Determination 2005/96

Refusal of a code compliance certificate for a building with a "monolithic" cladding system: House 86

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 owner Mr G McCracken (referred to throughout this determination as the "owner"), and the other party is the Waitakere City 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 2-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 all the timber framed external walls 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 two-storey detached house situated on an excavated slightly sloping site in a low-to-medium wind zone in terms of NZS 3604: 1999 "Timber framed buildings". The house is of conventional light timber frame construction on concrete ground floor slabs, and all the external walls are sheathed with monolithic cladding. The house is of a fairly simple shape, and the pitched roofs are at two main levels, with hip, valley, and wall to roof junctions. The eaves and verges have projections varying from 500mm to 700mm wide. A balcony with a timber-framed balustrade is constructed at the first floor level over a habitable space, and a timber-framed pergola is attached to part of the north elevation.

2.2 I have seen no documentary evidence as to the treatment, if any, of the exterior wall framing.

2.3 The timber-framed external walls of the house that are the subject of this determination are clad with what is described as a monolithic cladding. In this instance it incorporates 7.5mm thick "Harditex" sheets fixed through the building wrap directly to the framing timbers, finished with an "Esterno" spray textured application. I note that the plans only indicate a "plaster" finish.

2.4 Fosroc Ltd issued a "Coating Compliance Form" dated 28 October 2003, in respect of the coating system.

Sequence of events

2.5 The territorial authority issued a building consent on 4 November 2002. There were no conditions attached to the consent that referred to the cladding.

2.6 The territorial authority carried out various inspections throughout the construction of the house. On 6 October 2003, the territorial authority informed the owner that an inspection of the property had revealed that 5 items required attention. One of these required a producer statement for the "Harditex" fixing, plus a certification for the coating system, and another related to the sealing of pipes that pierced the cladding.

2.7 The territorial authority issued a Notice to Rectify dated 29 April 2004, and the "Particulars of Contravention" required the owner to provide either a ventilated cavity, or remove the cladding and replace with an approved cladding system.

2.8 The owner applied for a determination on 11 February 2005.

3 THE SUBMISSIONS

3.1 In a letter to the Authority dated 22 February 2005, the owner described the building and its wind zone.

3.2 The owner provided copies of:

- Some of the building plans;
- The building consent information;
- The Notice to Rectify;
- The correspondence with the territorial authority; and
- The "Coating Compliance Form".

3.3 In a letter to the Department dated 11 March 2005, the territorial authority referred to the building consent, the dates that work commenced, and when the final inspection was carried out. The territorial authority noted that the cladding was installed without a cavity and due to changed inspection procedures, it was unable to be satisfied, on reasonable grounds, that the cladding was code compliant.

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 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 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 11 May 2005, and furnished a report that was completed on 13 May 2005. It stated that the spray finish was uniformly applied and well adhered, with no evidence of a significant level of discolouration. The expert removed the cladding coating at the base of 3 window jambs and located the appropriate compressed foam and sealant at these locations. The expert noted that there were no sill flashings installed, but stated that these were not required by the manufacturer's recommendations. The expert also removed a portion of the coating to expose the horizontal control joint and concluded that the joint was functioning adequately. The expert's report made the following specific comments on the cladding:

- Some backing sheet joints are incorrectly located;

- Cracks are evident in the cladding, including the corners, on the south and west elevations;

- The bottom edges of the backing sheets are uncoated;

- There is insufficient ground clearance to the base of the cladding above some of the paved and landscaped areas;

- The cladding at the balcony has insufficient base clearance at some locations;

- The horizontal control joint to a small section of the south wall of the garage lacks the appropriate flashing;

- The required vertical control joints are not installed in the south and north elevation claddings;

- The spray finish is carried down onto the head flashings of the exterior windows and doors;

- No saddle flashings are installed to the balcony balustrade cappings;

- No external sealant is evident at the pergola ribbon plate fixings; and

- The ground floor soil pipe penetration through the cladding is unsealed.

5.2 The expert also noted that the required Inseal strip is not installed at the junction of the base of the cladding and the foundation walls. However, it was the expert's opinion that the bottom plate overhang of up to 30mm could adequately separate the cladding from the concrete, and provide a drainage path from the building wrap.

5.3 The expert carried out a series of moisture tests to the interior of the house using a non-invasive meter, and there were no readings recorded that were in the "damp" range. The expert then took further invasive readings at 7 locations, and the highest reading was 11.6%. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.

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

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 500mm to 700mm eaves and verge projections that provide good protection to the cladding areas below them;
- Is in a low-to-medium wind zone;
- Is two storeys high;
- Is of a simple shape on plan, with roofs that have hip, valley, and wall to roof junctions;
- Has one balcony that is constructed over an habitable space;
- Has lower level roof spaces that may assist in the ventilation of the external wall cavities above them; and
- Has external wall framing that may not 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 good trade practice and to the manufacturer's instructions, 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 incorrectly located backing sheet joints;
- The cracks in the cladding on the south and west elevations;
- The uncoated bottom edges of the backing sheets;
- The insufficient ground clearance to the base of the cladding;
- The insufficient base clearance of the cladding at the balcony;
- The lack of an appropriate flashing to the horizontal control joint at the south wall of the garage;
- The lack of vertical control joints in the south and north elevation claddings;
- The spray finish being carried down onto the head flashings of the exterior windows and doors;
- The lack of saddle flashings to the balcony balustrade cappings;
- The lack of external sealant at the pergola ribbon plate fixings; and
- The unsealed ground floor soil pipe penetration through 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:

- Apart from the described issues, the cladding generally appears to have been installed according to good trade practice;
- The house has 500mm to 700mm eaves and verge projections;
- The house is of a simple shape on plan; and
- The house has lower level roof spaces that may assist in the ventilation of the external wall cavities above them.

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.

6.6 I also accept the expert's opinion that the increased bottom plate overhang can compensate for the lack of an infill strip to the base of the cladding. However, where the overhang is reduced, as at the northeast corner of the house, adequate separation or sealing is required.

6.7 I note that two elevations of the house demonstrate a low weathertightness risk rating, one elevation demonstrates a medium risk, and the remaining elevation demonstrates a high risk, 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 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 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 additional work to the base of the cladding as described in paragraph 6.6, have been satisfactorily rectified, this house 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 It is emphasized 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 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 also find that rectification of the items outlined in paragraph 6.3, together with any additional work to the base of the cladding as described in paragraph 6.6, 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, notwithstanding the lack of a ventilated cavity.

8.3 I note that the territorial authority has issued a Notice to Rectify requiring provision for adequate ventilation by means of a ventilated cavity. Under the Act, a Notice to Rectify can require the owner to bring each house into compliance with the building code. The Authority has already found in a previous determination (2000/1) that the Notice to Rectify cannot specify how that compliance can be achieved. I concur with that view. A new Notice to Fix should be issued that requires the owner 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 dictate how the defects described in paragraphs 6.3 and 6.6 are to be remedied. How that is done 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 17 June 2005.

John Gardiner
Determinations Manager