Determination 2005/88

Refusal of a code compliance certificate for a building with a "monolithic" cladding system: House 78

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 and the other party is the territorial authority. The application arises from the refusal by the territorial authority to issue a code compliance certificate for a 3-year old addition to an existing house ("the addition") unless changes are made to its monolithic cladding systems.

1.2 The question to be determined is whether on reasonable grounds the monolithic wall cladding as installed to the timber-framed external walls of the addition ("the cladding"), complies with the building code (see sections 18 and 20 of the Act). By "the 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 Act or the building code.

2 PROCEDURE

The building

2.1 The building work comprises an addition to a single-storey detached house, situated on a slightly sloping site in a low wind zone in terms of NZS 3604: 1999 "Timber framed buildings". The external walls of the addition are of conventional light timber frame construction built on piled timber-framed floors and are sheathed with monolithic cladding. The addition is of a simple shape, with a low-pitched roof that has parapets to some perimeters. There are also minor extensions to the existing deck and pergola/veranda. With the exception of the extended roof over the veranda, there are only minor eaves projections to certain locations.

2.2 I have received no evidence as to what timber treatment, if any, was applied to the external wall framing.

2.3 The cladding system incorporates polystyrene backing sheets fixed through the building wrap directly to the wall framing and finished with a high build membrane. The system has been subject to an independent appraisal.

Sequence of events

2.4 The territorial authority issued a building consent on 18 July 2002.

2.5 The territorial authority carried out various inspections during the construction of the addition and passed the pre-lining inspection on 10 December 2002, the plastering inspection on 3 December 2002, and the final inspection on 3 September 2003.

2.6 The territorial authority wrote to the owner on 19 September 2003, stating that a final inspection was carried out on 3 September 2003, and that a code compliance certificate would be issued on receipt of certain information, which included site inspection records.

2.7 Following a further inspection on 9 January 2004, the territorial authority wrote to the owner noting that the building had monolithic cladding without a ventilated

cavity, and that the territorial authority was reviewing the consent and would be undertaking another inspection.

2.8 The territorial authority carried out a further site cladding inspection on 18 May 2004, and in a letter to the owner dated 26 May 2004, it regretted that the building might not comply with the building code in a number of respects. The territorial authority attached a Notice to Rectify also dated 26 May 2004 to this letter, together with a set of photographs illustrating items of non-compliance. The "Particulars of Contravention" attached to the Notice to Rectify noted:

1. Items that had not been installed per the manufacturer's specifications;

2. Items that had not been installed per accepted trade practice; and

3. A ventilated cavity system.

The owners were also required, among other items, to:

1. Provide adequate ventilation to the monolithic cladding and into the wall frame space by means of either a ventilated cavity or alternative approved system, and ensuring all issues related to the above are resolved.

2.9 The owner applied for a determination on 24 June 2004.

3 THE SUBMISSIONS

3.1 In a letter to the Authority dated 30 August 2004, the owner set out the sequence of events leading up to request for a determination, including the territorial authority's inspection process.

3.2 The owner also forwarded copies of:

- The Notice to Rectify;
- The territorial authority's inspection records;
- The correspondence with the territorial authority;
- An e-mail from the builder to the owner dated 25 June 2004 that noted that the Insulclad system as applied was an approved and accepted system at the time of installation and at the time of its final inspection, which was passed; and
- A letter from cladding supplier to the builder dated 12 July 2004, confirming that they had carried out a site inspection on 18 May 2004, which responded to the issues raised by the territorial authority in its Notice to Rectify. The letter concluded that if minor remedial work were carried out, the cladding would be code compliant, and that supplier would stand 100% behind its warranties.

3.3 In a covering letter to the Authority dated 9 December 2004, the territorial authority described the Particulars of Contravention and specific construction defects.

3.4 The territorial authority also forwarded copies of:

- The plans;
- The consent documentation;
- The territorial authority's check lists;
- The Notice to Rectify; and
- The correspondence with the owner.

3.5 Copies of the submissions and other evidence were provided to each of the parties.

3.6 In a letter to the Department dated 12 May 2005, the territorial authority commented on aspects of the Draft Determination. In particular, the territorial authority is concerned that paragraphs 6.3 and 8.2 indicate a scope of work required to make the house code compliant. The territorial authority claims that this is not part of the determination.

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.
- 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 24 February 2005, and

furnished a report that was completed on 11 March 2005. The expert removed a small section of the textured finish at the rumpus room window to examine the flashing details. Following this investigation, the expert was of the opinion that window and door flashings have been installed in accordance with the manufacturer's recommendations. The expert's report made the following specific comments on the cladding:

- There is insufficient clearance between the base of the cladding on the north elevation and the ground or paving;
- No saddle flashing is installed at the junction of the parapet at the west elevation and the main wall cladding. There is also a vertical crack evident at this location;
- The junction between the Butynol roof over the pergola and the cladding is inadequately finished, and the joist bearer below this junction is fitted directly to the cladding. However, the expert considered that the cladding is well protected in this area; and
- Some penetrations through the cladding are inadequately sealed.

5.2 The expert carried out a series of non-invasive moisture tests at the interior of the external walls and no reading higher than 13.0% was recorded. Further non-invasive readings were made at the exterior of the external walls and no readings were above acceptable levels. The expert also tested the framing where the cladding had been removed at one window and obtained a reading of 12%. 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 and both accepted the report. In a letter to the Department dated 29 March 2005, the territorial authority accepted the content of the report

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 characteristics I find that the addition:

- Apart from the veranda roof, has either no eaves or verge projections that could provide protection to the lower cladding, or has narrow projections that afford little protection;
- Is built in a low wind zone;
- Is single storey;
- Is of a simple form on plan;
- Has no balconies, but has a timber deck and pergola extensions;
- Has fully flashed external windows and doors; and
- Has 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 between the base of the cladding on the north elevation and the ground or paving;
- The lack of a saddle flashing at the junction of the parapet at the west elevation and the main wall cladding, and the vertical crack evident at this location;
- The inadequately finished junction between the Butynol roof over the pergola and the cladding, and the joist bearer below this junction being fitted directly to the cladding; and
- The inadequately sealed penetrations 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. These are:

- Generally, the cladding appears to have been installed according to good trade practice;
- The addition is single storey, simple on plan, and is situated in a low wind zone;
- The external windows and doors are fully flashed; and
- The addition has no balconies.

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

6.5 I also accept, as set out in the cladding supplier's letter of 12 July 2004 to the builder, that a 6mm gap is not required to this cladding system where the cladding oversails a foundation wall.

6.6 I note that all elevations of the addition demonstrate a moderate weathertightness risk 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 establishes there is no evidence of external moisture entering the addition, 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 addition to remain weathertight. Because the cladding faults on the addition are likely to allow the ingress of moisture in the future, the addition does not comply with the durability requirements of clause B2.

7.3 I also consider that because the faults in the addition 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, this addition 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.

7.7 In response to the territorial authority's letter to the Department of 12 May 2005, I consider that I am entitled to determine whether proposed building work complies with the code, and in fact I have done so in this case. However, the question of whether the work has been properly completed and is code compliant requires careful inspection. I do not believe in this case that the territorial authority's inspections meet this standard. I note that the territorial authority's inspection described in a "Final Checklist" dated 4 September 2003 passed the following items in respect of the exterior of the building:

- Floor clearance from ground level
- Cladding clearance from ground level
- Secondary flow path
- Cladding Painted
- Flashings

7.8 In addition, none of the items that required attention after this final inspection related to the exterior cladding.

7.9 The Notice to Rectify issued on 26 may 2004 listed Particulars of Contravention that included:

- Floor clearances
- Ground clearances
- Cladding base gap

7.10 I am disturbed to note that these obvious building defects were not discovered during the September 2003 final inspection. They are also issues that are unrelated to the question of a cavity that the territorial authority has raised. It can be seen that the expert's report provides the comprehensive description of the building's outstanding shortcomings that should have been detected before or at the final inspection process and incorporated in the Notice to Rectify.

8 THE DECISION

8.1 In accordance with section 20 of the Act, I determine that the addition 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 addition 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 addition will consequently comply with the building code, notwithstanding the lack of a drainage cavity.

8.3 I note that the territorial authority has issued a Notice to Rectify requiring provision for adequate ventilation, drainage and vapour dissipation. Under the Act, a Notice to Rectify can require the owner to bring the addition 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 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 paragraph 6.3 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 15 June 2005.

John Gardiner
Determinations Manager