

## *Determination 2005/69*

# *Refusal of a code compliance certificate for a building with a “monolithic” cladding system: House 59*

## **1 THE DISPUTE TO BE DETERMINED**

- 1.1 This is a determination by 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 one of the owners of the house (referred to throughout this determination as “the owner”), and the other party is the Franklin 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 9-year old house 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 (“the cladding”) on the walls and columns of the house 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 No other aspects of the Act or the building code have been considered in this determination.

## **2 PROCEDURE**

### **The building**

- 2.1 The building work comprises a two storey house, with separate attached single storey garage and living room areas, situated on a level site in a high wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. The house is of conventional light timber frame construction on concrete blockwork foundation walls, with the external walls lined with monolithic cladding. The house is of a relatively simple shape with the curved roofs at two main levels, and the lower roofs having wall to roof junctions. The upper eaves have 600mm and 800mm wide projections and 600mm wide verge projections. The living room roof has 1200mm wide eaves projections and 800 wide verge projections, and the garage roof has 100mm wide eaves projections and 500mm wide verge projections. A low timber-framed boarded timber decks is constructed at the northeast corner of the house. A canopy, supported on monolithic clad timber-framed columns is constructed over the main entrance and a monolithic clad timber-framed chimney extends from the living room wall and passes through the roofline.
- 2.2 The owner has supplied invoices showing that the bottom plate timber is H3 treated and the remainder of the external wall framing is H1 treated.
- 2.3 The cladding system incorporates 4.5mm “Hardibacker” backing sheets fixed directly to the wall framing (no building wrap is required) and finished with 10mm of “Thermoplast” plaster overcoated with 1.5mm of fibreglass mesh reinforced “Multiplast” plaster. The system is finished with a further coat of “Multiplast” or other approved plaster. The system has been subject to a BRANZ Appraisal. I note that the consent plans show that the house cladding was to be 21mm thick cement plaster on Riblath over building paper on Hardibacker sheets. The territorial authority has not commented on this change to the consented plans.
- 2.4 Plaster Systems Ltd issued a “Producer Statement” dated 15 November 2004 for the cladding system.

## **Sequence of events**

- 2.5 The territorial authority issued a building consent on 17 December 1996. The consent noted that the territorial authority required notice when certain inspections were to be carried out, and some of these were related to the cladding.
- 2.6 The territorial authority made various inspections during the course of construction, including the pre-lining inspection. Following this inspection, the territorial authority sent a fax to the owner on 14 July 1997, noting some points that needed addressing. These related to bracing and insulation.
- 2.7 The territorial authority issued an interim code compliance certificate dated 20 October 1997, which was subject to:
- Complete grounds
  - Painting of exterior to complete
  - Vinyl's service areas (Concrete floors)
  - Downstairs bathroom to complete later date
- 2.8 The territorial authority did not issue a Final Notice to Rectify as required under section 43(6) of the Act.
- 2.9 The owner applied for a Determination on 10 November 2004.

## **3 THE SUBMISSIONS**

- 3.1 The owner supplied copies of:
- The building plans and specification;
  - Some of the consent documentation;
  - The interim code compliance certificate;
  - The correspondence with the territorial authority;
  - Invoices from the timber supplier; and
  - Various producer statements, warranties and manufacturer's details.
- 3.2 The copies of the evidence were provided to each of the parties and neither party made a further response.

## **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 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 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; and
  - 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 17 March 2005, and furnished a report that was completed in April 2005. The expert noted that the quality of the applied "Duraplast" system is well executed with attention to detail at all junctions. The expert cut away a portion of cladding at a corner of a window to expose the flashings details. This examination revealed that PVC jamb and sill flashings are installed to the external windows and doors. The expert's report made the following specific comments on the cladding:
- Some minor cracking is evident at internal and external corners and around windows;
  - Ground clearances to the base of the cladding are minimal at some locations; and
  - No head flashing is installed to the garage door frame, and one side jamb is pulling away from the frame.
- 5.2 The expert took moisture readings though the interior of the monolithic-clad external walls throughout the house using a non-invasive meter. No moisture readings above 10% were recorded. Similar readings were taken externally and no elevated readings were recorded. Two invasive readings were taken to below one windowsill and to the garage bottom plates. Readings of 15% were recorded at all 4 of these locations.

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

- 5.3 Copies of the expert's report were provided to each of the parties. The owner wrote to the Department on 19 April 2005, noting that the territorial authority had previously accepted the garage door location after its final inspection. The owner also commented on the risk matrix, whereby the territorial authority had queried the Department's assessment. The territorial authority wrote to the Department on 22 April 2005, noting that the items raised by the expert, particularly the cracks in the cladding and the garage door surrounds, would indicate that the requirements of B2 would not be met. The territorial authority also queried the conclusion reached by the expert that there was compliance with clause B2.
- 5.4 The owner responded to the territorial authority's comments in a letter dated 23 April 2005. The owner was of the opinion that the territorial authority had taken the issue of the cracking out of context, and again noted that the territorial authority had previously passed the garage door surrounds in its previous inspections.

## 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 the weathertightness characteristics, I find that the house:
- Has, apart from the garage eaves, wide eaves and verge projections that provide excellent protection to the cladding areas below them;
  - Is in a high wind zone;
  - Is maximum two storeys high;
  - Is of a relatively simple shape on plan, with lower roofs that have wall to roof junctions;
  - Has a deck at ground level, but no balconies; and

- Has external wall framing, which is likely to be treated to a level that is able to resist decay if it absorbs and retains moisture.

### **Weathertightness performance**

6.3 I find that, generally, most aspects of the cladding appear to have been installed according to good trade practice and to the manufacturer's instructions, but some junctions and edges are not well constructed. These areas are:

- The minor cracking is evident at internal and external corners and around windows;
- The minimal ground clearances to the base of the cladding at some locations; and
- The lack of a head flashing to the garage door frame, and the pulled away jamb.

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:

- The cladding generally appears to have been installed according to good trade practice;
- The house generally has very wide eaves and verge projections that provide excellent protection to the cladding below them;
- The external windows and doors are fully flashed;
- The house has no balconies;
- The house has external wall framing, which is likely to be treated to a level that is able to resist decay if it absorbs and retains moisture; and
- There is no moisture evident in the external wall cavities at this time.

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

6.6 I note that all elevations of the house 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. I note that in an e-mail to the Department dated 11 March 2005, the

territorial authority has queried this assessment and consider the building to be a “medium” risk. I have re-evaluated the house against the matrix and am still of the opinion that it is a “low” risk building.

## **7 CONCLUSION**

- 7.1 I consider that the expert’s report establishes there is no evidence of external moisture entering the house, 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 house to remain weathertight. Because the cladding faults on the house 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 I also consider that because the faults in the house’s 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 have been satisfactorily rectified, the house will consequently 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 house is weathertight now and therefore the cladding complies with clause E2. However, as there are a number of items to be remedied to ensure it remains weathertight and thus meets the durability requirements of the code, I find that the house does 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 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 house 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 Final Notice to Rectify. The territorial authority should do so and the owner is then obliged to bring the house 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 I consider that the cladding on the building will require on-going maintenance to ensure its continuing code compliance, and that this maintenance programme should be undertaken after consultation with the TA. This is particularly important, as the cladding has now been in place for some 9 years or so.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 10 May 2005.

John Gardiner  
**Determinations Manager**