

## *Determination 2005/82*

# *Refusal of a code compliance certificate for a building with a “monolithic” cladding system: House 72*

### **1 THE DISPUTE TO BE DETERMINED**

- 1.1 This is a determination of a dispute referred to the Chief Executive of the Department of Building and Housing (“the Chief Executive”) under section 17 of the Building Act 1991 as amended by section 424 of the Building Act 2004 (“the Act”). The applicant is the building owner (“the owner”) and the other party is the territorial authority. The application arises from the refusal by the territorial authority to issue a code compliance certificate for a 4-year old house, unless changes are made to its monolithic cladding system.
- 1.2 My task in this determination is to consider whether I am satisfied on reasonable grounds that the external monolithic wall cladding as installed to all the external walls of the house (“the cladding”), complies with the building code (see sections 18 and 20 of the Act). By “external monolithic wall cladding as installed”, I mean the components of the system (such as the backing sheets, the flashings, the joints and the plaster and/or the coatings) as well as the way the components have been installed and work together.
- 1.3 This determination is made under the Building Act 1991 subject to section 424 of the Building Act 2004. That section came into force (“commenced”) on 30 November 2004, and its relevant provisions are:
- “ . . . on and after the commencement of this section,—
- “(a) a reference to the Authority in the Building Act 1991 must be read as a reference to the chief executive; and
- “(b) the Building Act 1991 must be read with all necessary modifications to enable the chief executive to perform the functions and duties, and exercise the powers, of the Authority . . . ”

It should be noted that the new legislation does not amend the determination process set out under the 1991 Act, other than to transfer the power to make a determination from the Authority to the Chief Executive of the Department of Building and Housing.

- 1.4 This determination refers to the former Building Industry Authority ("the Authority")
  - (a) When quoting from documents received in the course of the determination, and
  - (b) When referring to determinations made by the Authority before section 424 came into force.
- 1.5 In making my decision, I have not considered any other aspects of the Building Act or the building code.
- 1.6 The house itself is described in paragraphs 2.1 to 2.3, and paragraph 8 sets out my decision.

## **2 PROCEDURE**

### **The building**

- 2.1 The building work is an architecturally designed two-storey detached house situated on a level site in a low wind zone in terms of NZS 3604: 1999 "Timber framed buildings". The house is of conventional light timber frame construction on a proprietary concrete ground floor slab and all the external walls are sheathed with monolithic cladding. The house is of a generally simple shape, but has one wall angled to match the boundary profile. The roof space contains an attic, and the flat roof over this area is covered with a butyl-rubber membrane over a plywood substrate. The pitched perimeter roofs surrounding the attic are covered with fibreglass shingles. A narrow flat roof is constructed over the main entrance and this is supported on monolithic clad beams and hollow columns. This roof is lined with a butyl-rubber membrane over plywood, and the low timber framed parapet wall around the roof has monolithic cladding on its outer face and a butyl rubber lining to the top and inner face. The plans show an open pergola to one elevation, but only the wall fixings have been installed at present. The plaster has been thickened to form a fascia under the timber fascias and rectangular profiles to the jambs and heads of the exterior joinery units. The windows also have profiled polystyrene sills planted onto the cladding. As the timber fascias are fixed directly to the walls, there are no eaves projections.
- 2.2 The specification calls for all wall framing timber to be H1 treated, and as noted by the expert engaged by the Authority, this would be an LOSP treatment. No further evidence has been provided as to what treatment, if any, was applied to the exterior wall framing.
- 2.3 All the new timber framed external walls of the house are clad with a stucco system that is described as monolithic cladding. In this instance it incorporates fibre-cement backing sheets fixed through the building wrap directly to the framing timbers,

reinforcing mesh spaced off the backing and a 25mm thickness of solid plaster. The plaster in turn is finished with a 100% acrylic high-build paint system. No information has been given as to what jointing, plaster and paint systems were applied to the extension.

- 2.4 The plastering company issued a Producer Statement, dated 30 June 2004 for the plaster applied to the external walls. A consultant engaged by the owner (“the owner’s consultant”) issued a “Producer Statement – Construction Review”, dated 31 December 2003. As described in paragraph 3.6, the territorial authority has refused to accept either of these statements.

### **Sequence of events**

- 2.5 The territorial authority issued a building consent on 7 December 1999.
- 2.6 The territorial authority carried out and passed various inspections while the house was being constructed. Following a final inspection, the territorial authority noted in a “Final Check List”, dated 3 March 2004, that “this is a house without a cavity system (Solid Plastering)
- 2.7 The territorial authority wrote to the owner on 10 June 2004, stating that it had inspected the house, regretted that it may not comply with the building code in a number of respects and described the territorial authority’s current concerns about weathertightness problems involving monolithic clad buildings. The territorial authority attached a copy of a Notice to Rectify dated 10 June 2004 to this letter.

The “Particulars of Contravention” attached to the Notice to Rectify noted that in regard to the cladding:

1. The following items have not been installed per the manufactures [sic] specifications
  - Control joints at a maximum of 4.0M centers vertically from internal and external corners and horizontally at floor joist level are required. Horizontal control joints have not been installed.
  - Expansion joints at a maximum of 12.0M centers vertically are required. No expansion joints have been installed.
  - A 6mm gap (horizontally) is required between the back of the cladding and the foundation wall. This has not been achieved.
  - The bottom edge of the cladding system is to finish minimum 100mm above paved surfaces and 175mm above unpaved surfaces. The cladding has been taken closer than these measurements.
2. The following items have not been installed per the acceptable solutions of the building code, (no alternative solutions have been applied for)
  - Two outlets are required to internal gutters/decks. The cross-sectional area of the outlets shall be no less than the cross-sectional area of the downpipes serving the gutter/deck. The minimum internal diameter permitted is 63mm. There is no overflow outlet for the roof above the front entry.

- The minimum finished floor level to finished ground level is 150mm to paved surfaces, and 225mm to unprotected ground. This clearance has not been achieved.
3. The following items have not been installed per accepted trade practice
- At the junction between horizontal surfaces and a vertical surface flashings are required. The front entry parapet/house junction has no flashings installed.
  - Penetrations through the cladding system shall be as waterproof as the cladding itself. There are a number of penetrations through the cladding that should be protected with rubber flanges and silicon. In the case of the meter box and extractor fan flashings have not been installed.
  - The junction between the window head flashing and bottom edge of the cladding should be left unsealed with a 20mm gap. This junction has been sealed.
  - Sill flashings are to taken 30mm past the edge of the window joinery. This has not been achieved.
  - Head flashings above window are to be taken 30mm past the edge of the window joinery. This has not been achieved.
  - Drip edges are required to prevent surface drips off the cladding, preventing capillary action, gravity or wind pressure. Drip edges have not been installed.
  - The finished cladding system, is to be taken up behind barge, facial (*sic*) boards and the like. This has not been achieved.
  - Downpipes shall be supported/clipped to the building, clips are required at approximately 1.0mm centers.
4. Ventilated cavity system
- The Council has recently received information which shows that monolithic cladding systems without a drainage plane/cavity, provision for adequate ventilation, drainage and vapour dissipation will, in the likelihood of leakage and/or the effects of residual moisture, cause irrevocable damage to the structural elements of the building.

The territorial authority also noted:

The Council cannot be satisfied that the above building meets the performance requirements of Clauses B1 Structure, B2 Durability, E2 External Moisture, E3 Internal Moisture, G4 Ventilation and H1 Energy Efficiency Provisions of the Building Code... This is in breach of Sections 7(1), of the Building Act 1991...

Also that the owner was required to:

1. Provide adequate ventilation to the monolithic cladding and into the wall frame space by means of either a ventilated cavity or alternative approved system, and ensuring all issues related to the above are resolved.
2. Lodge with council an application, within 28 days from the date of this notice, for an amended building consent, and provide all necessary information that may be requested to allow this consent application to be processed, alternatively.

- 3 Confirm to council, within 28 days from the date of this notice, your intention to apply to the Building Industry Authority for a determination in accordance with the Building Act 1991

The territorial authority also provided a set of photographs relating to the cladding.

- 2.8 The owner's consultant, who had observed the construction and completion of all the building work associated with the house, produced a report, dated 8 March 2004, based on the observations that had been made. The consultant noted that the house has had its regular annual inspections since construction and was recoated by a professional applicator in February/March 2003. Following a February 2004 site visit, the consultant was of the opinion that "the dwelling is in a sound weathertight state".

- 2.9 The owner's consultant also prepared a "Technical Appraisal Report", dated 28 July 2004, which described in detail the various construction features of the house. In summary, the consultant concluded:

The external wall cladding to the mansard roof [the fibreglass shingles] and the stucco work to the vertical walls has been constructed to best trade practice current at the date of construction and conforms to NZBC Handbook B2/AS1 and E2/AS1.

- 2.10 The owner applied for a determination on 2 August 2004.
- 2.11 A meeting attended by the owner, the architect, the builder and the owner's consultant was held on the site of the house on 22 October 2004, to clarify the as-built flashing details. One apparent outcome was the detailing of the revised flashings as installed.

### **3 THE SUBMISSIONS**

- 3.1 The owner forwarded a "Report on the adequacy of design of existing dwelling", dated 28 July 2004 that had been prepared by the owner's consultant. The report fully described all the features making up the cladding system, and noted that the main cladding had been recoated in early 2003. The consultant concluded that the cladding had a "better than average window and door flashing installation", and the solid plaster complied with NZBC Handbook Section E2/AS1 and NZS 4251.1 as an Acceptable Solution.

- 3.2 The owner also provided copies of:

- The building plans and specifications;
- The building consent documentation;
- The territorial authority's inspection notes;
- The Notice to Rectify;

- The correspondence with the territorial authority;
- The various consultant's reports;
- The two producer statements;
- Manufacturer's instructions for the paint finishes; and
- A set of photographs.

3.3 The territorial authority forwarded a lengthy submission. The bulk of the submission was a general comment on monolithic cladding, although some of the material related to this particular house, and stated that:

1. The principle design and current construction methods are the primary failure in the stucco wall system comprising stucco, backing boards building paper, timber frame, fibreglass insulation (batts) and plasterboard in that it is defectively designed as in Auckland conditions it results in a RH (relative humidity) in the timber wall cavity sufficiently high for mould and rot to grow. Current construction methods do not provide for ventilation and a drainage plane.
2. The secondary failure is that work in excess of normal maintenance is required to keep the stucco and wall elements of sufficiently low moisture content to prevent the effects of the primary failure from reoccurring even if all the water entry points were eliminated.
3. The third failure of the stucco system is that it is an inflexible cladding and does not allow for the expected movement associated with timber frame construction, and thereby cracks form and sealants tear letting water in.
4. Fourthly the building materials in the wall assembly are inadequate and there is no allowance for the consequence of failure of the system components or the system as a whole. Especially the timber frame the end result means the timber will degrade and be incapable of lasting 50 years as required by the Building Regulations.

3.4 The submission also included a copy of the Notice to Rectify and a set of photographs illustrating some of the territorial authority's concerns.

3.5 The territorial authority felt that it must refuse to issue a code compliance certificate on the grounds that there was insufficient scientific evidence on the performance of these building elements.

3.6 The territorial authority in a letter to the Authority dated 26 August 2004, elaborated on its original submission and stated that its areas of concern were those itemised in the Notice to Rectify and then listed them in detail. The territorial authority, using the risk matrix contained in the revised Acceptable Solution E2/AS1, calculated the weathertightness risk to the house to be moderate. For stated reasons, the territorial authority was not prepared to accept either the engineer's or the cladding installer's producer statements. The territorial authority also commented on the owner's and the owner's consultant's submissions in response to the issues noted in the Notice to Rectify comments.

3.7 In a letter to the Authority, dated 21 September 2004, the owner's consultant responded to the territorial authority's letter of 26 August 2004. In summary, the consultant noted:

- A horizontal construction joint had now been installed and sealed;
- The small extra lengths of walls that exceed 4000mm, taking into account the large number of window openings above each, are not significant;
- The base of the stucco now has an adequate anti-capillary gap where the cladding overhangs the foundation wall;
- The base of the cladding at the entry wall now has a drainage/ventilation gap;
- The circular wall penetrations now have flexible flashings installed and flashings have been installed over all rectangular penetrations, with the exception of the extract fan grilles;
- The flashings to the exterior joinery units are fully compliant;
- The gutter at the barge provides "drip protection", the base of the stucco has an anti-capillary drip and window and door heads have a drip at the head flashing;
- The stucco has been taken behind the gutter fascia board;
- The downpipe support is adequate; and
- The territorial authority has made a general statement on current "state of the art" technology relevant for new work in the year 2004, not the year 1999.

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

3.9 In a letter to the Department dated 2 May 2005, the territorial authority commented on aspects of the Draft Determination. In particular, the territorial authority is concerned that paragraphs 6.10 and 8.2 indicate a scope of work required to make the house code compliant. The territorial authority claims that this is not part of the determination.

#### **4 THE RELEVANT PROVISIONS OF THE BUILDING CODE**

4.1 The dispute for determination is whether the territorial authority's decision to refuse to issue a code compliance certificate because it was not satisfied that the cladding complied with clauses B2.3.1 and E2.3.2 of the building code (First Schedule, Building Regulations 1992) is correct. The relevant provisions of the building code provide:

**Clause B2—DURABILITY**

**B2.3.1** Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the specified intended life of the building, if stated, or:

- (a) The life of the building, being not less than 50 years, if:
  - (i) Those building elements (including floors, walls, and fixings) provide structural stability to the building, or
  - (ii) Those building elements are difficult to access or replace, or
  - (iii) Failure of those building elements to comply with the building code would go undetected during both normal use and maintenance of the building.
- (b) 15 years if:
  - (i) Those building elements (including the building envelope, exposed plumbing in the subfloor space, and in-built chimneys and flues) are moderately difficult to access or replace, or
  - (ii) Failure of those building elements to comply with the building code would go undetected during normal use of the building, but would be easily detected during normal maintenance.

**Clause E2—EXTERNAL MOISTURE**

**E2.1** The objective of this provision is to safeguard people from illness or injury, which could result from external moisture entering the building.

**E2.2** Buildings shall be constructed to provide adequate resistance to penetration by, and the accumulation of, moisture from the outside.

**E2.3.2** Roofs and exterior walls shall prevent the penetration of water that could cause undue dampness, or damage to building elements.

- 4.2 There are no Acceptable Solutions that have been approved under section 49 of the Act that cover this cladding. The current Acceptable Solution, E2/AS1, allows for solid plaster systems with fibre cement backing sheets, but requires that they be fixed on battens to create a 20mm cavity between the sheet and the framing. The previous acceptable solution E2/AS1, which was in force when this consent was issued, allowed for mesh reinforced solid plaster to be applied to fibre cement backing sheets that were face fixed to the framing. The cladding is not currently accredited under section 59 of the Act. I am, therefore of the opinion that the cladding system as installed must now be considered to be an alternative solution. In this respect, I differ from the opinion of the owner's consultant who considers the cladding to be an Acceptable Solution as noted in paragraph 3.1.
- 4.3 In several previous determinations, the Authority has made the following general observations, which in my view remain valid, about acceptable solutions and alternative solutions.



- Some acceptable solutions cover the worst case, so that in less extreme cases they may be modified and the resulting alternative solution will still comply with the building code.
- Usually, however, 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.

## **5 THE EXPERT'S REPORT**

5.1 The Authority commissioned an independent expert ("the expert") to inspect and report on the cladding. The expert inspected the building and furnished a report. It stated that the quality of stucco finish is generally good. The paint finish was sound, well adhered, and not discoloured. The thickness of plaster was approximately 25mm at the base of the cladding and this exceeded the recommendations of NZS 4251 by 4 mm. The expert removed a small section of the plaster to examine a sill/jamb intersection of one window, and found that both jamb and sill flashings had been installed. Further invasive investigations were made of one vertical control joint and one horizontal control joint. The vertical control joint was similar to the backing sheet manufacturer's details. I accept that these exposed details are likely to be representative of the remaining joints and window and door flashings. The expert noted that the cladding and coating was continuous behind the spouting and plumbing. The expert's report made the following specific comments on the extension cladding:

- The horizontal control joint, which the expert noted had been installed after the territorial authority had issued its Notice to Rectify, does not comply with good trade practice, because the silicone is exposed;
- There are hairline cracks in the cladding at various locations, and the expert attributed some of these to the inadequate depth of the vertical control joints, rather than a general failure of the plaster;
- There is a crack adjacent to the new metal parapet capping;
- On two walls, the distance between vertical control joints exceeded the 4000mm recommended by E2/AS1. Those dimensions were 4500mm and 5700mm. The expert commented that there was no cracking in these sections of the walls;
- The outer edge of the sill flashings to the exterior windows and doors are embedded in the plaster instead of extending over it and the connection between the sill and jamb flashing did not provide a stop end to the bottom of the sill flashing. However, the expert noted that the flashing had a reasonable fall to the outside, any moisture leakage would not be great, and there were no high moisture readings where the sill locations were tested;

- There is insufficient ground clearance to the base of the cladding at the entrance and at both sides of the garage door. For a variety of reasons, the expert did not consider that the horizontal cuts made by the owner to prevent moisture transfer through the backing board above these locations were satisfactory;
- The expert had concerns that some of the penetrations through the cladding and the finishing of the extract and meter boxes to the cladding would only be adequate if properly maintained;
- The lack of a 6mm clearance gap between the base of the cladding and the foundation wall had only been addressed in some locations; and
- Some pipe clip and fence fixings were not sealed.

5.2 The expert carried out a series of moisture tests at the interior linings of the exterior walls of the house, using a non-invasive meter. All the readings were in the “safe/air dry” range. The expert then took a further 3 invasive readings in the timber framing and obtained readings of 16.3%, 16.9%, and 19.3%. The latter reading was at a stud where the cladding has been constructed below ground level. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.

5.3 The expert noted that there were water stains under the canopy cornice moulding and was informed by the owner that the current metal cap flashing had recently been installed to prevent the leakage that had caused the staining. In addition, the expert was of the opinion that, while both the canopy roof outlet and the roof overflow are not “elegantly” formed; they appear to be performing adequately.

5.4 Copies of the expert’s report were provided to each of the parties.

## **6 DISCUSSION**

### **General**

6.1 I have considered the submissions of the parties, the expert’s report and the other evidence in this matter. The approach in determining whether building work complies with clauses B2.3.1 and E2.3.2, is to examine 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.

### **Weathertightness risk**

6.2 Recent research and experience, both internationally and locally, indicates that the impact of weathertightness problems in monolithic clad houses can be minimised if good and effective design and construction practices are followed.

- 6.3 The installation of exterior cladding to manufacturer's specifications and to accepted good trade practice is an important but not the only requirement to ensure good weathertightness performance.
- 6.4 The next priority is to reduce the ability of moisture to get through the cladding by using design measures that minimise the effects of the rain impacting on the walls.
- 6.5 In my opinion, the important matters for consideration are:
- Data show a strong relationship between the width of the eaves and the incidence of wall leaks. An effective deflection mechanism, such as eaves greater than 600 mm wide, has been shown by Canadian data to manage more than 90% of rain incidence;
  - While most reported leaks are substantially caused by defects in the cladding that require little or no wind pressure differential, it is believed that buildings in high and very high wind zones (as defined by NZS 3604) are likely to experience wind pressure differentials and thus a higher risk of water ingress;
  - Taller buildings result in an effective increase in the catchment area of the wall. Available data suggests a clear correlation between higher number of storeys and an increased incidence of leaking;
  - Complex roofs and overall envelope shapes where the roofs frequently intersect with the walls on upper floors create opportunities for leaks into the wall; and
  - Recent data also shows that decks and balconies that are exposed in plan and/or cantilevered from the external walls are the most frequent location for water leaks.
- 6.6 Any likely penetration of moisture through the cladding can then be countered by a combination of effective drainage, ventilation of the drainage cavity and moisture tolerance in the external wall framing timber. In particular:
- The structure should allow water that has penetrated the cladding to drain out as quickly as possible. It is believed that generally a drainage cavity should be provided behind the outer cladding barrier in monolithic construction;
  - The design of the outer walls should allow walls to dry to the outside once moisture penetrates the cladding and the moisture barrier. If walls do not dry, decay fungi can become established in as little as 3 months. Until scientific data on the optimum depth and configuration of the ventilation mechanism in New Zealand conditions is available, I believe that the drainage cavity should be not less than 20 mm deep; and
  - The external walls should have some degree of decay resistance or moisture tolerance to allow for situations when moisture circumvents the cladding and moisture barriers and moisture levels in the timber rise to more than 18%.

6.7 In relation to these characteristics, I find that the house:

- Has no eaves projections that could protect the cladding;
- Is built in a low wind zone;
- Is two storeys high;
- Is generally simple on plan;
- Has exterior joinery units that are fully flashed;
- Has no balconies or decks, but does have a small portico over the main entrance; and
- Has external walls that I accept are constructed with H1 LOSP treated timber, which is likely to decay if it absorbs and retains moisture.

### **Weather-tightness performance**

6.8 I have carefully considered the principal points in the territorial authority's main submission (and outlined in paragraph 3.3).

6.9 The territorial authority's general submission effectively questions the technical basis of a number of the benchmarks for assessing the likely code compliant performance of timber-framed construction in New Zealand and proposes that an alternative (and more conservative) benchmark be used to assess likely building code compliance for monolithically-clad buildings within its jurisdiction. The Authority considered and commented on these issues in determination 2004/41. In essence, the Authority determined that the performance of building elements as installed in a house should be based on code compliance benchmarks established in the new external moisture acceptable solution E2/AS1, together with observations of the current state of the building, and not on the higher performance levels suggested by the territorial authority. Accordingly, I have followed the Authority's approach in this determination

6.10 I find that generally, the cladding appears to have been installed according to good trade practice and to the manufacturer's instructions, but some junctions, edges, and insertions are not well constructed. These areas are:

- The poorly formed horizontal control joint, which has an inadequate sealant and no appropriate protection from the effect of UV rays;
- The hairline cracks in the cladding at various locations and the crack adjacent to the new metal parapet capping;
- The insufficient ground clearance to the base of the cladding at the entrance and at both sides of the garage door. The remedial cuts made in the cladding at these locations does not provide sufficient resistance to capillary moisture movement;

- The lack of a 6mm clearance gap at the base of the cladding to various locations; and
  - The unsealed pipe clip and fence fixings.
- 6.11 Notwithstanding the fact that the backing sheets are fixed directly to the timber framing, thus inhibiting drainage and ventilation behind the cladding sheets, I find that there are compensating factors that assist the performance of the cladding in this particular case. These are:
- Generally, the cladding appears to have been installed according to good trade practice and to manufacturer's specifications
  - The house is in a low wind zone;
  - The house has exterior joinery units that are fully flashed; and
  - The house has no balconies or decks.
- 6.12 The expert has observed that two walls have vertical control joints at centres that exceeded the 4000mm recommended by the backing sheet manufacturer. I am of the opinion that, as there is no cracking in these sections of the walls after 4 years of service on a southerly aspect, and as the house has a proprietary concrete ground floor slab with good stiffness properties, additional vertical control joints are not required.
- 6.13 The expert has also noted that the outer edges of the sill flashings to the exterior joinery units are embedded in the plaster and that the connection between the sill and jamb flashing did not provide a stop end to the bottom of the sill flashing. Taking into account the expert's observations that the flashing had a reasonable fall to the outside, any moisture leakage would not be great, and there were no high moisture readings adjacent to the sills, I also accept that the sill configuration is satisfactory. Likewise, I accept the expert's opinion that the finish to the base of the cladding is acceptable, and taking into account the thicknessings to the plaster at the fascias and exterior joinery units do not consider that drip edges are required at these locations.
- 6.14 I note that all elevations of the house demonstrate a medium weathertightness risk rating, as calculated using the E2/AS1 risk matrix. The matrix is an assessment tool that is intended to be used at the time of application for consent, but must be supplemented at the time of issuing a code compliance certificate by careful inspection of the building as actually built.

## **7 CONCLUSION**

- 7.1 I am satisfied that the current performance of the cladding is not adequate because it is allowing water penetration into the wall framing to one location at present. Consequently, I am not satisfied that the cladding system as installed complies with clause E2 of the building code.

- 7.2 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 in the house are allowing the ingress of moisture, the house does not comply with the durability requirements of clause B2.
- 7.3 I consider that, because the faults that have been identified with this cladding occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraph 6.10 is likely to result in the building being weathertight and in compliance with clauses B2 and E2, notwithstanding the lack of a ventilated cavity
- 7.4 I note that effective maintenance of monolithic claddings is important to ensure ongoing compliance with clause B2 of the building code. That maintenance is the responsibility of the building owner. The code assumes that the normal maintenance necessary to ensure the durability of the cladding is carried out. For that reason clause B2.3.1 of the building code requires that the cladding be subject to “normal maintenance”. That term is not defined and I take the view that it must be given its ordinary and natural meaning in context. In other words, normal maintenance of the cladding means inspections and activities such as regular cleaning, re-painting, replacing sealants, and so on. I note that the recoating of the cladding is an essential maintenance requirement in this particular instance.
- 7.5 It is emphasised that each determination is conducted on a case-by-case basis. Accordingly, the fact that a particular cladding system has been established as being code compliant in relation to a particular building does not necessarily mean that the same cladding system will be code compliant in another situation.
- 7.6 I decline to incorporate any waiver or modification of the building code in this determination.
- 7.7 In response to the territorial authority’s letter to the Department of 2 May 2005, I consider that I am entitled to determine whether proposed building work complies with the code, and in fact I have done so in this case. However, the question of whether the work has been properly completed and is code compliant requires careful inspection. I do not believe in this case that the territorial authority’s inspections meet this standard. I note that the territorial authority’s inspection described in a “Final Checklist” dated 3 March 2004 passed the following items in respect of the exterior of the building:
- Floor clearance from ground level
  - Cladding clearance from ground level
  - Secondary flow path
  - Cladding Painted
  - Window scribes

- Flashings
- Control joints

7.8 The Notice to Rectify issued on 10 June 2004 listed Particulars of Contravention that included:

- Floor clearances
- Ground clearances
- Control joints
- Flashings

7.9 I am disturbed to note that these obvious building defects were not discovered during the March 2004 final inspection. They are also issues that are unrelated to the question of a cavity that the territorial authority has raised. It can be seen that the expert's report provides the comprehensive description of the building's outstanding shortcomings that should have been detected before or at the final inspection process as recorded on 3 March 2004.

## **8 THE DECISION**

8.1 In accordance with section 20 of the Building Act 1991, I hereby determine that the cladding system as installed does not comply with clause E2 of the building code. There are also a number of items to be remedied to ensure that the house becomes and remains weathertight and thus meets the durability requirement of the code. Consequently, I find that the house does not comply with clause B2. Accordingly, I confirm the territorial authority's decision to refuse to issue a code compliance certificate.

8.2 I also find that rectification of the items outlined in paragraph 6.10 to the approval of the territorial authority, along with any other faults that may become apparent in the course of that work, is likely to result in the building being weathertight and in compliance with clauses B2 and E2, notwithstanding the lack of a ventilated cavity.

8.3 I note that the territorial authority has issued a Notice to Rectify requiring provision for adequate ventilation, drainage and vapour dissipation. Under the Act, a Notice to Rectify can require the owner to bring the house into compliance with the building code. The Authority has already found in a previous determination (2000/1) that the Notice to Rectify cannot specify how that compliance can be achieved. A new Notice to Fix should be issued 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 dictate how the defects described in paragraph 6.10 are to be remedied. How that is done is a matter for the owner to propose and for the territorial authority to accept or reject, with either of the parties entitled to submit doubts or disputes to the Chief Executive for another determination.

8.4 Finally, I consider that the cladding will require on-going maintenance to ensure its continuing code compliance.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 31 May 2005.

John Gardiner  
**Determinations Manager**