

Determination 2008/37

Refusal of a code compliance certificate for alterations and additions to a house at 5 Miro Road, Palm Beach, Waiheke Island, Auckland



1 The matter to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ (“the Act”) made under due authorisation by me, John Gardiner, Manager Determinations, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department. The applicants are the owners, Mr and Mrs Underdown (“the applicants”) and the other party is the Auckland 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 the 7-year old alterations and additions to a house because it was not satisfied that the building work complied with relevant clauses of the Building Code² (Schedule 1, 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 In order to determine the matter described in paragraph 1.2, I must determine the following questions:

Matter 1: The cladding

Does the monolithic wall cladding, as installed to the new and existing external walls of the altered and extended building, comply with the Building Code?

By “the monolithic wall cladding as installed” I mean the components of the system (such as the backing materials, the flashings, the joints and the coatings) as well as the way the components have been installed and work together. I have evaluated the weathertightness of the house using a framework that I describe more fully in paragraph 6 below.

Matter 2: Other Building Code matters

Does the building work, other than the cladding, comply with the Building Code?

Matter 3: The durability considerations of the consented work

Do the building elements, that make up the alterations and additions, comply with Clause B2, taking the age of these elements into account?

- 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.
- 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 work

- 2.1 The building work consists of extensive alterations and additions to an existing detached two-storey (in part) house located on an excavated sloping site that is in a high wind zone in terms of NZS 3604³. Construction is of conventional light-timber framing built either on concrete slabs or timber framed floors. The original timber windows have been replaced with new aluminium units.
- 2.2 The resulting building is reasonably complex in plan and form. The steeply pitched roof is covered with asphalt-coated fibreglass shingles on 140mm x 19mm boards, that replaces the original corrugated steel roofing. The roof has hip, valley, and wall-to-roof junctions, and generally has 100mm wide eaves and verge projections.
- 2.3 An existing deck is situated at the main building level at the north elevation of the building and this has been refurbished, including tiling on a plywood and bituminous membrane substrate over the existing slatted floor. A new timber pergola, constructed over the deck entry doors, is attached to the house.
- 2.4 The expert found no evidence of treatment of the new framing and I note that the specification only requires H1 treatment where timber framing is in contact with concrete. Nor have I received any information as to the treatment, if any, of the

³ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

timber used to construct the new external walls of the building. Accordingly, I accept that both the new and existing external wall framing are unlikely to be treated.

- 2.5 The wall cladding to both the new and existing timber-framed walls is a 40mm thick EIFS⁴ “Insulclad” system. In the case of the existing walls the EIFS is fixed over the original tanalised plywood cladding. The new walls have tanalised 12mm “Texture 2000” band-sawn faced plywood under the EIFS, directly fixed to the wall framing over a building wrap. As set out in paragraph 4.1, the applicants are of the opinion that the EIFS cladding acts as a decorative finish only.

3 Background

- 3.1 The original house was constructed in 1987. The territorial authority issued building consent No BLD41000834201 in December 2000 for extensive alterations and additions to the building.
- 3.2 The territorial authority carried out various inspections during the construction of the building work, which was completed in 2001. However, the applicants did not make an application for a code compliance certificate until 2007.
- 3.3 In a letter to the owner dated 15 November 2007, the territorial authority said that it had carried out an inspection of the property on 12 October 2007 and advised that it was not satisfied that the house complied with the Building Code in a number of respects. The territorial authority attached a notice to fix to the letter, also dated 15 November 2007, together with a set of photographs illustrating items of non-compliance. The “Details of Contravention” attached to the notice to fix listed requirements under the following headings:
- 2.0 Issues relating to cladding [including items 2.1 - not installed according to manufactures specifications, item 2.2 - not installed according to the acceptable solution, or item 2.3 - not installed according to accepted trade practice]
 - 2.4 Drainage and Ventilation [of the cladding]
 - 3.0 Changes to Building Consent
 - 4.0 Other Building Related Issues
 - 5.0 Durability Issues
- 3.4 The application for a determination was received by the Department on 17 December 2007.

4 The submissions

- 4.1 In a submission to the Department dated 10 December 2007, the applicants noted that the EIFS system was only installed as a decorative finish and the window flashings were completed and the house was weathertight before the system was

⁴ External Insulation & Finish System

installed. The applicants also responded to the matters raised by the territorial authority in the notice to fix.

4.2 The applicants forwarded copies of:

- some of the plans
- the notice to fix
- some resource consent information.

4.3 The territorial authority forwarded the “Property File” for the house, recorded on a CD-Rom, that contained some relevant information, including:

- the plans
- some of the territorial authority’s consent and inspection documentation
- the notice to fix
- the correspondence with the applicant.

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

4.5 A draft determination was issued to the parties on 7 April 2008. The draft was issued for comment and for the parties to agree a date when the building elements in the alterations and additions complied with Building Code Clause B2 “Durability”.

4.6 Both parties accepted the draft without comment and nominated 12 November 2001 as a date when the alterations and additions complied with Clause B2. The applicants submitted the invoices for various items of work as evidence of the completion date for the work.

5 The expert’s report

5.1 As discussed in paragraph 1.4, I engaged an independent expert, who is a member of the New Zealand Institute of Building Surveyors, to provide an assessment of the condition of those building elements subject to the determination. The expert inspected the cladding and other relevant elements of the building on 31 January 2008 and 27 February 2008, and furnished a report that was completed on 17 March 2008.

5.2 The expert was of the opinion that the cladding generally had a high standard of “straightness and fairness of finish” and the “evenness of finish, paintwork and observable quality of workmanship is high and appropriate to its environment”. The expert removed an area of the plaster to examine the weatherproofing of one of the new extension’s windows, and I am prepared to accept that this example is representative and applies to similar details throughout the house.

5.3 The expert took invasive moisture readings through the claddings of the exterior walls, and four high readings were recorded, all at the upper north wall to the lounge. The expert also noted one adverse non-invasive reading at the inner lining of a lower

level bedroom. The applicants were of the opinion that this was caused by a leaking overflow pipe.

5.4 The expert made the following comments, regarding the cladding, which agreed in principle with the concerns raised by the territorial authority in its notice to fix:

- The cladding is cracked at some locations.
- The base of the cladding has insufficient ground clearance at some locations.
- The base of the cladding is too close to the roofing at three short wall/roof junctions.
- Some penetrations through the cladding are inadequately sleeved and sealed.
- The kick-outs at the base of three apron flashings are not adequate.

5.5 The expert did not agree with the territorial authority's opinion, set out in the notice to fix, on other cladding matters as follows:

- Based on the dimensions of the house, the cladding did not require control joints.
- The EIFS cladding has a bottom edge cap.
- The lack of a 6mm gap at the base of the cladding and the lack of drip edges are offset by acceptable alternative construction methods.
- The cladding is finished behind the fascia boards.
- The flashings at the exterior joinery units are generally in accordance with the manufacturer's requirements current at the time that they were installed. However, the junction between the head and jamb flashings required verification.
- The wall plates are attached to the plywood substrate and the polystyrene is finished around these elements.
- The deck barrier is of open post and rail construction.
- The downpipes appeared to be adequately fixed into the plywood substrate.

5.6 The expert also made reference to the other building related issues raised in the notice to fix. I summarise those items that the expert observed as requiring attention:

- The lack of some necessary handrails.
- The lack of downpipe spreaders.
- The lack of restraints to the hot water cylinder and the unsecured laundry fittings.

The expert also noted the presence of the unconsented cupboard.

5.7 With regard to the balance of the items on the notice to fix, the expert noted:

- The wet area fittings are now sealed.
- An additional smoke alarm has been fitted.

- The glass to the lean-to roof is etched with a safety Standard marking.
 - The applicants have submitted an alternative solution to the territorial authority with regard to the stormwater collection and disposal system.
- 5.8 In the notice to fix, the territorial authority also recorded its concerns regarding the preservative treatment of the plywood laid over the deck floor as a substrate for the tiling. The expert in his report referred to the identification markings on the plywood, which established that it was 12.5mm thick but was not clear as to its preservative treatment. In order to be certain, I arranged for a sample of the plywood to be tested by a independent testing laboratory which confirmed the ply was treated.
- 5.9 Copies of the expert's report were provided to each of the parties.

Matter 1: The cladding

6. Evaluation for code compliance

6.1 Weathertightness 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 Solution⁵, in this case E2/AS1, which will assist in determining whether the named 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; 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*)⁶ 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 the weathertightness characteristics, I find that the building:

- is situated in a high wind zone
- is a maximum of two-storeys in height and is of a relatively complex shape on plan
- has 100mm wide eaves projections that do not provide good protection to the cladding beneath them
- has one external deck
- has a pergola fixed to one elevation
- has external wall framing to the original walls and to the new walls that is unlikely to be treated to a level that is effective in helping resist decay if it absorbs and retains moisture
- has the “Insulclad” system fixed over a plywood lining at the existing walls that was previously the exterior cladding which would already have been considered weathertight.

6.2.2 The house has been evaluated using the E2/AS1 risk matrix. The risk matrix allows the summing of a range of design and location factors applying to a specific building design. The resulting risk rating can range from ‘low’ to ‘very high’. The risk rating is applied to determine what claddings can be used on a building in order to comply with E2/AS1. Higher levels of risk will require more rigorous weatherproof detailing; for example, a high risk level is likely to require particular types of cladding to be installed over a drained cavity.

6.2.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 6.2.1 show that three elevations of the house demonstrate a medium weathertightness risk and the remaining elevation a high risk. I note that, in order to comply with E2/AS1, the monolithic cladding used would require a drained cavity.

6.3 Discussion

6.3.1 I consider the expert’s report establishes that the current performance of the cladding is not adequate because it is allowing some water penetration into the building at one localised area at present. Consequently, I am satisfied that the building does not comply with Clause E2 of the Building Code.

6.3.2 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 continue to allow the ingress of moisture in the future, the house does not comply with the durability requirements of Clause B2.

6.3.3 Because the faults identified with the cladding system occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraph 5.4 will result in the building remaining weathertight and in compliance with Clauses B2

and E2. The territorial authority should also verify the junctions between the head and jamb flashings of the exterior joinery units.

- 6.3.4 I note that the existing tanalised plywood linings remain in place beneath the new EIFS cladding. It would be a matter of concern if there was a deterioration of this plywood caused by moisture ingress that was unable to be dispersed. In this respect if, as seems likely, the plywood has a bracing function, it has a durability requirement to remain compliant for the life of the building being not less than 50 years.
- 6.3.5 In Determination 2004/04, which considered timber weatherboard cladding that overlaid an untreated plywood substrate, the Building Industry Authority accepted that even if moisture were to gain access to the building wrap it did not follow that water would gain access to the plywood beneath it. I am prepared to accept this opinion and I also note that in the current case, the plywood is tanalised, giving an additional factor of protection to the cladding system as a whole. The plywood is also better able to withstand decay should it ever get wet than would be the adjoining untreated wall framing.
- 6.3.6 In addition, as set out in paragraph 6.3.3, I have concluded that, following satisfactory rectification of the noted defects, the building and the cladding will remain watertight. As such, the plywood and the wall framing behind it would not be in contact with external moisture.
- 6.3.7 I also observe that the areas where the expert has found higher moisture readings occur only in the new extensions to the building. Accordingly, there is no evidence available to me to show that the compliance of the existing plywood has been compromised to date.
- 6.3.8 I emphasise 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.
- 6.3.9 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. The Department has previously described these maintenance requirements, including examples where the external wall framing of the building may not be treated to a level that will resist the onset of decay if it gets wet (for example, Determination 2007/60).
- 6.3.10 In this instance, I note the expert has observed that the building has been well maintained.

Matter 2: Other Building Code matters

7. Discussion

- 7.1 I conclude that satisfactory rectification of the items listed in paragraph 5.6 will ensure that the building is in compliance with the Building Code, however I note the following:

- Stairways in a residential situation are required to have a handrail to one side only. The Acceptable Solution, D1/AS1, says that a handrail shall begin no further than the second riser from the lower end of a stairway.
 - The building consent was issued in December 2000 at which time the Building Code did not require domestic smoke detectors.
 - From the evidence provided by the testing laboratory, I conclude that the plywood substrate to the deck floor is at least H3.2 treated.
- 7.2 The territorial authority should also consider the applicants' proposal regarding the collection and disposal of rainwater to ensure that the alternative solution is code-compliant.
- 7.3 I note the changes made to the building consent that are not noted as amendments on the consented plans, including a small cupboard addition. I consider this matter also needs to be resolved to the satisfaction of the territorial authority.

Matter 3: The durability considerations of the consented work

8. Discussion

- 8.1 As set out in the notice to fix, the territorial authority has concerns about the durability, and hence the compliance with the Building Code, of the alterations and additions taking into consideration their completion in 2001.
- 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 In this case the 7-year delay between the commencement of the building work and the applicant's request for a code compliance certificate has raised concerns with the territorial authority that various elements of the building with durability requirements of either 5 or 15 years are now well through their required durability periods and would consequently no longer comply with Clause B2 if a code compliance certificate were to be issued affective from today's date.

- 8.5 It is not disputed, and I am therefore satisfied, that all the building elements in the alterations and additions complied with Clause B2 on 12 November 2001. This date has been agreed between the parties, refer paragraph 4.6.
- 8.6 In order to address these durability issues when they were raised in previous determinations, I sought and received clarification of general legal advice about waivers and modifications. That clarification, and the legal framework and procedures based on the clarification, is described in previous determinations (for example, Determination 2006/85). I have used that advice to evaluate the durability issues raised in this determination.
- 8.7 I continue to hold the views expressed in the previous related determinations, and therefore conclude that:
- (a) The territorial authority has the power to grant an appropriate modification of Clause B2 in respect of all of the elements of the building.
 - (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 code compliance certificates in respect of the building work had been issued in 2001.
- 8.8 I strongly recommend that the territorial authority record this determination and any modification resulting from it, on the property file and also on any LIM issued concerning this property.

9. What is to be done now?

- 9.1 I note that the territorial authority has issued a notice to fix. I suggest that the territorial authority should withdraw this notice and issue a new notice to fix that requires the owners to bring the building into compliance with the Building Code, identifying the defects listed in paragraphs 5.4 and 5.6 and referring to any further defects that might be discovered in the course of rectification. It is not for the notice to fix to specify how the items are to be rectified. That 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.
- 9.2 I would suggest that the parties adopt the following process to meet the requirements of clause 9.1. Initially, the territorial authority should issue a new notice to fix. The applicant should then produce a response to this in the form of a technically robust proposal, together with suitable amendments to the plans and specifications, produced in conjunction with an expert, as to the rectification or otherwise of the specified matters. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding Determination.

10. The decision

10.1 In accordance with section 188 of the Building Act 2004, I determine that:

- (a) the building work does not comply with certain clauses of the Building Code, particularly Clauses B2 and E2, and accordingly confirm the territorial authority's decision to refuse to issue a code compliance certificate.
- (b) all the building elements installed in the building, apart from the items to be rectified, complied with Clause B2 on 12 November 2001.
- (c) 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 12 November 2001 instead of from the time of issue of the code compliance certificate for all of the building elements in the alterations and additions apart from the items to be rectified as set out in Determination 2008/37.
- (d) following the modification set out in (c) above together with any other amendments made to the original consent, the territorial authority is to issue a code compliance certificate in respect of the building consent as amended, once the defects set out in matters set out in paragraphs 5.4 and 5.6 have been fixed to its satisfaction.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 19 May 2008.

John Gardiner
Manager Determinations