Determination 2007/117

Refusal to issue a code compliance certificate for 2 blocks of units at 222 Albany Highway, Albany, North Shore City

1. The matter to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004 ("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 applicant is the owner of the building, Oak Haven Development Ltd, acting through a firm of developers as agents ("the applicant") and the other party is the North Shore 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 two 1-year-old blocks of units because it was not satisfied that they complied with clauses B2 "Durability" and E2 "External Moisture" of the Building Code (First Schedule, Building Regulations 1992).

1.3 The matter to be determined is whether the wall claddings and the roof claddings as installed on the building ("the claddings"), comply with clauses B2 and E2 (see sections 177 and 188 of the Act). By "the wall claddings and the roof claddings as installed" I mean the components of the system (such as the backing materials, the

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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.
flashings, the joints and the coatings) as well as the way the components have been installed and work together.

1.4 In making my decision, I have considered the submissions of the parties, the report of the firm of independent consultants commissioned by the Department to advise on this dispute (“the consultants”), and the other evidence in this matter. I have evaluated this information using a framework that I describe more fully in paragraph 6.1.

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

2. The building

2.1 The building work consists of two separate blocks of three-storey units (block 1 and block 2), situated on an excavated slightly sloping site that is in a high wind zone for the purposes of NZS 3604\(^3\). Block 1 contains units 1 to 14, with the basement generally providing parking facilities but with some adjacent unit living areas. Block 2 contains units 15 to 32, with the entire basement designated as parking.

2.2 Both blocks are similarly constructed and have concrete intermediate slabs poured on permanent steel boxing supported on structural steel frames, and precast tilt-up slabs form the end and some of the lower walls. The remainder of the external walls are of light timber-frame construction. The buildings are of a relatively complex design, especially at the low-pitched roof areas, which have hidden gutters, parapet walls to the end perimeters, and reverse sloping eaves.

2.3 The concrete upper-level slabs are cantilevered out to provide a “breeze walkway” to the full length of one elevation of each block. At the opposed elevation the mid-level slabs are extended out to form balconies to the lower units. These balconies are constructed over living spaces in Block 2. A timber-framed balcony, supported on structural steel members, is constructed outside each of the upper-floor units. The decks of the walkways and balconies have ceramic tiled coverings fixed over waterproof membranes. Proprietary metal balustrades are fixed to the deck edges of the walkways and balconies.

2.4 The applicant has supplied information from the timber supplier for the project, which confirms that the external wall framing timber is H1.2 treated and the roof framing timber H3.1 treated. The consultants’ report indicates that at least some of the wall cavity battens are CCA H3.2 treated.

2.5 The majority of the timber-framed external walls of the buildings are clad with a 9mm thick “Titan” compressed fibre-cement sheet system with expressed joints. The sheets are fixed to the framing over a “Gib Framegard II” building membrane and horizontal vertically grooved timber cavity battens, and are finished with a paint system. The remainder of the timber-framed external walls are clad with “Nu-Wall” extruded aluminium rippled profile sections. The roofs of each building are covered with “Zincalume Trimline” asymmetric trapezoid profile long-run coated steel with matching accessories.

2.6 I note that the technical information published by the manufacturer of the “Framegard II” building membrane states that it “is not recommended for use as a...

\(^3\) New Zealand Standard NZS 3604:1999 Timber Framed Buildings
wind barrier”. However, the producer statement from this manufacturer described in paragraph 5.12 appears to contradict this statement. Various producer statements and other confirming documents have been provided by the applicant in relation to the claddings and these are described in paragraph 3.12 and 5.10.

2.7 I note that there are some variations between the consented plans and the building as completed and these are listed in paragraph 5.9.

3. Sequence of events

3.1 The territorial authority issued building consent No BC 1078611 on 26 July 2004 for both blocks of units. I note at this point that the drawings provided for the project are well detailed. Construction took place between 2004 and 2007.

3.2 The territorial authority carried out various inspections of the property during the construction process. While some pre-line and cavity inspections were recorded as “failed”, the territorial authority passed three post-line inspections. The final building inspection undertaken on 24 August 2006 was recorded as “failed”.

3.3 The “Building Officers Field Memoranda” dated 4 September 2006, listed items of contraventions that had been noted during the final inspection. As regards the cladding, the documents noted corrosion at some metal roofing and gutter locations and listed cladding items of concern. Required confirmation documents were listed and the territorial authority also requested a report from an approved certified weathertightness surveyor as to the water-tightness and weatherproofing of the claddings.

3.4 The applicant engaged the services of a firm of building consultants (“the applicant’s consultants”) to visit the site and investigate the building work. Following an initial visit, the applicant’s consultants noted in a fax dated 27 September 2006, that:

- the building wrap used was “Framegard II”
- the cladding used is “Titan Rainsceen”
- the design wind pressure is 1.31 kPa.

The applicant’s consultants also stated that the wall cladding manufacturer only allowed the installation of non-rigid air barriers in low wind-pressure areas and that Framegard II “is not recommended for use as a wind barrier”. Accordingly the manufacturers of the “Titan” and “Framegard” cladding products advised that they would not issue warranties for their products as installed on the unit blocks. However, I note that some of the confirming documentation listed in paragraph 3.12 runs counter to the statement made by the manufacturer of the “Titan” products.

3.5 The applicant’s consultants visited the property again on 13 October 2006, in company with the territorial authority’s building consents officer. Subsequently, the consultants faxed the applicant on 16 October 2006 and listed work requiring attention in respect of the:

- window jamb flashings
- parapet saddle flashings
- fixing of Inseal jointing strips
- fixing of cavity battens
• flashings alongside the tilt-slab walls
• external corner flashings
• ground clearance
• dark colour of paint on the front units.

It was also noted that the faults are extensive and the applicant’s consultants considered that the removal of the entire fibre-cement cladding would be necessary before the problems could be fixed.

3.6 The territorial authority issued a notice to fix dated 31 January 2007. In the notice the territorial authority listed numerous particulars of contravention or non-compliance relating to both blocks. The majority of these items were in relation to the wall or roof cladding and their associated accessories. In addition, there were also other areas of general concern, such as water ingress, balustrades, stair treads, and the corrosion of the steel slab formwork. The territorial authority stated that the itemised particulars did not comprise the entire list of defects.

3.7 The territorial authority also stated in the notice that a full weathertightness report by a certified weathertightness surveyor or equivalent person was required. Following this, the territorial authority should be provided with a “remedial works proposal”. It was also noted that some remedial work had been carried out without the territorial authority’s approval, had been ineffective, and had caused “irreparable damage” to the cladding sheets. The territorial authority required confirmation that the wind pressure for the site was less than 1.5kPa. Due to the risk factors involved and the identified defects, the territorial authority was unable, on reasonable grounds, to be satisfied that the cladding systems installed on the buildings met the requirements of clauses B2 and E2.

3.8 Email correspondence took place between the parties from 9 to 26 February 2007 regarding the notice to fix. The territorial authority:
• noted that it had not received the consultant’s report as requested
• was not prepared to have an on-site meeting with the applicant
• noted that the current situation was produced by the applicant’s team, who had also undertaken the supervision of the construction
• suggested that the applicant engage the services of a suitably qualified expert to inspect and investigate the external building envelopes, following which a robust remedial works proposal could be presented for the territorial authority’s approval.

The applicant stated that:
• a site meeting with the territorial authority was required to be held, which the architects for the project should also attend
• it had ensured that all the territorial authority’s required inspections had been carried out. The territorial authority should have ensured that all necessary inspections had been listed on the consent and that all such inspections were completed
• the notice to fix should have been issued during construction when the perceived problems actually occurred.
3.9 According to the applicant, the applicant had a meeting with a representative of the territorial authority on 27 February 2007, who stated that “he was not happy with the standard of workmanship on the cladding”.

3.10 The manufacturer of the metal roofing and flashing accessories used on the project wrote to the applicant on 20 March 2007. The manufacturer stated that:

- the flashing cover on the aprons was made to the industry standard at the time of installation and was far less likely to leak than the detail shown in the E2/AS1 document
- the detail of the barge flashing birds-mouth touching the barge was the norm at the time the flashings were installed and any corrosion at these locations would only be superficial
- flat-top parapet flashings also were the norm at the time of installation and had not been subject to leakage over the last 15 years of their use in the Albany area
- the manufacturer was experienced in the manufacture of the materials in question and the materials would not compromise the water-tight integrity of the building.

3.11 A firm of consulting engineers faxed the applicant on 19 April 2007, with advice on how to deal with the rusting of the Hi-Bond floor to the rear apartment block.

3.12 The applicant provided the following confirmation documentation, which I assume was also supplied to the territorial authority:

- A letter from the timber supplier dated 11 October 2005, stating that the interior and exterior wall framing is H1.2 treated and the roof framing timber is H3.1 treated.
- A producer statement from the “Titan” cladding installers dated 24 February 2006, stating that the cladding was installed “to the extent required by the building consent and in compliance with the Building Code”.
- A producer statement from the “Titan” cladding installers dated April 2006, confirming that the fibre-cement sheets were installed in accordance with the architects’ and the manufacturer’s construction details and standards. It was also noted that the cladding was inspected and approved by the material manufacturers.
- A 2-year product warranty dated May 2005 and issued in the name of the suppliers of the “Titan” cladding materials, which was subject to certain conditions.
- A 2-year workmanship guarantee dated 1 May 2005, from the “Titan” cladding installers in respect of the cladding. The guarantee excluded damage caused by “defective building structure, hydrostatic pressure, mechanical or physical abuse or any other abnormal cause.”
- A 15-year commercial roofing warranty from the supplier of the roofing components, as from 22 March 2006, which was subject to standard conditions.
• A 5-year commercial/industrial workmanship guarantee dated 21 July 2006, from the installers of the roofing and flashings, which was subject to certain exclusions.

The following two documents were not supplied directly to me by the applicant. However, as they were apparently on the territorial authority’s files, I assume that the applicants originally forwarded them to the territorial authority:

• A producer statement from the “Nu-Wall” cladding installers dated 20 November 2006.
• A statement of performance from the suppliers of the “Nu-Wall” cladding materials dated 22 November 2006.

3.13 The Department received the application for a determination on 15 May 2007 and the application fee was received on 21 May 2007, from which date the Department could commence to determine the matters in question, subject to the receipt of submissions.

4. The submissions

4.1 In a covering letter dated 11 May 2007, the applicant noted that the territorial authority would not issue a code compliance certificate for the buildings as it does not consider that the cladding complies with clauses B2 and E2. The applicant stated that it had ensured that all the required territorial authority inspections had been carried out. The applicant was of the opinion that there was no requirement for it to comply with the territorial authority’s current policy, which required an independent weathertightness survey. The applicant acknowledged that the notice to fix listed many defects and that some of the listed items had already been attended to.

4.2 The applicant forwarded copies of:

• the plans
• the notice to fix
• some of the territorial authority’s inspection records
• the correspondence between the parties
• the correspondence from the consulting engineers
• the consultants’ reports of 27 September 2006 and 16 October 2006
• the confirming documentation as set out in paragraph 3.12.

4.3 In a submission to the Department dated 1 June 2007, the territorial authority noted that, due to issues with the cladding, it was not satisfied, on reasonable grounds, that the dwelling complied with the relevant clauses of the Building Code. The territorial authority stated that matters to be determined are:

Whether the installed cladding systems comply with the clauses B2 and E2 of the New Zealand Building Code.

4.4 The territorial authority forwarded copies of the notice to fix.

4.5 Copies of the submissions and other evidence were provided to the parties. Neither party made any further submissions in response to the information that was provided.
A copy of the draft determination was sent to the parties for comment on 15 August 2007. Both parties accepted the draft without comment.

5. **The consultants’ report**

5.1 As mentioned in paragraph 1.4, I engaged a firm of independent consultants, who are experienced in the field of building inspections, to provide an assessment of the condition of those building elements subject to the determination.

5.2 Two experts from the consultants (“the experts”) inspected both blocks on 3 and 9 July 2007 and furnished a report that was completed on 24 July 2007 and signed by one of the experts who is member of the New Zealand Institute of Building Surveyors. The report noted that:

- the expressed vertical joints in the “Titan” cladding are installed in accordance with the manufacturer’s instructions
- the windows in the “Nu-Wall” clad walls appeared to be installed in accordance with the manufacturer’s instructions.

5.3 The experts removed sections of the cladding at various locations in both blocks, and I am prepared to accept that the details revealed at these locations would apply to similar situations throughout the building.

5.4 The experts took non-invasive moisture readings internally within all the units, with the exception of unit 24 of block 2, and elevated readings were recorded at one location in each block. Subsequently, invasive moisture readings were taken through the cladding at 49 locations, 18 of which recorded comparatively elevated readings. The elevated readings were as follows:

- 22%, 23% (at 4 locations), 24%, 27%, 37%, and 40% for block 1
- 23% (at 2 locations), 28%, 30% (at 2 locations), 40%, 80%, 94%, and 100% for block 2.

Moisture levels that vary significantly above the average (which in general is below 18%) after cladding is in place, generally indicate that external moisture is entering the structure.

5.5 The experts also noted that there was other evidence of water ingress at various locations in both blocks.

5.6 Commenting specifically on the wall cladding and adjoining balconies, the expert noted that:

- there are examples of inappropriately positioned or spaced cavity battens that render the cavity ineffective at some locations
- where remedial work has taken place, the quality of the reinstatement work is poor at some locations
- the base of the “Titan” cladding is too close to either the finished ground levels at some locations or the balcony deck surfaces
- the cavity at the base of some parapet walls is closed and the cladding does not extend sufficiently over the roof apron flashings
- the junctions between the “Titan” and “Nu-Wall” claddings are inadequately constructed
- the junctions between the wall claddings and the high level balcony parapets are ineffectively constructed, particularly at the balcony to unit 32
- there are gaps between the wall claddings and the soffit linings at some locations
- the ends and cut folds of the galvanised “Z” flashings to the inter-storey joints lack sealants
- the “T” aluminium socket flashings to horizontal joints of the “Titan” claddings are inadequately sealed and there may be incompatibility between the flashings and the treatment applied to the cavity battens
- the parapet flashings lack the required cross-falls, are fitted tight against the cladding, and lack kick-outs or birds-beak drip edges
- the ends of the steel parapet and balcony balustrade cappings are not sealed at some locations
- no turn-ups are installed to the ends of the head flashings over the external joinery units installed in the “Titan” cladding and the head flashing ends are not sealed
- no bond-breaker/compressible foam is installed at the jambs of the external joinery units
- many of the penetrations through the cladding are either unsealed or are inadequately sealed, including the baluster fixings
- timber is exposed at the perimeter of the high-level balcony soffits at some locations
- the liquid-applied membrane applied to the high-level balcony decks is ineffectively jointed where it meets the adjoining butyl-rubber membranes
- there are gaps between the balcony scupper outlets and the adjoining cladding or its accessories.

5.7 Commenting specifically on the roof cladding and gutters, the expert noted that:
- the retrofitting of the roof parapet cappings and junction flashings is incomplete, and where this has been undertaken, the parapet cappings do not extend to meet the adjoining saddle flashings
- the butyl-rubber to the block 1 south side roof gutters lacks drip edges and the gutters have been ineffectively formed
- there is a minimal flashing cover over the roof gutter at the west end of block 1 and there are also gaps in the flashings
- some flashing junctions are ineffectively formed and there is an over-reliance on flashing tape at some locations
- the butyl-rubber is inadequately dressed into some gutter outlets and there are gaps between the scupper overflow outlets and the cladding
- the membrane is pierced by the inter-unit fencing brackets.
5.8 The experts also expressed concern about the ongoing structural performance of the cantilevered balconies at the upper levels of both blocks. The particular concern relates to the effect that prolonged ingress of the moisture that is present at this time would have on the timber framing. The experts have recorded very high moisture content readings on at least 3 separate balconies.

5.9 The experts also noted the following departures from the details shown on the consented drawings when compared with the buildings as constructed:

- the substitution of “Framegard II” synthetic building wrap for the rigid “Tyvek” air barrier as indicated on the plans
- The installation of the “Titan” cladding system to the upper level end walls in lieu of the consented plastered “Harditex” system
- The deletion of some glass balustrades and their replacement with metal balustrades
- The lack of 5 degree cross-falls to the parapet cappings
- Butyl-rubber installed to the roof gutters in lieu of torch-on waterproofing.

5.10 A copy of the experts’ report was provided to each of the parties on 26 July 2007. The applicant wrote to the Department on 8 August 2007, and attached a response to the expert’s report from the cladding installer, together with a producer statement dated 31 July 2007, from the manufacturers of the building wrap. The applicant noted that the information from the wrap manufacturer confirmed that “Framegard II” will meet the requirements of the Building Code when:

used as a wall wrap under any cladding which complies with NZBC E2/AS1 Table
used in all Building Wind Zones of NZS 3604 up to, and including, “Very High”.

5.11 The cladding installer’s comments were set out in a fax to the applicant dated 9 August 2007. The installer noted that the cladding manufacturer’s representatives had inspected the work on several occasions and were satisfied with the installation. The territorial authority had also carried out several inspections and, after requiring the cladding installation to be halted for some weeks, had approved the “cavity system construction and other waterproofing issues”. In regard to the cladding work, the installer noted that:

- although the flashings to the openings were the responsibility of the window installer, sealant would be applied at their junctions with the cladding
- there are items of cladding, such as the horizontal joint flashing that were installed by the applicant or its agents
- the installer was prepared to reseal the T-socket flashings.

The installer also provided a detail of a batten fixing.

5.12 The producer statement from the supplier of the building wrap noted that “Framegard II” meets or contributes to the relevant requirements of the Building Code when:

used as a wall wrap under any cladding (absorbent and non-absorbent, either fixed over a cavity or direct fixed) which complies with NZBC E2/AS1 Table 3
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 are written conservatively to 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 one or more other provisions 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. 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 two blocks:

- are 3 storeys high
- are situated in a high wind zone
- have cladding installed over a cavity that is, as described by the experts, ineffective at some locations
- have few eaves and verge projections that can help protect the claddings below them

\(^4\) 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.
• have cantilevered high-level balconies
• have lower level balconies, some of which are constructed over living spaces
• have external wall framing that is not treated to a level that provides much resistance to the onset of decay if the framing absorbs and retains moisture.

6.2.2 The units have 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. A higher risk rating will necessitate more rigorous weatherproof detailing; for example, a high risk rating is likely to necessitate particular types of cladding being 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 each block demonstrate a high weathertightness risk and the remaining elevations a very high risk. I note that, in order to comply with E2/AS1, the Titan wall cladding of this building would require a drained cavity.

7 Discussion

7.1 Taking into account the expert’s report, I am satisfied that the current performance of the “Titan” claddings and the roof claddings installed on both blocks is inadequate because they have not been installed according to good trade practice. In particular, these claddings are at present allowing water penetration into the walls and roof through defects in the claddings, which in turn could lead to the framing timber rotting at some locations. In particular, the claddings demonstrate the key defects listed in paragraphs 5.6 and 5.7. I have also identified the presence of a range of known weathertightness risk factors in both blocks of units. 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 wall and roof cladding systems. It is that combination of risk factors and faults that indicate that the structures do not have sufficient provisions that would compensate for the inadequacies of the wall and roof claddings as installed. Consequently, I am satisfied that neither the “Titan” wall cladding nor the roof cladding systems as installed comply with either clause B2 or clause E2 of the Building Code.

7.2 It has been noted that “Framegard II” synthetic building wrap has been installed behind the “Titan” claddings. Substituting specified products can result in a building becoming non compliant. The manufacturer’s instructions for the wrap do not recommend its use as an air barrier. Despite this, a 2-year qualified warranty in the name of the manufacturer of the “Titan” system components was attached to the cladding installer’s producer statement. In addition, the subsequent information provided by the building wrap manufacturer as set out in paragraph 5.12 should enable the territorial authority to better determine the compliance of the wrap with the requirements of the Building Code in this instance.

7.3 Nonetheless, I find that, because of the extent and apparent complexity of the faults that have been identified with the claddings, I am unable to conclude, with the information available to me, that repair of the identified faults, as opposed to partial or full re-cladding or re-roofing, could result in compliance with clauses B2 or E2.
consider that final decisions on whether code compliance can be achieved by either repair 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 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 lead to compliance with the requirements of clauses B2 and E2.

7.4 Of immediate concern is the doubt raised by the experts as to the continuing structural integrity of the high level balconies of both blocks. I recommend, as a matter of urgency, that the territorial authority inspect these balconies to check on their current condition, and to take steps to ensure that, if any faults are discovered, they are rectified immediately by the applicant.

8 The Decision

8.1 In accordance with section 188 of the Building Act 2004, I determine that the building work 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.

8.2 I note that the territorial authority has issued a notice to fix. Under the Act, a notice to fix can require the owner to bring the additions into compliance with the Building Code. The Building Industry Authority has found in a previous Determination 2000/1 that a Notice to Rectify (the equivalent to a notice to fix under the Building Act 1991) cannot specify how that compliance can be achieved. I concur with that view.

8.3 The territorial authority should now issue a new notice to fix that requires the owner to bring the cladding into compliance with the Building Code, without specifying the features that are required to be incorporated. It is not for me to decide directly how the defects are to be remedied and the cladding brought to compliance with the Building Code. That is a matter for the owner to propose and for the territorial authority to accept or reject.

8.4 I would suggest that the parties adopt the following process to meet the requirements of paragraph 8.3. Initially, the territorial authority should issue the notice to fix. The owner should then produce a response to this in the form of a technically robust 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 17 October 2007.

John Gardiner
Manager Determinations