Determination 2006/23

Refusal of a code compliance certificate for a house with a monolithic cladding system at 43 Waverton Terrace, Churton Park, Wellington

1 The dispute to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004[1] ("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 one of the joint-owners, Mr Ross McKenna ("the applicant"), and the other party is the Wellington City Council ("the territorial authority").

1.2 The dispute for determination is whether the territorial authority's decision to decline to issue a code compliance certificate for a 3-year-old house because it was not satisfied that the monolithic cladding complied with clauses B2 "Durability" and E2 "External Moisture" of the Building Code[2] (First Schedule, Building Regulations 1992) is correct.

[1] The Building Act 2004 is available from the Department's website at www.dbh.govt.nz.
[2] The Building Code is available from the Department's website at www.dbh.govt.nz.

1.3 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 and columns 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 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 considered the submissions of the parties, the report of the independent expert commissioned by the Department to advise on this dispute ("the expert"), and the other evidence in this matter. I have evaluated this information using a framework that I describe more fully in paragraph 6.1. I have not considered any other aspects of the Act or the Building Code.

2 The building

Figure 1: External elevations

2.1 The building is a two-storey detached house, with a small single-storey garage extension, situated on an excavated sloping site that is in a very high wind zone in terms of NZS 3604[3]. The building is of a simple shape on plan and the main pitched roof has hip and valley junctions, and the small hipped lower roof has wall-to-roof junctions. The eaves and verges lack projections. The exterior walls are of conventional light-timber frame construction built on concrete ground floor slabs or intermediate timber-framed floors and are sheathed with monolithic cladding.

2.2 A narrow projection supported on two full-height monolithic clad timber-framed columns is constructed on elevation D. A portico with a pitched roof supported on

[3] New Zealand Standard NZS 3604:1999 Timber Framed Buildings

circular columns extends over the main entrance and the roof extends into a recess adjacent to the upper stair landing. A timber framed pergola supported on circular columns is situated at each of elevations C and D.

2.3 I have not received any evidence as to the treatment, if any, of the external wall framing.

2.4 The new and existing timber-framed external walls and columns 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 40mm thick "Kool-Wall" polystyrene backing sheets fixed through the vapour permeable sarking directly to the framing timbers. The sheets are finished with a mesh reinforced proprietary textured finish, followed by a final high build membrane paint system. The external joinery units have plastered and sealed decorative polystyrene moulds planted on to the cladding around their perimeters. A similar mould is applied horizontally to the walls at some 1500mm below the fascia line. The expert considered the system to be "similar to other EFIS cladding systems used in New Zealand such as Insulclad."

2.5 Active Building Systems Pty Ltd issued a 6- year warranty dated 2 November 2001 for the "Kool-Wall system. However, this warranty was not specific to the house in question. An approved installer of the system issued a Producer Statement dated 28 April 2003 for the "Kool-Wall system that was applied to the house. The coating system applicator issued an undated producer statement for the textured coating applied to the cladding.

3 Sequence of events

3.1 The territorial authority issued an approval for a building consent that was dated 12 June 2002, based on a certificate issued by Nationwide Building Certifiers Ltd ("the building certifier). This approval noted among other matters that "Nationwide Building Certifiers are undertaking all inspections and they will be issuing the Code Compliance Certificate".

3.2 On 4 April 2003, the developer wrote to the building certifier noting that the building had been clad with a product called "Kool-Wall" and that the work was carried out by its own certified builders and fixed according to the manufacturer's specifications and directions.

3.3 Bay Building Certifiers Ltd issued a Building Certificate dated 4 September 2003 for the building. The covering letter attached to this certificate noted that it "related to the Koolwall EIFS cladding system only".

3.4 The territorial authority wrote to the building certifier on 4 September 2003, stating that it was unable to accept the code compliance certificate issued by the building certifier as it was issued for work that fell outside the building certifier's approval, as the Kool-Wall cladding applied to the house was not covered by the approved document E2/AS1.

3.5 The building certifier issued an "Advice of Completion of Building Work" certificate dated 5 September 2003. The certificate had an attachment that included information that a final inspection had taken place and that it was "OK" to issue the code compliance certificate.

3.6 The building certifier issued a code compliance certificate dated 5 September 2003, which noted that it was "A final Code Compliance Certificate issued in respect of all the building work under the above Building Consent".

3.7 The building certifier issued a second code compliance certificate dated 2 October 2003. This certificate contained a condition that

> Exterior cladding (Koolwall EIFS cladding system) approved and certified by Bay Building Certifiers Ltd as per accompanying Building Certificate dated Thursday 4 September 2003.

3.8 In response to a query from the territorial authority that was faxed to the Building Industry Authority ("the Authority"), the Authority wrote to the territorial authority on 14 October 2003. This correspondence confirmed that, as the building work included cladding not covered by E2/AS1, the building certifier could not issue a code compliance certificate. The correct approach would be for the building certifier (Nationwide) to supply a building certificate together with a certificate from Bay Building Certifiers Ltd with a request that the territorial authority issue a code compliance certificate.

3.9 The territorial authority wrote to the building certifier on 21 October 2003, stating that it had sought advice from the Authority as to whether it could accept the two code compliance certificates issued by the building certifiers in lieu of one certificate. The territorial authority attached a copy of the Authority's reply to the territorial authority's request. The territorial authority noted that one option was for Bay Building Certifiers Ltd to issue a code compliance certificate in relation to the building consent. If that option was not possible, the Authority's suggestion of 14 October 2003 should be implemented. Provided that the certificates were supplied correctly and between them covered all aspects of the building code, the territorial authority could issue a code compliance certificate provided that the required fees were paid.

3.10 On 18 March 2005 the territorial authority wrote to the applicant, stating that it made a site visit on 16 March 2005. The territorial authority set out the background to the dispute and described the correspondence that had ensued. The territorial authority noted that due to the Authority amending the scope of the building certifier on 1 January 2003, the building certifier could no longer certify the cladding system used on the project. The territorial authority went on to list the remedial work that needed to be carried out and the additional documentation that it required. The territorial authority concluded that it could not be satisfied that the building work complied with the Building Code and was therefore unable to issue a code compliance certificate.

3.11 The territorial authority issued a Notice to Rectify dated 18 March 2005, which noted that the building work that it required to be undertaken was that set out in its letter of 18 March 2005.

3.12 On 30 March 2005 the applicant wrote to the territorial authority describing what had transpired in the dealings with the territorial authority and expressing concern that the territorial authority had not issued a code compliance certificate. The applicant referred to the letter dated 14 October 2003 from the Authority to the territorial authority and suggested that the approach recommended in that letter was to ensure that all work was to be inspected by qualified inspectors. This was what had occurred. It was also noted that the house had not experienced any leaks and the interior of the house remains dry in all weathers.

3.13 The territorial authority wrote to the Department on 7 April 2005, stating that the territorial authority and the applicant had been verbally advised by the Department that a code compliance certificate issued by the building certifier outside the scope of their approval is a legal document that can only be overturned by a determination or a court ruling. This differed from the advice given by the Authority in its letter of 14 October 2003, which confirmed that as the building work included cladding not covered by E2/ASA1, the building certifier could not issue a code compliance certificate for the work. The territorial authority also described the process involving the issuing of the code compliance certificates and the actions undertaken by the territorial authority. The territorial authority required advice from the Department as to the validity of the code compliance certificate issued for the building.

3.14 The Department responded to the territorial authority's request in a letter dated 21 April 2005. The Department stated that the view expressed by the Authority on 14 October 2004 did not necessarily mean that the certificates issued by the building certifiers were invalid. It was considered that a certificate, on its face, remained valid unless expressly invalidated by the Court or through the determination process. As such, the applicant could argue that the code compliance certificates issued by the building certifiers are valid. This issue could be settled either by the Courts or the determination process.

3.15 The territorial authority wrote to the applicant on 10 May 2005, stating that the territorial authority did not accept the Department's contention that the code compliance certificates issued by the building certifier were valid. The territorial authority then described the options that the applicant might consider with regard to the issues. These were:

- apply for a determination
- apply for a certificate of acceptance
- apply for a code compliance certificate
- complete the work covered by the Notice to Rectify and take no further action.

3.16 The applicant made an application for a determination that was received by the Department on 14 September 2005.

4 The submissions

4.1 In a covering statement to the Department, the applicants stated that the territorial authority had given reasons for not accepting the code compliance certificates and noted that the territorial authority did not agree with the views expressed by the Department. The applicant considered that the code compliance certificates were valid documents and were seeking confirmation as to their status. The territorial authority had inspected the house and had issued a Notice to Rectify. However, it was not clear to the applicant what needed to be done.

4.2 The applicants also forwarded copies of the:

- plans
- building consent and associated documentation
- code compliance certificates and inspection records
- warranties and producer statements
- manufacturer's details
- correspondence with the territorial authority and the building certifier.

4.3 In a letter to the Department dated 4 October 2005, the territorial authority set out the relevant facts and time line. The territorial authority noted that it had sought legal advice as to the validity of the code compliance certificates. This stated that the building certifier had no authority to certify the cladding in question. If a building certifier issues a code compliance certificate outside the scope of its approval and without appropriate insurance such a certificate is invalid. Even if the building certifier had a producer statement for the cladding the building certifier can still not issue the code compliance certificate. The building certifier should have provided the certificate from Bay Building Certifiers and its own certificate pertaining to all other matters within the scope of its authority. The legal advice did not agree with the Department's opinion set out in its letter of 21 April 2005, stating that the territorial authority is entitled to not recognise or accept a code compliance certificate if it is aware that it exceeds the scope of the building certifier's approval. Even if the view expressed above was incorrect, as the territorial authority has identified non-compliance with the Building Code, it can no longer rely on the building certifier in "good faith".

4.4 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.

4.5 In a letter to the Department dated 9 March 2006, the territorial authority commented on the draft determination, with regard to the description of its letter to the building certifier on 4 September 2003. I have considered these comments and have amended the draft as I consider appropriate

4.6 In a letter to the Department dated 12 March 2006, the applicant commented on a number of minor points in the draft determination. I have considered these comments and have amended the draft as I consider appropriate.

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 30 November 2005 and furnished a report that was completed on 15 December 2005. The expert noted that the observed workmanship is to a reasonably high standard with few distortions in the coating system. The expert also observed that there are no flashings installed around the external joinery units. However, the decorative features applied at these locations without a flashing behind them comply with the manufacturer's recommendations, apart from the question of sealants. The expert also stated that there were no visible control joints in the cladding. There is also evidence that repairs and rectification work has been undertaken on the cladding since it was installed.

5.2 The expert took non-invasive readings through the interior linings of the exterior walls and no elevated moisture levels were found. The expert took further invasive readings and elevated readings of 24% and 25% were obtained at the bottom plates at bedroom 4. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure. The expert also noted that there is evidence of moisture ingress adjacent to a dining room window and the family room doors. However, no higher level moisture readings were obtained at these locations.

5.3 The expert made the following comments regarding the cladding:

- there is minor cracking at two locations on elevation D
- there are no cross-falls to the decorative window sill mouldings at elevations B, C, and D
- the sealant applied to the decorative projections around the exterior joinery units is not protected from UV light
- the spouting above the main entrance and at the top of the decorative columns on elevation D was installed before the final coating system was applied
- there are unsealed joints between the cladding and the fascia.

5.4 The expert also commented on the variation of the length of the lap of the cladding over the edge of the concrete floor slab, which was in places less than that recommended by the manufacturer, but the report made no suggestion that the variation was contributing to moisture ingress.

5.5 The expert noted that the paintwork at the main entry window sill was cracked. I consider that to be evidence of moisture entry around the window.

5.6 Copies of the expert's report were provided to each of the parties. The applicant wrote to the Department on 10 January 2006, and stated that:

- Following the ingress of water through the window above the main entry during a storm in 2004, the builder checked all the windows. The builder noted that several windows, including the one above the main entry and in the dining room, were inadequately sealed. In September 2005, all the windows were resealed in accordance with the manufacturer's recommendations and since then there is no evidence of further leaking.

- The pergola was originally fixed directly to the cladding and this caused moisture ingress when there was heavy rain. In August 2005, the pergola was packed off the cladding and remedial work was carried out to the surrounding plaster.

- The higher moisture levels obtained in bedroom 4 were due to the crack in the cladding at this location and the crack was repaired in November 2005.

The applicant enclosed a copy of a letter dated 19 August 2005 from the contractor who had amended the pergola.

5.7 Subsequent to receiving the applicant's comments, the Department engaged the expert to carry out a further inspection of the property. This inspection was undertaken on 23 January 2006 and the expert wrote to the Department on 31 January 2006. The expert noted the following:

- the expert could not confirm whether the sealant used around the exterior joinery units was suitable for this application nor was there any written confirmation provided to him that the sealing was carried out in accordance with the manufacturer's recommendations.

- there was no sign that the water damage to the family room carpet was caused by recent water ingress

- the moisture readings taken adjacent to the bottom plate in the right-hand corner of elevations A and D were now 20% and 16%, when at the time of the initial visit they were respectively 24% and 25%

- the moisture readings taken adjacent to the inter-storey level in the right-hand corner of elevations A and D were now 20% and 20%, when at the time of the initial visit they were respectively 17% and 19%

- there is no sealant at the junction of the cladding and the fascia at the right-hand corner of elevation A.

6 Evaluation for code compliance

6.1 Evaluation framework

6.1.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solution[4], which in this case is E2/AS1, which will assist in determining whether the features of this house are code compliant. However, in making this comparison, the following general observations are valid:

- 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 may be necessary to add some other provision to compensate for that in order to obtain compliance with the Building Code.

6.1.2 The approach in determining whether building work is weathertight and durable and is likely to remain so, is to apply the principles of weathertightness. This involves the examination of 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 Department and its antecedents, the Building Industry Authority, have also described weathertightness risk factors in previous determinations (refer to Determination 2004/1 *et al*) relating to cladding and these factors are also used in the evaluation process.

6.1.3 The consequences of a building demonstrating a high weathertightness risk is that building solutions that comply with the Building Code will need to be more robust. Conversely, where there is a low weathertightness risk, the solutions will need to be less robust. In any event, there is a need for both the design of the cladding system and the quality of its installation to be carefully carried out.

6.2 Weathertightness risk

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

- has no eaves or verge projections. However, the elevation D roof extension, together with the entrance portico and wall recess above it, provide some protection to the cladding areas below them

- is in a very high wind zone

- is generally two storeys high

- is of a simple shape on plan

- has no decks or balconies

- 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.

[4] An Acceptable Solution is a prescriptive design solution approved by the Department that provides one way, but not the only way, of complying with the Building Code. The Acceptable Solutions are available from the Department's website at www.dbh.govt.nz..

6.2.2 When evaluated using the E2/AS1 risk matrix, these weathertight features show that all elevations of the building demonstrate a medium weathertightness risk rating. 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.

6.3 Weathertightness performance

6.3.1 Generally, the cladding appears to have been installed according to good 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 minor hairline cracking at two locations on elevation Dl
- the lack of cross-falls to the decorative window sill mouldings at elevations B, C, and D
- the sealant applied to the decorative projections around the exterior joinery units being unprotected from UV light. It is always good practice to protect sealants from UV light to prevent degradation
- the spouting above the main entrance and at the top of the decorative columns on elevation D being installed before the final coating system was applied
- the unsealed joints between the cladding and the fascia.

6.3.2 Subsequent to the expert's report being received the owner has advised that the unsealed joints between the cladding and the fascia have been fixed.

6.3.3 The unexplained apparent increase in the moisture content of the timber framing adjacent to the inter-storey level in the right hand corner of elevation A and D (see paragraph 5.7), reported by the expert after the second visit to the site, suggests that moisture is still entering the building at or near that location. I recommend further investigation to discover the cause of the apparent increase in the moisture reading.

6.3.4 Notwithstanding the fact that the backing sheets are fixed directly to the timber framing, thus inhibiting 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 good trade practice
- the house is of a very simple shape
- the house has no decks or balconies.

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

6.3.5 As observed by the expert, there is no visible evidence that control joints are installed in the cladding. The expert also regarded the cladding system as being similar to other EFIS systems used in New Zealand, for which the requirement for movement joints is less stringent than in this case where the manufacturer's instructions recommend that expansion joints should be installed to walls exceeding 6000mm in length. There are several walls on the house that exceed this 6000mm length. Nonetheless, I note that the manufacturer of the cladding system has provided a warranty and the installers have provided producer statements. As well, I note that the bracing calculations were made by an engineer taking into account the reinforced concrete slab foundation system. All these factors, together with absence of evidence of significant cracking in the cladding, persuade me that, in this case, the absence of control joints does not prevent the cladding complying with the Building Code.

7 Conclusion

7.1 I am satisfied that the current performance of the monolithic cladding on the house is not adequate because it may be allowing water penetration into the building in at least two locations, which could affect the cladding. Consequently, I am not satisfied that the cladding system as installed on the house has been demonstrated to comply with clause E2 of the Building Code. However, I accept that, based on the observations of the expert, the physical evidence of moisture entry was caused by defects in the cladding that have for the most part been rectified. One apparent exception is the inter-storey discussed in paragraph 6.3.3.

7.2 In addition, the house 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 monolithic cladding faults on the building have already allowed the ingress of water, or are likely to allow the ingress of moisture in the future, it does not comply with the durability requirements of clause B2 of the Building Code.

7.3 Subject to further investigations that may identify other faults, I consider that, because the faults that have been identified with this cladding by the expert occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraphs 6.3.1 is likely to result in the building being weathertight and in compliance with clauses B2 and E2.

7.4 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, repainting, replacing sealants, and so on.

7.5 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.

7.6 I acknowledge that apparently contrary advice about the status of these code compliance certificates has previously been given by officers of this Department. That advice was given on the basis of the information available to them at the time. Those officers did not have the benefit of the extensive and fully documented submissions that I have received from the parties.

7.7 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 cladding system as installed on the building does not comply with clause E2 of the Building Code. There are also a number of items to be remedied to ensure that it remains weathertight and thus meet the durability requirement of the Building Code. Consequently, I find that the external walls of the house do not comply with clause B2. Accordingly, I confirm the territorial authority's decision to decline to issue a code compliance certificate. I also order that the code compliance certificates issued by the building certifier be withdrawn.

8.2 I acknowledge that apparently contrary advice about the status of these code compliance certificates has previously been given by officers of this Department. That advice was given on the basis of the information available to them at the time. Those officers did not have the benefit of the extensive and fully documented submissions that I have received from the parties.

8.3 I also find that rectification of the items outlined in paragraphs 6.3.1 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.

8.4 I note that the territorial authority has issued a Notice to Rectify for the house. A new notice to fix should be issued that requires the owners to bring the cladding into compliance with the Building Code, without specifying the features that are required to be incorporated. It is not for me to dictate how the defects described in paragraphs 6.3.1 are to be remedied. That is for the owner to propose and the territorial authority to accept or reject.

8.5 I would suggest that the parties adopt the following process to meet the requirements of paragraph 8.4. Initially, the territorial authority should issue the notice to fix, listing all the items that the territorial authority considers 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 23 March 2006.

John Gardiner
Determinations Manager