

Determination 2005/59

Refusal of a code compliance certificate for a building with a “monolithic” cladding system: House 51

1 THE DISPUTE TO BE DETERMINED

- 1.1 This is a determination by 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 the joint owners (referred to throughout this determination as “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 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 (“the cladding”) to the walls and timber-framed columns of the house 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 No other aspects of the Act or the building code have been considered in this determination.

2 PROCEDURE

The building

- 2.1 The building is a two-storey-storey house situated on a level site in a high wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. The house is of conventional light timber frame construction on a piled concrete beam and slab foundation. With the exception of panels under some of the ground floor windows, the timber-framed external walls of the building are lined with monolithic cladding. The house is of a relatively simple shape, but the pitched and low-pitched roofs are set at varying levels with hip, valley and wall to roof junctions. The building has two balconies constructed at the first-floor level, one of which is over a habitable space. A canopy is constructed over the main entrance. There are no eaves and verge projections. I note that the glazed balcony balustrades have been fixed through the top of the timber-framed walls below them, rather than through the sides of the walls as shown on the consented plans.
- 2.2 The specification calls for framing generally to be H1 (low decay hazard) treated. The timber supplier has confirmed that the timber used in the construction of the exterior walls is H3 [Named treatment] LOSP treated.
- 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. Infill panels of timber shiplapped boarding have been installed under some of the windows.
- 2.4 The cladding manufacturer has provided a “Workmanship Guarantee” dated 2 April 2002 for a period of 5 years, and a “Material Components Guarantee” dated 27 March 2002 for a period of 15 years.

Sequence of events

- 2.5 The territorial authority issued a building consent on 23 October 2001, based on a certificate from a firm of building certifiers dated 23 October 2001. None of the “Conditions’ attached to the consent referred to the cladding.
- 2.6 The building certifiers made various inspections during the course of construction, and carried out a final inspection on 9 December 2002. The building certifier noted that certain items required attention before a code compliance certificate could be issued.
- 2.7 The building certifiers issued an interim code compliance certificate dated 2 April 2004 that excluded external wall cladding as it was outside the building certifier’s scope of approval.
- 2.8 On 12 April 2004, the owner wrote to the territorial authority requesting that the territorial authority issue a final code compliance certificate.
- 2.9 On 26 August 2004, the territorial authority wrote to the owner stating that, as it had not conducted any inspections of the cladding, it was unable to issue a final code compliance certificate.
- 2.10 The territorial authority did not issue a Notice to Rectify as required by section 43(6) of the Act.
- 2.11 The owner applied for a determination on 9 September 2004.

3 THE SUBMISSIONS

- 3.1 The owner attached an Appendix 1 to the determination application setting out the history of the project and describing aspects of the house’s construction.
- 3.2 The owner provided copies of:
- The building plans and specification;
 - The consent documentation;
 - The interim code compliance certificate;
 - Some of the building certifiers’ and territorial authority’s inspection sheets;
 - The correspondence with the building certifiers and the territorial authority;
 - The cladding manufacturer’s recommendations and relevant Appraisal Certificate;
 - The cladding manufacturer’s.”Workmanship and “Material Components” guarantees;

- An undated letter from the timber supplier, stating that the external wall framing was treated with the [named] brand of H3 LOSP treatment; and
 - A letter from the balustrade installer dated 26 August 2004, describing how the balustrades were installed.
- 3.3 The territorial authority made a submission in the form of a letter, dated 23 September 2004, which set out the reasons why it could not issue a code compliance certificate.
- 3.4 The copies of the submissions and other evidence were provided to each of the parties and neither party commented on the other's submissions.

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 B2.3.1 and E2.3.2 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; 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 23 February 2005, and furnished a report that was completed on 10 March 2005. It stated that generally the construction of the property has been carried out to a good standard. The expert cut away the cladding adjacent to one windowsill and established that the flashings required by the manufacturer's instructions are correctly installed. A section of

cladding at the northern end wall of the family room balcony wall was also removed. The expert's report made the following specific comments on the cladding:

- There was a crack to the top of the north elevation balcony wall;
- Sections of the parapet caps have been fixed directly through their tops and ponding has occurred round these sealed fixings;
- The supports to the glass insert panels are installed directly onto the balcony balustrade tops;
- The junction of the Butynol flashing and the northwest corner parapet capping is incorrectly installed;
- There are no saddle flashings installed where the front entrance canopy capping adjoins the main wall cladding;
- The ends of the gable verge flashings are inadequately finished at some locations; and
- The base of the cladding of the four timber-framed support columns is in direct contact with the ground or paved areas.

5.2 The expert took moisture readings though both the interior and the exterior of the monolithic-clad external walls throughout the house using a non-invasive meter. The interior readings did not exceed 13%, but a number of exterior readings were at an "unacceptable level". The expert then carried out further invasive testing through the exterior cladding and obtained readings as follows:

- 17.7% at the eastern balcony wall;
- 18.9% at the north end of the master bedroom balcony area; and
- 32.3% and 43.2% at the northern end of the family room balcony wall.

Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure. The expert also noted the presence of "sooty mould" where the cladding had been removed at the family room balcony wall.

5.3 Copies of the expert's report were provided to each of the parties and the territorial authority did not respond. The owner in a letter to the Department dated 28 March 2005, made various comments on the experts report, which I have considered in making my decision. Some of the comments were in the form of queries as how to remedy some of the items raised by the expert. As set out in paragraph 8.3, the Department cannot direct how any defects are to be remedied. It is over to the owner and the territorial authority to discuss such matters and reach agreement on remedying building elements that are not code compliant.

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 B2.3.1 and E2.3.2, 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 no eaves and verge projections to provide protection to the cladding areas below them. However there are some balcony and floor projections that afford additional protection;
- Is in a high wind zone;
- Is two storeys high;
- Is of a relatively simple shape on plan, with roofs that have hip, valley and wall to roof junctions;
- Has two balconies, one of which is constructed over a habitable space;
- Has fully flashed external windows and doors;
- Has lower level roof spaces that assist in the ventilation of the external wall cavities above them; and
- Has external wall framing that is treated to a level that would help prevent decay if it absorbs and retains moisture.

Weathertightness performance

6.3 I find that, generally, some aspects of the cladding appears to have been installed according to good trade practice and to the manufacturer's instructions, but some junctions and edges are not well constructed. These areas are:

- The crack to the top of the north elevation balcony wall;
- The sections of the parapet caps that have been fixed directly through their tops;

- The supports to the glass insert panels being installed directly onto the balcony balustrade tops;
- The incorrectly installed junction of the Butynol flashing and the northwest corner parapet capping;
- The lack of saddle flashings where the front entrance canopy capping adjoins the main wall cladding;
- The inadequately finished ends of the gable verge flashings at some locations; and
- The base of the cladding of the four timber-framed support columns being in direct contact with the ground or paved areas.

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 good trade practice;
- The house has fully flashed external windows and doors; and
- The moisture ingress is entirely related to the balcony balustrades.

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 one elevation of the house demonstrates a medium weathertightness risk rating, and the remaining three elevations a high 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 wall framing at the area of the balconies at present. Consequently, I am not satisfied that the cladding system as installed complies with clause E2 of the building code.

7.2 In addition, 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 in 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 building 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. I note also that the expert has recommended that the cladding be repainted as a matter of urgency.
- 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 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 the 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, is likely to 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 not issued a Notice to Rectify. The territorial authority should do so and the owner is then obliged to bring the house 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, 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 3 May 2005.

John Gardiner
Determinations Manager