

Determination 2005/129

Refusal of a code compliance certificate for a building with a “monolithic” cladding system at 51 West Street, Pukekohe – House 110

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 applicants are the owners, Wharfe Bros Holdings (referred to throughout this determination as the “owner”), and the other party is the Franklin District 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 three 3-year-old units, unless changes are made to their 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 some of the timber framed external walls of all three units (“the cladding”), complies with the building code (see sections 177 and 188 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 In making my decision, I have not considered any other aspects of the Building Act or the building code.

2 PROCEDURE

The building

- 2.1 The building work comprises three units situated on a level site in a low wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. Unit 1 is a stand-alone single-storey unit and units 2 and 3 are conjoined single-storey units, with unit 3 being an extension of an existing dwelling. All three units are of conventional light timber frame construction on a concrete ground floor slab.
- 2.2 The majority of the external walls of all three units are faced with a full-height brick veneer. Unit 1 has two separate external wall areas that are monolithic-clad and units 2 and 3 have monolithic-cladding to one external main wall and the unit separation wall. There are no eaves projections over the monolithic-clad walls of Unit 1 but there is a 600mm wide eaves projection over the monolithic-clad walls of units 2 and 3.
- 2.3 Apart from the builder’s recollection, I have not received any written evidence as to the treatment, if any, applied to the external wall framing.
- 2.4 The cladding system that is the subject of this determination is what is described as monolithic cladding and consists of 7.5 mm thick “Hardiflex” fibre-cement backing sheets fixed directly to the framing over the building wrap, to which a sprayed textured plaster system has been applied. The plaster is finished with a paint coating system. The front of the PVC jointers have been cut away to provide a flush surface for the sprayed finish.

Sequence of events

- 2.5 The territorial authority issued a building consent on 13 September 2001.
- 2.6 The territorial authority carried out various inspections throughout the construction of the units and passed the pre-line building inspection on 9 August 2002. Three final inspections that were undertaken by the territorial authority on 17 and 24 January 2003 and 9 September 2003 did not result in the units being passed as compliant.
- 2.7 The territorial authority issued an interim Notice to Rectify on 17 January 2003. This included items relating to the cladding of all three units as regards the sealing of cladding penetrations and the ground levels.
- 2.8 A further final inspection took place on 19 February 2004. The territorial authority wrote to the owner on 20 February 2004, stating that the February final inspection identified that the monolithic cladding applied to the units lacked a drainage cavity system. The territorial authority noted that, despite the original consent approval, recent information had indicated that monolithic cladding without a cavity may not meet the appropriate clauses of the building code.
- 2.9 The territorial authority did not issue a final Notice to Rectify as required by section 43(6) of the Act.

2.10 The Department received the owner's application for a determination on 21 April 2005.

3 THE SUBMISSIONS

3.1 In a covering letter to the Department dated 18 April 2005, the owner queried why the territorial authority had left its decision for so long, as the territorial authority had carried out a final inspection on 9 September 2003.

3.2 The owner provided copies of:

- the building plans and specifications
- some building consent and territorial authority inspection documentation
- a page of inspection details from the territorial authority
- the territorial authority's letter to the owner dated 20 February 2004
- the interim Notice to Rectify.

3.3 The territorial authority provided copies of:

- some inspection documentation
- the territorial authority's letter to the owner dated 20 February 2004.

3.4 The builder wrote to the Department describing the construction and inspection processes that had been undertaken for the project. The builder also described the monolithic cladding that had been installed and noted that, as requested by the owners, the face of the PVC jointers had been removed and the joints subsequently stopped to provide a uniform cladding appearance. The builder was of the opinion that the exterior timber frames are treated but had been unable to obtain further confirmation of this.

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.

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 22 of the Act or section 49 of the Building Act 1991 that cover this cladding. The cladding is not certified under section 269 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 units on 8 July 2005 and furnished a report that was completed on 22 July 2005. It stated that despite some minor cracking, the cladding appears to be well installed and aligned. The texturing and the paintwork appear sound and evenly applied, with no evidence of chalking, flaking, or staining. The expert was of the opinion that the internal junctions between the cladding and the brick veneer present little risk of water entry. The expert removed the plaster at the sill of one window and found that no sill flashings had been installed. I accept that the details exposed by this inspection are representative of other similar locations throughout the building. The report made the following specific comments on the cladding:
- there is minor cracking in the cladding to all three units at some locations
 - the windows of all three units lack sill flashings and sill upstands
 - a bead of silicon sealant was applied behind the over lapping jamb extrusion
 - that as the cladding joints have been plastered over, the wall to units 2 and 3 lacks the vertical control joints that are recommended by the manufacturer at 5.4m centres.
- 5.2 The expert carried out a series of moisture tests to the interior of the units using a non-invasive meter and no evidence of external water leakage was found. A further 9 invasive readings were then taken through the exterior of the cladding. The following invasive readings over 18% were recorded:
- 19.2%, 19.7%, and 23.2% at the west elevation of unit 1
 - 19.7% at the east elevation of unit 2.

No elevated readings were recorded for unit 3. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.

5.3 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 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.

Weathertightness risk

6.2 In relation to the weathertightness characteristics, I find that the units:

- are in a low wind zone
- are single storey
- are of a fairly simple shape on plan with the roof having hip and valley junctions
- have no decks or balconies
- have external wall framing that is not likely to be treated to a level that would help prevent decay if it absorbs and retains moisture
- have 600mm eaves projections to units 2 and 3, which provide excellent protection to the cladding areas below them. However unit 1 has no such projections.

Weathertightness performance

6.3 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 5.1, and in the expert's report, as being:

- the minor cracking in the cladding to all three units at some locations
- the lack of sill flashings and sill upstands to the windows of all three units

- inadequate sealing (or lack of flashings) of window jambs.
- the lack of vertical control joints to the cladding of units 2 and 3.

6.4 Notwithstanding the fact that the backing sheets are fixed directly to the timber framing, thus inhibiting drainage and ventilation behind the cladding sheets, I find that there are compensating factors that assist the performance of the monolithic cladding in this particular case:

- the cladding appears to have been installed according to good trade practice
- the units are single-storey and are situated in a low wind zone
- the units have no decks or balconies
- there are 600mm eaves projections above the cladding of units 2 and 3.

I find that these factors help compensate for the lack of a drainage and ventilation cavity and can assist the units to comply with the weathertightness and durability provisions of the building code.

6.5 The builder has provided information that shows that the faces of the PVC jointers have been removed and the joints at these locations have been stopped. I recommend that these joints be reviewed on site to ensure their ongoing effectiveness.

6.6 I note that all elevations of the three units 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 units 1 and 2 is not adequate because it is allowing water penetration into the buildings at some locations, which could affect the cladding. Consequently, I am not satisfied that the cladding system as installed on units 1 and 2 complies with clause E2 of the building code.

7.2 In addition, the buildings are 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 a building to remain weathertight. Because the monolithic cladding faults on the units have already allowed the ingress of water, or will allow the ingress of moisture in the future, none of the units comply with the durability requirements of clause B2 of the building code.

- 7.3 Subject to further investigations during the remediation process 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 can conclude that satisfactory rectification of the items outlined in paragraph 6.3 is likely to result in the building being weathertight and in compliance with clauses B2 and E2.
- 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 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 monolithic cladding system as installed on units 1 and 2 does not comply with clause E2 of the building code. There are also a number of items to be remedied to ensure that all the buildings remain weathertight and thus meet the durability requirement of the code. Consequently, I find that none of the units 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 all three units being weathertight and in compliance with clauses B2 and E2.
- 8.3 I note that the territorial authority has not issued a final Notice to Rectify. The territorial authority should now issue a notice to fix, and the owner is then obliged to bring the three units up to compliance with the building code. It is not for me to decide directly how the defects are to be remedied and the monolithic 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 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. 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 monolithic 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 5 September 2005.

John Gardiner
Determinations Manager