Determination 2007/56

Refusal of a code compliance certificate for building alterations with a "monolithic" cladding system at 2, 4, 6, & 8 Tennyson Street, Balmoral, Auckland

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, 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 of number 4, Mr Bell and Ms Devlin ("the applicants"), with the owners of numbers 2, 6 and 8 as related parties, and the other party is the Auckland City Council ("the territorial authority").

1.2 The matter for determination is the territorial authority's decision to refuse to issue a code compliance certificate for a 10-year old building extension because it was not

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

satisfied that it complied with clauses B2 "Durability" and E2 "External Moisture" of the Building Code[2] (First Schedule, Building Regulations 1992).

1.3 The matters to be determined are whether:

a. The cladding as installed to the walls of the building ("the cladding") complies with clauses B2 and E2 (see sections 177 and 188 of the Act). By "the 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.

b. The elements that the territorial authority has listed in its notice to fix dated 27 July 2005 (which I refer to as "the listed elements" in the course of this determination) comply with clause B2, taking into account the age of the building.

1.4 The territorial authority notes in its submission (refer paragraph 4.3) and in its notice to fix dated 27 July 2005 (refer paragraph 3.5), that some matters of contravention within the building work relate to clauses B1, E3 and H1.

1.5 I note there are no items within the notice to fix (or within the correspondence from the territorial authority to the applicant) that directly relate to clauses B1, E3 or H1. I have received no other evidence relating to a dispute about clauses B1, E3 or H1.

1.6 I take the view that there are no matters related to clauses B1, E3 and H1 to be determined in this dispute.

1.7 In making my decision, I have considered the submissions of the parties, the report of the expert commissioned by the Department to investigate aspects of the building work and the other evidence in this matter.

1.8 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 minor extensions to a two storey high apartment building situated on an almost flat site, which is in a medium wind zone for the purposes of NZS 3604[3]. The original building was constructed as an apartment block in the 1930's with timber-framed walls and floors, timber windows, a hipped profiled metal roof with parapets, traditional stucco wall cladding, and horizontal stucco bands. The building now accommodates 4 individually owned apartments; two on the ground floor and two on the upper floor. The building work considered in this determination consists of interior alterations and two-storey bay extensions to the living rooms on the northern street elevation, with a curved-front timber pergola above the entry recess between the bays. The construction of the extensions is conventional timber framing, with concrete slabs, timber windows, parapets to match

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

the existing, and monolithic cladding. The new metal roofs slope back from the parapets towards the existing internal gutter, which continues across the two extensions. In order to match existing plaster features, horizontal bands are installed at window sills and parapets, and as "belled out" window head projections.

2.2 The four double-hung windows removed from the original living room walls have been re-used in the new upper north walls; while the lower north walls incorporate new timber french doors. New timber casement windows, proportioned to match the existing windows, are installed to the east side of the east bay and the west side of the west bay.

2.3 The expert was unable to sight the wall framing. I have received no other evidence as to the treatment, if any, of the external wall framing timber. Given the lack of evidence and the date of construction, I consider that the external wall framing of the extensions is unlikely to be treated.

2.4 The cladding system to the walls of the extensions is what is described as monolithic cladding, and is a "Harditex" system with 7.5 mm thick fibre-cement sheets fixed through the building wrap to the framing, and finished with a textured plaster coating system. This textured coating has been extended around the polystyrene bands and jamb facing boards – and down over the concrete foundation walls.

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

3. Sequence of events

3.1 It appears that the territorial authority issued a building consent No 95/00713 (which I have not seen) in February 1995 to Western Investments Ltd ("the developer"). The consent covered the building work to the four apartments in the building. I have received no evidence of what inspections were undertaken by the territorial authority during construction but it appears that the work was substantially completed in 1996.

3.2 The original building consent included the construction of a carport building, which was later withdrawn from the consent. The subsequent construction of a kitset garage building was covered by a different consent (99/06779) and a code compliance certificate was issued on 10 February 2000 (refer paragraph 5.9). This determination therefore does not consider that garage building.

3.3 The territorial authority issued an interim code compliance certificate, dated 17 July 2000, for the west lower unit (number 8) only. In a letter to the developer dated 11 April 2001, the territorial authority noted that an interim code compliance certificate had been issued, and asked whether the building work was completed as a code compliance certificate was required for all of the units.

3.4 I have no records of any inspections until the territorial authority carried out a final inspection on 12 July 2005, and the territorial authority's "Final checklist" identified several outstanding items, and noted "Monolithic cladding without cavity requires weathertight assessment for extensions to Units 2, 4, 6, 8." The territorial authority subsequently carried out a cladding inspection on 15 July 2005.

3.5 In separate letters to the owners of the units dated 27 July 2005, the territorial authority explained the requirements of clauses B1 "Structure", B2 "Durability" and E2 "Weathertightness", attached a notice to fix, and concluded that it could not be satisfied that the building work complied with the building code.

The attached notices to fix, dated 27 July 2005, noted that the work was "in breach of clauses B1 Structure, B2 Durability, E2 External Moisture, E3 Internal Moisture and H1 Energy efficiency". The notice included a list of items (related to the cladding) that had not been installed as per the manufacturer's specifications; and outlined durability requirements for all of the building elements, noting that the required periods were timed from the date of issue of the Code Compliance Certificate and not from the date of construction. The notice also required the provision of:

- A method for ensuring that external water can drain away and the timber framing dry out, or
- Install an early warning device that will alert the building owner that external water has entered into the wall cavity and the timber framing is wet and that it may rot as a result if no maintenance is undertaken.

3.6 I have previously determined (see Determination 2006/63) that a territorial authority has no power to impose a condition on the issuing of a code compliance certificate. The territorial authority must issue a code compliance certificate once it is satisfied on reasonable grounds that Code compliance has been achieved. Installation of early warning devices is not a requirement for Code compliance, because such devices cannot contribute to the compliance of a building.

3.7 An application for a determination was received by the Department on 7 August 2006.

4. The submissions

4.1 Within the application, the applicants noted that the matter for determination was the territorial authority's "decision not to issue a code compliance certificate".

4.2 The applicant forwarded copies of:

- some of the drawings
- some of the consent documentation
- some of the correspondence from the territorial authority
- the notice to fix dated 27 July 2005
- various calculations and other statements.

4.3 In a letter to the Department dated 31 August 2006, the territorial authority noted that the notices to fix related to five clauses of the building code. However, for reasons outlined in paragraph 1.6, this determination is concerned only with clauses B2 and E2.

4.4 The territorial authority forwarded copies of:

- the consent application
- the drawings
- the record of the final inspection
- the letters to the unit owners attaching the notices to fix dated 27 July 2005
- a variety of correspondence, information and other statements.

4.5 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.

4.6 A copy of the draft determination was sent to the parties on 7 December 2006. 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.

4.7 The parties accepted the draft but nominated a range of dates when compliance with B2 was achieved, ranging from 5 July 2005 to 6 July 2000. The latter date was nominated by the territorial authority being the date close to the issue of the interim code compliance certificate for unit 8 (refer paragraph 3.3). I accept there is a divergence of opinion when compliance with B2 was achieved, however, I am of the opinion that it is reasonable to accept the date of 6 July 2000, nominated by the territorial authority, as it is the most conservative of the dates proposed.

5. The expert's report

5.1 The expert inspected the claddings of the building on 12 October 2006, and furnished a report that was completed on 16 October 2006. The expert noted that, while the textured coating was generally "uniform, well adhered and not discoloured", the cladding defects "created a general impression of poor attention to weathertightness details". The expert noted that the parapet was covered with a continuous metal capping which appeared to be performing adequately. The expert also noted that vertical control joints are not specified by the manufacturer as necessary for the dimensions of Harditex used on the walls of these extensions.

5.2 The expert noted the re-used timber windows had metal head flashings that projected past the jamb facings (with belled out polystyrene bands fixed to the wall above), and the heavy timber sill covering the full depth of the wall (without additional sill flashings). The new timber windows were installed flush with the cladding surface with planted timber sills and coated facing boards used at jambs and heads.

5.3 The expert removed a section of the polystyrene band at the junction with the original wall to inspect the underlying inter-cladding junction.

5.4 The expert took non-invasive moisture readings through internal linings of exterior walls throughout the house, and some "borderline" readings were noted. The expert took 6 invasive moisture readings through the new external cladding at various high risk locations, and the following elevated readings were recorded:

- 20% and 24% in the bottom plates at the recess between the bays.
- 23% in the bottom plate at the ground floor east end of the east bay.
- 23% in the boundary joist at the first floor east end of the east bay.

Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.

5.5 Commenting specifically on the cladding, the expert noted that:

- there are no horizontal inter-storey control joints in the two storey high cladding as recommended by the manufacturer
- there is no clearance from the bottom of the cladding to the paving at the front entries to unit 2 and unit 8
- where the foundation walls are above ground, the textured coating is been extended over the concrete without anti-capillary gaps – and there is severe cracking at the junctions
- the joints to the backing sheets are protruding in a number of areas
- in the re-used windows, the original flashing from the jambs over the sill is in poor condition and there is evidence of recent sealant repairs
- the new windows have no head flashings or sill flashings; and there are cracks at the junction of the planted sill with the window frame – with gaps under the sills, corroding fixings and signs of moisture penetration
- the paintwork to the lower French doors is in poor condition, with flaking paint, bare timber and damage to the timber joinery
- the polystyrene bands have been fixed over unsealed fibre-cement, the uPVC corner moulds are loose and cracks are apparent. The cut-out section of band showed water stains in the polystyrene
- the junction between the cladding and the original stucco is not adequately weatherproofed, as the cut-out of the band revealed bare framing with no flashing or building wrap protecting the timber
- the pergola rafters at the sides of the recess are fixed against unsealed fibre-cement, and there are cracks at the tops with unsealed fibre cement showing.

5.6 The expert agreed with the defects identified in the notice to fix, except for item 2.1e), noting that the new windows had no head flashing and the head flashings of re-used windows projected past the jamb facing boards.

5.7 The expert also noted that the moisture penetration due to various defects may have been occurring for some 10 years and could have resulted in timber decay.

5.8 A copy of the expert's report was provided to each of the parties on 18 October 2006.

5.9 In an email to the Department dated 31 October 2006, one of the related parties to the dispute responded to the expert's comments on the carport building included in the original consent drawings and provided a copy of the Land Information Memorandum, which noted building consents and code compliance certificates issued for the garage building (refer paragraph 3.2).

Matter 1: The cladding

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 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 antecedent, the Building Industry Authority, have also described weathertightness risk factors in previous determinations[5] (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.

[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.

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 extensions to this building:

- are built in a medium wind zone
- are a maximum of two storeys high
- are fairly simple in plan and form
- have roof parapets and no eaves projections
- have monolithic cladding that is fixed directly to the framing
- have external wall framing that is unlikely to be treated to a level that will provide resistance to the onset of decay if the framing absorbs and retains moisture.

6.2.2 When evaluated using the E2/AS1 risk matrix, all elevations of the extensions to this house demonstrate a medium 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.

7. Discussion

7.1 Taking into account the expert's report, I am satisfied that the current performance of the monolithic cladding is inadequate because it has not been installed according to good trade practice and to the manufacturer's instructions. In particular, the cladding demonstrates the key defects listed in paragraph 5.5, which are likely to have contributed to the levels of moisture penetration evident within the external walls of the extensions to this building.

7.2 I have also identified the presence of a range of known weathertightness risk factors in this house. The presence of the risk factors on their own is not necessarily a concern, but they have to be considered in combination with the significant faults identified in the cladding system. It is that combination of risk factors and faults that indicate that the structure does not have sufficient provisions that would compensate for the lack of a drained and ventilated cavity. As moisture ingress is currently occurring in this building, I am not satisfied that the cladding system as installed complies with clause E2 of the Building Code.

7.3 In addition, the extensions are 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 extensions are allowing the ingress of moisture at the moment and will continue to do so in the future, the building does not comply with the durability requirements of clause B2.

8. Conclusion

8.1 I find that, because of the extent and complexity of the faults that have been identified with the cladding, I am unable to conclude, with the information available to me, that remediation of the identified faults, as opposed to partial or full re-cladding, could result in compliance with clause E2. I consider that final decisions on whether code compliance can be achieved by either remediation or re-cladding, or a combination of both, can only be made after a more thorough investigation of the cladding. This will require a careful analysis by an appropriately qualified expert. Once that decision is made, the chosen remedial option should be submitted to the territorial authority for its comment and approval. If the territorial authority chooses to reject the proposal, then the applicants are entitled to seek a further Determination on whether the proposed remedial work will led to compliance with the requirements of clauses E2 and B2.

Matter 2: The durability considerations

9. Discussion

9.1 As set out in paragraph 1.3 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 apparent completion date of the building in 1996.

9.2 I have received no evidence of what inspections were undertaken by the territorial authority during construction but it appears that the work was substantially completed in 1996.

9.3 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).

9.4 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.

9.5 I am satisfied that all the building elements installed in the house, apart from items that have to be rectified as described in paragraph 5.5, complied with clause B2 on 6 July 2000. The establishment of this date is discussed in paragraphs 4.7.

9.6 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.

10. Conclusion

10.1 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 a code compliance certificate had been issued in 2000.

10.2 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.

11 The decision

11.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the cladding to the extensions does not comply with clauses B2 and E2 of the Building Code, and accordingly confirm the territorial authority's decision to refuse to issue a code compliance certificate.

11.2 I also determine that

(a) all the listed elements, apart from the items that are to be rectified, complied with clause B2 on 6 July 2000,

(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 6 July 2000 instead of from the time of issue of the code compliance certificate for the building elements except those elements which have been altered or modified as set out in Determination 2007/56.

(c) once the cladding issues have been rectified to its satisfaction, the territorial authority is to issue a code compliance certificate in respect of the building consent as amended.

11.3 I note that the territorial authority has issued a notice to fix that also required provision for adequate drying and drainage of the wall framing. Under the Act, a notice to fix can require the owner to bring the house into compliance with the Building Code. The notice to fix may list the items to be rectified, including any associated defects discovered during the course of that work, but it should not specify how compliance is to be achieved as 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.

11.4 I would suggest that the parties adopt the following process to meet the requirements of paragraph 11.3. Initially, the territorial authority should issue the new notice to fix. The owner should then produce a response to this in the form of a detailed 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.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 30 May 2007.

John Gardiner
Manager Determinations