Determination 2005/161

Refusal of a code compliance certificate for a house with a "monolithic" cladding system at 86 Island View Drive, Gulf Harbour – House 131

1 The dispute to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004 ("the Act") made under due authorisation by me, John Gardiner, Determinations Manager, Department of Building and Housing, for and on behalf of the Chief Executive of that Department. The applicant is the owner, the Jeremy Massingham Family Trust ("the owner"), and the other party is the Rodney District Council ("the territorial authority"). The application arises because the territorial authority declines to issue a code compliance certificate for a 2-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 and columns of the house ("the cladding"), complies with the Building Code (see sections 177 and 188 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 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 work consists of a detached two-storey house, incorporating a double garage, situated on a flat site that is in a high wind zone in terms of NZS 3604: 1999 "Timber framed buildings". The building is of a relatively simple shape on plan, with a pitched hip roof at one main level. The eaves projections are generally 450mm

wide, plus a 130mm wide gutter. The exterior walls are of conventional light-timber frame construction built on concrete block work foundation walls or intermediate timber-framed floors and are sheathed with monolithic cladding.

2.1.2 There are three decks, two in the east and one in the west elevations. The latter is partly constructed over habitable space. While the deck on the west elevation is partly sheltered by the overhanging roof, the others are completely sheltered. There is a mix of monolithic-clad timber-framed and metal railing balustrades. Full-height chimneys are built against the north and south walls.

2.1.3 The specification calls for the wall framing to be H1 treated. The owner has produced invoices from the timber supplier showing that the external wall framing is H1 LOSP treated, with the exception of the bottom plates, which are H3 LOSP treated.

2.1.4 The cladding system to the exterior walls is what is described as "monolithic" cladding. The cladding system is a 60mm thick "Insulclad" polystyrene system, fixed over 50mm x 20mm polystyrene battens over the building wrap, to form a cavity. It is finished with an "Ezytex" sponge system.

2.1.5 The cladding installer provided a producer statement for the "Insulclad" cladding system dated 20 November 2004, a 15-year "Insulclad" "Materials Components Guarantee" and a 5-year "Insulclad" "Workmanship Guarantee", dated 22 November 2004. They covered the cladding for a period of 15 years from the date of completion. The guarantees specifically excluded consequential damage to any building component arising from the use of untreated framing.

2.2 Sequence of events

2.2.1 The territorial authority issued a building consent on 14 April 2003, based on a certificate issued by Approved Building Certifiers Ltd ("the building certifier").

2.2.2 The building certifier carried out various inspections during the construction of the house. On 20 September 2004, an application was made to amend the building consent. It noted that the building certifier was no longer able to act and that the territorial authority was required to make any further necessary inspections. Certificates relating to the construction review for footings, floor slabs and exterior cladding were attached.

2.2.3 The territorial authority carried out further inspections of the house. Its inspection records show that on 28 August 2003, the territorial authority noted that as 80% of the plastering had been completed prior to its first inspection, it was unable to fully inspect most of the components making up the cladding system. The builder was advised that if he proceeded to complete the work, it was at his own risk. Following a final inspection carried out on 2 December 2004, the territorial authority noted that:

> Cladding looks good, ground levels in relation to the cladding OK, all penetrations appear sealed, although can't confirm light fittings… balcony barriers screwed through top of barrier high risk envelope.

2.2.4 Following a further inspection of the property on 15 March 2005, the territorial authority issued a notice to fix dated 12 April 2005. This notice identified the cladding and stated that the territorial authority was not satisfied the house met the requirements of E2.2, E2.3.2, B2.2 and B2.3.1 of the Building Code. The territorial authority also listed a schedule of the work that it required to be carried out to rectify the issues it had raised.

2.2.5 The territorial authority arranged for a consultant to inspect the house. The inspection was undertaken and a report was issued to the territorial authority. The report went into detail on the construction of the house. The consultant's main concerns related to the window installation, ground clearances, the ends of the apron flashings, the fascias, and the grab rail fixings. In the consultant's opinion, the design of the house, the exposed site, and the timber treatment meant that quite exceptional standards of workmanship were needed if compliance with the Building Code was to be achieved. There was no evidence that moisture was entering the building.

2.2.6 In a letter to the territorial authority dated 1 March 2005 , the building consultant summarised his findings. Laboratory tests carried out on a sample of timber from the deck balustrade showed that it was H3 treated. In the consultant's opinion the windows are not installed according to the system details current at the time, which had not been subject to a BRANZ Appraisal. The consultant concluded that in his view the territorial authority would be exposed to significant risk if it issued a code compliance certificate without requiring the joinery to be taken out and reinstalled.

2.2.7 In a letter to the owner dated 14 April 2004 (which apparently should have been dated 14 April 2005), the plaster system proprietor noted that the BRANZ appraisal referred to by the Department's expert (see paragraph 5.1) was not issued at the time the building was constructed. Likewise, the introduction of the sill tape system and the moving out of the joinery were introduced to the instructions for the cladding system after the completion of the building. The company agreed that air sealing should have been installed. The company also questioned the scope of the building certifier as to the inspection of the cladding. It believed that the remaining issues were minor and could be easily rectified.

2.2.8 The owner made an application for a determination on 19 April 2005.

3 The submissions

3.1 The owner forwarded copies of the:

- plans and specification
- consent and amendment to consent documentation
- timber supplier's invoices
- relevant manufacturers and subcontractor's correspondence and information.

3.2 In a covering letter to the Department dated 20 April 2005, the territorial authority noted that the cladding was 80% complete prior to the territorial authority's first inspection of the property. The territorial authority now accepted that the external wall framing is H1.1 treated with the exception of the bottom plates, which are H3.1 treated. The territorial authority's main concerns were:

No air seals around joinery

No "Protecto sill system"

Penetrations through balustrade tops

No foam rod/MS sealant at top of soffits

3.3 The territorial authority considered these matters critical to a building in a high-risk location. The territorial authority also noted that a notice to fix had yet to be issued in relation to the swimming pool, fencing and pool access doors. None of these are matters for this determination.

3.4 The territorial authority also forwarded copies of:

- some inspection documentation
- the notice to fix
- the report and covering letter from the building surveyor.

3.5 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.

3.6 On 11 October 2005 I sent a draft determination to the parties, based on the information available to me at that time.

3.7 The owner did raise some issues regarding the draft determination in a letter to the Department dated 13 October 2005. The owner was concerned that the territorial authority could still raise further issues of non-compliance. The owner considered that the windows had an effective air seal and as the territorial authority had not observed this matter during its inspections, the territorial authority was in breach of its "duty of care" in this respect. The owner was also of the opinion that the balustrade fixings are adequately sealed.

4 The relevant provisions of the Building Code

4.1 The matter 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 monolithic cladding complied with clauses B2 and E2 of the Building Code (First Schedule, Building Regulations 1992) is correct.

4.2 There are a number of Acceptable Solutions included in E2/AS1 approved under section 49 of the Building Act 1991, and subsequently under section 22 of the Building Act 2004, that apply to the cladding of a building. These may be adopted for a particular building based on the weathertightness risk levels demonstrated in any particular circumstance. In the case of EIFS cladding, the incorporation of cavities and specific window and door installation details is required in moderate and high-risk applications. As this house demonstrates moderate to high risk when assessed using the risk matrix of E2/AS1, a cavity would be indicated. In this house a cavity has been installed but the window installation details are not as illustrated in E2/AS1. The cladding is not currently certified under section 269 of the Act. Consequently, I am of the opinion that the cladding system as installed must be considered 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 provide a report on the cladding to supplement the report provided by the territorial authority. The expert was to establish if any leaks had developed since the initial inspection and provide more information on the installation of the windows. The expert inspected the cladding of the building on 17-18 August 2005 and furnished a report that was completed on 18 August 2005.

5.2 Using non-invasive testing and invasive testing at specific locations the expert verified that the house continues to remain leak free with no raised moisture readings.

5.3 The expert confirmed the standard Insulclad corner soaker, jamb and sill flashings well sealed with silicone sealant, were installed but air seals were missing and the full extent of the building wrap over the framing could not be confirmed.

5.4 The expert provided some history of the cladding system specification changes as several took place during the time of construction and there was some doubt as to whether the sill details were installed to the manufacturer's then current requirement. While there appears to some doubt over the requirement for sill flashings one requirement, which was consistent was for the installation of air seals.

5.5 The territorial authority provided a copy of the inspection report by the consultant it had appointed which noted several items requiring attention, in addition to those mentioned in paragraph 5.3, were noted therein.

- There are two small areas of cracking.
- The balustrade railings are fixed through the top of the balustrade with inadequate seals.
- Cladding clearances to the ground are adequate, however the clearance by the garden at the front door is likely to be a problem.
- There are gaps under the apron flashing ends, which could permit water ingress.
- Fascia boards are partially buried in the plaster in some places.

5.6 A copy of the expert's report was provided to each of the parties.

5.7 The territorial authority replied and expressed the view that irrespective of the particular supplier's specification at the time of construction, if Protecto tape was currently required to meet the performance requirements of the Building Code then the determination should require its use. The territorial authority commented that in its view the performance requirements of the Building Code do not change with manufacturer's changing specifications.

5.8 The owner did not comment on the report.

5.9 The proprietors of the cladding system, Plaster Systems Ltd, to whom the owner had referred the report, forwarded a further copy of its letter to the owner dated 14 April 2004 (see paragraph 2.2.7) and reminded the Department that appropriate guarantees had been issued.

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 considered these comments in this determination.

6.2 Weathertightness risk

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

- has generally 580 mm wide combined eaves and gutter projections, plus areas where the roof overhangs one balcony and areas around the front and rear entrances offering protection to the walls below them
- is in a high wind zone
- is maximum of two storeys high
- is of a relatively straightforward shape on plan
- has a two upper floor balconies that are constructed over habitable spaces
- has framing to the balustrades treated to H3 that is effective in helping prevent decay if it absorbs and retains moisture in the area of the balconies or leaks through the grab rail fixings
- has external wall framing treated to H1, which will have no resistance to decay if it becomes wet and retains moisture.

6.3 Weathertightness performance

6.3.1 Generally, the cladding appears to have been installed according to good trade practice and has been effective in excluding moisture for two years, but some details are not well constructed. These areas are described in paragraph 5.3 and 5.5, and in the expert's report, as being the:

- lack of air seals around the windows
- inadequate sealing to balustrade grab rails
- inadequate cladding to ground clearance adjacent to the front door
- gaps in the plaster below the kick-outs to the roof wall junctions
- fascia boards being buried in the plaster
- gap that had opened up between the soffit and the top of the wall cladding.

6.3.2 I have noted certain 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 580mm wide combined eaves and gutters and some additional roof projections that provide a degree of protection to the cladding areas below them.

- The cladding has been installed over a full drainage and ventilation cavity and can assist the house to comply with the weathertightness and durability provisions of the Building Code.

6.3.3 I note that three elevations of the building demonstrate a moderate weathertightness risk rating and the remaining elevation 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.

6.3.4 In response to the owner's letter of 13 October 2005 regarding the draft determination, I comment as follows:

1. Because our expert was not able to do very much invasive investigation of the house there is the possibility that there may be some defects the expert did not discover, but which will become evident during rectification of the listed defects. For that reason I included the words "subject to any further investigation...."

2. The matter for determination (ie the matter in dispute) when the application was made was whether the building complied with the Building Code and should it receive a code compliance certificate. It has now been determined that the house is currently not compliant. The determination goes on to suggest that the house could be made compliant and how that could be achieved in collaboration with the territorial authority. Only if that is not possible, because the territorial authority is still not satisfied that the building complies, will the owner need to consider applying for another determination. That will be because in effect another dispute has arisen.

3. The Building Act 2004 prescribes the determination process as being concerned with matters of dispute between parties but not with matters of liability. The owner should seek his own independent legal advice on matters of liability.

4. The following matters raised by the owner can in my view only be determined as to compliance following further on site investigation, and discussion with the territorial authority:

   a) Air seals around the windows

   b) Grab rail fixings.

5. This is because there is insufficient information before me to decide the matter at this time.

7 Conclusion

7.1 I am satisfied that the current performance of the monolithic cladding on the house is effective because it is preventing water penetration. Consequently, I am 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 monolithic cladding faults on the building could possibly 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 Subject to further investigations that may identify other faults, I consider that, because the faults that have been identified with this cladding by the expert occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraphs 6.3.1 is likely to result in the building continuing to be 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 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. As the external wall framing is not treated, periodic checking of its moisture content should be carried out as part of normal maintenance.

7.5 I emphasise that each determination is conducted on a case-by-case basis. 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 188 of the Act, I hereby determine that the cladding system as installed on the building complies 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 Building Code. Consequently, I find that the external walls of the house do 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 paragraphs 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 issued a notice to fix for the house requiring certain items of work. Under the Act, a notice to fix can require the owner to bring the building 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. 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 paragraphs 6.3.1 are to be remedied. That is for the owner to propose and 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 non-compliant. The owner should then produce a response to this in the form of a technically robust proposal, produced in conjunction with a competent and suitably qualified 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 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 6 December 2005.

John Gardiner
Determinations Manager