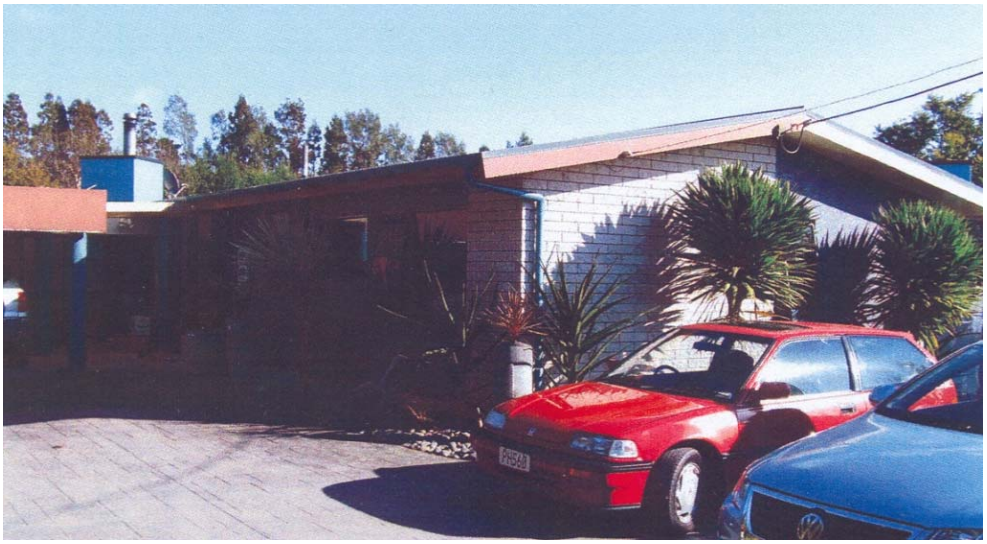
# Determination 2006/101

# Dispute about a code compliance certificate for additions to a house with a monolithic cladding system at 294/42 Three Mile Bush Road, Kamo, Whangarei



## 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 Gregory Claridge ("the applicant"), and the other party is the Whangarei District Council ("the territorial authority"). The application arises because the territorial authority declines to issue a code compliance certificate for alterations and additions to a house ("the addition"), unless changes are made to its monolithic cladding system.

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

1.2 The matter for determination is whether I am satisfied on reasonable grounds that the territorial authority's decision to decline to issue a code compliance certificate for additions and alterations to a house made up to 10 years ago is correct. The territorial authority declined the application because it was not satisfied that the monolithic cladding as installed on the new building work complied with clauses B2 "Durability" and E2 "External Moisture" of the Building Code[2] (First Schedule, Building Regulations 1992). By "the monolithic 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 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.

## 2 The building

2.1 The building work involves alterations and additions to an existing single-storey house situated on a level site that is in an undetermined wind zone in terms of NZS 3604[3]. The main addition consists of a new bedroom with three external elevations, together with a large attached external timber-framed open-boarded deck and steps adjoining the bedroom and existing kitchen and dining areas. There are also two minor extensions to the lounge. The bedroom addition is of a simple shape on plan, and its roof has junctions with the existing roof, 750mm wide eaves projections, and 300mm wide verge projections.

2.2 The building specification, written in 1995, calls for the general framing timbers to be Pinus Radiata that is H1 "treated in accordance with the TCP Specifications." However, as I have not received any written confirmation as to the treatment, if any, of the external wall framing, I cannot confirm whether it is treated to a level that is effective in helping resist decay if it absorbs and retains moisture.

2.3 The wall cladding to the timber-framed walls is a monolithic cladding system described as 40mm thick "Insulclad" polystyrene backing sheets fixed through the building wrap directly to the framing timbers. A reinforced textured plaster system is applied to the polystyrene together with a final paint system.

2.4 Plaster Systems Ltd issued a "Producer Statement" dated 13 July 2006 for the cladding.

## 3 Sequence of events

3.1 The territorial authority issued a building consent on 9 November 1995.

3.2 According to the submitted documentation, the additions were constructed over a period of 4 years from 1996 to 2000.

[2] The Building Code is available from the Department's website at www.dbh.govt.nz.
[3] New Zealand Standard NZS 3604: 1999 Timber framed buildings.

3.3 Building Certifiers Whangarei Ltd ("the building certifier") carried out various inspections during construction, undertaking a final inspection in May 2000. The "Field Advice Notice" dated 10 May 2000 relating to this inspection passed all items but did note

> Fit washing machine waste pipe.

3.4 The territorial authority wrote to the applicant on 9 June 2006, noting that after vetting the plans, it was not able to issue a code compliance certificate as it believed that the building did not comply with B2 and E2 of the Building Code.

3.5 The territorial authority did not issue a notice to fix as required under section 164 of the Act.

3.6 The Department received the application for a determination on 13 June 2006.

## 4 The submissions

4.1 In a covering letter to the Department dated 12 June 2006, the applicant noted that the property has an "offer for sale and purchase" that had been accepted subject to the issue of a code compliance certificate. The territorial authority had not granted that certificate.

4.2 The applicant forwarded copies of:

- the plans and specifications
- the building consent
- the building certifier's inspection documentation
- the letter from the territorial authority of 9 June 2006.

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

4.4 A copy of the draft determination was sent to the parties for comment on 17 August 2006. Both parties accepted the draft without comment.

## 5 The expert's report

5.1 The expert inspected the cladding of the building on 28 July 2006 and furnished a report that was completed on 4 August 2006. The expert was of the opinion that the finished appearance of the cladding is generally good with the exception of the recorded defects. There is no evidence of cracking in the cladding surfaces.

5.2 The expert removed areas of the plaster adjoining a corner of one window to examine the construction. I am prepared to accept that this example is representative and applies to similar details throughout the addition.

5.3 The expert took non-invasive moisture-meter readings through the interior linings of the exterior walls and found that the moisture levels were within acceptable limits.

Two invasive moisture-meter readings of 12% to 13% were obtained in the exterior wall framing. The expert could not find any "visible evidence of timber decay, leaking, or deterioration internally or externally" in the addition.

5.4 The expert made the following comments regarding the cladding:

- The base of the cladding is carried down onto or below the ground level at most locations.
- The exterior joinery units lack head and jamb flashings, and the sill flashings do not extend the required distance past the jambs.
- The deck at the west elevation is built at the same level as the internal floor.
- The polystyrene is not plastered where it adjoins the deck.

5.5 Copies of the expert's report were provided to each of the parties on 8 August 2006.

# 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], in this case E2/AS1, which will assist in determining whether the named features of the additions 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; and
- Usually when there is non-compliance with one provision of an Acceptable Solution, it may be necessary to add some other provision to compensate for that in order to obtain compliance 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 overall design of the building, the surrounding environment, the detailed 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 (refer to Determination 2004/1 et al)[5] 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

[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.
[5] Copies of all determinations issued by the Department can be obtained from the Department's website.

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 the weathertightness characteristics, I find that the building work:

- is situated in an undefined wind zone
- is single storey and is of a simple shape on plan
- has 750mm wide high level eaves and 300mm wide verge projections that provide good protection to the cladding beneath them
- has one large deck
- has external wall framing that may not be treated to a level that is effective in helping resist decay if it absorbs and retains moisture.

6.2.2 When evaluated using the E2/AS1 risk matrix, and assuming for that purpose that the house is in a high wind zone, these weathertight features show that all external elevations of the building 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

6.3.1 Generally the cladding appears to have been installed in accordance with reasonable trade practice. However, some items are not well constructed, and these are as described in paragraph 5.4 and in the expert's report as being:

- the base of the cladding carried down onto or below the ground level at most locations
- the polystyrene not plastered where it adjoins the deck.

6.3.2 In paragraph 5.4 the expert also noted that the exterior joinery units lack head and jamb flashings, and the sill flashings do not extend the required distance past the jambs. I accept that these omissions mean the window perimeter details do not comply with the relevant manufacturer's documentation. However, taking into account that there is no evidence of moisture leakage through the window perimeters, together with the other factors described in paragraph 6.3.3, I consider they are and will remain code compliant.

6.3.3 Notwithstanding the fact that 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 the performance of the cladding in this particular case:

- Apart from the noted exceptions, the cladding is installed to reasonable trade practice.

- The addition is single-storey and of a simple shape on plan.
- The addition has roof projections that provide good protection to the wall cladding areas below them.
- There is no evidence of moisture penetration into the walls over a period of at least 6 years since the walls were constructed.

6.3.4 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 Discussion

7.1 I consider that the expert's report establishes there is no evidence of external moisture entering the addition, and accordingly, that its monolithic cladding does comply with clause E2 at this time.

7.2 However, 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 additions to remain weathertight. Because the cladding faults on the addition are likely to allow the ingress of moisture in the future, the addition 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 identified with the cladding system occur in discrete areas, I can conclude that satisfactory rectification of the items outlined in paragraph 6.3.1 will result in the building remaining weathertight and in compliance with clauses B2 and E2.

7.4 I note also, that the deck at the west elevation is built at the same level as the internal floor. However, as the deck is open boarded and spaced away from the external cladding, I consider that, as there is adequate drainage at the deck junction with the building, the deck junction detail is adequate.

7.5 The expert has not specifically referred to the pergola joists that directly penetrate the cladding, but these do appear in photographs contained in his report. I would suggest that the territorial authority investigate the adequacy of these penetrations and, if required, instruct the applicant to remedy them.

7.6 It is emphasized 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 I decline to incorporate any waiver or modification of the Building Code in this determination.

# 8 Conclusion

8.1 I determine that the house is weathertight now and therefore the cladding complies with clause E2. However, as there are a number of items to be remedied to ensure it remains weathertight and thus meets the durability requirements of the Building Code, I find that the house does not comply with clause B2.

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, will consequently result in the house remaining weathertight and in compliance with clauses B2 and E2.

8.3 Effective maintenance of claddings (in particular monolithic cladding) 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.

8.4 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.

8.5 As the external wall framing of the new sections of the building may not be treated to a level that will resist the onset of decay if it gets wet, periodic checking of its moisture content should also be carried out as part of normal maintenance.

# 9 The Decision

9.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the building work does not comply with clause B2 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 not issued a Notice to Rectify or a notice to fix. A notice to fix should be issued requiring the owners to bring the house into compliance with the Building Code. The notice to fix may list the items to be rectified but it should not specify how compliance is to be achieved as this is for the owner to propose and for the territorial authority to accept or reject. It is important to note that the Building Code allows for more than one method of achieving compliance.

9.3 I would suggest that the parties adopt the following process to meet the requirements of clause 9.2. Initially, the territorial authority should issue the notice to fix, listing all the items that the territorial authority considers to be non-compliant. The applicant 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.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 24 October 2006.

John Gardiner
**Determinations Manager**