

Determination 2005/164

Refusal of a code compliance certificate for a building with a “monolithic” cladding system at 48 Lockwood Road, Hunua, Papakura

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 applicants are the owners, Mr and Mrs Levesque (“the owner”), and the other party is the Franklin District Council (“the territorial authority”). The application arises from the refusal by the territorial authority to issue a code compliance certificate for an 8-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 on all the timber framed 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

2.1 The building

- 2.1.1 The building is a split-level, single-storey detached house situated on a slightly-sloping site in a very high wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. The house is of conventional light timber frame construction on a piled timber-framed floor, apart from the garage area, which has a concrete ground floor slab. All the external walls are sheathed with monolithic cladding. The house is of a fairly simple shape, but with some complex features, and the pitched roofs have hip, valley, and wall-to-roof junctions. The eaves and verges generally have 90mm projections, plus an additional 125mm for the metal fascias and gutters. A 1900mm wide timber-framed open-boarded deck, supported on timber posts, runs the full length of one wide and one narrow elevation at the main floor level. It is fully roofed.
- 2.1.2 The owner has noted that treated timber was asked for but the timber supplier has not been able to verify what timber treatment, if any was applied to the external wall framing.
- 2.1.3 The cladding system to the exterior walls is what is described as monolithic cladding and consists of “Hitex” polystyrene backing sheets fixed directly to the framing over the building wrap, to which a textured sponge finish plaster system has been applied. The plaster is finished with a paint coating system. The exterior of the sub-floor area is lined with “hit and miss” boarding in lieu of the “Harditex” lining shown on the consented plans. I have not seen any documentation showing that this amendment has been referred to by the territorial authority.

2.2 Sequence of events

- 2.2.1 The territorial authority issued a building consent on 27 December 1996.
- 2.2.2 The territorial authority carried out various inspections throughout the construction of the house. The territorial authority passed the pre-line building inspection on 28 August 1997.
- 2.2.3 A building consultant employed by the owner forwarded a report dated 6 December 2004 to the territorial authority. In summary, the report noted that the house was sound, the exterior joinery was fully flashed, there was no evidence of timber rot, decay or mould growth, there was no necessity for remedial work, and there was no

evidence of durability failure. The consultant did not consider the house to be dangerous or unsanitary. As the house had been constructed and occupied for a period of 7 years and there were no structural or durability issues to address, it would be reasonable to accept that the building complied with the building consent documentation.

- 2.2.4 The territorial authority wrote to the owner on 15 December 2004, noting receipt of the report. The territorial authority stated that while it could not issue a code compliance certificate as the building consent period had expired, it would enter the report on its files for future reference.
- 2.2.5 The territorial authority did not issue a Notice to Rectify as required by section 43(6) of the Act.
- 2.2.6 The owner applied for a Determination on 26 January 2005.

3. The submissions

- 3.1 The owner provided copies of:
- the building plans and specifications
 - some building consent information
 - the territorial authority's letter of 15 December 2004
 - the building consultant's report of 6 December 2004
- 3.2 The territorial authority provided a copy of an inspection report
- 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 The territorial authority, in a letter to the Department dated 29 November 2005, raised some issues relating to the lapsing of a building consent. The owner requested, in an e-mail dated 2 December 2005, that the Department define the exact requirements relating to the remedial work.

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 remain valid in this case in my view, about acceptable solutions and alternative solutions:

- Some acceptable solutions cover the worst case, so that they may be modified in less extreme cases 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 19 May 2005 and furnished a report that was completed on 30 June 2005.

5.2 The report stated that despite some "unintentional defects", the general impression is of reasonably good trade practice in terms of the cladding. However, there are indications that the carpentry work was inadequate in some areas. The final coat of plaster is of a good standard and the paint finish is in a reasonably good condition. No significant surface cracking was observed. The expert was of the opinion that, taking into account the dimensions of the house; neither vertical nor horizontal control joints were required. The expert removed the plaster at the head and the sill of one window and under the soffit of the garage. I accept that the details exposed by these inspections are representative of other similar locations throughout the building. The report made the following specific comments on the cladding:

- a portion of cladding on the south elevation is incorrectly fixed
- the clearance to the base of the cladding is inadequate adjacent to the garage
- there is no sealant to the jambs of the external joinery units nor at the ends of the head flashings, which are also embedded in the cladding
- there are no head flashings or sealants above the garage doors
- the apron flashing joints and the junctions between the flashings and the cladding are ineffectively formed at several locations
- the ends of the apron flashings lack "kick outs"
- there is incomplete plaster and exposed mesh behind the gutter to the front garage elevation and also to the rear of the garage

- there are gaps between the soffits and the fibre-cement facings below the soffits
- there is no flashing installed over the meter box
- some penetrations are ineffectively sealed.

5.3 The expert carried out a series of moisture tests to the interior of the house using a non-invasive meter and nine elevated readings were recorded. These tests were followed by further invasive readings taken through the exterior of the plaster. The following invasive readings over 18% were recorded:

- 20.4%, 22%, 25%, 27.8%, and 30% at the west elevation
- 22% at the north elevation
- 25.8% and 27% at the east elevation
- 19% at the south elevation
- 25% at random soffit lining locations.

5.4 Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure. The expert noted damage to the timber framing under the master bedroom window.

5.5 The expert also noted that there is restricted ventilation under the floor areas and that this is also compounded by the planted areas at present adjoining the sub-floor locations.

5.6 Copies of the expert's report were provided to each of the parties.

6. Discussion

6.1 General

6.1.1 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 Building Industry 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.

6.2 Weathertightness risk

6.2.1 In relation to the weathertightness characteristics, I find that the house:

- has generally 215mm maximum eaves and verge projections, which provide only limited protection to the cladding areas below them. However, this is augmented by the 2000mm deep veranda overhangs to two elevations of the building
- is in a very high wind zone
- is one-storey high
- is of a fairly simple shape on plan but with some complex features and with roofs having hip, valley and wall-to-roof junctions
- has a covered deck to two full elevations
- has external wall framing that is not likely to be treated to a level that would help prevent decay if it absorbs and retains moisture.

6.3 Weathertightness performance

6.3.1 Generally, the cladding appears to have been installed according to reasonable trade practice, but some junctions, edges, and penetrations are not well constructed. These areas are described in paragraph 5.2, and in the expert's report, as being:

- the portion of cladding on the south elevation being incorrectly fixed
- the inadequate clearance to the base of the cladding adjacent to the garage
- the lack of sealant to the jambs of the external joinery units and at the ends of the head flashings, which are also embedded in the cladding
- the lack of head flashings or sealants above the garage doors
- the ineffectively formed apron flashing joints and the junctions between the flashings and the cladding at several locations
- the lack of "kick outs" to the ends of the apron flashings
- the incomplete plaster and exposed mesh behind the gutter to the front garage elevation and also to the rear of the garage
- the gaps between the soffits and the fibre-cement facings below the soffits
- the lack of a flashing installed over the meter box
- the ineffectively sealed penetrations.

6.3.2 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 appears to have been installed according to reasonable trade practice
- the house is single-storey
- the house has a wide roofed veranda to two full elevations, which provide excellent protection to the cladding areas below them.

6.3.3 I find consider that these factors help compensate for the lack of a drainage and ventilation cavity and can assist the house to comply with the weathertightness and durability provisions of the Building Code.

6.3.4 The expert has noted that there is inadequate ventilation to the sub-floor areas of the building and I recommend that this matter be further investigated by the territorial authority and that appropriate remedial measures be undertaken, if appropriate.

6.3.5 I note that all elevations of the building demonstrate a low 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 monolithic cladding on the building is not adequate because it is allowing water penetration into the building at several locations, which could affect the cladding. Consequently, I am not satisfied that the cladding system as installed on the building complies with clause E2 of the Building Code.

7.2 In addition, the building is 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 building to remain weathertight. Because the monolithic cladding faults on the building have already allowed the ingress of water, or will allow the ingress of moisture in the future, it 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 6.3.1 is likely to result in the building 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, repainting, 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 As set out in paragraph 2.2.4, the territorial authority has stated that it could not issue a code compliance certificate as the building consent period had "expired". I have also considered the territorial authority's position as set out in its letter of 29 November 2005 in respect of this. Section 41 of the Act sets out the conditions whereby a building consent is deemed to have lapsed or has been cancelled. I am of the opinion that none of the conditions set out in section 41 are relevant to the circumstances relating to this house and that there is no provision in the Act for a building consent to "expire".
- 7.7 However, the territorial authority may well have concerns about the durability, and hence the compliance with the Building Code, of certain elements of the building, taking into consideration that the building is 8 years old, in particular those elements of the building envelope that have 5 and 15-year durability requirements, in order to comply with clause B2 of the Building Code. If this is the case, I am of the opinion that the territorial authority should amend the original building consent by making it subject to a waiver of the Building Code in accordance with section 34(4) of the Act to the effect that the durability of the building envelope is to be measured from the date of the practical completion of the building instead of from the time of the issue of the code compliance certificate.
- 7.8 The land information memorandum relating to this house should also be amended in line with the above. For the purpose of this Determination I am of the opinion that "practical completion" of the building is achieved when the building is ready for occupation.
- 7.8 Following this amendment, any code compliance certificate subsequently issued by the territorial authority should be issued in line with the amended building consent.
- 7.9 With regard to the owner's request that the Department define the actual work that is required to be carried out to rectify the cladding, I regret that the Department can only determine the code compliance or otherwise of building elements. It cannot therefore, describe how any non-compliant items are to be effectively repaired. The process set down in paragraph 8.4 should be followed, whereby the owner engages an appropriate consultant to assist in presenting a schedule of the proposed rectification and discusses these solutions with the territorial authority to agree the appropriate measures to be undertaken. The report prepared by the Department's expert should provide a good basis for the owner to commence the remediation process.

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 building does not comply with clause E2 of the Building Code. There are also a number of items to be remedied to ensure that it remains weathertight and thus meet the durability requirement of the code. Consequently, I find that the building 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 6.3.1 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.
- 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 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.
- 8.4 I would suggest that the parties adopt the following process to meet the requirements of paragraph 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 a suitably qualified and competent person, 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.
- 8.5 If the territorial authority has durability concerns about certain elements in the house, then it should amend the original consent to incorporate a waiver of clause B2 of the Building Code. This amendment should be to the effect that the required durability periods for the elements in question are to be measured from the date of the practical completion of the building and not from the date of the issue of a code compliance certificate.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 22 December 2005.

John Gardiner
Determinations Manager