

## *Determination 2005/52*

# *Refusal of a code compliance certificate for a building with a “monolithic” cladding system: House 44*

## **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 developer/builder (“the builder”) acting as agent for the owners of the property (referred to as “the owner”) and the other party is the territorial authority. The application arises from the refusal by the TA to issue a code compliance certificate for a 6-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 the some of the walls of this 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 Building Industry Authority (“the Authority”) to the Chief Executive.

- 1.4 This determination refers to the former 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 Act or the building code.
- 1.6 The house itself is described in paragraphs 2.1 to 2.3, and paragraph 9 sets out my decision.

## **2 PROCEDURE**

### **The building**

- 2.1 The building is a two-storey detached house situated on a level excavated sheltered site. The house is of conventional light timber frame construction on a concrete block foundation wall or a concrete slab. The external ground floor walls are faced with a brick veneer, apart from two full height end walls, each with two returns. These walls and the remaining upper floor external walls, including two gable ends, are sheathed with monolithic cladding. It is of a relatively complex shape and the roofs at varying levels have numerous intersections and junctions with the cladding underneath. Two of the windows and the main entrance door frame within the south elevation wall have curved tops and all the external joinery units in this wall have planted surrounds finished to match the cladding. The upper floor en suite bathroom has a recess that is cantilevered from the main wall and there is a projecting balcony above the entrance portico. The floor of the balcony is sheathed with a waterproof membrane over plywood sarking, with tiles laid over the membrane. The balcony has a metal balustrade to the front and both ends and is supported on timber beams and two circular portico columns. Apart from two bays where the metal fascia is fixed directly to the cladding, the verges and gables have 250 mm wide projections plus the gutters, which give a further 125 mm width.
- 2.2 The owner confirmed that the framing in the external walls is untreated.
- 2.3 The external walls of the building are clad with what is described as monolithic cladding. In this instance it incorporates fibre-cement backing sheets fixed through the building wrap directly to the framing timbers and finished with a textured plaster finish and an acrylic paint system. While the expert engaged by the Authority identified the type of backing sheet used, no evidence been produced as to which jointing, sealing, plaster or paint systems have been applied on this house.

## Sequence of events

- 2.4 The TA issued a building consent in early 1997.
- 2.5 The TA carried out various inspections during the course of construction, and approved the recheck pre-lining building inspection on 16 July 1998 and the post-line inspection on 20 July 1998. The builder carried out certain alterations that differed from the original consent and the TA signed off the alteration on 1 September 1998.
- 2.6 The TA inspected the house on 21 January 2004, and in a letter, dated 10 February 2004, stated that as the house did not have a ventilated cavity, it would require further investigation. The TA wrote again to the owner on 5 April 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 TA's current concerns as regards weathertightness problems involving monolithic clad buildings. The TA attached a copy of a Notice to Rectify, dated 5 April 2004, to this letter.

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

1. The following have not been installed per the manufactures [sic] specifications
  - Control joints at a maximum of 5.4 metres vertically and at floor joist level horizontally are required. Control joints have not been installed vertically or horizontally.
  - Horizontal surfaces are to be formed with sufficient fall to prevent water from ponding on them. The polystyrene bands have insufficient fall.
  - The junction between the window head flashing and bottom edge of the cladding is to be either
    - Left unsealed with a 5mm gap or
    - If sealed, the bottom edge of the sheet must be back sealed. A continuous 6mm x 10mm in seal strip must also be used to seal the back edge of the sheet. As the junction has been sealed, council must satisfy itself that the above mentioned seals have been installed.
  - The junction between the bottom edge of the window joinery and the wall cladding is to have a sill flashing installed and the junction is to remain open. This junction has been sealed and no sill flashing appears to have been installed.
  - Head flashings above windows to be taken 30mm past the edge of the window joinery. This has not been achieved.
  - The bottom edge of the cladding system is to finish a minimum of 100mm above the paved surfaces and 175mm above unpaved surfaces. The cladding has been taken closer than these measurements.
  - A 35mm clearance is required between the finished deck level and the bottom edge of the cladding system. This clearance has not been achieved.
2. The following items have not been installed per accepted trade practice

- At the junction between horizontal surfaces and a vertical surface flashings (*sic*) are required. The polystyrene bands and [cladding] junctions have no flashings. This has not been achieved.
- A minimum clearance of 50mm is required between the cladding and adjacent surfaces. There is minimal clearance between the roof and wall flashings.
- 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.

### 3. 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 TA 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 the 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 TA also provided a set of photographs relating to the cladding. Neither the owner nor the TA offered any explanation for the delay between the 1998 and the 2004 final inspections.

2.7 The owner applied for a determination on 9 June 2004.

## 3 THE SUBMISSIONS

3.1 The owner made a submission that set out the background to the later alterations that were signed off by the building inspector. The owner noted that they had followed what they considered correct procedures. In addition, the owner noted that there had not been any problems with leaking and the new regulations put in place by the TA had occurred after the completion of the house.

3.2 The owner also provided copies of:

- The building plans;
- The TA's inspection document;
- Correspondence with the TA; and
- A set of photographs depicting the house.

3.3 The TA 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 extension, and stated that:

- The principle design and current construction methods for the wall assembly do not provide for ventilation and a drainage plane. In the event of a failure of any claddings deflection methods moisture will enter and accumulate in the wall framing hereby breaching (*sic*) the Building Act.
- Secondly the building materials in the wall assembly are inadequate to withstand moisture accumulation as there is no allowance or compensatory factors in the design to allow for the consequence of failure of the system components or the system as a whole. The inevitable failure to keep moisture out will wet the timber frame meaning conditions will exist in the wall likely to cause the timber and other materials in the wall to degrade and be incapable of lasting 50 years as required by the Building Act. This is part due to the design of the wall not having a drying mechanism other than the natural condition of drying by diffusion through paint coatings which experience shows is too slow to avoid mould growth. Where moisture ingress continues or is greater than the natural drying forces moisture accumulation occurs which affects the durability of the timber and plasterboard.
- The third failure of the cladding system is that it is inadequately designed to allow for the expected movement associated with timber frame construction, and thereby cracks will form and sealants tear letting water in. Work in excess of normal maintenance will be required to keep the FIBRE-CEMENT (FC) system, its jointing system and sealants watertight such that moisture will enter and accumulate in the framing, fibreglass insulation and plasterboard such that mould will grow.
- Fourthly the wall cladding is inadequately insulated and does not manage or control the climatic conditions expected this buildings location such that condensation can occur and breach (*sic*) the Code.
- The [TA] points out that there are already numerous defects in the cladding envelop meaning the building is already in contravention of the Building Act and that even if these items were rectified the building will remain in breach (*sic*) of the code due to the above reasons. Attempts at rectification or directing responsibility to the homeowner under the title maintenance are in the Councils opinion unfair as these were not pointed out to Council when the permit issued.(*sic*)

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

3.5 The TA 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 TA in a letter to the Authority dated 28 July 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 TA, using the risk matrix contained in the revised Acceptable Solution E2/AS1, calculated the weathertightness risk to the house to be moderate.
- 3.7 The copies of the submissions and other evidence were provided to each of the parties. Neither the owner nor the TA made any further submissions in response to the submissions of the other party.

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

- 4.1 The dispute for determination is whether the TA'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 cladding is not accredited under section 59 of the Act. I am therefore of the opinion that the cladding system as installed can be considered to be an alternative solution.

4.3 In several previous determinations, the Authority made the following general observations 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 finish was generally good and there were no observed areas where joints were incompletely filled or any areas where the coating was conspicuously incomplete. There are some small cracks and areas of damage that the expert considered should be dealt with as maintenance items. The expert cut away the coating at one jamb of a window and confirmed the presence of sealant between the jamb and the cladding. The expert noted the following specific faults that had been identified during the inspection:

- The head flashings over the exterior joinery units projected only 20mm past the frames, whereas the manufacturer's instructions require a 50mm overlap;
- Vertical control joints are required at 5.4 metre centres, and the south wall, which exceeds this dimension does not contain a vertical joint. I note that one north elevation wall is 9.7 metres long and would also require a vertical joint. The expert also referred to the manufacturer's recommendations about horizontal relief joints, and concluded that none were necessary in this building;
- There are no flashings or sealant at the vertical junctions of the cladding and the brick veneer;
- The flashing where the cladding is over the brick sill at the north elevation of the house is ineffective, and the base of the cladding is finished hard against the sill;

- There is minimal clearance between the bottom of the cladding and the finished floor levels at the garage and living room areas;
- There is insufficient clearance between the apron flashings and the cladding base above them;
- There was an area of uncoated backing sheet at the end of an apron flashing, which could allow the ingress of water;
- Some penetrations are inadequately sealed; and
- The balcony had the following unsatisfactory details:
  - a) The ceramic tiles are fixed tight up to the cladding and there is no clearance at the base of the cladding,
  - b) There are no drainage or drip provisions at the edge of the tiles to throw water clear of the balcony,
  - c) There are no flashings or other means to drain water that collects under the tiles, and
  - d) The balustrade fixings are not sealed.

The expert commented on the TA's Notice to Rectify and noted that the TA referred to a later set of the manufacturer's instructions than those that current at the time the house was being constructed. The expert also noted that the roof gutters had the potential to allow water to discharge into the external wall and were poorly maintained.

5.2 The expert took moisture readings of the internal linings on the exterior walls throughout the house and obtained readings in the "damp range" at three locations. The expert then used an invasive type moisture meter to investigate nine locations, and five of these, as set out below exceeded 18%:

- 23.8% and 34.8% at the balcony perimeter framing and trim;
- 23.2% and 45.0% at the garage north elevation; and
- 63% to the family room east end

Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure. The expert listed possible causes for the moisture ingress, but was unable to define what was actually contributing to the leaks at these points. The expert noted that the bottom plate under the family room window was almost certainly decaying due to the ingress of water.

5.3 Copies of the expert's report were provided to each of the parties. Neither party made a submission in response to the expert's report.



## 6 THE HEARING

- 6.1 The territorial authority requested a hearing, which was held before a tribunal consisting of the Determinations Manager and one Referee acting for and on behalf of the Chief Executive by delegated authority under section 187(2) of the Building Act 2004. At the hearing, the builder represented the owner, and the territorial authority was represented by two of its officers. Three staff members of the Department were also in attendance. The builder had provided a written submission prior to the hearing, and the territorial authority produced a written submission (Document “A”) at the hearing. The territorial authority and the owner spoke and called evidence at the hearing, and evidence from those present enabled me to amplify or correct various matters of fact that were not adequately identified in the draft.
- 6.2 The builder told the hearing that he had been under the impression that the inspection that had taken place immediately after the building had been completed was a final inspection. Consequently, the code compliance certificate was requested some five-and-a-half years after the house had been completed. The builder commented on the issues raised in the expert’s report and did not accept some of the expert’s findings. However, the builder did agree that:
- The brick sill should be lowered;
  - A vertical control joint be installed;
  - The cladding clearance over the roofing be increased; and
  - The penetrations be resealed.

The builder did not accept responsibility for the moisture entering the bay window and garage areas, as he was of the opinion that the leakages were due to blocked, badly maintained gutters. The builder responded to the territorial authority’s comments in Document A and concluded that if the cladding were repainted and the accepted items rectified, the house would be code compliant.

- 6.3 The territorial authority stated that it was required to look at the building in the light of current knowledge and required direction in the determination as to what is required to bring the building into compliance with the Building Code. The territorial authority referred to “Document A”, which set out the territorial authority’s final comments on the Notice to Rectify in the context of both the builder’s comments and the draft determination. The territorial authority was prepared to consider the installation of moisture detection probes as an alternative to the installation of a cavity. As the house did not comply with the building code, the territorial authority also requires direction from the Department on the scope of work required to resolve the weathertightness problems. If the latter were not forthcoming, the territorial authority would issue a revised Notice to Rectify and cooperate with the owners to work through the issues. The solution would be to either mitigate the weathertightness risks or to provide early detection. The territorial authority recommended that an independent person be involved to prepare rectification solutions that could be considered by the territorial authority.

## 7 DISCUSSION

### General

7.1 I have considered the submissions of the parties, the expert's report and the other evidence, including the hearing submissions, 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

7.2 Recent New Zealand data and experience indicates that the impact of weathertightness problems in monolithic clad houses can be minimised if good and effective design and construction practices are followed.

7.3 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.

7.4 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:

7.5 Important matters for consideration are:

- Data shows 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, I believe that homes 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 to directly penetrate 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.

7.6 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. I believe 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%.

7.7 In relation to these characteristics, I find that this house:

- Apart from two bays without any protection, has 375 mm wide eaves projections that provide limited protection to the cladding;
- Is built on a sheltered site;
- Is two stories high;
- Has flashings to the heads of the exterior joinery units that do not meet the overhang requirements of the manufacturer's recommendations;
- Has an overall envelope that is relatively complex on plan, and has roofs at varying levels with numerous intersections and junctions with the cladding;
- Has a balcony, which projects from the building;
- Has lower level roof spaces that can assist in the ventilation of the wall cavities;
- Has a bathroom recess that is cantilevered; and
- Has external walls constructed with untreated timber, which is ineffective in delaying the onset of decay.

## Weathertightness performance

- 7.8 I find that the cladding in general does not appear to have been installed according to good trade practice and to the manufacturer's instructions. As a result, there are a number of identified defects, which are set out in paragraph 5.1 and in the expert's report, which have contributed to the penetration of the moisture already evident in several areas.
- 7.9 I consider that, as the faults apparent in the cladding are so numerous and widespread, it cannot accept that the cladding complies with the relevant requirements of the building code. The major areas of concern are:
- Vertical control joints are missing in some instances;
  - The lack of a horizontal control joint to the full height cladding areas;
  - The vertical junctions between the cladding and the brickwork are inadequately formed;
  - The flashing over the north elevation brick sill is ineffective and the cladding is finished hard onto the flashing;
  - There is insufficient clearance at the base of the cladding in two areas and where the cladding base adjoins the apron flashings;
  - An area of backing sheet is uncoated;
  - The tops of the horizontal bands to the exterior joinery units are to be given adequate falls;
  - Contrary to the expert's advice, I consider that the tops of the horizontal polystyrene joinery unit bands require adequate falls;
  - Some penetrations through the cladding are poorly sealed; and
  - The balcony tiles are fixed right up to the cladding, there are no drainage or drip provisions at the edge of the tiles, there are no means to drain any water that might penetrate the tiles, and the balcony balustrade fixings are not sealed.
- 7.10 In the "Particulars of Contraventions" notice, the TA notes that the cladding is not compliant with the code because it does not meet the requirements of the manufacturer's instructions that were issued after this house was constructed. The expert however noted that the cladding meets in full the manufacturer's instructions current when the consent was issued. I note that the building code is performance based and while manufacturer's instructions are a useful tool to assess compliance, the likely performance of the cladding is the only criteria that will determine code compliance.

- 7.11 I note that the ends of the exterior joinery units head flashings do not project sufficiently past the frames, but does not consider this to be an item requiring rectification.
- 7.12 The builder at the hearing stated that he considered that the water entry into the house at the bay window and the garage was due to the blocked gutters above these locations. As such, this was a question of poor maintenance and not a building code issue. I have considered this issue, and am of the opinion that provision should have been made to ensure that any blocked gutter did not threaten the watertight integrity of the building. Accordingly, I consider that the water entry at these locations is due to the non-compliance of the relevant building elements.
- 7.13 I note that one elevation of the building demonstrates a high weathertightness risk rating and the remaining elevations 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.
- 7.14 I have carefully considered the principal points in the TA's main submission (and outlined in paragraph 3.3).
- 7.15 The TA'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 No 2004/41, to which I agree. In essence, it 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 TA. Accordingly, this is the approach I have followed in this determination.
- 7.16 I therefore do not agree with the TA's initial claim that the requirement for a drained and ventilated cavity in this case is the only method that will ensure the watertight integrity of the cladding. However, I note that at the hearing the territorial authority did not pursue this claim.
- 7.17 I agree 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 recognises that a TA does not have any statutory responsibility for the ongoing maintenance of a building. However, the maintenance programme adopted by the owner could be undertaken after consultation with the

TA, bearing in mind that any comments or advice provided by the TA to the owner are likely to be accompanied by appropriate disclaimers.

## **8 CONCLUSION**

- 8.1 I am satisfied that the performance of the cladding has been reduced because it has not been installed according to good trade practice. In particular, it demonstrates the key defects listed in paragraph 6.9. I have also identified the presence of a range of known weathertightness risk factors in this design. The presence of the risk factors on their own is not necessarily a concern, but they have to be considered in combination with the significant faults identified in the cladding system. It is that combination of risk factors and faults that indicates that the structure does not have sufficient provisions that would compensate for the lack of a drained and ventilated cavity. Consequently, I am not satisfied that the cladding system as installed complies with clause E2 of the building code.
- 8.2 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 of the building code.
- 8.3 I find that because of the apparent complexity of the faults that have been identified with this cladding, it is unable to conclude, with the information available to it, that remediation of the identified faults, as opposed to partial or full recladding, could result in compliance with clauses B2 and E2.
- 8.4 In the circumstances, I decline to incorporate any waiver or modification of the building code in its determination.

## **9 THE DECISION**

- 9.1 In accordance with section 20 of the Building Act 1991 I hereby determine that the cladding system as installed does not comply with clauses B2 and E2 of the building code and accordingly confirm the decision of the TA to refuse to issue a code compliance certificate.
- 9.2 I note the TA has issued a Notice to Rectify requiring the owner to reclad the house with cladding that incorporates a drained and ventilated cavity. Under the Act, a Notice to Rectify can require that the owner bring the cladding into compliance with the code, but I have already found in a previous determination (2000/1) that the Notice to Rectify cannot specify how that compliance is to be achieved. I consider that this Notice to Rectify should therefore be put aside. A new Notice should be issued that requires the Owner to bring the cladding into compliance with the code without specifying the features that are required to be incorporated.

- 9.3 How the cladding is to be brought to compliance with the building code is a matter for the owner to propose and for the TA to accept or reject, with either of the parties entitled to submit doubts or disputes for another determination.
- 9.4 I consider that, following rectification, the cladding on the building will require on-going maintenance to ensure its continuing code compliance. This is particularly important, as the cladding has now been in place for some 6 years or so. I note that other building components, such as gutters should also be adequately inspected and maintained.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 22 April 2005.

John Gardiner  
**Determinations Manager**