

Determination 2005/150

Refusal of a code compliance certificate for a house with a “monolithic” cladding system at 35A Kurahaupo Street, Orakei, Auckland – House 124

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 Rice Family Trust, acting through a firm of lawyers, (“the owners”). The other parties are the Auckland City Council (“the territorial authority”) and David and Linda Mee (“the previous owners”). The application arises from the refusal by the territorial authority to issue a code compliance certificate for 7-year-old house unless changes are made to its monolithic cladding system.
- 1.2 The question to be determined is whether I am satisfied on reasonable grounds that the monolithic wall cladding as installed to the timber-framed external walls 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 . . .”

- 1.4 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.
- 1.5 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.
- 1.6 In making my decision, I have not considered any other aspects of the Act or the Building Code.

2 Procedure

2.1 The building

- 2.1.1 The building is a two-storey split-level house situated on a sloping exposed site. The house is of a relatively simple shape on plan with the pitched roofs at various levels having hip and wall-to-roof junctions. The eaves and verges have 450mm wide projections. A small open balcony is constructed adjacent to the master bedroom at the first-floor level and this is constructed over the garage. A larger open balcony is situated outside the lounge/dining room and is supported on timber beams and metal posts. Each balcony has timber-framed balustrades. A set of steps and a landing are constructed adjacent to the main entry, and the house roof is extended over these. The larger balcony and entry roof extension provide additional protection to the cladding.
- 2.1.2 The owners produced an invoice from the timber supplier dated 12 March 1998 endorsed with a handwritten note indicating that timber that could have been used as external wall framing was Boric treated. Based on his observations, the expert commissioned by the Department (“the expert”) is of the opinion that the external wall framing is likely to be Boron treated. Accordingly, I accept that this is likely to be the case.
- 2.1.3 The timber-framed external walls of the house that are the subject of this determination are clad with a system that is described as monolithic cladding. In this instance it incorporates 40mm thick “Strongwall” polystyrene backing-sheets fixed through the building wrap directly to the framing timbers. The sheets are finished with a “Strongwall P 50” Portland cement based plaster system reinforced with a fibreglass mesh, followed by a final acrylic paint system. A BRANZ appraisal was issued for the “Strongwall” system in 1994 and subsequently withdrawn by the manufacturer late in 1995. I note that the cladding was installed in 1998.

2.2 Sequence of events

- 2.2.1 The territorial authority issued a building consent in January 1998. The territorial authority noted on the consented plans that inspections were required, including some that related to the cladding.

- 2.2.2 The territorial authority carried out various inspections during the construction of the house. A final inspection on 29 July 2002 failed the building, and a “Site Meeting Check List” produced by the territorial authority on 8 August 2002 noted a pass rating.
- 2.2.3 On 10 September 2002, the territorial authority wrote to the owners requesting copies of an “Advice of Completion Form”, together with three engineers and surveyors’ certificates.
- 2.2.4 On 15 September 2003, the territorial authority wrote to the owners noting that an inspection of the building took place on 8 August 2002 and that a code compliance certificate would be issued upon receipt of the documentation listed in the territorial authority’s letter of 10 September 2002.
- 2.2.5 The territorial authority wrote again to the owners on 26 April 2004, noting that it had not received copies of the three certificates that it had previously requested. The territorial authority stated that once these were received, a code compliance certificate would be processed.
- 2.2.6 The territorial authority carried out a further site inspection on 29 June 2004. In a letter to the owners dated 14 July 2004, the territorial authority regretted that the building might not comply with the Building Code in a number of respects. The territorial authority attached a Notice to Rectify dated 13 July 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);
 3. Items not installed per accepted trade practice; and
 4. Ventilated cavity system.
- 2.2.7 The Particulars of Contravention also said that the owners was 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 alternate approved system, and ensuring all issues relating to the above are resolved.
- 2.2.8 The owners made an application for a determination on 22 November 2004. However, I note that Form D1 submitted by the owners is dated 22 December 2005 and accept that this is a typographical error.

3 The submissions

3.1 The owners forwarded copies of:

- the Notice to Rectify
- correspondence with the territorial authority
- a report dated 1 November 2004 from a firm of building consultants. It addressed the issues raised by the territorial authority in its Notice to Rectify. The report queried the overall accuracy of the Notice, and noted that the territorial authority had not produced any evidence of water penetration into the building. While there were issues arising from the installation of the cladding, they did not in themselves indicate a failure to comply with E2.2. In accepting the cladding at the consent stage, the territorial authority had been satisfied at that time that it was acceptable as an alternative solution. While there was no evidence of water entry, the consultants accepted that repairs should be undertaken, with the aim of preventing further remedial work
- an addendum to the building consultants' report dated 28 February 2005, which described the cladding and its warranty, the timber framing treatment the construction timeline, and the personnel involved in the construction of the house. This addendum had additional documentation attached that related to the items raised by the consultants, including the invoice from the timber supplier.

3.2 In a covering letter to the Authority dated 30 March 2005, the territorial authority described the Particulars of Contravention and the specific construction defects.

3.3 The territorial authority also forwarded copies of:

- the plans
- some consent and inspection documentation
- the Notice to Rectify
- correspondence with the owners.

3.4 Copies of the submissions and other evidence were provided to each of the parties.

3.5 The previous owners of the house, who are also parties to this dispute, were also issued with a copy of the draft determination. They responded to the draft determination by fax on 14 October 2005. In that fax, the previous owners:

- noted that the moisture readings taken by the Department's expert were taken at the height of winter
- requested clarification of the Department's moisture criteria
- noted that the areas that did not comply with the requirements of the Building Code were quite specific, and that those areas could be satisfactorily addressed

- disagreed with the requirement to insert control joints and the retrospective application of new standards in this respect
- noted that the risk factors set out in the draft determination were not significant due to the design and risk rating of the house
- requested that the final determination is not issued until a more thorough investigation is carried out to establish the extent of the remedial work required to make the house code compliant.

4 The relevant provisions of the Building Code

- 4.1 The dispute to be determined 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 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 about Acceptable Solutions and alternative solutions, which in my view remain valid in this case.
- 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; 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 expert inspected the building on 4 July 2005 and furnished a report that was completed on 13 July 2005. It noted that the coating system appears to be adequately applied and has only minor cracking, despite the absence of obvious control jointing. However, there were some deficient workmanship items. The expert removed the cladding to investigate the exterior joinery unit flashing details at two locations. Two other areas of cladding were also cut away to expose the timber framing. I accept that the details exposed by these inspections represent similar locations throughout this building. The expert also made the following comments regarding the cladding.
- There are cracks in the plaster at some locations.

- There is untidy plaster work where it adjoins the external joinery frames.
- There is no evidence of control jointing in the cladding, which is contrary to the BRANZ appraisal requirements.
- The base of the cladding is too close to the ground adjacent to the garage, and is covered by stones or soil at two other locations.
- The head flashings to the external joinery units are cut flush with the window jambs, there are no jamb flashings, and no sill-flashing stop ends are installed.
- There are no falls provided to the windowsill reveals.
- There is an area of untrimmed plastic protective wrap at the garage roof and cladding junction.
- No head flashing has been installed over the meter box.
- Some penetrations through the cladding are inadequately sealed.
- With regard to the balconies and entry porch:
 - The house and balustrade cladding is in contact with the tiled surfaces.
 - The tops of the balcony balustrades lack cross-falls and the top of the lounge/dining room balcony balustrade is uneven.
 - The cement grouting around the tile perimeters is cracking and no control jointing has been installed.
 - There is insufficient threshold clearance between the lounge/dining room deck and the interior floor level.
 - The balcony balustrade handrail foot brackets are fixed directly through the tops of the balustrades and are rusting.
 - Ponding is occurring at one end of the lounge/dining room deck channel and overflows are not installed in either balcony.

5.2 The expert took non-invasive readings at the interior linings of the exterior walls and did not detect any significantly high moisture meter readings. Further invasive readings were then taken around the exterior of the cladding and the following readings over 18% were recorded.

- At the north elevation, readings of 19%, 23%, 32% (at two locations), and 40+% (at two locations).
- At the south elevation, readings of 19%, 20% (at three locations), 24%, 26%, and 40+%.

- At the east elevation, readings of 20%, 21% (at two locations), 22% (at two locations), 30%, and 40+% (at five locations).
- At the west elevation, readings of 19% (at two locations), 22%, 23%, 26%, 32%, and 40+% (at two locations).

5.3 Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure. The expert also noted that there were locations revealed by the destructive testing where the framing is wet and is decaying.

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

6 The hearing

6.1 General

6.1.1 The owners requested a hearing be held to dispute the draft determination. The hearing was held before a tribunal consisting of the Determinations Manager, and one Referee acting for and on behalf of the Chief Executive by delegated authority under section 187(2) of the Building Act 2004. At the hearing, Mr and Mrs Rice were present, together with a building consultant ("the consultant") and a legal representative. The territorial authority was represented by two of its officers. Four staff members of the Department attended. Both the owners and the territorial authority spoke and called evidence at the hearing. Evidence given by those present enabled me to amplify or correct various matters of fact that were not adequately identified in the draft determination.

6.2 The owners comments

6.2.1 The owners legal representative referred to section 17 of the Act and suggested that the Department must instruct the territorial authority what is to be done to put the cladding right. The consultant was of the opinion that previous determinations had followed this line of reasoning. The consultant then presented the owners case. He suggested that by taking into account the treatment of the timber framing, the moisture readings recorded by the Department's expert could be adjusted down. This would reduce the number of high readings by taking down the 21% factors down to 18%. There would then be around 16 elevated moisture readings associated with the decks and windows.

6.2.2 The consultant accepted that the deck posed problems and needed rebuilding and that the windows would require further inspection. The installation of a cut-off drain could alleviate the moisture problem at the west elevation.

6.2.3 The consultant did not accept that there was a systemic failure regarding the cladding as the moisture ingress could be related to specific areas and the house had a low level of problems. It would be a case of going back to targeted areas.

6.2.4 The legal representative was of the opinion that the Department should make a clear ruling as to what has to be done to have a code compliance certificate issued. This was

also the opinion of the owners who had difficulty in understanding what the Notice to Rectify really meant.

6.3 The territorial authorities comments

- 6.3.1 The territorial authority stated that the Department had verified the house does not comply with the Building Code. As such, the territorial authority required direction from the Department on the scope of work required to resolve the weathertightness problems.
- 6.3.2 The territorial authority will re-inspect the property and then issue a new notice to fix. I hope that some agreement can be reached as to rectification and the consultant's report could form a basis for this.
- 6.3.3 The territorial authority noted that the Building Code had not changed in regard to clause E2 and that it will work in accordance with the best current knowledge. A cavity may not be required, as the territorial authority was prepared to consider alternatives.
- 6.3.4 The territorial authority was prepared to extend the time limit it had placed on the new notice to fix.
- 6.3.5 Mitigating factors that could be considered when deciding the extent of remediation work required could be in the form of drainage or the installation of probes to determine the future integrity of the cladding.

7 Discussion

7.1 General

- 7.1.1 I have considered the submissions of the parties, the expert's report, the submissions made at the hearing, 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 considered these comments in this determination.

7.2 Weathertightness risk

- 7.2.1 In relation to the weathertightness characteristics, I find that the house:
- is on an exposed site
 - has 450mm wide eaves and verge projections, an external upper balcony, and a roof over the entry that help to protect the cladding

- is two storeys high
- is of a fairly simple shape on plan, with roofs having hip and roof-to-wall junctions
- has two high-level balconies, one of which is constructed over a garage space
- has external wall and balustrade framing that is likely to be treated to a level that would help to prevent decay if it absorbs and retains moisture.

7.3 Weathertightness performance

7.3.1 I note that two elevations of the house demonstrate a low weathertightness risk rating and two elevations a medium 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 constructed is assessed for the purposes of issuing a code compliance certificate.

7.3.2 These points are relevant as I find that aspects of the monolithic cladding do not appear to have been installed according to good trade practice or the manufacturers requirements. In particular, it demonstrates the key defects listed in paragraph 5.1. I have also identified the presence of a range of known weathertightness risk factors in this design. The presence of the risk factors on their own is not necessarily a concern, but they have to be considered in combination with the significant faults identified in the cladding system. It is that combination of risk factors and faults that indicate that the structure does not have sufficient provisions that would compensate for the lack of a drained and ventilated cavity. As a result, the identified defects in the expert's report, have contributed to the moisture penetration already evident in a number of locations in the external walls and balustrade of the house.

7.4 Response to the request for a ruling

7.4.1 I note that part of the owners' submission was that the Department should specify the work to be carried out to enable a code compliance certificate to be issued. I need to point out that the building defects listed in paragraph 5.1 are quite specific to particular building features that have not been satisfactorily installed and to the inadequacies of each. Careful study of paragraph 5.1 should provide considerable guidance as to the way forward. For example, two key problem areas are the windows and the balconies. But the extent of and methods of carrying out the work will only become apparent after further investigation and when repairs are under way. The same applies to control joints that were omitted.

7.4.2 Our investigation is intended primarily to obtain information as whether the building is code compliant and not to provide a schedule of work required to achieve that. Although we attempt to provide as much guidance as possible to home owners as to the nature of the work required to achieve code compliance, such guidance is only an

adjunct to a determination and we are seldom in possession of sufficient information to make a ruling on what specific work is required to achieve compliance.

- 7.4.3 In addition, I also note that the Building Industry Authority in Determination 1997/4 took the view that it was not for it to decide how a building was to be brought into compliance with the Building Code. I concur with that view and this is reflected in my decision.

8 Conclusion

- 8.1 I am satisfied that the current performance of the cladding is inadequate because it has not been installed according to good trade practice and is allowing water penetration into the wall and balustrade framing at a number of locations at present. Consequently, I am not satisfied that the cladding system as installed complies with clause E2 of the Building Code.
- 8.2 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 this building are allowing the ingress of moisture at present, and there is no effective cavity behind the cladding, the house does not comply with the durability requirements of clause B2.
- 8.3 I find that because of the extent and apparent complexity of the faults that have been identified with this cladding, I am unable to conclude that remediation of the identified faults, as opposed to partial or full re-cladding, could result in compliance with clause E2 based on the information I have seen. I consider that final decisions on whether code compliance can be achieved by either remediation or re-cladding, or a combination of both, can only be made after a more thorough investigation of the cladding. This will require a careful analysis by an appropriately qualified expert. Once that decision is made, the chosen remedial option should be submitted to the territorial authority for its comment and approval.
- 8.4 If the territorial authority chooses to reject the proposal, then the owners is entitled to seek a further determination on whether the proposed remedial work will comply with the requirements of clauses E2 and B2.
- 8.5 I have also noted the concerns of the previous owners and comment as follows:
- a) The moisture reading of 24% that the previous owners made reference to is the maximum reading permitted by the Standard NZS 3603 at the time of enclosure of the cladding by interior wall linings. In-service “moisture” readings should be lower, because the framing timber in a sound building will dry out after the building is completed. In any case, the readings in question are, for the most part, at the high end of the moisture scale and are also associated with timber that has been damaged by moisture ingress. In addition, there is a degree of uncertainty as to the actual treatment used for the external wall framing, which provides a measure of the timber resistance to decay arising from moisture

ingress. The readings also relate to the effective sealing of the windows, which may be deficient throughout the whole building.

- b) In regard to the control joints, while there is no evidence of major cracking at this time, the cladding will have to meet the requirements of the Building Code for a further 8 years. Accordingly, the requirement for control joints is a matter for consideration by the territorial authority.
- c) Finally, the risk factors regarding the design of the house have already been taken into account in my final decision.

8.6 I note that, once the building has been made compliant with the Building Code, 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 owners. The Building 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.

8.7 Under these circumstances, I decline to incorporate any waiver or modification of the Building Code in this determination.

9 The decision

9.1 In accordance with section 20 of the Building Act 1991, I hereby determine that the monolithic cladding system as installed does not comply with clauses B2 and E2 of the Building Code, and accordingly confirm the territorial authority’s decision to refuse to issue a code compliance certificate.

9.2 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 owners to bring the house into compliance with the Building Code. The Building Industry Authority had 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.

9.3 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 5.1 are to be remedied. That is for the owners to propose and the territorial authority to accept or reject.

9.4 I would suggest that the parties adopt the following process to meet the requirements of paragraph 8.2. Initially, the territorial authority should issue the notice to fix, listing all the items that the territorial authority considers to be non-compliant. The owners 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.

- 9.5 Finally, I consider that the cladding will require ongoing maintenance to ensure its continuing code compliance.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 16 November 2005.

John Gardiner
Determinations Manager