



Determination 2012/032

Refusal to issue a code compliance certificate for a 7-year-old building with monolithic and metal claddings at 111 Park Terrace, Waikuku Beach



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.
- 1.2 The parties to the determination are:
- F and S Gebhardt (“the applicants”) as the owners
 - Waimakariri District Council (“the authority”), carrying out its duties and functions as a territorial authority or building consent authority.
- 1.3 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for a 7-year-old house (“the cottage”). The refusal arose because the authority is not satisfied that the building work complies with certain

¹ The Building Act, Building Code, Compliance documents, past determinations and guidance documents issued by the Department are all available at www.dbh.govt.nz or by contacting the Department on 0800 242 243.

clauses² of the Building Code (First Schedule, Building Regulations 1992); in particular in regard to the weathertightness and durability of its cladding.

1.4 The matter to be determined³ is therefore whether the authority was correct to refuse to issue a code compliance certificate for the work. In deciding this, I must consider:

1.4.1 Matter 1: The external envelope

Whether the external claddings to the cottage (“the claddings”) comply with Clause B2 Durability and Clause E2 External Moisture of the Building Code. The claddings include the components of the systems (such as the corrugated metal cladding, the solid plaster, the windows, the roof claddings and the flashings), as well as the way components have been installed and work together. I consider this in paragraph 6.

1.4.2 Matter 2: The durability considerations

Whether the building elements comply with Clause B2 Durability of the Building Code, taking into account the age of the cottage. I consider this in paragraph 7.

1.5 Matters outside this determination

1.5.1 An assessment undertaken by an independent expert commissioned by the Department to advise on this dispute (“the expert”), has raised the matter of alterations that appear to have been undertaken to the cottage without building consent. This determination does not consider those alterations other than in their direct impact on the claddings.

1.5.2 However, it is noted that the alterations may have an affect on compliance with other clauses of the Building Code, in particular the structural performance of the cottage. While the determination is limited to the matters outlined in paragraph 1.3, the building’s compliance with Clause B1 Structure is considered in paragraph 8. It is also likely that the original consent will be required to be amended to exclude those building elements affected by the alteration should a code compliance certificate be issued.

1.6 In making my decision, I have considered the submissions of the parties, the report of the expert commissioned by the Department and the other evidence in this matter.

2. The building work

2.1 The building work consists of a small single-storey cottage situated on a level coastal site in a high wind zone for the purposes of NZS 3604⁴. The 100m² cottage is simple in plan and form and is assessed as having a low weathertightness risk. The expert’s report takes the rear of the cottage as north-facing, and this determination follows that convention.

2.2 The consent documents describe the building as a ‘sleep-out’ and drawings show:

- 75m² internally, with three bedrooms opening off a ‘games room’

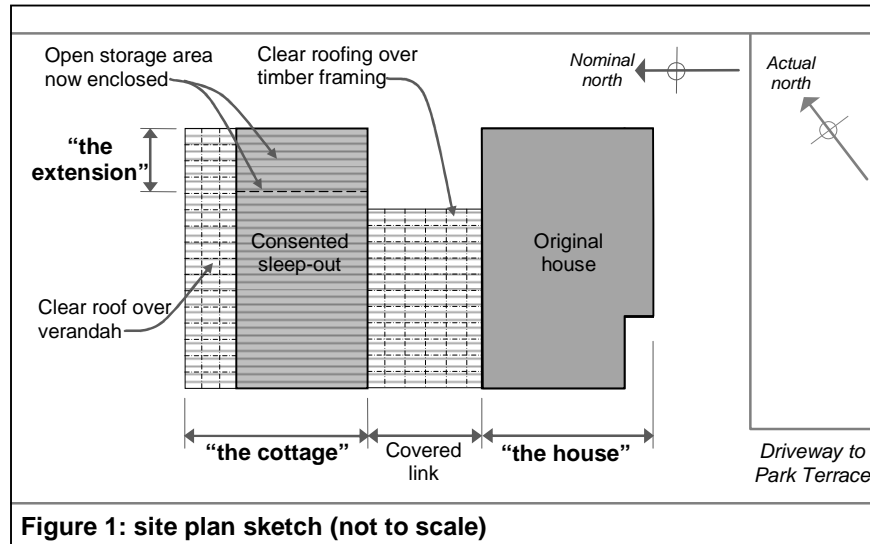
² In this determination, unless otherwise stated, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

³ Under sections 177(1)(b) and 177(2)(d) of the Act.

⁴ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- no bathroom or kitchen facilities
- a 25m² open storage area under the western end of the roof
- a lean-to verandah along the north elevation.

2.3 The cottage is sited behind an existing house as shown in the sketch in Figure 1:



2.4 As constructed, the cottage is changed from the consented sleep-out into a 100m² self-contained one-bedroom residence with:

- the 25m² external storage space enclosed (“the extension”), with:
 - the southeast corner bedroom relocated
 - a bathroom added to the northeast corner
 - ranchsliders added to the east and north
- the western bedrooms omitted
- a large living area with kitchen facilities and a woodburner.

2.5 It is not clear when the above changes were made, but inspection records make no mention of plumbing and drainage (see paragraph 3.2.2), and construction photographs show that the extension was clad after other solid plaster and facings had already been applied. At some stage a clear-roofed ‘pergola’ timber post and beam structure was added between the cottage and the original house, with a framed wall enclosing the western end of the covered area.

2.6 Construction is generally conventional light timber frame, with a concrete slab and foundations, monolithic and corrugated metal wall claddings, aluminium windows, and a 5° mono-pitched profiled metal roof with eaves and verges of about 300mm. A verandah extends as a lean-to along the full length of the north elevation, with timber posts bolted to a beam that supports a timber-framed clear roof.

2.7 Handwritten notes on the specification page state ‘H3 treated framing’ for exterior walls. Although the expert was unable to confirm this, the applicants have subsequently provided invoices which indicate that H3 treated timber was used.

2.8 The claddings

- 2.8.1 The consent documentation called for the east and west walls of the cottage to be clad in horizontal corrugated steel, with fibre-cement sheet cladding to be installed to other walls. However, corrugated steel is limited to the west wall, with all remaining walls clad in a monolithic cladding described as stucco over a solid backing.
- 2.8.2 For the external walls to the extension (see paragraph 2.4), timber boards form the solid backing to the stucco while the remaining stucco walls use fibre-cement sheets. The solid backing is fixed through 35mm H3 treated cavity battens and the building wrap to the framing, and covered by a slip layer of building wrap and metal netting. Timber facings are fixed directly over the netting at corners and around joinery openings, with heavily textured solid plaster applied between the facing boards.
- 2.8.3 Pre-formed boxed metal corner flashings (produced for horizontal corrugated steel) are installed at all corners, with the box corner exposed and timber facing boards installed over the flashing underlaps. The expert was able to observe the fibre-cement backing sheet overlapping the flashing edge at the northwest corner, while construction photographs show the timber backing boards on the extension installed behind the flashing.

3. Background

3.1 The consent documents

- 3.1.1 The authority issued a building consent (No. C/2004-7388) for the house in February 2004 under the Building Act 1991, based on a building certificate issued by the building certifier. I have not seen a copy of the building consent or certificate, but the certifier stamped the documents as approved on 18 February 2004. I note that the building certifier was a LATE⁵ operated by the authority.
- 3.1.2 The consent documents included rudimentary drawings and details, copies of some draft E2/AS1 details for corrugated wall cladding and one page of specification notes, with handwritten annotations. The specification called for fibre-cement sheet cladding, with no mention of solid plaster. I consider the documents well below an appropriate standard expected to properly support a consent application in 2004.
- 3.1.3 Prior to the building consent, the scope of building certifiers' approvals was amended to exclude certifiers from approving wall claddings outside the scope of the acceptable solution. At that time, E2/AS1 included requirements for solid plaster on timber framing, which referenced NZS 4251⁶, stating:

Claddings of solid plaster on timber framing complying with NZS 4251 are an acceptable solution, except that a drained and ventilated cavity shall be required in all cases...

⁵ Local Authority Trading Enterprise

⁶ New Zealand Standards NZS 4251:1974 Code of practice for solid plastering and NZS 4251 Part 1:1998 Solid plastering - Cement plasters for walls, ceilings and soffits

- 3.1.4 The building certifier's 'schedule of site inspections and endorsements' stated that 'it is important that all inspections are carried out and passed, otherwise the Code Compliance Certificate may not be issued'. One of the required inspections was at 'half height installation of exterior cladding'. However, notwithstanding any particular inspection requirements of the building consent, the stucco would have been required to comply with NZS 4251.

3.2 The construction inspections

- 3.2.1 The building certifier carried out various inspections during construction, including:

- corrugated steel cladding on 7 April 2004 (which passed, noting 'flashings in place, 75 x 45 battens behind iron H3')
- a pre-plaster inspection on 10 April 2004, which noted 'reinspection required for flashings & preplaster' and listed the following:
 1. Battens to be H3 treated
 2. Hardies 6mm to be securely fastened and finish 50mm below bottom plate.
 3. Building paper to be fixed to face of hardies
 4. Furring to be installed
 5. Reinforcing mesh to be fixed taut
 6. Window flashings required to all openings
 7. Penetrations to be sealed
 8. 3 coat plastering system to be used
 9. Vermin proofing required.
- pre-line inspection on 5 May 2004 (which passed, noting building was a sleep-out with 'no plumbing', bracing panels 'OK', wall and ceiling insulation).
- plywood bracing and gib nailing of 21 May 2004 (which passed, noting 'OK for stopping').

- 3.2.2 The building certifier carried out final inspections on 22 and 23 June 2004. I note that the record of 22 June crosses out (as not applicable) all components relating to plumbing and service areas, indicating that the kitchen and bathroom were not installed at that time (see paragraph 2.5). The record of the 23 June final inspection is limited to the exterior plastering and states:

Solid plaster inspection not done prior to installation.

Cladding not installed in accordance with NZS 4251

Prime to consider cladding as an alternative solution.

- 3.2.3 The building certifier issued a final building certificate dated 9 July 2004, which excluded exterior cladding and noted 'solid plaster not installed in accordance with NZS4251'. In the letter accompanying the certificate, the building certifier stated:

It is likely that [the authority] will issue a notice to rectify which is a formal advice notice asking you to repair/remove the exterior cladding and reinstate in accordance with NZS4251. Once this work has been done the [authority] may consider issuing a Code Compliance Certificate.

3.3 Communication with the authority

- 3.3.1 Although it did not inspect the stucco, the authority issued a notice to rectify on 19 July 2004, which stated that the building work failed to comply with the Building Code with respect to Clause E2. The notice quoted the full text of the Acceptable Solution E2/AS1 applying at that time, with no reference to specific defects or areas on non-compliance.
- 3.3.2 Following discussions, the applicants wrote to the authority on 18 August 2004. The letter noted that they had no response from the building certifier on particular defects in the stucco and also stated that an ‘independent plasterer’ had not seen ‘anything wrong or particular impacting on the building structure or a leaking building issue.’ The stucco walls were described, including that the plaster was ‘two layers’, with ‘final layer not yet applied’.
- 3.3.3 It appears that some of the changes described in paragraph 2.4 were made to the building either during construction or early 2005. On 19 May 2005 an agent for the applicants sought to resolve matters relating to the need for a resource consent for the extension. The agent requested the authority’s response in respect of the resource consent be copied to the ‘building consent unit’ of the authority, and it appears from a letter from the authority dated 30 May 2005 that this was done. I have seen no evidence whether the changes described in paragraph 2.4 were formalised as an amendment to the consent.
- 3.3.4 The authority issued a letter to the applicants, dated 11 May 2007, that said:
- The Building Act (1991) requires all consented work to be completed within 24 months of starting after which it is at the [authority’s] discretion whether a consent is cancelled or a time extension is granted.
- Accordingly, if you do not complete your building work and have the Code Compliance Certificate issued within two months of this letter your consent will be cancelled unless you have applied for and been granted an extension of time.
- 3.3.5 The matters remained unresolved and the applicants met with the authority in October 2011. In a letter to the applicants dated 14 October 2011, the authority confirmed that although the applicants’ photographs showed the exterior in ‘a well maintained state’, these were not ‘sufficient for us to lift the rectification notice and issue the CCC.’
- 3.4 The Department received the application for a determination on 16 January 2011.

4. The submissions

4.1 The applicants’ submission

- 4.2 In a letter to the Department dated 29 December 2011, the applicants outlined the background to the situation; noting that the cottage was well maintained and ‘in the past 7 years the building was exposed to torrential rain, hail, snow and earthquakes’, with no ‘cracks or leaks’.

- 4.3 The applicants forwarded copies of:
- the consent drawings and specification notes
 - the building certifier's inspection records
 - the notice to rectify dated 19 July 2004
 - correspondence with the building certifier and the authority
 - some construction photographs and recent photographs.
- 4.4 The authority did not acknowledge the application or make a submission in response.
- 4.5 In a letter dated 12 March 2012 the applicants provided a submission in response to the expert's report (refer paragraph 5). The applicants commented on items in the report that are outside the matters to be determined and also stated that 'the alteration was discussed and approved by the [authority] in May 2005', and attached the letter from the agent and response from the authority in respect of the resource consent matter. The applicants also provided a copy of an Earthquake Commission ("EQC") Claim which records an EQC assessment of the damage details from the earthquake of 4 September 2010 and notes that the house was "weatherproof".
- 4.6 I note here in regards to the EQC assessment that the term "weatherproof" is not to be read that the cottage complies with the requirements of Clauses E2 and B2 of the Building Code.
- 4.7 As a result of the observations of the expert, on 13 March 2012 I sought clarification from the parties in respect of the building work that appeared to have been undertaken without consent.
- 4.8 The authority submitted a letter to the Department dated 22 March 2012, providing a copy of a notice to fix of the same date to the applicants in respect of the building work carried out without consent. In an email to the Department on 27 March 2012 the authority clarified its position in respect of the matters to be determined noting that the matters should be restricted to the claddings only (refer paragraph 1.5).
- 4.9 A draft determination was issued to the parties for comment on 30 March 2012.
- 4.10 The applicants submitted a letter, received by the Department on 2 April 2012, providing photographs and a copy of invoices for the timber (refer paragraph 2.7), and accepted the draft determination without further comment in a response dated 23 April 2012.
- 4.11 The authority accepted the draft without further comment in a response dated 4 April 2012.

5. The expert's report

- 5.1 As mentioned in paragraph 1.6, I engaged an independent expert to assist me. The expert is a member of the New Zealand Institute of Building Surveyors. The expert inspected the house on 25 January 2012, providing a report dated 27 February 2012.

5.2 General

- 5.2.1 The expert noted that the construction and detailing showed ‘workmanship of poor quality’; with internal finishes incomplete, fascia lines not ‘true and straight’, the roof line ‘out of alignment’, the southeast corner out of plumb, the south wall appearing to be ‘in twist’ and roof barge flashings not appropriately formed or fixed.
- 5.2.2 The expert also considered the quality of the stucco cladding ‘not that expected from a tradesman familiar or experienced in plaster cladding systems’ and noted that the stucco did not comply with the relevant standards at the time of construction.
- 5.2.3 The expert also described significant planning changes from the consent drawings, as described in paragraphs 2.2 and 2.4. I have also described changes in the external claddings in paragraph 2.8.

5.3 The stucco

- 5.3.1 The expert removed a vertical timber facing board at the jamb of a ranch-slider under the north verandah and observed that:
- metal netting extends beneath the facing, with the plaster applied later
 - metal netting is at the rear of the plaster and not properly embedded
 - plaster had been applied in a single coat, with no evidence of multiple coats
 - plaster is heavily textured and varies from 10mm to 18mm thick.
- 5.3.2 The expert could observe the underlying construction from the bottom of the stucco, noting slip layers, metal netting, building wrap, cavity battens, timber backing boards for extension walls and fibre-cement backing sheets elsewhere. At the north end of the extension, the expert observed that the backing boards appeared untreated.
- 5.3.3 The expert also observed detailing at the corners as described in paragraph 2.8.3. A horizontal facing extends along the top of the north and south walls, and is fixed over the metal netting, with the stucco applied up to the lower edge.

5.4 Windows and doors

- 5.4.1 Aluminium windows and doors are installed in line with the cavity, with metal head flashings. At the north verandah, vertical facings extend past the window and door heads. Elsewhere, the head flashing extends above vertical facings, with horizontal facings fixed over the flashing upstand.
- 5.4.2 The expert could observe the bottom of a metal jamb flashing beneath a ranchslider at the western end of the north verandah, and noted that the flashing extended over fibre-cement backing. However, at the exposed east ranchsliders, the jamb flashing terminated behind the timber backing boards.
- 5.4.3 At the exposed east bathroom window, edges of the timber backing boards were exposed at the jambs and sill, with sealant applied to the sloping surface and no visible sill flashing.
- 5.5 The expert took non-invasive and short pin probe moisture readings in door reveals and wall linings, and recorded low moisture readings from 11% to 14%. However,

the expert also observed water stains at door sills, on cavity battens and some bottom plates that show moisture has penetrated into the cavity and some adjacent framing.

5.6 Commenting specifically on the external envelope, the expert noted that:

The stucco

- the stucco does not comply with NZS 4251 because:
 - plaster is applied in a single coat
 - thickness varies from 10mm to 18mm thick
 - the metal netting is not properly embedded in the plaster
 - there are no vertical control joints installed in the plaster
 - there are no formed drip edges at the bottom
 - some plaster is applied over timber boarding that may be untreated
- the bottom of the stucco is uneven in some areas, with insufficient foundation overlap and exposed metal mesh, building wrap and floor slab membrane
- there are cracks in the stucco, particularly on the east elevation
- some pipe penetrations are poorly sealed
- the stucco is not continuous and is butted against timber facings, allowing moisture to penetrate the junctions
- there are water marks on timber backing boards and battens in some areas
- clearance from the bottom of the stucco to the ground is insufficient in one area on the east elevation
- the top north facing has moved, exposing unsealed fibre-cement backing sheets to moisture and metal mesh to corrosive air
- at the northeast corner, the top of the metal corner flashing is exposed, allowing moisture to run down behind the timber facing, which has moved and exposed mesh above the unprotected top facings

The windows

- jamb flashings finish behind the timber backing boards
- the timber backing boards are exposed behind the facings at the bathroom jambs and sill, with no sill flashing and reliance on sealant for weatherproofing
- there are gaps at the ends of the head flashings in some areas
- the north living room window has double-glazed units secured to framing with vertical timber mullions and new plaster appearing to overlap the sill

The roof

- roof pitch is very low at 4° and fixings do not align, indicating that fixings are either loose or underlying purlins are not aligned
- the metal barge flashings underlap the roofing, allowing moisture to penetrate under the roofing
- the north verandah beam has mid-span connections

- the junction of the north verandah roof with the upper corrugated steel is not weatherproof, with no apron flashing, a large gap at the northwest corner and vulnerable unflashed top facings directly below.
- 5.7 The expert also observed that the southeast corner was well out of plumb, with the south wall appearing to be twisted. The roof line along the east barge is also not straight and gaps under the top facing board on the north elevation indicate movement of the poorly fixed facing board. I note that planning changes have increased room areas and reduced partitions, with no apparent changes to bracing.
- 5.8 A copy of the expert's report was provided to the parties on 2 March 2012.

Matter 1: The external envelope

6. Weathertightness

6.1 The stucco cladding

- 6.1.1 Taking into account the significant defects identified in the expert's report, I am satisfied that the stucco cladding installed on this cottage is not adequate because it has not been installed according to the requirements of NZS 4251 and to good trade practice at the time of installation. I also consider that the other areas identified by the expert in paragraph 5.6 require attention in regard to the remaining claddings.
- 6.1.2 Considerable work may be required to make the cottage weathertight and durable and further specialised investigation is necessary, including the systematic survey of all identified defects and risk locations, to determine the extent of repairs required.

6.2 Weathertightness conclusion

- 6.2.1 I consider the expert's report establishes that the current performance of the building envelope is not adequate because there is visual evidence of moisture penetration into cavities, backing boards and some bottom plates. Consequently, I am satisfied that the cottage does not comply with Clause E2 of the Building Code.
- 6.3 In addition, the building envelope 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 cottage to remain weathertight. Because the cladding faults will allow the ingress of moisture in the future, the building envelope does not comply with the durability requirements of Clause B2.
- 6.4 Because of the extent and apparent complexity of the faults that have been identified with the stucco, I am unable to conclude that fixing the identified faults, as opposed to partial or full re-cladding, could result in compliance with clauses B2 or E2. Final decisions can only be made after a more thorough investigation of the stucco, which will require a careful analysis by an appropriately qualified expert. Once that decision is made, the chosen repair option should be submitted to the authority for its consideration and approval.

- 6.5 Effective maintenance of claddings 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 (for example, Determination 2007/60).

Matter 2: The durability considerations

7. Discussion

- 7.1 The authority is concerned about the durability, and hence the compliance with the Building Code, of certain elements of the building work taking into consideration the age of the cottage. 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).
- 7.2 In previous determinations (for example Determination 2006/85) I have taken the view that a modification of this requirement can be granted if I can be satisfied that the building complied with the durability requirements at a date earlier than the date of issue of the code compliance certificate, that is agreed to by the parties and that, if there are matters that are required to be fixed, they are discrete in nature.
- 7.3 Because of the extent of further investigation required into the stucco cladding and the cottage’s structure, and the potential impact of such an investigation on the external envelope, I am not satisfied that there is sufficient information on which to make a decision about this matter at this time.

8. Compliance with Clause B1 Structure

- 8.1 Taking account of the expert’s report, construction photographs and other evidence, I make the following observations on the structural performance of the cottage:
- Although the building certifier inspected bracing during construction, that bracing would have been assessed on the basis of the consent drawings.
 - There have been significant changes in the layout of the cottage, resulting in larger interior spaces, fewer internal partitions and increased wall openings; and there is no evidence that bracing requirements were revised and reviewed.
 - Photographs clearly show movement of various components of the claddings and also of some elements of the underlying structure, which is likely to indicate a lack of bracing to some areas of the structure.
 - One area of the stucco plaster is also under repair, apparently due to plaster falling off a section of wall during recent earthquake movement.

9. Section 93 of the Act

- 9.1 In its letter, dated 11 May 2007, the authority advised the applicants that, according to the Building Act 1991, the consented work was required to be 'completed within 24 months of starting' and that the consent would be cancelled if extension was not granted (refer paragraph 3.3.4).
- 9.2 The two year period in which an authority is required to make a decision about compliance is described in section 93 of the Building Act 2004; there are no such provisions in the Building Act 1991.
- 9.3 Under the provision of the Building Act 2004, if an application for a code compliance certificate is not received within two years of the granting of the building consent, an authority must then assess whether the building work complies with the building consent, and issue, or refuse to issue, the code compliance certificate. The Building Act 2004 contains no provisions that provide for an authority to cancel a consent once the two year period has passed. This matter is discussed in further detail in Determination 2008/40.

10. What is to be done now?

- 10.1 I note that the authority did not inspect the cottage before issuing the notice to rectify dated 19 July 2004, which quoted the full text of the Acceptable Solution E2/AS1 at that time and included no reference to specific areas of contravention or non-compliance. I consider that the notice to rectify did not properly and fully identify defects and should now be withdrawn.
- 10.2 In response to the information provided within the expert's report the authority has issued a notice to fix in respect of the building work undertaken without consent, requiring the owner to either remove the building work or apply for a certificate of acceptance.
- 10.3 The authority should inspect the cottage and issue a further notice to fix in respect of the consented building work that requires the owners to bring the building work into compliance with the Building Code, identifying the defects listed in paragraph 5.6 and paragraph 5.7 and referring to any further defects that might be discovered in the course of investigation and rectification, but not specifying how those defects are to be fixed. It is not for the notice to fix to specify how the defects are to be remedied and the building brought to compliance with the Building Code. That is a matter for the owners to propose and for the authority to accept or reject.
- 10.4 I suggest the applicants respond to the notice to fix with a detailed proposal, produced in conjunction with a competent and suitably qualified person, 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.
- 10.5 I leave the matter of the changes to the original consent documentation and resolution of the matter of the building work undertaken without consent to the parties to resolve in due course.

11. The decision

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

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 2 May 2012.

John Gardiner
Manager Determinations