

Determination 2005/165

Refusal of a code compliance certificate for a house with a monolithic cladding system at 13 Medallion Drive, Albany, North Shore City – House 135

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 the owner Mr Caines (“the owner”), and the other party is the North Shore City Council (“the territorial authority”). The application arises from the refusal by the territorial authority to issue a code compliance certificate for a 3-year-old house, unless changes are made to its monolithic cladding system.
- 1.2 The question to be determined is whether I am satisfied on reasonable grounds that the monolithic wall cladding as installed to the majority of the new timber-framed external walls 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. The territorial authority has not raised any issues regarding the timber weatherboards that make up the balance of the external cladding. However, I have commented on these in this determination.
- 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 work consists of a detached two-storey house, with single-storey garage and living room extensions, situated on an excavated slightly sloping site that is in a medium wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. The

building is of a relatively simple shape on plan but with some complex features and the varying-level roofs have hip and wall-to-roof junctions. The exterior walls are of conventional light-timber frame construction built on concrete ground floor slabs or intermediate timber-framed floors. The majority of these walls are sheathed with monolithic cladding. The eaves and verges have 350mm wide projections.

- 2.1.2 A shaped timber-framed canopy roof with low-height parapet upstands is constructed over the main entrance and a monolithic-clad timber-framed corner column supports this. A monolithic-clad timber-framed full-height chimney is built against one wall and this penetrates a high-level roof.
- 2.1.3 The expert commissioned by the Department to inspect the cladding (“the expert”, refer to paragraph 5.2) noted that metal lined and faced internal gutters have replaced the external gutters shown on the consented plans. This change has not been referred to in the other documentation that has been supplied to me.
- 2.1.4 The plans describe the wall framing as “kiln dried” without any mention of treatment. The expert has observed that the wall framing he was able to inspect did not appear to be treated. Based on this evidence, I accept that the timber external wall framing is unlikely to be treated.
- 2.1.5 The cladding system applied to the majority of the exterior walls is what is described as monolithic cladding and consists of 60mm “Thermaclad” polystyrene backing sheets fixed directly to the framing over the building wrap, to which a “Ezytex” sponge finish plaster system has been applied. The plaster is finished with a flexible acrylic paint system. Vertical grooves are formed in the back of the polystyrene sheets. The balance of the cladding consists of isolated weatherboard panels fixed directly to the framing over the building wrap. The majority of these weatherboards are splay-cut rebated Cedar fixed over “Hardibacker” linings. The remainder of the weatherboards are Cedar rusticated profile boards fixed to some narrow upper level panels and vertical battens are fixed over these at varying centres.
- 2.1.6 Plaster Systems Ltd provided a “Producer Statement” dated 26 July 2004, for the “Thermaclad” system. It also provided a 15-year “Materials Components Guarantee” and a 5-year “Workmanship Guarantee”, both dated 26 July 2004, relating to the “Thermaclad” and “Ezytex” systems. Both guarantees also carried an exclusion clause, whereby Plaster Systems Ltd did not accept responsibility for consequential damage of any kind to any building component that has occurred as a result of the use of untreated timber.

2.2 Sequence of events

- 2.2.1 The territorial authority issued a building consent on 6 November 2001, based on a certificate from a building certifier, Rob Woodger Ltd (“the building certifier”), dated 17 October 2001.
- 2.2.2 The building certifier carried out various inspections during the course of construction. On 30 April 2003 the building certifier wrote to the territorial authority advising that he was no longer involved in the project and was therefore handing it back to the territorial authority. The status of the project was that “work is complete but requires the following paperwork”. The required documentation was listed as the

advice of completion, an as-built drainage plan and a surveyor's certificate. The building certifier enclosed a truss plan and inspection reports and certificates.

- 2.2.3 The territorial authority wrote to the owner on 12 July 2004, noting that due to its current policy for monolithic clad buildings, the house required a final inspection. The territorial authority also required a producer statement from the cladding installer and warranties from the cladding manufacturer.
- 2.2.4 The territorial authority carried out a visual inspection on 2 August 2004. In a letter to the owner dated 13 August 2004, the territorial authority stated that the Building Code required the durability of the cladding to be 15 years and that of the timber framing to be 50 years. The territorial authority also noted that the inspection process for monolithic claddings had changed since the time that the building consent for the house was processed. The territorial authority then listed certain weathertightness risk factors identified with the building, together with a list of defects. The territorial authority stated that, due to the risk factors and defects, it could not be satisfied on reasonable grounds that the cladding system was code compliant.
- 2.2.5 The owner's legal representatives wrote to the territorial authority on 26 August 2004. This letter rejected the territorial authority's position regarding the property and noted that the house had been constructed in accordance with the consent. It was maintained that the territorial authority had a specific obligation under the act to issue a code compliance certificate and it was unacceptable for the territorial authority to evade its responsibilities where a building has been constructed in accordance with the building consent.
- 2.2.6 The territorial authority wrote to the owner's legal representatives on 22 September 2004, stating that at the time of the consent, the problems arising from face-fixed monolithic claddings were not fully recognised. Furthermore, the territorial authority pointed out that before it could issue a code compliance certificate, it must be satisfied on reasonable grounds that building work has been constructed in accordance with the Building Code. Due to recently acquired information, the territorial authority was not satisfied that the exterior cladding on the house was code compliant. The territorial authority noted that the determination process might lead to a code compliance certificate being issued. The territorial authority also pointed out that the building certifier had carried out all inspections prior to the territorial authority's inspection and during that process may have overlooked the defects notified by the territorial authority.
- 2.2.7 The owner forwarded a document that was received by the territorial authority on 22 September 2004, and which set out the remedial measures that the owner had undertaken and also requested the territorial authority to issue a code compliance certificate.
- 2.2.8 Following further inspections on 16 December 2004 and 22 February 2005, the territorial authority described 7 cladding defects that still required remedying.
- 2.15 The territorial authority did not issue a Notice to Rectify as required by section 43(6) of the Building Act 1991.
- 2.16 The owner applied for a determination on 5 April 2005.

3. The submissions

3.1 The territorial authority made a submission in the form of a letter to the Department dated 24 May 2005 that summarised the consent and inspection processes relating to the house. The territorial authority also noted that, in light of current knowledge, the verification process had become more complicated. The territorial authority also listed the risk factors and cladding defects that it had identified. The territorial authority stated that the matter of doubt is:

- Whether the installed cladding system complies with clauses B2.3.1 and E2.3.2 of the Building Code.

3.2 The territorial authority provided copies of:

- some of its consent and inspection documentation
- the building certifier's consent and inspection records
- the correspondence with the owner and the owner's legal representatives
- the producer statement and warranties relating to the cladding
- a set of photographs of the house.

3.3 The owner provided copies of:

- the building plans and specifications
- a time line of the construction and inspection processes
- the building consent information and some of the building certifier's inspection documentation
- the correspondence with the territorial authority, the builder and the balustrade installer
- the guarantees and producer statements
- some technical information
- a set of photographs showing the house.

3.4 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.

4. The relevant provisions of the Building Code

4.1 The dispute for determination is whether the territorial authority's decision to refuse to issue a code compliance certificate because it was not satisfied that the monolithic

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 that have been approved under section 22 of the Act or section 49 of the Building Act 1991 that cover the monolithic cladding as installed in this case. The cladding is not currently certified under section 269 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 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 expert inspected the claddings of the building on 7 July 2005 and furnished a report that was completed on 30 July 2005.
- 5.2 The expert noted that the appearance of the monolithic cladding is generally straight and flat and there are no obvious undulations to line and plane, or to the edges or the laps. The finish is uniform and sound and the paint finish is good with an absence of surface pinholes. An experienced licensed contractor has installed the cladding and the junctions between the various claddings are carefully formed. The expert considered that control and expansion joints are not required for this house because the dimensions of its wall panels do not exceed the manufacturer's 20 metre limits for the insertion of such joints. The expert removed areas of cladding adjacent to various external joinery units in order to reveal the flashing details. The details in general complied with the manufacturer's instructions. The expert made the following comments regarding the cladding:
- the base of the cladding is too close to the paving and garden areas at some locations
 - there is a crack in the cladding adjacent to one of the lounge windows
 - the base details of the cladding to the right-hand side of the front door are non-compliant
 - the sill flashing under the garage window is loose.

- 5.3 The expert took non-invasive and invasive readings through the interior linings of the exterior walls and four elevated reading were obtained. In the opinion of the expert, two of these readings were not attributable to the cladding. The remaining two readings were 28% adjacent to the back door of the garage and 40% adjoining the lobby corner window. Water had soaked into the custom wood skirting and architrave at the latter 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, while the splay cut weatherboards did not fully comply with the appropriate standard, its profile and the fibre-cement backing behind it should ensure compliance as an alternative solution. However, the metal sill flashings over the timber are nailed with zinc-coated nails when silicone bronze or stainless steel fastenings should have been used. In addition, the ends of the head flashings under the boarding are not sealed. An examination of the garage roof showed no evidence that the roofing underlay overlaps the internal gutters and the roofing “pans” are not turned down into the gutters. The expert also suggested that the reverse slope soffits should be checked for flashings and sealants.
- 5.5 Copies of the expert’s report were provided to each of the parties. The owner’s builder responded and advised that there was a sub-soil drain, embedded in scoria, along the east wall of the garage. The drain discharges into a cesspit. The builder considered this drain sufficient in the circumstances.

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 350mm eaves and verge projections to the high-level roofs that provide some protection to the cladding areas below them
 - is in a medium wind zone
 - is a maximum of two storeys high
 - is of a relatively simple shape on plan with some complex features

- has no balconies or decks
- has new external wall framing that is likely not to be treated, so is ineffective 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 5.2, and in the expert's report, as being:

- the base of the cladding being too close to the paving and garden areas at some locations
- the crack in the cladding adjacent to one of the lounge windows
- the non-compliant base details of the cladding to the right-hand side of the front door
- the loose sill flashing under the garage window.

6.3.2 The expert has pointed out some defects relating to the flashings installed in the rusticated weatherboard cladding, the finish of the roofing into the garage gutters, and the reverse slope soffits. I recommend that the territorial authority address these issues with a view to their rectification.

6.3.3 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 has 350mm eaves and verge projections to the high-level roofs that provide some protection to the cladding areas below them
- the house has no balconies or decks
- the cladding has grooves in the back of the polystyrene sheets that assist in the drainage of the cladding.

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 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 monolithic cladding on the house is not adequate because it is 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 complies with clause E2 of the Building Code.
- 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 will 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 cladding faults identified by the expert occur in discrete areas, I can 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 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. As the external wall framing is not treated, periodic checking of its moisture content should be carried out as part of normal maintenance.
- 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 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 refuse to issue a 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 to propose and for the territorial authority to accept or reject.
- 8.4 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. Under subsection 179(2)(c) of the Act, “the Chief Executive may refuse an application if the Chief Executive has made a determination...on the same matter” Accordingly issues decided by the Chief Executive in this determination cannot be considered by the Chief Executive in a subsequent determination regarding this particular house, including a requirement, if any, for a ventilated and drained cavity or equivalent.
- 8.5 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 9 December 2005.

John Gardiner
Determinations Manager