

## Determination 2005/143

### Refusal of a code compliance certificate for a building with a “monolithic” cladding system at 23 Margan Road, New Lynn – House 121

#### 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 agent of the owner, Mr Xiao Jun Zhai (“the owner’s agent”), Ms Zhang (“the owner”), and the other party is the Waitakere City Council (“the territorial authority”). The application arises because no 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 building (“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 (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 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**

### **2.1 The building**

- 2.1.1 The building work consists of a two storey house, with an attached single-storey garage, situated on a gently sloped site that is in a low wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. Construction of the house is conventional light timber frame, with concrete slab and foundations, aluminium windows and doors, monolithic wall cladding and a 25° pressed metal tile roof. The house shape is fairly simple in plan and form, with a hip and gable roof to the upper level, and a lean-to roof over the garage. Eave projections are 400 mm, except for the west wall of the garage where the projection is 150 mm wide. There are no verge projections to the upper level gable. A small deck, with a membrane floor and metal balustrades, projects from the upper level and is supported by monolithic clad columns.
- 2.1.2 The expert commissioned by the Department to inspect the cladding (“the expert”) was supplied with copies of invoices from the timber supplier that confirmed that the timber to the exterior walls was H3 treated. Based on this evidence, I accept that the exterior wall framing is H3 treated timber.
- 2.1.3 The cladding system is what is described as monolithic cladding, and is a 40 mm “Insulclad” polystyrene system fixed over 50 mm x 20 mm polystyrene battens to the framing over the building wrap and finished with a 2-coat “Ezytex” coating system. The system includes purpose-made flashings to windows, edges and other junctions.
- 2.1.4 Plaster Systems Ltd provided a producer statement dated 1 September 2003 for the “40 mm cavity Insulclad system”, which confirmed that the cladding materials and workmanship were in accordance with its installation instructions. I have received no evidence of warranties for the cladding system.
- 2.1.5 I note that all elevations of the building demonstrate a low 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.

2.1.6 I consider that EIFS cladding on a cavity could be an acceptable solution under E2/AS1, but note that some of the manufacturers detailed instructions at the time of installation in this case would exclude parts of this cladding system from the provisions of E2/AS1. I therefore consider the cladding system, as used on this building, to be an alternative solution (refer to paragraph 4.2).

## **2.2 Sequence of events**

2.2.1 The territorial authority issued a building consent in July 2003, and carried out various inspections during construction, including prior to and following lining installation. The final inspection appears to have been completed on 8 December 2003, as the territorial authority's inspection record notes "Final OK for CCC".

2.2.2 The owner's agent applied for a Determination on 29 December 2003. It appears that the owner may have received advice from the territorial authority to seek a Determination before the Notice to Rectify was issued.

2.2.3 The territorial authority issued a Notice to Rectify dated 13 January 2004, attaching a "Particulars of Contravention" which stated that:

As you have used a cavity system that has not had the required system of inspections:-

You are required to:

Remove the monolithic cladding and replace with an approved cladding system which has been subjected to the Council's recently adopted inspection system..

## **3. The submissions**

3.1 The owner's agent supplied copies of:

- the building elevations
- the territorial authority's inspection record
- the producer statement from the cladding installer

3.2 In a covering letter dated 23 February 2004, the territorial authority accepted that a building consent was issued for the building work which took place in 2003, and noted that new inspection procedures had recently been implemented and that:

In the absence of the additional inspections implemented as a consequence of the changed inspection procedures, the Council does not believe it is able to be satisfied, on reasonable grounds, that the cladding applied to this dwelling will achieve the functional requirements of Clause E2.2, or the performance requirements of Clause E2.3.2, of the Building Code.

3.3 The territorial authority supplied a copy of the Notice to Rectify.

3.4 Copies of the submissions and other evidence were provided to each of the parties. Neither party made any further submissions in response to the submission of the

other party. Progress on the Determination was temporarily halted on 4 May 2004, following a request from the owner; and then resumed following an enquiry from the owner's agent on 19 September 2005.

#### **4. The relevant provisions of the Building Code**

- 4.1 The matter 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 E2.2 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 49 of the Act that cover this cladding system as installed. The cladding is not accredited under section 59 of the Act. I am therefore of the opinion that the cladding system as installed can be considered to be an alternative solution. (Refer paragraph 2.1.6)
- 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 expert's reports**

- 5.1 The expert first inspected the house on 7 April 2004 and furnished an initial report that was completed on 12 April 2004. The expert noted that the house was 3 months old and unoccupied at the time of inspection, with landscaping work incomplete. The expert noted that the wall areas present in the house are of dimensions that do not require control joints in order to comply with the cladding manufacturer's installation instructions. Ground clearances generally appeared adequate and windows appeared to have been installed with uPVC flashings in accordance with the manufacturer's instructions, although no destructive testing was undertaken.
- 5.2 The expert took non-invasive moisture readings at 1000 mm intervals at skirting level and below windows through interior linings. All moisture readings were below 11%, and no further invasive moisture readings were taken.
- 5.3 The expert made the following specific comments on the cladding:
- The paintwork is generally of a poor standard, with signs of cracking.

- The clearance from the base of the cladding to the ground is inadequate around the garage doors and on the west wall of the garage.
- The base of the cladding has not been finished with a uPVC moulding, and bare polystyrene and plaster is visible beneath the cladding above the lower roof.
- The plaster coating butts against window flanges, and there are cracks at these junctions on most windows. There are also cracks at the jamb to sill corner of the plastered reveal. The head flashing has been damaged on one window, and there are cracks at the outer edge of the sill reveal.
- The gas and electricity meter boxes have been sealed, but lack head flashings.
- The penetrations by pipes and fixings are poorly sealed, and some fixings appear to lack solid blocking.
- The ends of gutters and fascias are buried in the plaster coating.
- The fixings of deck balustrades appear to lack solid blocking, as the cladding is depressed and the fixing bracket has penetrated the plaster.

5.4 Copies of the expert's report were provided to each of the parties.

5.5 Due to the length of time that had elapsed since the expert's initial inspection on 7 April 2004, the Department commissioned its expert to inspect the house again on 5 October 2005. The expert furnished an addendum report that was completed on 7 October 2005. The expert noted that there was no change to the comments made in the initial report of 12 April 2004 and no items of concern outlined in that report had been attended to.

5.6 The expert took a number of invasive moisture readings at the bottom plate of first floor rooms where access was possible, and noted that all readings were below 15%. Moisture readings were also taken in the bottom plate of the garage, and these recorded moisture contents above 18%.

5.7 Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.

5.8 The expert noted that the ground floor level, except for the garage, was used as a separately tenanted unit and no access into this area was possible. As one upstairs bedroom was locked, the expert was not able to inspect it.

## **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 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 a maximum of two storeys high
- has an enclosed deck projecting from the first floor level
- is fairly simple in plan and form, with few complex junctions
- has eave projections over most walls that provide some protection to the walls
- has monolithic cladding which is fixed over a cavity, which should be effective in protecting the framing should moisture penetrate the cladding
- has external wall framing that is treated, so providing a good level of resistance to the onset of decay if the framing absorbs and retains moisture.

## **6.3 Weathertightness performance**

6.3.1 Generally the cladding appears to have been installed according to reasonable trade practice, but a number of junctions, edges and penetrations are not well constructed. These areas are all as described in paragraph 5.3 and in the expert's report as being:

- the poor application and condition of the paint coating
- the cracking to the plaster coating around the windows
- the damage to one window heading
- the inadequate ground clearance of the cladding around the garage
- the inadequate finish to the base of the cladding
- the lack of head flashings to the gas and electricity meter boxes
- the poorly sealed pipe penetrations and fixings through the cladding
- the burying of gutter and fascia ends in the plaster coating
- the lack of solid fixing of the deck balustrade brackets.

## **7. Conclusion**

- 7.1 I am satisfied that the current performance of the monolithic cladding is not adequate because it is allowing water penetration into the building in at least one location at present. Consequently, I am not satisfied that the cladding system as installed on the building 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. Because the cladding faults on the building 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 identified with the cladding system occur in discrete areas, I can conclude that satisfactory rectification of the items outlined in paragraph 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 the expert's report of 7 October 2005 reports that the house is divided into two separately occupied units. While it is not a matter for consideration in this Determination, I draw it to the attention of the territorial authority.
- 7.5 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.
- 7.6 I emphasise 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.
- 7.7 In these 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 20 of the Act, I hereby determine that the monolithic cladding system as installed does not comply with clause E2 of the Building Code. There are a number of items to be remedied to ensure that the house becomes and remains weathertight and thus meets the durability requirements of the Building

Code. Consequently, I find that the house does 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 paragraph 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, is likely to result in the house being weathertight and in compliance with clauses B2 and E2.
- 8.3 I note that the territorial authority has issued a Notice to Rectify requiring the removal of the cladding. The territorial authority should now withdraw the Notice to Rectify and issue a notice to fix 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 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.
- 8.5 I am concerned about the safety aspects of the deck in regard to the inadequate fixing of the balustrade to the wall, and emphasise the need for a full investigation.
- 8.6 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 27 October 2005.

John Gardiner  
**Determinations Manager**