Determination 2006/26

Refusal of a code compliance certificate for a building with a "monolithic" cladding system at 5 Kendall View, Stoke, Nelson

1. The dispute to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004[1] ("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, Mr and Mrs Downing ("the applicants"), and the other party is the Nelson City Council ("the territorial authority").

1.2 The dispute for determination is whether the territorial authority's decision to decline to issue a code compliance certificate for a 2-year-old house because it was not satisfied that the monolithic cladding complied with clauses B2 "Durability" and E2 "External Moisture" of the Building Code[2] (First Schedule, Building Regulations 1992) is correct.

[1] The Building Act 2004 is available from the Department's website at www.dbh.govt.nz.
[2] The Building Code is available from the Department's website at www.dbh.govt.nz.

1.3 The questions to be determined is whether I am satisfied on reasonable grounds that the wall cladding as installed to the external walls of the building ("the cladding"), complies with the Building Code (see sections 177 and 188 of the Act). By "the wall cladding as installed" I mean the components of the system (such as the backing sheets, the flashings, the joints and the coatings) as well as the way the components have been installed and work together.

1.4 In making my decision, I have considered the submissions of the parties, the report of the independent expert commissioned by the Department to advise on this dispute ("the expert"), and the other evidence in this matter. I have evaluated this information using a framework that I describe more fully in paragraph 6.1. I have not considered any other aspects of the Act or the Building Code.

2. The building

2.1 The building work consists of a single storey detached house situated on a flat site, which is in a medium wind zone in terms of NZS 3604[3]. Construction is conventional light timber frame, with concrete foundations, aluminium windows and monolithic wall cladding to all walls. The house shape is fairly simple, with a 25^{o} profiled metal hip and gable roof. Eaves and verge projections are generally 600mm or greater except for the southeast elevation, which has two sections of wall with gutters only and a recessed length of wall with 500mm eaves.

2.2 A stamp on the consent drawings indicates that the wall framing "MUST be H1 plus DRF (Boron/Losp)", with the bottom plates H3 treated, but the timber invoices provided by the applicants do not support this. Based on this evidence, I consider that the external wall framing is unlikely to be treated.

2.3 The cladding is a monolithic cladding system described as stucco over a solid backing. In this instance it consists of H3 treated timber in the form of 150mm x 25mm diagonal "hit and miss" sarking fixed directly to the framing timbers, and covered by a slip layer of heavy-duty building wrap, metal-reinforced 22 mm thick solid plaster and a flexible multi-coat "Chevaline coverall" coating.

2.4 Equus Weathertight Technology provided an undated "Equus Warranty for Coatings to Solid Plaster" for 10 years from completion of the coating, which was applied by the plasterer, Galbraith Plasterers Ltd as an approved applicator. Shorewood Homes Ltd. ("the builder") provided an undated "Customer Guarantee" of materials and workmanship for 6 years from completion of the building.

3. Sequence of events

3.1 The territorial authority issued a building consent on 31 March 2003, based on a building certificate, dated 21 May 2003, issued by Prime Building Compliance Ltd ("the building certifier") for the purposes of gaining a building consent. The consent drawings were stamped by the building certifier, and I note that these stamps added

[3] New Zealand Standard NZS 3604:1999 Timber Framed Buildings

clarity to the requirement for pre-plaster inspections and external wall timber treatment, with the latter noting that "Wall framing timber MUST be H1 plus DRF (Boron/Losp)" as noted in paragraph 2.2.

3.2 The building certifier carried out all inspections during the course of construction including prior to the application of the stucco plaster on 4 September 2003, which noted "windows flashed correctly – malthoid". It appears that there was no inspection following completion of the plaster.

3.3 On 7 December 2004 the building certifier wrote to the applicants explaining that recent changes to building regulations had limited certifiers' scopes of approval for claddings, and that the house:

> … falls into this category in that the cladding of your dwelling is outside Primes scope, and we can not issue a Code Compliance Certificate. We may however be able to issue a Final Building Certificate once all the outstanding issues have been addressed, and hand back to Nelson City Council for issue of Code Compliance Certificate…

3.4 The building certifier carried out a final inspection on 5 December 2004, which noted that no further inspection was required. The certifier subsequently issued the final building certificate, dated 14 February 2005. The scope of engagement attached to the final building certificate noted an exclusion of "Exterior cladding outside scope of E2/AS1 (Solid Plaster cladding)", and noted that the territorial authority would complete inspections.

3.5 In a letter to the applicants dated 23 February 2005, the territorial authority explained the difficulty of assessing compliance without having undertaken inspections during construction, but also noted that the house was considered to be low risk, and therefore the lack of inspections could be countered by "a suitable report from a BRANZ accredited advisor or a weathertight homes expert."

3.6 The applicants subsequently engaged House Care Ltd. ("the consultant") to review compliance with the Building Code. The consultant collected information on construction of the house, but in a letter to the builder dated 8 June 2005 noted that he was unable to arrange for the base and sill flashings to be exposed for inspection and photographic record which:

> …has prevented me from completing the review for Council… …which has resulted in my termination of this investigation.

3.7 In a letter to the applicants dated 23 June 2005, the territorial authority noted that it was unable to issue a code compliance certificate as the applicants had been unable to provide a suitable report on the exterior cladding from an approved consultant, and went on to explain that:

> There are now two options available to you, either apply to the Nelson City Council for a Certificate of Acceptance or apply to the Department of Building and Housing for a determination.
>
> To obtain a Certificate of Acceptance you would need a very comprehensive report from an approved building consultant and would then never get a Code Compliance Certificate.

3.8 The building certifier's approval as a building certifier expired on 25 November 2005.

3.9 The territorial authority did not issue a notice to fix as required under section 164(2) of the Building Act 2004.

3.10 The applicants' application for a determination was received by the Department on 25 November 2005.

4. The submissions

4.1 In a letter accompanying the application, the applicant noted that:

> The exterior cladding has not got a code of compliance [code compliance certificate] because Prime who were the assessors were not authorised to do the inspections due to a law change. Prime also failed to notify their clients that their authority had changed and so the inspections the Prime were paid to do and done by Prime were invalid. Therefore we have been caught in a situation that needs to be rectified.

4.2 The applicants forwarded copies of:

- some of the building plans and consent documentation
- some of the inspection records
- the final building certificate
- the letter from the building certifier
- the correspondence with the territorial authority
- various invoices, warranties, producer statements and other statements.

4.3 The territorial authority made a submission in the form of a letter dated 14 December 2005, which explained that an overview of the condition of the cladding by an independent consultant was required before considering the issue of a code compliance certificate. The territorial authority noted that:

> The solid plasterer has a good reputation in Nelson but this refusal by the builder to expose a flashing has made it impossible for the consultant to provide a report.

4.4 Copies of the submissions and other evidence were provided to each of the parties. Neither party made any further submissions in response to the submission of the other party.

5. The expert's report

5.1 The expert inspected the claddings of the building on 13 and 14 February 2006, and furnished a report that was completed on 15 February 2006. The expert noted that "workmanship is generally of a good standard", with the paint coating sound and the stucco in an "even plane with a consistent uniform appearance". There were no current cracks in the plaster, although the owner informed the expert that several past cracks had been repaired and repainted. The expert noted that penetrations were well-sealed, cladding clearances to paved areas were adequate and metal head flashings to windows and doors appeared satisfactory. The expert noted that, although there was no visual sign of vertical control joints, photographs taken by the owner during construction showed vertical lines indicating the presence of some control joints within the plaster.

5.2 The expert scraped away a small section of plaster at the sill to jamb junction of the southeast ensuite window, which was not sheltered under an eave. Malthoid DPC flashings were noted, with the jamb flashing overlapping the sill flashing. The expert noted that the owners' construction photographs confirmed these types of flashings at other windows and observed that, while the flashings were not as shown in the drawings, the system used was a traditional method and appeared satisfactory.

5.3 The expert took a large number of non-invasive moisture readings through linings of exterior walls throughout the house, and noted no elevated readings. One invasive moisture reading was taken of the timber exposed by the window cut-out, and moisture content was recorded as 11%.

5.4 The expert made the following specific comments on the cladding:

- although the adequacy of vertical control joints is not possible to assess from the limited evidence in the owner's photographs, no movement cracks have resulted from settlement over the past 2 years which indicates that sufficient allowance for movement has been provided
- while there is no base flashing at the bottom of the cladding, the concrete rebate has been sealed with a liquid-applied membrane and a base flashing would provide no additional protection and is not considered necessary
- there is a small area of cracked and loose plaster on the garage foundation wall
- clearance from the bottom of the stucco to the planted areas is inadequate.

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

6. Evaluation for code compliance

6.1 Evaluation framework

6.1.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solution[4], which in this case is E2/AS1, which will assist in determining whether the features of this house are code compliant. However, in making this comparison, the following general observations are valid:

- 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.

6.1.2 The approach in determining whether building work is weathertight and durable and is likely to remain so, is to apply the principles of weathertightness. This involves the examination of 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 Department and its antecedents, the Building Industry Authority, have also described weathertightness risk factors in previous determinations (refer to Determination 2004/1 *et al*) relating to cladding and these factors are also used in the evaluation process.

6.1.3 The consequences of a building demonstrating a high weathertightness risk is that building solutions that comply with the Building Code will need to be more robust. Conversely, where there is a low weathertightness risk, the solutions may be less robust. In any event, there is a need for both the design of the cladding system and its installation to be carefully carried out.

6.2 Weathertightness risk

6.2.1 In relation to these characteristics I find that the building:

- is built in a medium wind zone
- is a maximum of one storey high
- is simple in plan and form
- has eave projections of more than 600 mm over most walls
- has monolithic cladding which is fixed directly to the framing

[4] An Acceptable Solution is a prescriptive design solution approved by the Department that provides one way, but not the only way, of complying with the Building Code. The Acceptable Solutions are available from the Department's website at www.dbh.govt.nz.

- has external wall framing that is unlikely to be treated, so providing no resistance to the onset of decay if the framing absorbs and retains moisture.

6.2.2 When evaluated using the E2/AS1 risk matrix, these weathertight features show that all elevations of the building demonstrate a low weathertightness risk. 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 Weathertightness performance

6.3.1 Generally the cladding appears to have been installed to a high standard and in accordance with good trade practice, with well-constructed junctions, penetrations and edges. However, several items require attention, and these areas are as described in paragraph 5.4 and in the expert's report as being the:

- plaster to the garage foundation wall
- inadequate clearance from the bottom of the stucco to the planted areas

6.3.2 I note the expert's comments on control joints to the cladding, and accept that the lack of cracks in the plaster indicates that, notwithstanding the limited evidence available, adequate allowance for movement is likely to have been provided.

6.3.3 I also note the expert's comment on the lack of base flashing to the cladding, and accept that the weatherproofing provided appears to be adequate in this case.

6.3.4 Notwithstanding the fact that the timber sarking behind the stucco is fixed directly to the timber framing, thus inhibiting drainage and ventilation behind the cladding, I have noted certain compensating factors that assist the performance of the cladding in this particular case:

- The cladding appears to have been installed to good trade practice.
- The house is a simple, one-storey building.
- The house has eaves projections above most walls that provide good protection to the cladding areas below them.

6.3.5 I consider that these factors help compensate for the lack of a ventilated cavity and can assist the building to comply with the weathertightness and durability provisions of the Building Code.

7. Conclusion

7.1 I am satisfied that the current performance of the cladding is adequate because it is preventing water penetration into the building at present. Consequently, I am 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 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 on the building are likely to allow the ingress of moisture in the future, the house does not comply with the durability requirements of clause B2.

7.3 Subject to further investigations that may identify other faults, I consider that, because the faults that have been identified with the cladding system occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraph 6.3.1 should be expected to result in the building becoming and remaining weathertight and in compliance with clauses B2.

7.4 I note that effective maintenance of 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 checking, cleaning, re-painting, replacing sealants, and so on.

7.5 As the external wall framing of this building is likely to be untreated, periodic checking of its moisture content should also be carried out as part of normal maintenance.

7.6 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.

7.7 In the circumstances, 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 monolithic cladding system as installed complies with clause E2 of the Building Code.

However, there are several items to be remedied to ensure that the house remains weathertight and thus meets the durability requirements of the code. Consequently, I find that the house 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, is likely to result in the house becoming and remaining weathertight, and in compliance with clause B2.

8.3 I note that the territorial authority has not issued a notice to fix. A 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 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.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 11 April 2006.

John Gardiner
Determinations Manager