Determination 2005/105

Refusal of a code compliance certificate for a building with a "monolithic" cladding system at 212 Wairau Road, Glenfield, Auckland

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 Dr and Mrs R J Fris, the joint owners (referred to throughout this determination as the "owner"), and the other party is the North Shore 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 6-year-old medical centre ("the building") unless changes are made to its monolithic cladding systems.

1.2 My task in this determination is to consider whether I am satisfied on reasonable grounds that the external monolithic cladding as installed ("the cladding"), which is applied to the first floor external walls of the building, complies with the building code (see sections 18 and 20 of the Act). By "external 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. In line with the issues raised by the territorial authority, I have restricted my decision to the monolithic claddings. However, the report prepared by the expert commissioned by the Department ("the expert") has noted defects in other external envelope components, and I have commented on these in this determination.

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

The building

2.1 The building work consists of large 2 storey medical centre with a partial basement area, on a site that is in an undefined wind zone. The building is of a relatively complex shape on plan with a low-pitched roof having parapet walls to its perimeter. Plastered precast concrete "tilt slab" units form the ground floor exterior walls. The exterior first floor walls are of metal frame construction secured to a proprietary "Dycore" suspended slab and are sheathed with monolithic cladding. A metal-framed monolithic-clad lift machinery room is constructed at the roof level. The front elevation of the building has a curved full height fully glazed entrance area with a large upward curved and cantilevered canopy over the access doors. Open covered ways consisting of a low-pitch roof supported on 100mm x 100mm timber posts with plaster finished 400mm diameter polystyrene surrounds, are constructed along the two wings of the front elevation A large timber-framed close-boarded deck supported on timber posts and beams and protected by a timber balustrade and handrail is situated along the southwest elevations at the upper floor level. A similarly constructed access ramp runs along the northwest elevation of the building.

2.2 The cladding system to the first floor exterior walls is what is described as monolithic cladding and is an "Insulclad" polystyrene system fixed directly to the framing over the building wrap and finished with a multi-coat mesh-reinforced modified cement plaster system. The cladding to the lift machinery room is fibre-cement and this is also direct-fixed and finished with the plaster system. I observe that, as described by the expert, the walls of the lift machinery room were noted as being concrete block on the consented plans.

Sequence of events

2.3 The territorial authority issued a building consent on 30 March 1999. The conditions attached to the consent stated that notice was required for certain inspections that would include the cladding.

2.4 The territorial authority carried out various inspections during the course of construction and passed pre-line inspections on 22 June 1999 and 1 July 1999. The territorial authority has stated in its submission that it limited its inspections to the pre-line and final inspections, and relied on producer statements for the balance of the work.

2.5 The territorial authority carried out a specific weathertightness visual inspection and in a report dated 1 February 2005 noted that there were numerous cladding defects that required remedying. I have not received copies of any correspondence that might have passed between the owner and the territorial authority in respect of the issues raised in this determination.

2.6 The territorial authority did not issue a Notice to Rectify as required under section 43(6) of the Act.

2.7 The owner applied for a determination on 16 February 2005.

3 THE SUBMISSIONS

3.1 The territorial authority made a submission in the form of a letter to the Department dated 24 May 2005 that summarised the consent and inspection processes relating to the building. The territorial authority also noted that, due to the type of monolithic cladding applied to the building, together with its attendant risk factors, the territorial authority was unable on reasonable grounds to accept the compliance of the cladding. The territorial authority also listed the defects that it had identified. The territorial authority stated that the matter of doubt was:

- Whether the installed cladding system complies with clauses B2.3.1 and E2.3.2 of the Building Code.

3.2 The territorial authority supplied copies of the consent and inspection documentation.

3.3 The owner wrote to the Department on 17 February 2005, describing the builder and the cladding installed on the building. The owner noted that the builder had gone into liquidation and that subsequently all the relevant correspondence had been lost.

3.4 The owner supplied copies of:

- The plans;
- A list of subcontractors; and
- Some structural calculation details.

3.5 The 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; 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 expert inspected the building on 21 June 2005 and furnished a report that was completed on 25 June 2005. It recorded that the quality of finish was generally good and that the plaster finish was smooth. The coating was uniform and generally well adhered with no evidence of significant discolouration, other than lime staining at the cracks. The expert removed the plaster coating at one window jamb/sill intersection to reveal the flashing details. Apart from the exceptions noted below, the window was adequately flashed and sealed. The expert also removed a portion of plaster at the base of the cladding. I am prepared to accept that the details revealed by these invasive inspections are representative of other similar locations throughout the building. The expert also made the following comments regarding the cladding:

- There are no vertical control joints as required by the cladding manufacturer in those walls over 20 metres long;

- There is no flashing or other provision to direct moisture away from the building wrap at the junction between the base of the cladding and the precast panels or walkway roof beneath it. Some cracking is evident at this detail at some locations;
- There is cracking in the plaster above the the canopy roof edge, at the junction of the northeast balustrade with the main wall cladding, and at the junction between stages 1 and 2;
- Several windows are sealed to the sills with a silicone type sealer, which is contrary to the "Insulclad" detail;
- Some plastered window sill reveals are bowed and have cracks along their length and this appeared to be due to a plastering defect;
- The external doors lack sill flashings and the sill plaster has a back-fall to the door frame that results in water lying at the door sill;
- A cable penetration through the southeast parapet is unsealed;
- The tops of the architectural bracket features lack the required falls; and
- With regard to the lift machinery room:
    - The coating system is thin;
    - Some cladding sheets are broken,
    - One external corner junction is open,
    - There are cracks at the board joints,
    - Nails are exposed and unsealed, and
    - Penetrations are poorly sealed.

5.2 Due to the metal wall construction, the expert was unable to accurately assess the moisture content of the external walls. However, based on the visual inspection, there is ample evidence that moisture is penetrating the building.

5.3 The expert noted that there were problems with the precast panels and the tanking applied to the panels below the ground level, which are allowing water to enter the building. There are also cracks evident in the panels and the plaster applied to them. The expert also observed that one of the timber roof walkways is decayed and that some secondary steel plant supports are rusting.

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 building:

- Lacks high-level projections that could help to protect the cladding;
- Is maximum three storeys high;
- Is of a fairly complex shape on plan; and
- Has a high-level deck and an access way.

Weathertightness performance

6.3 Generally, the cladding appears to have been installed according to reasonable 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 lack of vertical control joints in those walls over 20 metres long;
- The lack of a flashing or other provision to direct moisture away from the building wrap at the junction between the base of the cladding and the precast panels or walkway roof beneath it;
- The cracking in the plaster at various locations;
- The windows being sealed to the sills with a silicone type sealer, contrary to the "Insulclad" detail;
- The bowed and cracked plastered window sill reveals;
- The lack of external door sill flashings and the back-fall to the door sill plaster;
- The unsealed cable penetration through the southeast parapet;
- The lack of falls to the tops of the architectural bracket features; and

- The lift machinery room issues.

6.4 I also find that apart from some design and workmanship faults, the cladding generally appears to have been installed according to good trade practice. These factors help to compensate for the lack of a drainage and ventilation cavity and can assist the building to comply with the weathertightness and durability provisions of the building code.

6.5 The expert has pointed out some weathertightness and durability concerns with regard to the ground floor precast panels, the tanking, the roof walkways and the roof machinery supports. As stated in paragraph 1.2, I consider that these issues are outside the areas that I have to determine. However, I recommend that the territorial authority further investigate all concerns to satisfy itself as to the longer term viability and safety aspects of these elements.

6.6 I note that all elevations of the units demonstrate a moderate 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 in several 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, because the faults that have been identified with this cladding occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraph 6.3, together with any work required to remedy any faults in relation to the issues set out in paragraph 6.5, is likely to result in the building being weathertight and in compliance 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, together with any work required to remedy any faults in relation to the issues set out in paragraph 6.5, 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 both units 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 building 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 an expert, 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 19 July 2005.

John Gardiner
Determinations Manager