draft Determination.

7.6 Section 2.2 has set out the sequence of events that include the building certifier's performance. As set out in paragraph 8.4, the liability of any party is not a determinable issue under the Act.

8 Conclusion

8.1 I consider that the expert's report establishes there is no evidence of external moisture entering the house, and accordingly, that the monolithic cladding does comply with clause E2 at this time.

8.2 However, the building is also 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 house to remain weathertight. Because the cladding faults on the house are likely to allow the ingress of moisture in the future, the house does not comply with the durability requirements of clause B2.

8.3 Subject to further investigations that may identify other faults, I consider that, because the faults identified with the cladding system occur in discrete areas, I can conclude that satisfactory rectification of the items outlined in paragraphs 6.3.1 and 6.3.4 is likely to result in the building being weathertight and in compliance with clauses B2 and E2.

8.4 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, re-painting, replacing sealants, and so on. As the external wall framing is likely to be treated to a level that will not delay the onset of decay if it becomes wet, I would recommend that periodic checks of the moisture content be carried out to all areas of the external cladding

8.5 It is emphasized 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.

8.6 I decline to incorporate any waiver or modification of the Building Code in this determination.

8.7 I consider the cladding will require ongoing maintenance to ensure its continuing compliance.

9 The decision

9.1 In accordance with section 188 of the Act I determine that the house is weathertight now and therefore the cladding complies with clause E2. However, as there are a number of items to be remedied to ensure it remains weathertight and thus meets the durability requirements of the Building Code, I find that the house does not comply with clause B2. Accordingly, I confirm the territorial authority's decision not to issue the code compliance certificate.

9.2 I also find that rectification of the items outlined in paragraphs 6.3.1 and 6.3.3 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.

9.3 I note that the territorial authority has not issued a Notice to Rectify or a notice to fix. The territorial authority should now issue a notice to fix, and the owner is then obliged to bring the building up to compliance with the Building Code. It is not for me to decide directly how the defects are to be remedied and the cladding brought to compliance with the Building Code. That is a matter for the owner to propose and for the territorial authority to accept or reject.

9.4 I would suggest that the parties adopt the following process to meet the requirements of paragraph 8.3. Initially, the territorial authority should issue the notice to fix, listing all the items that the territorial authority considers to be non-compliant. The owner should then produce a response to this 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. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 15 May 2006.

John Gardiner
Determinations Manager