

## *Determination 2005/76*

# *Refusal of a code compliance certificate for a building with a “monolithic” cladding system: House 66*

## **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 two joint owners, Hurb and Karen Singh (referred to throughout this determination as the “owner”), and the other party is the Western Bay of Plenty District 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 3-year-old additions to a house (“the additions”), unless changes are made to its monolithic cladding system.
- 1.2 My task in this determination is to consider whether I am satisfied on reasonable grounds that the external monolithic wall cladding as installed on all the timber framed external walls, columns, and beams of the additions (“the cladding”), complies with the building code (see sections 18 and 20 of the Act). By “external 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 Building Act or the building code.

## **2 PROCEDURE**

### **The building**

- 2.1 The building work consists of additions at two separate locations to an existing three-storey detached house situated on a level site in a high wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. The additions are of conventional light timber frame construction on concrete ground floor slabs, and all the external walls are sheathed with monolithic cladding.
- 2.2 The front addition is three storeys high, includes provision for a lift, and is of a fairly complex shape. A curved parapet wall surrounds the low-pitched roof. A balcony with a curved timber-framed balustrade is constructed at the second floor level. The roof and balcony form deep projections over the cladding. The steel support columns are encased in 250mm diameter painted polystyrene surrounds.
- 2.3 The rear addition is two storeys high of a fairly simple shape and the low-pitched roof, which is an extension of the existing, has a curved parapet wall. An extension to the existing deck, with a low timber-framed balustrade topped with a glazed metal balustrade is constructed at the first floor level. The steel support columns and beams have monolithic-clad timber framed surrounds. A pergola is constructed at the lower level, the rafters of which penetrate the cladding.
- 2.4 The specification calls for timber framing to be H1 Boron treated. The owner has supplied invoices that describe the wall framing as being H1 treated, but do not state to what level the timber is treated.
- 2.5 The building is clad with what is described as monolithic cladding. The cladding is EIFS “Thermoclad” and incorporates polystyrene backing sheets fixed through a building wrap directly to framing timbers. These backing sheets are finished with a proprietary fibreglass mesh reinforced polymer-modified cement plaster system supplied by the manufacturer of the backing sheet system.
- 2.6 The plasterer issued a producer statement dated 30 January 2004 in respect of the plastering applied to the cladding.

## **Sequence of events**

- 2.7 The territorial authority issued a building consent on 2 May 2002, based on a certificate provided by a building certifier dated 12 December 2001.
- 2.8 The building certifier carried out various inspections throughout the construction of the additions and passed the preline building inspection on 26 May 2002. The building certifier carried out a final building inspection on 26 May 2004 and issued a building certificate on 2 July 2004. The certificate noted that it was issued in respect of the building work, but excluded certain elements, including the exterior cladding.
- 2.9 On 2 July 2004, the building certifier wrote to the territorial authority and attached a building certificate and a producer statement covering the exterior wall cladding. The building certifier also requested the territorial authority to issue a code compliance certificate.
- 2.10 On 10 September 2004, the territorial authority wrote to the owner, advising that it declined to issue a code compliance certificate as the territorial authority had not been involved during the construction of the additions. The territorial authority also said that, as the cladding system was monolithic, the territorial authority was not satisfied, on reasonable grounds, that it would apply with clause E2. The territorial authority went on to state that there were three methods available to achieve code compliance, and the issue of a code compliance certificate. In summary these were:
- Destructive testing /checking where the cladding or internal lining is removed to check the condition of the framing; or
  - Removal of the cladding and replacement either with an alternative non-monolithic cladding, or a monolithic cladding with a suitable moisture management scheme; or
  - Applying to the Authority for a Determination.
- 2.11 The territorial authority has not issued a Notice to Rectify as required by section 43(6) of the Act.
- 2.12 The owner applied for a determination on 8 October 2004.

## **3 THE SUBMISSIONS**

- 3.1 The owner wrote to the Authority on 8 October 2004, and noted that the territorial authority would not issue a code compliance certificate and that the building certifier could not issue a code compliance certificate that included exterior claddings as installed on the additions. The owner stated that qualified tradesmen and a project manager had been employed for the project.
- 3.2 The owner provided copies of:
- The building plans and specification;

- The building consent information;
  - The building certifier's inspection records;
  - The building certifier's completion certificate;
  - The correspondence with the building certifier and the territorial authority;
  - The cladding manufacturer's instructions;
  - Various warranties and producer statements, including the statement from the plasterer; and
  - Invoices from the plasterer and the timber supplier.
- 3.3 The territorial authority wrote to the Authority on 1 November 2004, noting that it had supplied the territorial authority's file to the owner and that the territorial authority did not wish to make a submission.
- 3.4 Copies of the submissions and other evidence were provided to each of the parties.

#### **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 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 can 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 an independent expert ("the expert") to inspect and report on the cladding. The expert inspected the building on 25 February 2005, and furnished a report that was completed on 31 March 2005. It stated that the quality of the finishing is generally very good, and the plaster is evenly applied with no evidence of bare/over-applied patches. The texture/paintwork applied to the cladding is sound and evenly applied, and there is no evidence of cracking, flaking or staining. The expert noted that the external windows and doors have head flashings, wide steeply sloping sill reveals, and are well protected by the roof and balcony overhangs. The expert was of the opinion that due to the dimensions of the additions, no control joints were required in the cladding. The expert's report made the following specific comments on the cladding:
- There is insufficient clearance to the base of the cladding above the balcony deck adjoining the master bedroom;
  - There are no saddle flashings fitted to the pergola rafters where they penetrate the cladding, nor where the timber-framed balustrades adjoin the main wall cladding;
  - The top of the timber-framed balcony balustrade is flat; and
  - The supports to the glazed metal balustrade are fixed through the top of the timber-framed balustrade beneath them.
- 5.2 The expert also noted that the liquid applied membrane to the balustrade deck adjoining the master bedroom is peaking at the substrate joints.
- 5.3 As the owner would not allow the expert to carry out any intrusive inspections, the expert carried out a series of moisture tests to the interior of the additions using a non-invasive meter. No elevated readings were recorded. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure. I note that the lack of intrusive investigations has prevented a full investigation as to the entry, or otherwise, of external moisture into the external wall cavities.
- 5.4 Copies of the expert's report were provided to each of the parties. The owner responded in a letter to the Department dated 14 April 2005. The owner stated the reasons for not permitting an invasive inspection of the cladding and also noted that as the master bedroom was part of the original house, it could not be classified as an addition.
- 5.5 Following representations from the Department, the owner agreed to allow the expert to undertake some invasive testing of the cladding. The expert re-visited the site on 22 April 2005, and invasive tested 3 locations considered by the expert to be "at risk". Two readings of 10.6% and one of 11.8% were recorded.

## 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 weathertight risk characteristics I find that the additions:

- Have wide roof and balcony projections that provide excellent protection to the lower cladding;
- Are built in a high wind zone;
- Are two or three storey;
- Are of relatively simple form on plan;
- Have balconies that are not constructed over habitable spaces; and
- Have external wall framing that may not be able to resist the onset of decay if it absorbs and retains moisture.

### Weathertightness performance

6.3 Generally the cladding appears to have been installed according to good trade practice, but some junctions, edges, and penetrations are not well constructed. These areas are all as described in paragraph 5.1 and in the expert's report as being:

- The insufficient clearance to the base of the cladding above the balcony deck adjoining the master bedroom;
- The lack of saddle flashings to the pergola rafters where they penetrate the cladding, and where the timber-framed balustrades adjoin the main wall cladding;
- The flat top to the timber-framed balcony balustrade; and
- The supports to the glazed metal balustrade being fixed through the top of the timber-framed balustrade beneath them.

6.4 Notwithstanding the fact that the backing sheets are fixed directly to the timber framing, thus inhibiting drainage and ventilation behind the cladding sheets, I find

that there are compensating factors that assist the performance of the cladding in this particular case. These are:

- Generally, the cladding appears to have been installed according to good trade practice; and
- There is excellent cladding protection provided by the overhanging roofs and balconies.

I consider that these factors help to compensate for the lack of a full drainage and ventilation cavity and can allow the additions to comply with the weathertightness and durability provisions of the building code, providing corrective measures are undertaken.

6.5 I note that one elevation of each of the additions demonstrates a moderate weathertightness risk rating, and the remaining 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 consider that the expert's report and the expert's subsequent invasive investigation establishes there is no evidence of external moisture entering the additions, 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 additions to remain weathertight. Because the cladding faults on the additions are likely to allow the ingress of moisture in the future, the additions do not comply with the durability requirements of clause B2.

7.3 I also consider that because the faults in the additions' cladding occur in discrete areas, I am able to conclude that rectification of the identified faults will consequently bring the cladding into compliance with the code. Once the cladding faults listed in paragraph 6.3, together with any remediation required to the liquid membrane on the decks, have been satisfactorily rectified, these additions should be able to remain weathertight and thus comply with both 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.

7.5 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.

7.6 I decline to incorporate any waiver or modification of the building code in this determination.

## **8 THE DECISION**

8.1 In accordance with section 20 of the Act, I determine that the additions are weathertight now and therefore the cladding complies with clause E2. However, as there are a number of items to be remedied to ensure they remain weathertight and thus meets the durability requirements of the code, I find that the additions do not comply with clause B2. Accordingly, I confirm the territorial authority's decision to refuse to issue the code compliance certificate.

8.2 I find that once the items of non-compliance that are listed in paragraph 6.3, together with any remediation required to the liquid membrane on the decks, are rectified to the approval of the territorial authority, together with any other instances of non-compliance that become apparent in the course of rectification, the cladding as installed on the additions will consequently comply with the building code, notwithstanding the lack of a drainage cavity.

8.3 I note that the territorial authority has not issued a Notice to Rectify. The territorial authority should do so and the owner is then obliged to bring the additions 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, with either of the parties entitled to submit doubts or disputes to the Chief Executive for another determination.

8.4 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 19 May 2005.

John Gardiner  
**Determinations Manager**