Determination 2005/175

Refusal of a code compliance certificate for a building with a "monolithic" cladding system at 39 Davies Drive, Nelson

1 The dispute to be determined

1.1 This is a determination of a dispute referred to the Chief Executive of the Department of Building and Housing ("the Chief Executive") under section 17 of the Building Act 1991 ("the Act"), as amended by section 424 of the Building Act 2004. The applicants are the joint-owners Mr and Mrs Bary ("the owner"), and the other party is the Nelson City Council ("the territorial authority"). The application arises from the refusal by the territorial authority to issue a code compliance certificate for a 2-year-old house, because certain required inspections had not been undertaken.

1.2 My task in this determination is to consider whether I am satisfied on reasonable grounds that the external cladding as installed ("the cladding"), which is applied to the external walls of this house complies with the Building Code (see sections 18 and 20 of the Act). By "external 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. In addition, the territorial authority has stated that as it had not been invited to carry out any inspections, the territorial authority was unable to issue a code compliance certificate.

1.3 This determination is made under the Building Act 1991 subject to section 424 of the Building Act 2004. That section came into force ("commenced") on 30 November 2004, and its relevant provisions are:

> ". . .on and after the commencement of this section,—
>
> "(a) a reference to the Authority in the Building Act 1991 must be read as a reference to the chief executive; and
>
> "(b) the Building Act 1991 must be read with all necessary modifications to enable the chief executive to perform the functions and duties, and exercise the powers, of the Authority . . . "

1.4 It should be noted that the new legislation does not amend the determination process set out under the 1991 Act, other than to transfer the power to make a determination from the Building Industry Authority ("the Authority") to the Chief Executive.

1.5 This determination refers to the former Authority:

a) When quoting from documents received in the course of the determination, and

b) When referring to determinations made by the Authority before section 424 came into force.

1.6 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 two-storey detached house situated on a steep site, which is in a high wind zone in terms of NZS 3604: 1999 "Timber framed buildings". The external walls of conventional light timber frame construction are built on block-work foundation walls and intermediate timber-framed floors, and are sheathed with a mixture of monolithic, fibre-cement, and fibre-cement weatherboard claddings. The house is of a simple shape but with some complex features, and the low-pitched roofs are constructed at various levels with hip and wall-to-roof junctions. The eaves generally have 500mm wide projections. A large concrete terrace is situated at one elevation and the return of the adjoining elevation, and a low-pitched roof is constructed over it. A small close-boarded timber-framed deck is constructed over a section of the terrace roof.

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

2.1.3 The cladding system consists of 3 different claddings. Namely 7.5mm thick "Eterpan" Fibre-cement sheets fixed over battens, 9mm thick "Eterpan" horizontal fibre-cement panels fixed directly to the framing, and "Linea" weatherboards fixed directly to the framing. Both the "Eterpan" systems are finished with a proprietary high build coating.

2.2 Sequence of events

2.2.1 The territorial authority issued a building consent in mid-2002, based on a certificate provided by a building certifier, Prime Building Compliance ("the building certifier").

2.2.2 The building certifier carried out inspections during the course of construction. While the building certifier claims that it did not carry out all the required inspections, the owner, relying on the observations of the builder, disputes this contention.

2.2.3 The building certifier wrote to the owner on 3 November 2004, stating that, as its approval had now been limited, the cladding was now outside its scope, and consequently, it was unable to issue a code compliance certificate. The project would be handed back to the territorial authority and the owner was required to produce a surveyor's site report, a truss design certificate, and an as-built drainage plan. The building certifier also noted that certain inspections that were required to be undertaken had not taken place, and that once the project was handed back, the owner needed to contact the territorial authority regarding the requirements to issue a code compliance certificate.

2.2.4 Under a covering letter to the owner dated 13 December 2004, the building certifier issued an amended scope of engagement. The attached "Scope of Building Certifier's Engagement Certificate" dated 10 December 2004, listed certain exclusions, and noted that it was a "Final Building Certificate" for all building work covered by the building certifier's approval certificate. It also stated that the project was being handed back to the territorial authority for inspection and the issue of a code compliance certificate. The certificate also noted that the owner had not called for a number of the required inspections.

2.2.5 The territorial authority did not issue a Notice to Rectify as required under section 43(6) of the Act.

2.2.6 The owner applied for a determination on 20 December 2004.

3 The submissions

3.1 In a covering letter to the Department dated 20 December, the owner stated that the building certifier did not inform the owner that it was no longer able to certify the construction of the house. In addition, while the building certifier claimed that it had not carried out some inspections, the builder confirmed that all appropriate inspections were made.

3.2 I note that the owner included in the "matter of doubt or dispute", issues relating to the building certifier's authority to issue a building consent and inspect the house construction, and whether such inspections were made. However, as these are outside the issues that I can determine under the Act, I have not considered these concerns in this determination.

3.3 The owner supplied copies of the:

- plans and specifications
- correspondence with the building certifier.

3.4 In a letter addressed to the Department dated 21 December 2004, the builder stated that the building certifier carried out all inspections required under the consent. The builder noted that the house was built in accordance with the plans supplied by the architects, including the provision of a fully ventilated cavity.

3.5 In a letter addressed to the Department dated 21 December 2004, the architect stated that during the weekly site meetings the architect also observed the construction of the house and noted that the work was carried out in accordance with the supplied documentation and site instructions. The architect did not observe any factor that would make the house non-compliant. The architect claimed that at no time did the building certifier advise of any missed inspections or of its inability to certify the building.

3.6 The territorial authority made a submission in the form of a letter to the Department dated 1 February 2005, which stated that the building certifier had handed back the project to the territorial authority. The territorial authority identified the house as being high risk. As the building certifier had not carried out some inspections, and the territorial authority had not been invited to do so, the territorial authority was unable to issue a code compliance certificate.

3.7 The copies of the submission 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.

4 The relevant provisions of the Building Code

4.1 The dispute for determination with regard to the cladding is whether the territorial authority's decision to refuse to issue a code compliance certificate because it was not satisfied that the cladding complied with clauses B2 and E2 of the Building Code (First Schedule, Building Regulations 1992) is correct.

4.2 There are no Acceptable Solutions approved under section 49 of the Act that cover this cladding. The cladding is not accredited under section 59 of the Act. I am therefore of the opinion that the cladding system as installed must now be considered to be an alternative solution.

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

- Some Acceptable Solutions cover the worst case, so that in less extreme cases they may be modified 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 report on the cladding systems. The expert inspected the claddings of the building on 1 and 3 June 2005 and furnished a report that was forwarded to the Department on 3 June 2005. The expert made various comments regarding the various claddings:

The "Eterpan" fibre-cement sheet system

5.1.1 The expert is of the opinion that even though the sheets were fixed over battens, the system could not be described as having a drained cavity. The continuous horizontal member at the base of the cladding prevented any drainage of the cavity. Foam sealant is inserted to the jambs and sills of the external joinery units. The expert also commented as follows.

- There are two cracks at vertical cladding joints.
- There is minor damage at the southeast corner of the cladding and there is a crack at this location.
- The base of the cladding is hard down onto the head flashings of the exterior joinery units and there are no capillary drip edges formed at these locations.
- The weathering is poor at the junction of the cladding and the concrete retaining wall at the west elevation.

The "Eterpan" horizontal fibre-cement panel system

5.1.2 The expert noted that while the horizontal jointing system differed from that shown on the manufacturer's data sheets, the detail appears to be satisfactory. Foam sealant is inserted to the jambs and sills of the external joinery units. The expert also commented as follows.

- The base of the cladding is too close to the ground on the south side of the cladding.
- The aluminium head flashings to the exterior joinery units overlap the jambs by 35mm in place of the 50mm recommended by the manufacturer.
- The back flashing at the junction of the cladding and the soffits is fitted behind the cladding.

The "Linea" fibre-cement weatherboard system

5.1.3 The expert commented as follows:

- There is poor weathering at the lower end of the junction between the weatherboards and the fibre-cement cladding.
- The foam sealant installed at the back of the weatherboards where they abut openings is not consistent with the manufacturer's details.

- The black foam sealant inserted at the external boxed corners is visible and therefore prone to UV attack.
- There is no scotia bead inserted at the junction of the cladding and the soffits.
- There is no flashing fixed at the junction of the east wall cladding and the fascia.
- The weatherboards are not painted behind the satellite dish fixing bracket and the cable penetration at this location is poorly sealed.

The block-work masonry

5.1.4 The expert commented that a flashing is not installed between the kitchen window jamb and the block-work, and the timber framing is exposed at this location.

5.2 The expert took many non-invasive readings around the exterior walls and inside the house and none of the readings indicated that there are any moisture related problems in the house.

5.3 The expert also noted that the sealant has failed at the junction between the window head and the ground floor slab soffit. There is a water-filled blister where the deck membrane overlaps the sidewall tanking. A barrier is missing at the door access from the shower to the roof.

5.4 Copies of the expert's report were provided to each of the parties and neither party forwarded a response.

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, 500mm wide eaves projections that provide good protection to the cladding areas below them

- is in a high wind zone
- is of a maximum three storeys in height
- is of a relatively simple shape on plan but with some complex features
- has a small timber deck
- has external wall framing that is unlikely to be treated to a level that is effective in helping prevent decay if it absorbs and retains moisture.

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 5.1, and in the expert's report, as follows.

The "Eterpan" fibre-cement sheet system

- The two cracks at vertical cladding joints.
- The crack and other minor damage and at the southeast corner of the cladding.
- The base of the cladding being hard down onto the head flashings of the exterior joinery units and the lack of capillary drip edges at these locations.
- The poor weathering at the junction of the cladding and the concrete retaining wall at the west elevation.

The "Eterpan" horizontal fibre-cement panel system

- The base of the cladding being too close to the ground on the south side of the cladding.
- The ineffective back flashing at the junction of the cladding and the soffits.

The "Linea" fibre-cement weatherboard system

- The poor weathering at the lower end of the junction between the weatherboards and the fibre-cement cladding.
- The ineffective foam sealant installed at the back of the weatherboards where they abut openings.
- The visible black foam sealant inserted at the external boxed corners.
- The lack of a scotia bead at the junction of the cladding and the soffits.
- The lack of a flashing at the junction of the east wall cladding and the fascia.

- The unpainted weatherboards behind the satellite dish fixing bracket and the poorly sealed cable penetration.

The block-work masonry

- The lack of a flashing between the kitchen window jamb and the block-work.

6.3.2 The expert has also pointed out some defects relating to the sealant at the junction between the window head and the ground floor slab soffit, the water-filled blister where the deck membrane overlaps the sidewall tanking, and the missing barrier at the door access from the shower to the roof.

6.3.3 Notwithstanding the fact that the backing sheets are fixed directly to the timber framing or have a non-draining cavity, thus inhibiting drainage and some 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 has 500mm eaves that provide good protection to the cladding areas below them.

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

6.3.5 The expert has noted that while the horizontal control joints and some of the flashing and perimeter details of the external joinery relating to the "Eterpan" claddings are not installed strictly in accordance with the manufacturer's recommendations, I am prepared to accept the expert's observations regarding these details, while noting the exception where the weatherboards abut openings.

6.3.6 I note that three elevations of the building demonstrate a high weathertightness risk rating and the remaining elevation a low 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 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.

7.2 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.

7.3 Subject to further investigations that may identify other faults, I consider that, because the faults that have been identified with this cladding occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraphs 6.3.1 and 6.3.2 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 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 As set out in paragraph 3.6, the territorial authority has stated that as it had not been invited to undertake any inspections during the construction of the house, it would be reluctant to take over the remainder of the work. However, I am of the opinion that the territorial authority has a statutory obligation to undertake such inspections as is deemed necessary to establish, on reasonable grounds, whether a building is code compliant.

7.7 However, the territorial authority may well have concerns about the durability, and hence the compliance with the Building Code, of certain elements of the building, even though the building is only 2 years old. If this is the case, I am of the opinion that the territorial authority should amend the original building consent by making it subject to a waiver of the Building Code in accordance with section 34(4) of the Act to the effect that the durability of any elements of concern to the territorial authority is to be measured from the date of the substantial completion of the building instead of from the time of the issue of the code compliance certificate. The land information memorandum relating to this house should also be amended in line with the above. For the purpose of this determination I am of the opinion that “substantial completion” of the building is achieved when the building is ready for occupation.

7.8 Following this amendment, any code compliance certificate subsequently issued by the territorial authority should be issued in line with the amended building consent.

8 Decision

8.1 In accordance with section 20 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 code, I find that the house does not comply with clause B2. Accordingly, I confirm the territorial authority's decision to refuse to issue the code compliance certificate.

8.2 I also find that rectification of the items outlined in paragraphs 6.3.1 and 6.3.2 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.

8.3 I note that the territorial authority has not issued a Notice to Rectify. 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 with appropriate assistance to propose and for the territorial authority to accept or reject.

8.4 I note that the expert's report is based on a limited inspection. Accordingly, 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 non-compliant. The notice should indicate that this list may not cover all items of non-compliance and that further investigation by a competent and suitably qualified person will be required. The owner, with suitable assistance, should then produce a response to this in the form of a technically robust proposal. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.

8.5 If the territorial authority has durability concerns about certain elements in the house, then it should amend the original consent to incorporate a waiver of clause B2 of the Building Code. This amendment should be to the effect that the durability periods for the elements in question are to be measured from the date of the substantial completion of the building and not from the date of the issue of a code compliance certificate.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 23 December 2005.

John Gardiner
Determinations Manager