

Determination 2005/122

Refusal of a code compliance certificate for a building with a “monolithic” cladding system: House 106

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 Brian Davis, one of the two 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 2-year old extension to an existing building (“the extension”) 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 cladding as installed (“the cladding”), which is applied to the external walls, columns, and chimneys of this extension, 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.
- 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 a first floor extension to an existing 3 storey apartment and retail building on a site that is in a high wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. The extension, which is of a simple shape on plan, consists of a new first floor level deck and balustrade linking two existing decks, two new chimneys and infilling the ground floor perimeter wall openings. The lower floor infilling consists of new concrete columns and beams and concrete block infill walls, all plastered to match the existing elements. The deck is timber framed and forms the roof over the ground floor. The deck balustrade walls are of conventional light timber frame construction and are sheathed with monolithic cladding. One end of the deck is infilled with bi-fold shutters fixed between monolithic-clad timber-framed posts and timber beams. The 2 chimneys are monolithic-clad timber-framed. One chimney is integral with the deck infilling, and the other extends for two storeys above the deck and is built against an existing external wall.
- 2.2 The timber supplier issued an invoice dated 18 October 2003, which indicates that the deck balustrade timber is H3 treated and the deck framing is H1 LOSP treated. A second invoice dated 20 October 2003, indicates that the chimney framing is H3 treated.
- 2.3 The cladding system is what is described as monolithic cladding, and is a 46mm thick “Hitex Diamond Back Cavity ” system, fixed directly to the framing over the building wrap, and finished with an “Ezytex” textured finish, followed by a paint system.
- 2.4 Hitex Plaster Systems Ltd provided a producer statement covering the cladding system. The cladding installer issued two producer statements. One was dated 30

November 2003, for the deck handrail extension and the chimney, and the other was dated 23 February 2004, covering the extension to the existing cladding system.

Sequence of events

- 2.5 The territorial authority issued a building consent on 28 August 2003, based on a certificate supplied by Approved Building Certifiers Ltd (“the building certifier”) dated 6 August 2003. The conditions attached to the consent by the building certifier noted that the owner was to ensure that the territorial authority was contacted for pre-line and cladding inspections, and that the external wall framing was to be treated to H1 or to H3. The H1 treatment was to be such that it resisted fungal decay.
- 2.6 The building certifier carried out inspections during the course of construction, and issued an interim code compliance certificate dated 17 August 2004, which noted:
- This is:
- An interim code compliance certificate in respect of part only of the building work under the above building consent as specified below:
- Excluding external cladding outside E2/AS1. NSCC to inspect and issue full CCC.
- 2.7 The territorial authority carried out a specific weathertightness visual inspection in the latter half of 2004. In a letter to the owner dated 1 October 2004, the territorial authority stated that the building code required the durability of the cladding to be 15 years, and that of the timber framing 50 years. The territorial authority then listed the weathertightness risk factors identified with the building, and stated that the cracks in the cladding required remedying, and that the joint sealant was to be painted. The territorial authority also required confirmation of the timber treatment applied to the barrier structure and deck joists, and the provision of certain documents.
- 2.8 The territorial authority again wrote to the owner on 10 November 2004, repeating the durability requirements and the identified weathertightness risk factors. The territorial authority noted that the defects identified in its letter of 1 October had been remedied. However, due to the risk factors involved with the installed cladding, the territorial authority could not be satisfied, on reasonable grounds, that the cladding was code compliant.
- 2.9 The builder wrote to the owner on 14 October 2004, noting that the cladding is approved for use by the territorial authority under Approved Document E2. The builder responded to the list of risk factors described by the territorial authority, and stated that the cracks in the cladding had been repaired, re-plastered and re-painted and that the exposed silicone was to be painted by the owner’s painter. The builder stated that the barrier was constructed with H3 treated framing, the deck joists are H1.2 treated, and the deck substrate plywood is H3 Tanalised. The builder discussed the question of the required documentation and noted that the territorial authority approves the Hitex “Diamond Cavity System”.
- 2.10 The territorial authority did not issue a Notice to Rectify as required under section 43(6) of the Act.

2.11 The owner applied for a determination on 20 January 2005.

3 THE SUBMISSIONS

3.1 The territorial authority made a submission in the form of a letter to the Department dated 3 March 2005, which summarised the consent and inspection processes relating to the extension. The territorial authority also noted that, due to the type of monolithic cladding applied to the extension, together with its attendant risk factors, the territorial authority was unable on reasonable grounds to accept the compliance of the cladding. The territorial authority noted 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; and
- The correspondence with the owner.

3.3 The owner supplied copies of:

- The plans;
- The consent documentation;
- The interim code compliance certificate;
- The correspondence with the territorial authority and the builder;
- The cladding manufacturer's recommendations;
- The timber supplier's invoices; and
- The producer statements.

3.4 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 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 10 June 2005, and furnished a report that was completed on 18 June 2005. It recorded the expert's overall impression that the builders were committed to good quality work and the lack of any signs of careless or "corner cutting" work. There is no evidence of cracking, and the textured finish is applied to a consistently high standard. The expert removed the plaster coating at one location to reveal the details of the cladding and found these to be satisfactory. The expert also made the following comments regarding the cladding:
- There is no control joint at the junction between the base of the cladding and the plastered lower level masonry at the east elevation;
 - The top of the deck balustrade has no cross fall;
 - The grab rail fixings are penetrating the top of the deck balustrade; and
 - The timber beam penetrations into the cladding at the new columns and the existing wall are inadequately sealed.
- 5.2 The expert took non-invasive readings at the underside of the deck ceiling and the readings obtained did not vary from those taken elsewhere. A further 9 invasive readings were then taken, and all the readings were well within acceptable limits, with the exception of a reading to the right of the first north elevation opening, which registered 20%. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure. The expert also noted that the readings were taken after several periods of heavy rain.

- 5.3 The expert also referred to an independent report from the Moisture Detection Company, which had installed 5 probes in the extension. These probes were tested on three occasions in 2005 and some very high moisture levels were recorded. The report recommended that certain remedial work be carried out to prevent further ingress of moisture. While the builder has stated that the cracks in the cladding have been repaired, I have received no evidence as to whether the work recommended in the report was indeed carried out. However, I am basing my decision on the evidence provided by the expert following his inspection of the house.
- 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 extension:
- Is in a high wind zone;
 - Is maximum two storeys high;
 - Is of a fairly simple shape on plan;
 - Has a deck that forms the roof of an interior entrance area;
 - Has cladding with grooves in the back of the backing sheets, which provide some drainage facility; and
 - Has external wall and balustrade framing that is treated to a level that would help prevent decay if it absorbs and retains moisture. However the deck joists does not have such a treatment.

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 lack of a control joint at the junction between the base of the cladding and the plastered lower level masonry at the east elevation;
- The lack of a cross fall to the top of the deck balustrade;
- The grab rail fixings penetrating the top of the deck balustrade; and
- The inadequately sealed timber beam penetrations into the cladding at the new columns and the existing wall.

6.4 I also find that there are compensating factors that assist the performance of the cladding in this particular case:

- Apart from minor small design and workmanship faults, the cladding generally appears to have been installed according to good trade practice;
- The grooves in the back of the cladding sheets provide some drainage facility; and
- The extension has external wall and balustrade framing that is treated to a level that would help prevent decay if it absorbs and retains moisture.

6.5 I consider that these factors adequately compensate for the lack of a drainage and ventilation cavity, other than the drainage capacity provided by the grooved cladding, and can allow the house to comply with the weathertightness and durability provisions of the building code.

6.6 The conditions attached to the building consent required H1 treated timber to be treated to a level that "resisted fungal decay". As set out in paragraph 2.9, the builder claims that the deck joists were H1.2 treated, which would comply with the consent condition. I note, however, that the invoices provided by the timber supplier describe the deck joist timber as H1 LOSP treated, a treatment that is not effective against fungal decay. Accordingly, I suggest that the territorial authority further investigate this matter and satisfy itself as to the longer-term structural viability of the deck.

6.7 I note that all elevations of the extension demonstrate a high 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 cladding is not adequate because it is allowing water penetration into the extension in at least one location, which could affect the cladding of the building. Consequently, I am not satisfied that the cladding system as installed on the extension complies with clause E2 of the building code.
- 7.2 In addition, the extension 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 extension to remain weathertight. Because the cladding faults on the extension will allow the ingress of moisture in the future, the extension 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 extension 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, 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 extension does not comply with clause E2 of the building code. There are also a number of items to be remedied to ensure that the extension remains weathertight and thus meet the durability requirement of the code. Consequently, I find that extension 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 extension 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 extension 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 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