

Determination 2005/114

Refusal of a code compliance certificate for a building with a “monolithic” cladding system at 2/28 Ireland Road, Panmure, Auckland – House 99

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 applicant is the owner, Ursela Beasley (referred to throughout this determination as “the owner”) acting through the developer, Prince Developments Ltd, and the other party is the Auckland City Council (referred to throughout this determination as “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 unless changes are made to its monolithic cladding system.
- 1.2 The question to be determined is whether on reasonable grounds the monolithic wall cladding, which in this instance I consider to be the plaster system applied to the proprietary external wall panels of the house (“the cladding”), complies with the building code (see sections 18 and 20 of the Act). By “the monolithic wall cladding as installed” I mean the components of the system, including the gable wall polystyrene panels, the flashings, the joints and the plaster and/or the coatings (but not in this case the 200mm thick polystyrene panel sheets), as well as the way the components have been installed and work together.
- 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 . . .”

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.

- 1.4 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.
- 1.5 In making my decision, I have not considered any other aspects of the Act or the building code.

2 PROCEDURE

The building

- 2.1 The building is a two-storey detached house, with attached single-storey garage and family room extensions, situated on a level site in a low wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. The external walls of the house are of a proprietary “Cornerstone” construction; consisting of 200mm thick polystyrene panels built on a concrete waffle slab. The joints between the panels are filled with concrete, which is reinforced, and the panels are plastered on their external faces. The house is of a fairly simple shape, and the tiled pitched roofs are at two main levels with wall to roof junctions to the lower roofs. The eaves and verges have 340mm wide projections, with the spoutings where located providing an additional 150mm of cover. A small partially cantilevered balcony, which is also located over a habitable space, is constructed at the first floor level
- 2.2 The proprietary panels have timber only as a bottom plate and around the windows. The roof gable walls are fully framed up in timber. The builder provided copies of invoices showing that both H1 and H3 timber was purchased. The independent expert commissioned by the Department (“the expert”) is of the opinion that H3 timber was used in the panels and kiln dried timber in the roof areas.
- 2.3 The main proprietary external walls of the house that are the subject of this determination are finished with a 2 to 3 mm thickness of unreinforced cement plaster on their exterior faces, which is then painted. The roof gable walls resemble an EIFS polystyrene system finished to match the panels.
- 2.4 Ironcladd Limited, the supplier of the plaster system, provided a 15-year Warranty dated 24 August 2003 for the plastered application. However, according to the expert this firm was apparently put into liquidation on 2 December 2002.

Sequence of events

- 2.5 The territorial authority issued a building consent in January 2003. An amended building consent was issued on 22 September 2003, in relation to additional drainage to the driveway.
- 2.6 The territorial authority carried out various inspections during the construction of the house and passed the preline building inspection on 28 May 2003. Following a final inspection, the territorial authority's "Final Checklist" dated 21 October 2003, noted, "All outstanding issues resolved".
- 2.7 On 7 August 2004, the territorial authority informed the owner by letter that following an inspection on 23 June 2004, the territorial authority was unable to issue a code compliance certificate as insufficient information had been received, particularly as regards the Cornerstone EPS construction system.
- 2.8 In a letter to the owner dated 17 August 2004, the territorial authority regretted that the building might not comply with the building code in a number of respects. The territorial authority attached a Notice to Rectify also dated 17 August 2004 to this letter, together with a set of photographs illustrating items of non-compliance. The "Particulars of Contravention" attached to the Notice to Rectify listed requirements under the following headings:

1. Items not installed per the manufacturer's specifications;
2. Items not installed per the acceptable solutions of the building code, (no alternative solutions had been applied for);
3. Items not installed per accepted trade practice.
4. A ventilated cavity system.

The owner was also required, amongst other items to:

1. Provide adequate ventilation to the monolithic cladding and into the wall frame space by means of either a ventilated cavity or alternative approved system...
 4. Supply full construction detailed drawings to show how the Cornerstone cladding system will comply with the requirements of the NZ Building Code. In addition to this Council also request that Cornerstone engage a[n] independent third party to carryout a comprehensive review it system.(sic)
- 2.9 The owner applied for a determination on 29 October 2004.

3 THE SUBMISSIONS

- 3.1 The legal representative of the developer in a letter to the Authority dated 6 October 2004, noted that the developer had sold the house to the owner and that a code compliance certificate had not been issued at time of settlement

3.2 The owner also forwarded copies of:

- A statement regarding the matters of doubt or dispute, which commented on the territorial authority's refusal to issue a code compliance certificate and set out comments relating to the issues raised by the territorial authority's Notice to Rectify. The statement also noted that the manufacturer of the "Cornerstone" system had applied to the Authority for an accreditation of the system;
- The plans and specifications;
- The consent documentation;
- The territorial authority's inspection notes;
- The Notice to Rectify;
- The correspondence with the territorial authority;
- The plaster systems supplier's warranty; and
- The land title and a valuation of the property.

3.3 In a covering letter to the Authority dated 13 April 2005, the territorial authority described the Particulars of Contravention and specific construction defects

3.4 The territorial authority also forwarded copies of:

- Some of the consent documentation;
- The Notice to Rectify; and
- The correspondence with the owner.

3.5 Copies of the submissions and other evidence were provided to each of the parties.

3.6 In a letter to the Department dated 21 July 2005, the territorial authority commented on aspects of the Draft Determination. In particular, the territorial authority is concerned that paragraphs 5.1 and 8.2 indicate a scope of work required to make the house code compliant. The territorial authority claims that this is not part of the determination.

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 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 49 of the Act that cover the panels and cladding. They are not accredited under section 59 of the Act. I am therefore of the opinion that the system as installed must now be considered to be an alternative solution.
- 4.3 In several previous determinations, the Authority 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.
 - 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 the expert to inspect and report on the cladding. The expert inspected the building on 15 March 2005, and furnished a report that was completed on 29 March 2005. It stated that the quality of finish was generally good and the plaster finish itself was smooth. The coating was uniform, well adhered and there was no evidence of discolouring. There were no vertical joints in the cladding and the expert could not establish the presence of horizontal control joints. The expert noted that the drip edge and fall to the external window and door head reveals prevented water tracking back to the frames. The expert removed a small section of the plaster finish at one window. The expert's report made the following specific comments on the cladding.
- There are two fine cracks in the sill reveal of a living room window, one of which corresponded to the line of the sill extension that was not fixed to the wall panel;
 - There is a crack where the wall finish is applied over the balcony deck, and this finish was not appropriate to this situation;
 - The jamb or sill flashings indicated on the drawings as being required to the external windows and doors were not installed. Instead, a chopped strand glass fibre mat liquid-applied membrane is in place at these locations and there is a sealant joint between the frames and the cladding;
 - The balustrade brackets are fixed through the top of the deck;
 - Some pipe penetrations through the cladding are not adequately sealed; and
 - The downpipe bracket fixings are not securely fixed and are not sealed.

- 5.2 The expert carried out a series of non-invasive moisture tests at the interior of the external walls and no “unsafe” readings were obtained. Further invasive readings were made at the exterior of the external walls and high corrected readings of 21.0%, 21.2%, 22.6% and 22.9% were recorded. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure. In addition, the expert noted that this inspection was made after a prolonged period of dry weather. However, the expert noted that the drying-out process of the panels in relation to the form of construction could be slow, given that there is no ventilation of any of the concrete infill surfaces. .
- 5.3 Copies of the expert’s report were provided to each of the parties. The territorial authority responded by a letter dated 5 April 2005, which stated that the expert’s findings supported the territorial authority’s decision not to issue a code compliance certificate. Otherwise, the territorial authority accepted the report without further comment. The owner in a letter to the Department dated 3 June 2005 stated that he did not wish to respond to the report.

6 DISCUSSION

General

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

Weathertightness risk

- 6.2 In relation to these weathertightness risk characteristics I find that the house:
- Has 450mm wide eaves projections, which with the additional spouting projections, provide protection to the lower cladding;
 - Is built in a low wind zone;
 - Is two storeys high;
 - Is fairly simple on plan, with roofs having wall to roof junctions;
 - Has one balcony partially constructed over a living space;
 - Has external windows and door without jamb or sill flashings; and

- Has external wall framing that is likely able to resist the onset of decay if it absorbs and retains moisture.

Weathertightness performance

- 6.3 I find that the monolithic cladding in general does not appear to have been installed according to good trade practice. As a result, there are a number of identified defects, set out in paragraph 5.1 and in the expert's report, which have contributed to the levels of moisture penetration already evident in many locations in the external walls of the house. The main areas of concern are the lack of control joints and adequate flashings to the external windows and doors, the cracking at cladding joints, the inadequate finish and clearances at the base of the cladding, concerns with the balustrade cappings, the inadequate balcony outlets, the inadequate penetration sealing, and the quality of the paintwork. In addition, the external wall framing timber is in all likelihood not treated, and thus unable to delay the onset of decay if it gets wet.
- 6.4 While the issue is outside the ambit of this determination, I view with concern that the roof cladding has been changed to a heavier material than that shown on the consent plans. I urge the territorial authority to look into this matter to ensure that the structural integrity of the building has not been compromised. I note also that the territorial authority has not referred to this change, nor to my knowledge has the original consent been amended.
- 6.5 I note that two elevations of the house demonstrate a moderate weathertightness risk rating, and the remaining two elevations a high rating, 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 performance of the monolithic cladding is inadequate because it has not been installed according to good trade practice. In particular, it demonstrates the key defects listed in paragraph 5.1. I have also identified the presence of some known weathertightness risk factors in this design. The presence of the risk factors on their own is not necessarily a concern, but they have to be considered in combination with the significant faults identified in the cladding system. It is that combination of risk factors and faults that indicate that the structure does not have sufficient provisions that would compensate for the lack of a full drainage cavity. Consequently, I am not satisfied that the cladding system as installed complies with clause E2 of the building code.
- 7.2 In addition, 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. The cladding faults in the house are allowing the ingress of moisture into the cladding itself. Accordingly, as there is not, in my opinion, an efficient cavity behind the cladding, I find the house does not comply with the durability requirements of clause B2.

- 7.3 I find that because of the apparent complexity of the faults that have been identified with this cladding, I am unable to conclude, with the information available to me, that remediation of the identified faults, as opposed to partial or full recladding, could result in compliance with clauses B2 and E2. I consider that any final decisions on whether code compliance can be achieved by either remediation or recladding, or a combination of both, can only be made after a more thorough investigation of the cladding. This will require a careful analysis by an appropriately qualified expert as to the correct remedial option to be followed. Once that decision has been made, it should be submitted to the territorial authority for its comment and approval. If the territorial authority chooses to reject the proposal, then the owner is entitled to seek a further determination that will rule on whether the proposed remedial work will comply with the requirements of clauses E2 and B2.
- 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, re-painting, replacing sealants, and so on. The fact that the cladding has not been repainted over its 9-year life is a matter for concern.
- 7.5 In the circumstances, I decline to incorporate any waiver or modification of the building code in its determination.

8 THE DECISION

- 8.1 In accordance with section 20 of the Act, I hereby determine that the monolithic cladding system as installed does not comply with clauses B2 and E2 of the building code and accordingly confirm the decision of the territorial authority to refuse to issue a code compliance certificate.
- 8.2 In response to the territorial authority’s letter to the Department of 21 July 2005, I consider that I am entitled to determine whether proposed building work complies with the code, and in fact I have done so in this case. However, the question of whether the work has been properly completed and is code compliant requires careful inspection. I do not believe in this case that the territorial authority’s inspections meet this standard. I note that the territorial authority’s inspection described in a “Final Checklist” dated 21 December 2003 passed the following items in respect of the exterior of the building:

- Floor clearance from ground level;
- Cladding clearance from ground level;
- Secondary flow path;
- Cladding painted;
- Flashings; and
- Control joints.

8.3 In addition, apart from a request to extend a vent pipe, the checklist noted, “all outstanding issues resolved”.

8.4 The Notice to Rectify issued on 17 August 2004 listed Particulars of Contravention that included:

- Floor clearances;
- Ground clearances;
- Flashings; and
- Penetrations.

8.5 I am disturbed to note that these obvious building defects were not discovered during the December 2003 final inspection. They are also issues that are unrelated to the question of a cavity that the territorial authority has raised. It can be seen that the expert’s report provides the comprehensive description of the building’s outstanding shortcomings that should have been detected before or at the final inspection process and incorporated in the Notice to Rectify.

8.6 I note that the territorial authority has issued a Notice to Rectify requiring provision for adequate ventilation, drainage and vapour dissipation. Under the Act, a notice to fix can require the owner to bring the house into compliance with the building code. The Authority has already found in a previous determination (2000/1) that the Notice to Rectify cannot specify how that compliance can be achieved. I concur with that view. 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 as described in paragraph 5.1 are to be remedied.

8.7 I would suggest that the parties adopt the following process to meet the requirements of clause 8.6. 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 an expert, 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. As indicated earlier in this

determination, the Chief Executive might already have decided upon some of the issues that may be raised by the territorial authority in its notice to fix, including the territorial authority's requirement, if any, for a ventilated and drained cavity or equivalent.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 1 August 2005.

John Gardiner
Determinations Manager