

Determination 2005/132

Refusal of a code compliance certificate for a building with a “monolithic” cladding system at 51 Klipsch Road, Patumahoe – House 113

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 owners, Mr and Mrs Gunning (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 a 5-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 on the timber framed external walls and columns of the house (“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 is a single-storey detached house situated on a slightly sloping 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 a concrete ground floor slab. All the external walls and the porch columns are sheathed with monolithic cladding. The house is of a fairly simple shape and the pitched roof has hip and valley junctions. The eaves generally have 600mm projections and there are increased eaves projections adjacent to the dining room that is supported by a timber beam and a monolithic-clad timber post. A timber-framed close-boarded deck is constructed at the northeast elevation and a tiled entrance landing is situated at the main entrance. A pergola consisting of timber beams and rafters supported on monolithic-clad timber posts adjoins the house outside the family room.
- 2.2 The owner provided a quotation from the timber supplier dated 24 December 1999, which noted that all the framing that was to be supplied for the house construction would be chemical-free.
- 2.3 The cladding system to the exterior walls is what is described as monolithic cladding and consists of 4.5 mm thick “Hardibacker” fibre-cement backing sheets fixed directly to the framing over the building wrap, to which a “Duraplast” plaster system has been applied. The plaster is finished with a paint coating system. The “Duraplast” system was subject to a BRANZ appraisal at the time of construction but this appraisal has subsequently been withdrawn.
- 2.4 The “Duraplast” system applicator issued a “Producer Statement” dated 2 February 2004, for the system. This statement also confirmed that the system would be durable for a period of 10 years, commencing at August 2000.

Sequence of events

- 2.5 The territorial authority issued a building consent in late 1999.
- 2.6 The territorial authority carried out various inspections throughout the construction of the house. The territorial authority passed the pre-line building inspection on 17 May 2000, and carried out a final inspection on 8 December 2003.
- 2.7 The territorial authority wrote to the owner on 10 December 2003, noting that following the final inspection of 8 December 2003, certain items required attention before a code compliance certificate could be issued. The items relating to the cladding were the ground levels and the direct fixing of the system to the framing.
- 2.8 The territorial authority did not issue a Notice to Rectify as required by section 43(6) of the Act.
- 2.9 The owner applied for a determination on 16 December 2004.

3 THE SUBMISSIONS

- 3.1 The owner informed the Department that the house was completed by July 2000 and that the dispute related to the lack of a cavity behind the cladding. The owner also noted that such a cavity was not required at the time of construction.
- 3.2 The owner provided copies of:
- the building plans
 - a page of inspection details from the territorial authority
 - the territorial authority's letter of 10 December 2003
 - the timber supplier's quotation
 - a finishing and detailing sheet from the backing sheet supplier
 - the plaster applicator's producer statement.
- 3.3 Copies of the submissions and other evidence were provided to each of the parties. Neither the owner nor the territorial authority made any further submissions in response to the submissions of the other party.

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 Department has made the following general observations, which remain valid in this case in my view, 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 REPORT

- 5.1 The Department commissioned an independent expert ("the expert") to inspect and report on the cladding. The expert inspected the building on 8 July 2005 and furnished a report that was completed on 22 July 2005. It stated that despite some very minor cracking, the cladding appears to be well installed and aligned. The plaster has a smooth even finish and the paintwork is sound and evenly applied, with no evidence of chalking, flaking, or staining. The general standard of workmanship is very good. There are some small cracks in the cladding that appear to have been adequately repaired. The expert was of the opinion that taking into account the dimensions of the house; neither vertical nor horizontal control joints were required. The expert removed the plaster at the sill of one window and found that jamb and sill flashings are installed. I accept that the details exposed by this inspection are representative of other similar locations throughout the building. The report made the following specific comments on the cladding:
- there is insufficient clearance to the base of the cladding adjacent to the front entrance landing and the deck
 - there is no sealant applied to the junctions of the jamb and sill flashings of the external joinery units
 - the slatted timber decking finishes hard against the cladding.
- 5.2 The expert carried out a series of moisture tests to the interior of the house using a non-invasive meter and no evidence of external water leakage was found. A further 12 invasive readings were then taken through the exterior of the plaster. The following invasive readings over 18% were recorded:

- 22.9% and 23.0% at the west elevation
- 20.2% at the north elevation.

The remaining 9 readings were between 11.3% and 15.8%. 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 territorial authority did not make a response. The owner wrote to the Department on 14 August 2005, noting that the leaks are of a minor nature and could be remedied by resealing the jamb/sill-flashing junction at one side of three windows. The owner intended to remove the decking board that is in contact with the cladding, reduce its width and reaffix it.

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 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.

Weathertightness risk

- 6.2 In relation to the weathertightness characteristics, I find that the house:
- has minimum 600mm eaves projections, which provide excellent protection to the cladding areas below them
 - is in a high wind zone
 - is single storey
 - is of a fairly simple shape on plan with the roof having hip and valley junctions
 - has an open deck adjoining two part elevations
 - has a pergola adjacent to the family room
 - has external wall framing that is not likely to be treated to a level that would help prevent decay if it absorbs and retains moisture.

Weathertightness performance

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

- the inadequate clearance to the base of the cladding adjacent to front entrance landing and the deck. However, as described by the expert, the cladding adjoining the entrance area is well protected by the roof projection
- the lack of sealant to the junctions of the jamb and sill flashings of the external joinery units
- the slatted timber decking finishing hard against the cladding.

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 appears to have been installed according to good trade practice
- the house is one storey high
- The house has eaves that offer protection to the walls and joinery installation.

I find that these factors help compensate for the lack of a drainage and ventilation cavity and can assist the house to comply with the weathertightness and durability provisions of the Building Code.

6.5 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.

7 CONCLUSION

7.1 I am satisfied that the current performance of the monolithic cladding on the building is not adequate because it is allowing water penetration into the building at least one locations, which could affect the cladding. 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 also is 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 building to remain weathertight. Because the monolithic cladding faults on the building have already allowed the ingress of water, or will allow the ingress of moisture in the future, it does not comply with the durability requirements of clause B2 of the Building Code.
- 7.3 I consider that the faults identified in the cladding by the expert occur in discrete areas and, subject to further investigations during the remediation process that may identify other faults; I can conclude that satisfactory rectification of the items outlined in paragraph 6.3 is likely to result in the building complying with clauses B2 and E2.
- 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, repainting, replacing sealants, and so on.
- 7.5 It is emphasised 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.
- 7.6 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 Building Act 1991, I hereby determine that the cladding system as installed on the building does not comply with clause E2 of the Building Code. There are also a number of items to be remedied to ensure that it remains weathertight and thus meet the durability requirement of the code. Consequently, I find that the building 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 to the approval of the territorial authority, along with any other faults that may become apparent in the course of that work, will consequently result in the house being weathertight and in compliance with clauses B2 and E2.

- 8.3 I note that the territorial authority has not issued a Notice to Rectify. The territorial authority should now issue a notice to fix, 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.
- 8.4 I would suggest that the parties adopt the following process to meet the requirements of clause 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. 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.
- 8.5 Finally, I consider that the cladding will require ongoing maintenance to ensure its continuing code compliance.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 20 September 2005.

John Gardiner
Determinations Manager