

Determination 2005/107

Refusal of a code compliance certificate for a building with a “monolithic” cladding system at McArthur Avenue, St Heliers, Auckland – House 94

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 Scott Kennard (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 3-year old house unless changes are made to its monolithic cladding system.
- 1.2 The question to be determined is whether on reasonable grounds the monolithic wall cladding as installed to the timber-framed external walls, beams, and columns of the house (“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 is a two-storey house, with a single storey attached garage, situated on an gently sloping site, which is in a low wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. The external walls are of conventional light timber frame construction built on concrete block foundation retaining walls, and sheathed with monolithic cladding. Piled concrete foundations support some of the foundation walls. The house is of a fairly simple shape, and the pitched roofs are at two levels with some hip, valley, and wall to roof junctions. The eaves have 450mm wide projections.
- 2.2 Two balconies are constructed at the first floor level. The smaller of these forms part of the main entrance portico, and the larger balcony is constructed partially over habitable spaces and partially over a ground floor patio area. Both balconies have perimeter gutters and metal balustrades. Monolithic-clad timber-framed columns support the balconies and the portico. A monolithic-clad timber-framed chimney is built against an external wall and penetrates the upper roof. A timber-framed pergola with monolithic-clad support columns and beams is situated at one elevation of the house.
- 2.3 The builder has issued a “Variation Schedule” dated 18 October 2002, which was accepted by the owner, that substituted H3 LOSP treated timber for the apparently previously specified untreated timber used for the bottom plates of the ground and first floor external walls and the boundary joists. The owner stated that 3 coats of “Osiose Boracol 200RH” had been applied to all timber framing, with “risk area” framing receiving 3 additional coats. The owner has supplied invoices for the supply of this coating.

- 2.4 The cladding system is what is described as monolithic cladding, and is 60mm thick “Insulclad” as manufactured by Plaster Systems Ltd, which is back grooved, and is finished with a textured coating. The system has been subject to a BRANZ appraisal.
- 2.5 Plaster Systems Ltd provided a 15-year “Materials Components Guarantee” dated 25 February 2004, covering the components of the system. The plasterer issued a 5- year “Workmanship Guarantee” dated 25 February 2004, for the plasterwork.

Sequence of events

- 2.6 The territorial authority issued a building consent on 5 July 2002. The consent noted that monolithic cladding requires regular inspection and maintenance.
- 2.7 ABC Ltd, a building certifier, issued an interim code compliance certificate dated 21 July 2004, for part of the building work, and noted that “ACC [is] to inspect exterior cladding outside scope of E2AS1 NZBC”.
- 2.8 Following an inspection on 28 September 2004, the territorial authority wrote to the owner on 12 October 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 12 October 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 listed requirements under the following headings:
1. Items not installed per the manufacturer's specifications;
 2. Items not installed per the acceptable solutions of the building code, (no alternative solutions had been applied for, other than for the cladding system previously approved);
 3. Items not installed per accepted trade practice; and
 4. 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...
- 2.9 The owner applied for a determination on 15 November 2004.

3 THE SUBMISSIONS

- 3.1 In a covering letter to the Department, the owner set out the sequence of events leading up to this determination, described the cladding, noted that amendments had been made to the fixing of the upper-deck balustrades, noted that the bottom plates and boundary joists were H3 LOSP treated, and that the timber framing had been

additionally treated. The owner also made some general comments regarding the house.

3.2 The owner supplied copies of:

- The plans;
- The building consent;
- The interim Notice to Rectify and the territorial authority's Notice to Rectify;
- The "Insulclad" technical data;
- The builder's variation schedules;
- Details and invoices relating to the treatment applied to the framing timber;
- The producer statements and warranties; and
- The correspondence with the territorial authority.

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.

3.4 In a letter to the Department dated 24 June 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 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; 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 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 that was completed on 22 April 2005. It noted that quality of finish to the house generally appears to be good. The expert removed the plaster coating to reveal the window perimeter details at two locations, and noted that the windows were flashed and installed in accordance with the manufacturer's recommendations at the time of installation. The expert was of the opinion that control joints were not required for a house with the dimensions of the one in question. The expert also made the following comments regarding the cladding:

- There is some cracking evident in the cladding at the locations associated with the balcony perimeter edges and the pergola structures;
- The base of the cladding is too close to the paving at the garage area;
- The bottom edge of the lead flashing at the garage rear roof to wall junction is not turned back and cannot drain ingressed moisture;
- The ends of the lead flashing at the garage front roof to wall junction, and the ends of the two chimney apron flashings are inadequately finished;
- The junction between the underside of the pergola stringer and the house cladding is poorly flashed, and the joint in the flashing is suspect;
- The pergola rafter penetrations through the cladding of the pergola perimeter support beams are inadequately sealed;
- There is inadequate clearance below the base of the smaller balcony door joinery;
- There are inadequate falls to the deck of the smaller balcony;
- Some penetrations through the cladding are inadequately sealed; and
- The mounting blocks under the drainage fittings are not in fully accordance with the manufacturer's recommendations.

- 5.2 The expert took non-invasive readings at the interior linings and invasive readings at the exterior of the external walls and no raised readings were recorded. However, a reading of 19% and a reading of 20 % were recorded in 2 of the support columns, and readings of 40%+ were recorded in the monolithic clad pergola beams. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure. The expert noted that the readings were taken after a long dry period.
- 5.3 Copies of the expert's report were provided to each of the parties. The owner did not respond. In a letter to the Department dated 5 May 2005, the territorial authority noted that it had received 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 the weathertightness characteristics, I find that the house:
- Has 450mm wide eaves and first floor projections that would provide protection to the cladding areas below them;
 - Is in a low wind zone;
 - Is two storeys high;
 - Is of a fairly simple shape on plan, with roofs that have hip and wall to roof junctions;
 - Has two balconies, one of which is partially constructed over habitable spaces;
 - Has one pergola;
 - Has windows and doors that are fully flashed;
 - Has one lower level roof space that assists in the ventilation of the external wall cavities above it; and

- Has external wall framing that is likely to be treated or coated 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 cracking evident in the cladding at some locations;
- The base of the cladding being too close to the paving at the garage area;
- The defective bottom edge of the lead flashing at the garage rear roof to wall junction;
- The inadequately finished ends of the lead flashing at the garage front roof to wall junction and the two chimney apron flashings;
- The poorly flashed junction between the underside of the pergola stringer and the house cladding, and the suspect joint in the flashing;
- The inadequately sealed pergola rafter penetrations through the cladding of the perimeter support beams;
- The inadequate clearance below the base of the smaller balcony door joinery;
- The inadequate falls to the deck of the smaller balcony;
- The inadequately sealed penetrations through the cladding; and
- The non-adherence to the manufacturer's recommendation for mounting blocks to which to fix the downpipes.

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 generally appears to have been installed according to very good trade practice;
- The external doors and windows are fully flashed;
- The backs of the polystyrene sheets are corrugated and provide a potential for drainage;

- The house has one lower level roof space that assists in the ventilation of the external wall cavities above it; and
- The house has external wall framing that is likely to be treated to a level that would help prevent decay if it absorbs and retains moisture.

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 note that two elevations of the house demonstrate a low weathertightness risk rating and two elevations a medium 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 cladding is not adequate because it is allowing water penetration into the columns and pergola structure, which could affect the cladding of the house. Consequently, I am not satisfied that the cladding system as installed on the house complies with clause E2 of the building code.

7.2 In addition, the house 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 will allow the ingress of moisture in the future, the house 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 is likely to result in the house being weathertight and in compliance with clauses B2 and E2, notwithstanding the lack of a ventilated cavity.

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 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 house does not comply with clause E2 of the building code. There are also a number of items to be remedied to ensure that the house remains weathertight and thus meet the durability requirement of the code. Consequently, I find that house 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, 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, drainage and vapour dissipation. Under the Act, a Notice to Rectify can require the owner to bring each Unit 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 described in paragraph 6.3 are to be remedied.
- 8.4 In response to the territorial authority's letter to the Department of 24 June 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. It can be seen that the expert's report provides the comprehensive description of the building's outstanding shortcomings that should have been detected during the inspection process.
- 8.5 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 in paragraph 7.3 of 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.

- 8.6 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 21 July 2005.

John Gardiner
Determinations Manager