

Determination 2005/121

Refusal of a code compliance certificate for a building with a “monolithic” cladding system at 15B Hayr Road, Three Kings, Auckland – House 105

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 as amended by section 424 of the Building Act 2004 (“the Act”). The applicants are the two joint-building owners, Mahaveer Jain and F Farheen (referred to throughout this determination as “the owner”) and the other party is the Auckland 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 systems.
- 1.2 The question to be determined is whether on reasonable grounds that the external monolithic wall cladding as installed to the upper-level 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 a slightly sloping excavated site in a low wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. The house is of conventional light timber frame construction on concrete block foundation walls. The external ground floor walls are faced with a brick veneer. The upper floor external walls are entirely sheathed with monolithic cladding. The house is of a relatively simple shape with the concrete tiled roofs at two main levels having hips, valleys, and wall to roof junctions. The aluminium windows and doors are recessed into the cladding. The upper storey is cantilevered over the ground floor on two part elevations. The eaves have 210mm wide eave projections, with the spoutings giving a further 130mm projection.
- 2.2 The expert commissioned by the Department observed that H3 LOSP treated timber had been used in one location. The timber supplier has produced a “Producer Statement” confirming that the external wall framing is H3 treated.
- 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 60mm thick polystyrene sheets, with grooves on the back face, fixed through the building wrap directly to the framing timbers, and finished with a mesh reinforced Mineral Plaster Technologies System 300 plaster finish. I note that the consented plans call for an “Insulclad” external cladding system. However, the territorial authority has not referred to this amendment in its Notice to Rectify.
- 2.4 Mineral Plaster Technologies Ltd issued a “Producer Statement” dated 30 May 2003, and the system applicator issued a “Workmanship Guarantee” dated 30 May 2004, for a period of 5 years, both in relation to the cladding system.

Sequence of events

- 2.5 The territorial authority issued a building consent for the house in mid-2003.
- 2.6 According to the owner, the territorial authority carried out various inspections during the construction of the house.
- 2.7 Following an inspection on 11 August 2004, the territorial authority wrote to the owner on 4 November 2004, regretting 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 4 November 2004 to this letter and the “Particulars of Contravention” attached to the Notice to Rectify listed requirements under the following headings:

1. Items not installed per the acceptable solutions of the building code, (no alternative solutions had been applied for); and
2. Ventilated cavity system.

The owner was also required, amongst 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 that all issues relating to the above are resolved...
- 2.8 The owner applied for a determination on 18 November 2004.

3 THE SUBMISSIONS

- 3.1 In a covering letter to the Authority dated 20 November 2004, the owner stated that the territorial authority had regularly inspected the house, however the rules and regulations appear to have been changed since the building had been completed. In a further letter to the Department received on 23 December 2004, the owner noted that the house was constructed between August 2002 and April 2003, H3 treated timber was used, and also identified the builder and cladding installer.
- 3.2 The owner also forwarded copies of:
- The plans;
 - The Notice to Rectify;
 - The territorial authority’s letter of 4 November 2004; and
 - The producer statement and workmanship guarantee.
- 3.3 In a covering letter to the Authority dated 14 January 2005, the territorial authority described the Particulars of Contravention and the specific construction defects.
- 3.4 The territorial authority also forwarded copies of:

- Some of the consent documentation;
- 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, and neither party made any further comments.

3.6 In a letter to the Department dated 21 July 2004, 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 13 April 2005, and furnished a report completed on 25 April 2005. The expert removed a small section of the plaster around one window and found that both jamb and sill flashings were installed. However the windows did not have sill flashing tape or sill trays. The expert's report made the following specific comments on the cladding.

- A crack is evident in the cladding in one window recess;
 - There is an uncoated piece of cladding on the south elevation;
 - One end of the kitchen window head flashing is cut short and is inadequately sealed against the brick veneer;
 - The ends of the apron flashings are finished inadequately at some locations.
 - The vent holes at the base of the cladding over the brick veneer were blocked by the veneer in some locations; and
 - The kitchen vent is not protected from wind-driven rain.
- 5.2 The expert also noted that at some locations the ground levels were too high at the base of the brick veneer, and some veneer drainage slots were blocked. In addition, there is no underlay underneath the concrete roof tiles, which is contrary to the manufacturer's recommendations, and there are gaps between the roof tiles at two locations.
- 5.3 The expert carried out a series of moisture tests at the interior linings of the exterior walls, using a non-invasive meter, and no raised moisture levels were detected. The expert also took invasive moisture readings at 3 locations externally, and readings of 11%, 12%, and 15% were recorded. 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. In a letter to the Department dated 5 May 2005, the territorial authority confirmed that it had received the report. The owners responded by a letter dated 8 May 2005, noting that they had been unaware of the covered vent holes in the stonework veneer and the gaps in the tiles. The owners also stated that a producer statement had been issued by the cladding installer, that the territorial authority had inspected the house throughout its construction, and that no errors were ever pointed out to them.

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 weathertight characteristics, I find: that the house:

- Has eaves projections of 340mm width that provide some protection to the lower cladding;
- Is built in a low wind zone;
- Is two storeys high, but the cladding in question is to the upper level only, and there is a low risk brick veneer to the lower level;
- Is basically simple on plan, having roofs at two levels with hips, valleys and roof to wall junctions;
- Has no decks or balconies; and
- Has external wall framing that is H3 treated, which is resistant to 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 I consider it has been effective to date in preventing the penetration of water. There are, however, some defective areas of the house, which if not remedied, will eventually allow the ingress of moisture behind the cladding. These are set out below:

- The crack in the cladding at one window recess;
- The uncoated piece of cladding on the south elevation;
- The cut short and inadequately sealed end of the kitchen window head flashing;
- The inadequately finished ends of the apron flashings at some locations;
- The blocked vent holes at the base of the higher level cladding over the brick veneer in some locations; and
- The unprotected kitchen vent.

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 house is situated in a low wind zone;

- The exterior windows and doors have effective flashings;
- The backs of the polystyrene sheets are corrugated and provide a potential for drainage;
- The lower roof/upper wall junctions provide some ventilation to the external walls; and
- There is no moisture evident at this time in the external wall cavities.

6.5 I consider that these factors adequately compensate for the lack of a full 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 draw the parties' attention to the expert's comments regarding the brick veneer and roofing as set out in paragraph 5.2, and recommend that suitable remedial work be undertaken if, on further examination, this is perceived to be a problem. In addition, I am of the opinion that the lack of sill trays or sill flashing tape does not necessarily prevent the windows from being code compliant.

6.7 I note that all elevations of the house demonstrate a low 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 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 confirmed defects in the brick veneer and roofs, 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 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, together with any confirmed defects in the brick veneer and roofs, 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 In response to the territorial authority’s letter to the Department of 21 July 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 have not received any information that the territorial authority had concerns about the cladding during its intermediate inspection process.
- 8.4 The Notice to Rectify issued on 4 November 2004 noted, apart from concerns regarding the lack of a cavity, only two areas of roofing that the territorial authority considered to impact on the maintenance of the building. This can be compared with the expert’s report, which raised several cladding and associated issues as detailed in paragraphs 5.1 and 5.2. 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.

- 8.5 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 fix can require the owner to bring the 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 owners 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 as described in paragraph 6.3 are to be remedied.
- 8.6 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.
- 8.7 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 11 August 2005.

John Gardiner
Determinations Manager