

Determination 2005/138

Refusal of a code compliance certificate for a house with a “monolithic” cladding system at 7 Valleyside Way, Pukekohe – House 118

1. The dispute to be determined

- 1.1 This is a Determination of a dispute under Part 3 Subpart 1 of the Building Act 2004 (“the Act”) made under authorisation by me, John Gardiner, Determinations Manager, Department of Building and Housing, for and on behalf of the Chief Executive of that Department. The applicants are the joint-owners, Mr Thorndon and Ms Durrant (“the owners”), and the other party is the Franklin District Council (“the territorial authority”). The application arises from the refusal of the territorial authority to issue a code compliance certificate was issued by the territorial authority for a 2-year-old house.
- 1.2 The question to be determined is whether I am satisfied on reasonable grounds that the monolithic wall cladding as installed to the 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.
- 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 single-storey house situated on a flat site, which is in an undetermined wind zone. Construction of the house is conventional light timber frame, with concrete slab and foundations, aluminium windows and doors, monolithic wall cladding and a 21° pitched concrete tile roof. The house shape is fairly simple in plan and form, with the continuous roof including a number of hip

and valley junctions. Eave and verge projections are generally 600 mm wide, except for two minor lengths of wall, which have roof overhangs of 100 mm.

- 2.1.2 The specification describes the wall framing as “kiln dried” without any mention of treatment. The expert commissioned by the Department to inspect the cladding (“the expert”) has noted that he found no evidence of treatment on timber he was able to inspect. Based on this evidence, I accept that the external wall framing is unlikely to be treated.
- 2.1.3 The cladding system is what is described as monolithic cladding, and consists of 60 mm thick polystyrene backing sheets fixed through the building wrap directly to the wall framing and finished with a mesh reinforced plaster described as “IronCladd Plaster System”. The plans describe the cladding as “fixed in accordance with Insulclad’s approved specifications” and the specification notes that the external wall cladding “is to be done by owner”. The cladding was installed by the owner’s firm “Vestal Cladding Ltd”. Aluminium head flashings are used at all window and door openings. The expert noted that the cladding around window openings differs from the proprietary systems commonly used at the time of construction, with fibreglass-reinforced resin used in lieu of purpose-made flashings at jambs and sills. The builder has confirmed that fibreglass was installed over the polystyrene backing sheets, and wrapped around the framing trimming window and door openings.
- 2.1.4 IronCladd Ltd provided a producer statement dated November 2002, which includes a statement that “System will be durable for 15 years subject to maintenance”.

2.2 Sequence of events

- 2.2.1 The territorial authority territorial authority issued a building consent on 13 September 2002, based on a certificate from a building certifier, A1 Building Certifiers Ltd dated 18 July 2002. Inspections during construction appear to have been undertaken by Rob Woodger Ltd (“the building certifier”).
- 2.2.2 The building certifier made various inspections during the course of construction, including prior to lining installation and following lining installation. The last inspection by the building certifier appears to have taken place on 24 January 2003, and the certifier’s inspection report of 31 March 2003 does not note the final building inspection as completed.
- 2.2.3 In a facsimile to the builder on 24 February 2003, the building certifier noted that:

I am not in a position to satisfy myself that the exterior cladding system used on this site complies with the Building Code, and until I am completely satisfied I am unable to issue the final Code Compliance Certificate.

- 2.2.4 The building certifier issued an interim code compliance certificate on 7 March 2003, which noted that the certificate covered all building work “except for the exterior cladding system”. He subsequently issued a “Building certifier’s notice of contravention” to the territorial authority on 17 March 2003, which noted that:

The original building consent approval nominated “Insulclad” as the exterior cladding system. This has been changed on site to a non-specified polystyrene

backed plaster system, for which no installation manual nor third party appraisal is available...

- 2.2.5 The territorial authority wrote to the original owner on 13 May 2003 explaining that the building certifier had closed his business and the project had been handed back to the territorial authority to finish off. The territorial authority outlined several outstanding drainage items, the need for a final inspection and concern in regard to the cladding system, noting that:

We understand there has been a problem in verifying the adequacy of the cladding system because it seems to be a hybrid system of your own utilising components from three other systems and has been given a “warranty” indicating compliance by your own selves. In view of this, it is hard to see this matter being resolved satisfactorily, but in the end it must be resolved.

- 2.2.6 It appears that the present owners purchased the house early in 2004, as a pre-purchase building condition survey was undertaken for the present owners on 15 January 2004. This report of 16 January 2004 noted the lack of a code compliance certificate and cladding warranties, but concluded that the house was “considered structurally sound, materials and components durable and in clean and healthy condition”.

- 2.2.7 Following an application by the owners for a code compliance certificate, the territorial authority issued a notice to fix on 23 June 2005, which attached a copy of the letter to the previous owner on 13 May 2003 and outlined that it was not satisfied that the wall cladding was code compliant, noting that:

The Council has been advised that the monolithic cladding is comprised of a mixture of various proprietary systems that when used together have no proven compliance test or record and was denied certification by private building certifiers.

- 2.2.8 The territorial authority suggested that a Determination be sought on the matter.
- 2.2.9 The owners applied for this Determination on 27 June 2005.

3. The submissions

- 3.1 The owner stated that the matter of doubt was whether the wall cladding complies with the Building Code clauses B2 Durability and E2 External moisture, and forwarded copies of:

- the plans and specifications
- some building consent documentation
- some of the building certifier’s consent and inspection records
- some of the building certifier’s correspondence with the builder
- producer statements, warranties and other information relating to the cladding

- the building certifier's notice of contravention
- the building certifier's interim code compliance certificate
- the territorial authority's correspondence with the original owner
- the pre-purchase report to the owner
- the territorial authority's notice to fix.

3.2 Copies of the submissions and other evidence were provided to each of the parties. Neither party responded to the submissions.

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 B2.3.1 and E2.3.2 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 particular monolithic cladding as installed on this house. 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 in my view remain valid in this case, 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 experts report

5.1 The expert inspected the claddings of the building on 28 August 2005 and furnished a report that was completed on 9 September 2005. The expert noted that the general standard of workmanship was excellent, with the wall cladding showing no signs of cracking or premature deterioration. The plaster finish was smooth and evenly applied, with no evidence of chalking, flaking or staining. The expert noted that because of the limited size of the wall dimensions control joints are not needed for

the wall areas present in this house. Pipe, services and fixings through the cladding appeared to be well sealed. Cladding cover and ground clearances at the base of walls generally appeared adequate, with uPVC mouldings used at the bottom of the cladding.

- 5.2 The expert noted that windows are sheltered by eaves, have aluminium head flashings and sills with falls of at least 65°, which encourages rapid shedding of water. The expert removed a small section of the plaster at the jamb to sill junction of a window to examine the flashings and confirmed that a fibreglass reinforced resin coating had been used to flash the jamb and sill, in lieu of purpose made uPVC flashings. The expert noted the omission of a 5 mm gap between the window flange and the sloping sill.
- 5.3 The expert took non-invasive moisture readings of the bottom plate and other risky areas through interior linings throughout the house. No elevated moisture levels were noted. A further 12 invasive moisture readings were taken through external wall claddings, at the base of walls and below window jamb to sill junctions. No elevated moisture levels were noted, with the highest moisture content recorded at 14.4%.
- 5.4 Copies of the expert's report were provided to the parties. Neither party commented on the report.

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 taken these comments into account in this Determination.

6.2 Weathertightness risk

- 6.2.1 In relation to these characteristics I find that the house:
- is built in a low wind zone
 - is one storey high
 - is fairly simple in plan and form, with no complex roof to wall junctions
 - has verge and eave projections of 600 mm above most walls

- has external windows and doors that have aluminium head flashings, steeply sloping sills and jambs and sills flashed with applied fibreglass reinforced resin coating
- has monolithic cladding which is fixed directly to the framing with no drainage cavity
- has untreated external wall framing that will offer no resistance to the onset of decay if the framing absorbs and retains moisture.

6.3 Weathertightness performance

- 6.3.1 The wall cladding system used on this house differs from the proprietary systems commonly used at the time of construction, with fibreglass-reinforced resin used in lieu of purpose-made flashings at jambs and sills. In this instance, the fibreglass was installed after the polystyrene backing sheets were in place. It appears that the fibreglass material runs up the sloping sill and is wrapped around the window framing, turning down the inside face. This treatment of the openings will act as jamb and sill flashings, and should protect the framing against any moisture penetrating through the window mitres.
- 6.3.2 The expert has pointed out that the wall cladding has been finished to a high standard of workmanship, with well constructed junctions, edges, and penetrations, and with no signs of moisture penetration into the wall framing. The only minor concern, as described in paragraph 5.1 and in the expert's report, is:
- the omission of a 5 mm gap between the window flange and the sloping sill.
- 6.3.3 While this should be rectified, the work is not considered to warrant immediate attention, and could be undertaken as part of the normal maintenance of the wall cladding.
- 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 house has 600 mm eaves and verge projections over most walls which provide good protection to the cladding areas below them.
 - The house is a simple, single-storey building, with no balconies or decks.
 - The cladding system generally appears to have been installed according to good trade practice, and is finished to a high standard of workmanship.
- 6.3.5 These factors will assist the house to comply with the weathertightness and durability provisions of the Building Code.
- 6.3.6 I note that all elevations of the building demonstrate a low weathertightness risk rating as calculated using the E2/AS1 risk matrix. I note this would allow the EIFS

cladding to fall within the scope of E2/AS1, providing the details of junctions and penetrations also comply with E2/AS1. 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 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 that the monolithic cladding currently complies with clause E2 at this time. In addition, although the cladding used on this building differs from other more common systems, I consider that it is unlikely to allow the ingress of moisture in the future. Consequently, I am satisfied that the cladding system as installed also complies with clause B2 of the Building Code.
- 7.2 Based on the information available to me, I consider that the fault identified in paragraph 6.3.1 is relatively minor, although it should be rectified as part of normal maintenance of the wall cladding.
- 7.3 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 necessary maintenance to ensure the durability of the cladding is carried out. For that reason, clause B2.3.1 of the Building Code requires that the cladding be subject to "normal maintenance". That term is not defined and I take the view that it must be given its ordinary and natural meaning in context. In other words, normal maintenance of the cladding means inspections and activities such as regular cleaning, re-painting, replacing sealants, and so on. As the external wall framing is not treated, periodic checking of its moisture content should be carried out as part of normal maintenance.
- 7.4 I emphasise that each Determination is conducted on a case-by-case basis. 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.
- 7.5 In the circumstances, 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 house is weathertight now and the cladding system as installed on the building complies with clauses E2 and B2 of the Building Code. Accordingly, I reverse the territorial authority's decision to refuse to issue a code compliance certificate.

8.2 Finally, I consider that the cladding will require on-going maintenance to ensure its continuing code compliance.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 11 October 2005.

John Gardiner
Determinations Manager