Determination 2007/22

Determination regarding a code compliance certificate for a house at 16 Maire Street, Nelson

1 The matter 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 ("the Department"), for and on behalf of the Chief Executive of that Department. The applicant is the owner, Mr Gidall ("the applicant"), and the other party is Nelson City Council ("the territorial authority").

1.2 This determination arises from the decision of the territorial authority to refuse to issue a code compliance certificate for a 12-year-old house because it is not satisfied that it complies with clauses B2 "Durability" and E2 "External Moisture" of the Building Code[2] (First Schedule, Building Regulations 1992).

[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 matters for determination are whether:

1.3.1 Matter 1: The cladding

the cladding as installed on the house ("the cladding") complies with clause E2 "External Moisture" of the Building Code. By "the cladding as installed" I mean the components of the system (such as the backing materials, the flashings, the joints and the plaster and/or the coatings) as well as the way the components have been installed and work together.

1.3.2 Matter 2: The durability considerations

the elements that make up the building work comply with clause B2 "Durability" of the Building Code, taking into account the age of the building work.

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.

1.5 In this determination, unless otherwise stated, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

2 The building

2.1 The building work consists of a single-storey detached house, with a basement garage, situated on a steeply sloping excavated site, which is in a moderate wind zone for the purposes of NZS 3604[3]. The house is conventional light timber frame construction, with a concrete slab, foundations and retaining walls to the basement, specifically engineered pole framed construction to the remaining subfloor, monolithic cladding and aluminium windows. The house is simple in plan and form, with a 20^{o} pitch profiled metal hipped roof and eaves projections of more than 600mm.

2.2 A timber-framed deck, with a membrane floor and open balustrades, extends from the upper west wall to provide an unlined roof for a carport area below.

2.3 The expert has noted that the deck joists and bearers appear to be treated timber, while the wall framing is Douglas Fir. Based on this observation and the date of construction, I accept that the wall framing is likely to be untreated.

2.4 The cladding is a monolithic cladding system described as stucco. In this instance it consists of building wrap fixed directly to the framing timbers and covered with metal mesh-reinforced 20mm thick solid plaster, and a flexible paint coating.

2.5 I have received no evidence of producer statements or warranties for the cladding.

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

3 Sequence of events

3.1 The territorial authority issued a building consent (No. 940356) on 29 August 1994 and carried out various inspections during construction, including a preline insulation inspection on 1 September 2004. Construction of the house structure was also supervised by a structural engineer ("the engineer").

3.2 The house appears to have been completed and occupied by the original owners by the end of 1994, although a final inspection was not undertaken until 2 December 1998. The final inspection noted that the house had been "occupied for some time" and that some exterior work was still to be completed.

3.3 In a letter to the territorial authority dated 8 February 2006, the engineer explained that the original owners had discovered they did not have a code compliance certificate for the building. The engineer submitted a producer statement and other documentation for the territorial authority's consideration.

3.4 In a letter to the original owner dated 14 March 2006, the territorial authority noted that final building inspections had not been completed on the house and explained that durability requirements commenced from the date of issue of the code compliance certificate. The territorial authority stated that a code compliance certificate could not be issued due to the age of the house, as:

> …it would not be appropriate for this period to be added to the durability time frames identified in the New Zealand Building Code. Nelson City Council therefore cannot be satisfied on reasonable grounds that the work now meets all the requirements of the building code, especially B2 Durability and E2 External moisture.

3.5 The applicant subsequently arranged to purchase the house from the original owners, and the Department received an application for a determination on 10 November 2006.

4 The submissions

4.1 In the letter dated 5 November 2006 accompanying the application, the applicant explained that he was purchasing the house from the original owners and had contacted the territorial authority in regard to the lack of a code compliance certificate. The territorial authority had suggested that a determination should be applied for, as "the fact that the building is 12 years old would otherwise create an irresolvable issue for them".

4.2 The applicant forwarded copies of:

- the drawings and specification
- the building consent documentation
- some inspection records
- various producer statements and other statements.

4.3 The territorial authority made no submission.

4.4 Copies of the applicant's submission and other evidence were provided to the territorial authority, which made no submission in response.

4.5 A copy of the draft determination was forwarded to the parties on 7 February 2007. The draft was issued for comment and for the parties to agree a date when all the building elements installed in the house complied with the Clause B2 Durability.

4.6 The parties accepted the draft determination and agreed that compliance with B2 Durability was achieved on 14 January 1995.

5 The expert's report

5.1 As discussed in paragraph 1.4, I engaged an independent expert to provide an assessment of the condition of those building elements subject to the determination. The expert is a member of the New Zealand Institute of Building Surveyors.

5.2 The expert initially inspected the house on 22 December 2006, and furnished a report that was completed on 9 January 2007. A further visit was undertaken to acquire further information on 18 January 2007, and a supplementary report dated 19 January 2007 was submitted.

5.3 The expert noted that the building work generally conformed to the consent drawings, except that the east external stairs had not been installed and the entry porch had been enclosed. The expert also noted that the standard of construction appeared high with satisfactory ground clearances, drip edges to the stucco base, flashings, roof claddings, deck membrane and deck drainage.

5.4 The expert was not able to tell whether vertical control joints had been installed in the four walls where dimensions exceed the 4m length limit recommended in NZS 4251[4], the Code of Practice for solid plastering. However, the expert also noted that there was no evidence of damage to the plaster resulting from undue movement during the 12 years since construction, and considered that the plaster would continue to perform adequately.

5.5 The expert noted that the windows had been face-fixed with metal head flashings and no sill or jamb flashings. The expert noted that the building wrap had been folded into the window flanges as a method of sealing, which was acceptable common practice at the time of construction.

5.6 The expert inspected the interior of the house and no evidence of moisture was noted. The expert took 16 non-invasive moisture readings through the linings of exterior walls, and moisture readings of 10% or lower were recorded, except for 2 readings over 16% noted beside the deck doors. The expert removed small sections of cladding at these locations to investigate the higher readings, and noted that the framing was sound and dry, with invasive moisture content readings of 9% and 7%.

[4] New Zealand Standard NZS 4251: Solid plastering; Part 1: 1998 Cement plasters for walls, ceilings and soffits

5.7 The expert noted that the house was due for repainting and general maintenance, which he considered would remedy the small hairline cracks in the plaster and allow for replacement of sealants around cladding penetrations.

5.8 The expert also noted that the building appeared to satisfy the requirements of the remaining relevant clauses of the building code.

5.9 The expert concluded that the building work would have met the building code requirements at the time of construction and considered that, given adequate normal maintenance, the house should remain durable for many years.

5.10 A copy of the expert's report was provided to each of the parties on 10 January 2007 and the supplementary report on 19 January 2007.

6 Evaluation for code compliance

6.1 Evaluation framework: exterior cladding

6.1.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solutions[5], which will assist in determining whether the features of these houses 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 antecedent, the Building Industry Authority, have also described weathertightness risk factors in previous determinations[6] (for example, Determination 2004/1) 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.

[5] An Acceptable Solution is a prescriptive design solution approved by the Department that provides one way of complying with the Building Code. The Acceptable Solutions are available from The Department's Website at www.dbh.govt.nz.
[6] Copies of all determinations issued by the Department can be obtained from the Department's website.

6.2 Weathertightness risk

6.2.1 In relation to these characteristics I find that this house:

- is built in a moderate wind zone
- is a maximum of two storeys high
- is simple in plan and form
- has solid plaster cladding that is fixed directly to the framing
- has eaves projections of more than 600mm above most walls
- has an enclosed deck with open balustrades above an open carport
- has external wall framing that will provide limited resistance to decay if it becomes wet and cannot dry out.

6.2.2 When evaluated using the E2/AS1 risk matrix, these weathertightness features show that all elevations of this house demonstrate a low weathertightness risk rating. 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: exterior cladding

6.3.1 The claddings appear to have been installed in accordance with good trade practice, and I accept the expert's opinion that remedial work is not required.

6.3.2 I note the expert's comment in paragraph 5.4 regarding the lack of vertical control joints in four areas of wall. However, the stucco cladding appears to have been installed according to good trade practice, and has been in place for more than twelve years with no signs of movement, associated cracking or moisture entry. During the period since construction, all drying shrinkage in the concrete plaster and supporting framing will have likely occurred, and the cladding's future performance will be governed solely by response to environmental factors such as imposed temperature and moisture effects, wind, earthquake forces and seasonal foundation movements. I therefore consider that, in this particular case, the stucco plaster system is adequate, without the retrofitting of the omitted control joints that were required in the general case by NZS 4251.

6.3.3 I also note the expert's comment in paragraph 5.7 regarding the need for repainting and general maintenance of the cladding, and accept that this planned maintenance work will remedy the minor hairline cracks and deteriorating sealants.

6.3.4 Although the cladding is fixed directly to the timber framing, thus limiting drainage and ventilation behind the cladding, I have noted certain compensating factors that assist confirm or assist the performance of the claddings in this particular case:

- the cladding is installed to good trade practice
- the stucco plaster has been in place for more than 12 years, with no sign of moisture entry
- the house generally has roof projections 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 drained cavity to the walls, and can assist the building work to comply with the weathertightness and durability provisions of the Building Code.

Matter 1: The cladding

7 Discussion

7.1 I consider that the expert's report establishes there is no evidence of external moisture entering the building and, accordingly, that its cladding does comply with clause E2 and, given the maintenance noted in paragraph 6.3.3, also clause B2. I have given further consideration to the question of B2 compliance under Matter 2 of this determination.

7.2 I emphasise that each determination is conducted on a case-by-case basis. Accordingly, the fact that particular cladding systems have been established as being code compliant in relation to a particular building does not necessarily mean that the same cladding systems will be code compliant in another situation.

7.3 Effective maintenance of claddings (in particular of monolithic claddings) is important to ensure ongoing compliance with clauses B2 and E2 of the Building Code and is the responsibility of the building owner. Clause B2.3.1 of the Building Code requires that the cladding be subject to" normal maintenance", however that term is not defined in the Act.

7.4 I take the view that normal maintenance is that work generally recognised as necessary to achieve the expected durability for a given building element. With respect to the cladding, the extent and nature of the maintenance will depend on the material, or system, its geographical location and level of exposure. Following regular inspection, normal maintenance tasks should include but not be limited to:

- where applicable, following manufacturers' maintenance recommendations
- washing down surfaces, particularly those subject to wind-driven salt spray
- re-coating protective finishes
- replacing sealant, seals and gaskets in joints.

7.5 As this house has apparently not been repainted since construction, urgent attention should be given to undertaking normal maintenance as outlined in paragraph 7.4.

7.6 As the external wall framing of this house will provide only limited resistance to the onset of decay if it gets wet, periodic checking of its moisture content should also be carried out as part of normal maintenance.

Matter 2: The durability considerations

8 Discussion

8.1 The territorial authority has concerns about the durability, and hence the compliance with the building code, of certain elements of the building taking into consideration the completion of most of the building work by the end of 1994. (However I note that I have received no copies of the territorial authority's inspection records to verify compliance with clause B2 in 1994.)

8.2 The relevant provision of clause B2 of the Building Code requires that building elements must, with only normal maintenance, continue to satisfy the performance requirements of the Building Code for certain periods ("durability periods") "from the time of issue of the applicable code compliance certificate" (clause B2.3.1).

8.3 These durability periods are:

- 5 years if the building elements are easy to access and replace, and failure of those elements would be easily detected during the normal use of the building
- 15 years if building elements are moderately difficult to access or replace, or failure of those elements would go undetected during normal use of the building, but would be easily detected during normal maintenance
- the life of the building, being not less than 50 years, if the building elements provide structural stability to the building, or are difficult to access or replace, or failure of those elements would go undetected during both normal use and maintenance.

8.4 It is not disputed, and I am therefore satisfied that all the building elements installed in the house complied with clause B2 on 14 January 1995. This date has been confirmed by the applicant and the territorial authority, refer paragraphs 4.6.

8.5 In order to address these durability issues, I sought some clarification of general legal advice about waivers and modifications. I have now received that clarification and the legal framework and procedures based on this clarification are described in previous determinations (for example, Determination 2006/85) and are used to evaluate the durability issues raised in this determination.

8.6 I continue to hold that view, and therefore conclude that:

(a) the territorial authority has the power to grant an appropriate modification of clause B2 in respect of the building elements

(b) it is reasonable to grant such a modification, with appropriate notification, because in practical terms the building is no different from what it would have been if a code compliance certificate for the house had been issued in 1995.

8.7 I strongly recommend that the territorial authority record this determination and any modifications resulting from it, on the property file and also on any LIM issued concerning this properties.

9 The decision

9.1 In accordance with section 188 of the Building Act 2004, I determine that the cladding complies with clauses E2 and B2 of the Building Code.

9.2 I also determine that:

(a) all the building elements installed in the building complied with clause B2 on 14 January 1995

(b) the building consent is hereby modified as follows:

The building consent is subject to a modification to the Building Code to the effect that, clause B2.3.1 applies from 14 January 1995 instead of from the time of issue of the code compliance certificate for all building elements as set out in Determination 2007/22.

(c) following the modification set out in (b) above, the territorial authority is to issue a code compliance certificate in respect of the building consent as amended.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 26 February 2007.

John Gardiner
Determinations Manager