Determination 2005/05

Refusal of a code compliance certificate for a building with a "monolithic" cladding system: House 4

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 owner who is also the builder ("the owner") and the other party is the territorial authority ("the TA"). The application arises from the refusal by the TA to issue a code compliance certificate ("CCC") for a new 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 cladding as installed ("the cladding") on this house complies with the building code (see sections 18 and 20 of the Act). By "external wall cladding as installed" I mean the components of the system (such as the backing sheets, the flashings, the joints and 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 2.6, and paragraph 8 sets out the decision.

2 PROCEDURE

The building

2.1 The building is a detached house with three staggered floor levels creating a 2-storey portion with a garage underneath, and a single storey mid level annex. It is situated on a two-level excavated site in a medium wind zone in terms of NZS 3604: 1999 "Timber framed buildings," with a concrete slab forming the garage ground floor. The building is of conventional light timber frame construction and is of a relatively simple shape with a single level convex curved main roof. There are membrane-lined flat roofs over part of one bedroom and the main entrance, which have a very low pitch. There are wall/roof intersections where the flat roofs adjoin the cladding. A large deck is attached to the full length of one elevation, is stepped between 2 levels and has a pergola packed off the cladding over one small area. Apart from a small area over the front entrance, there are no eaves overhangs.

2.2 Based on the receipts for timber purchased for the construction, I accept that the framing in the external walls is H1 Boric treated timber.

2.3 The building is clad with what is described as a monolithic cladding, incorporating 40 mm thick expanded polystyrene (EPS) backing sheets fixed through building wrap directly to framing timbers and finished with a 20 mm thick mesh-reinforced sand and cement plaster. The plaster in turn is finished with an acrylic paint system. This is a solid plaster system applied to a rigid backing of 40mm polystyrene.

2.4 I note that the cladding system as fixed to the house differs from that shown on the plans, which call for 20mm thick solid plaster on 20 mm polystyrene that is fixed directly to the framing over building paper.

2.5 I note that there does not appear to have been any notification to the TA of this change. However, the TA in the course of its inspections ultimately passed the system as installed and apparently has not raised this change as an issue.

2.6 The owner issued a producer statement on the cladding to the TA.

Sequence of events

2.7 The TA issued a building consent on 28 February 2001. There were no conditions attached to this consent.

2.8 The TA made various inspections in the course of construction. On 12 May 2001, a plaster check was carried out, and the partially completed plaster system failed the inspection. On 17 May 2001, after a further inspection, the plaster system was "passed".

2.9 On 26 March 2002, a final inspection was carried out and 3 items, none of which related to the cladding, failed the inspection. A further final inspection was carried out on 4 April 2002 and the entire building was passed by the inspector. On 27 December 2002, the TA wrote to the owner stating that it would issue the CCC once the TA had confirmation that certain inspections had been carried out, and the as-built drainage drawings and an engineer's producer statement had been provided. According to the owner, the as-built drawings and producer statement were sent to the TA on 21 November 2003.

2.10 The owner stated that on 3 February 2004 the TA carried out a further inspection and that at that time the house was halfway through being re-painted with a product that held a 10-year guarantee.

2.11 The TA wrote to the owner on 12 February 2004, stating that it had carried out a further inspection of the building and that the building might not comply with the building code in a number of respects. The TA went on to say "recent information showed that buildings using monolithic cladding without a cavity are particularly susceptible to weather tightness problems". Also that "The Council cannot be satisfied that the cladding system as installed on the above building meets the Functional requirements of Clause E2 External Moisture of the Building Code…"

2.12 A Notice to Rectify was attached to the 12 February 2003 letter. Its accompanying "Particulars of Contravention" notice stated:

> You are required to:
>
> - 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 relating to the above are resolved.
>
> - Lodge with Council an application for an amended building consent and provide all necessary information that may be requested to allow this consent application to proceed.

2.13 The TA also detailed items that it considered not to have been installed in accordance with the building code acceptable solutions and accepted trade practices. These were:

> 1. The following have not been installed per the acceptable solutions of the building code (no alternative solutions have been applied for):
>
>   - The minimum finished floor level to the finished ground levels for plaster claddings of 150mm to paved ground and 225mm to unpaved ground have not been achieved.
>
>   - A crack has appeared under one window, which will allow water ingress behind the exterior cladding.

2. The following items have not been installed per accepted trade practice:

   - Decks should not be supported through the plaster coating system, were (*sic*) they are against the house.
   - Penetrations through the plaster system do not appear to have been provided with rubber flanges and silicon.
   - Step treads and risers should be 20m (*sic*) clear of the cladding system.
   - All flashings should be installed in such a way as to direct water away from the building.
   - The window sill flashings should be taken to the outside edge of the cladding system to ensure no water ingress.

3. Ventilated cavity system:

   Monolithic cladding systems without a 20 mm cavity, provision for adequate ventilation, drainage, and vapour dissipation will, in the event of leakage and/or the effect of residual moisture, cause irrecoverable damage to the structural elements of the building.

A series of photographs were also appended, illustrating some of the items set out above.

2.14 The owner stated that a series of moisture tests were carried out on 20 March 2004 through holes drilled through the skirting and Gibraltar board. A total of 8 tests were carried out at bottom plate height and the average result was a 13% moisture level, and the highest was 13.6%.

2.15 On 30 March 2004, the owner forwarded to the TA a "reply to particulars of convention, which stated:

1. The plaster system used is the standard solid plaster system, comprising of sand and cement over a 40mm polystyrene rigid backing with layers of [Named product] and plastering mesh. The finished thickness is 20mm.

2. The FFL (finished floor level) is 200 above the pathway in Picture 4 and 250mm above the lawn in Picture 3. Unfortunately the cladding was taken more than the 50mm required passed (*sic*) the FFL. Trimming back the plaster could rectify this.

3. The crack under the window was repaired when repainting was carried out, which was in progress at the time of the inspection.

4. Piles and coach screws fastened to the timber by blocks cut into the styrene support the decks. There are 18mm packers between the bearer and the plaster, which prevent the water being trapped behind the two.

5. Penetrations have been siliconed, this includes:

   - All external lights
   - Downpipe brackets
   - Deck fastenings

6. The flashing mentioned in Picture 10 has also been rectified during the repaint.

7. I consider that the window flashings have been taken to the outside of the cladding. They were made from powder-coated aluminium and were folded up on the ends with the side-flashing cut onto them.

In regards to the Monolithic Cladding System:

Cavities were not required at the time of consent being issued and with the successful moisture tests carried out, it seems obvious that the dwelling is providing adequate resistance to water penetration.

2.16 The owner advised that a slip layer between the polystyrene and the plaster was used and that the plasterer's mesh was nailed to the framing with appropriate spacers.

2.17 The owner applied for this determination on 30 February 2004.

3 THE SUBMISSIONS

3.1 The owner provided a detailed submission that included:

- A note entitled "Dateline overview of construction to date";
- Three drawings of the building;
- The building consent;
- The TA's inspection records and check lists;
- The notice to rectify with its attached "Particulars of Contravention" and photographs taken by the TA;
- The TA's letters of 27 December 2002 and 12 February 2004; and
- Invoices relating to the purchase of framing timber, showing timber, which could have been used for external wall framing, as being No 1 Boric treated.

3.2 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, such as:

- Face fixed monolithic cladding has no ability to dry out in the absence of a cavity and therefore decay can occur in conditions of sustained high humidity even when there is no moisture ingress from outside;
- Adding moisture to timber may have a negative effect on timber strength and durability and nails will have less gripping power. The TA concluded that the timber used in this house was therefore unsuitable;

- Fibre cement sheets and timber bottom plates can reach high moisture levels in the absence of any external leaks, and thus have a reduced effectiveness as bracing elements when the design calls for that function;

- Paint systems over stucco plaster are inadequate because of the plaster's higher alkalinity while it is drying and the consequent effect on the integrity of the finished coat; and

- Building papers differ in the way that they allow moisture to pass through them, and that differing performance may affect the ability of monolithic walls to dry out.

3.3 The specific comment on this house referred to the Notice to Rectify and in addition stated that:

- The wall assembly design and construction do not provide for ventilation and a drainage plane;

- The building materials in the wall assembly are inadequate and there is no allowance for the consequences of failure of the system components or the system as a whole;

- The cladding system is inadequately designed to allow for the expected movement associated with timber frame construction; and

- Work in excess of normal maintenance will be required.

3.4 The submission also included a set of photographs showing the areas of concern outlined in the Notice to Rectify.

3.5 The TA felt that it must refuse to issue a CCC 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 11 June 2004, elaborated on their original submission, which was not fully specific as to this particular house. In this letter the TA stated that their areas of concern were those itemised in the Notice to Rectify and then listed them in detail.

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

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 CCC on the grounds that 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. Those 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 sub floor 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 current Acceptable Solutions that have been approved under section 49 of the Act that cover this cladding. The current Acceptable Solution, E2/AS1, allows for polystyrene 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 over a minimum thickness of polystyrene of 20mm that was face fixed to the framing. Both versions of E2/AS1 noted the importance of properly fixing the mesh to the framing through the polystyrene to counter the considerable weight of the plaster acting as a cantilever on the fixing. The cladding is not currently 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, which in my view remains valid in this case, 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 to inspect and report on the cladding. The expert stated that plaster appeared to have been installed according to good trade practice and the plaster coating and painting is of a good standard except where noted. The expert also confirmed that the cladding system was not a complete proprietary system but was made up from discrete components from various sources. Flashings and fixings would therefore have been specially made to suit, or modified from existing systems. The expert's report made the following specific comments on the as-built cladding details:

- There is no clearance between timber decking and exterior cladding;
- There is no paint behind the spouting where it is adjacent to the wall cladding between bedroom 3 and the bathroom;
- There is a baluster and a fence post directly fixed into cladding;
- The meter box needs to be sealed appropriately;
- The ground levels around the perimeter of garage and the front entrance are too high and the cladding on the right hand side of the garage is buried in the concrete;
- There is an inadequate outfall for the stormwater discharge off the front entrance;
- Two downpipes that discharge onto the membrane roofs should be fitted with elbows to discharge water away from the cladding;
- In one area, the junction between the fascia and the cladding has cracked and requires sealing and painting;
- The outer ends of the sill flashings to the exterior joinery do not extend past the edge of the cladding;
- A flashing is required to protect the timber fascia at the entrance where it abuts the cladding;
- The low falls on the membrane roofs were acceptable because the membrane extended an adequate amount up the wall and ingress of moisture was therefore unlikely; and
- The junction of the curved fascia and the cladding on the Western and Eastern walls should be sealed and painted to prevent ingress of moisture.

5.2 The expert also used a non-invasive moisture meter applied to the internal face of external walls to detect areas of moisture ingress. The readings in this instance varied between 11.3% and 16.8%. The expert also took further readings at those areas recording the higher moisture content using an invasive

moisture meter and obtained readings varying from 11.8% to 16%. All the obtained readings indicated to the expert that there was no undue moisture in the wall cavities.

5.3 The expert also commented on the TA's "Schedule of Defects" and was in agreement with most of the comments made therein. However, the expert pointed out that:

- The existing ground levels at the back of the garage are acceptable because the area is protected by the deck above and the bottom edge of the polystyrene is housed in a PVC shoe;
- Sufficient clearance at the front of the garage can be achieved by cutting the concrete driveway back;
- Clearances at the front entrance are adequate because the area was relatively sheltered; and
- The attachment detail used to fix pergola and deck beams to a backing block within the cladding allow for appropriate airflow and follow good trade practice.

5.4 Copies of the expert's report were provided to each of the parties. The council responded to the report raising a number of issues. These were also mainly of a general nature and consistent with the general issues raised in its initial submission. I observe that the function of the expert's report is to provide an objective expert view for my consideration, along with the submissions of the parties, before I form a view on the current and likely future performance of this house, with respect to the relevant clauses of the Building Code. In forming a view I will give appropriate weight to the opinions of the expert, based on that expert's observations of the house and interpretations of these observations.

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 to 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 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.

6.3 The installation of exterior cladding to manufacturer's specifications and to accepted good trade practice is a fundamental requirement to ensure good weathertightness performance.

6.4 The next priority is to reduce the ability of moisture to get through the cladding by utilising design measures that minimise the effects of the rain impacting on the walls:

6.5 The main areas 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 incidents;

- While most reported leaks are substantially caused by defects in the cladding that buildings allow leaking even with 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.

6.6 Any likely penetration of moisture through the cladding can 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 frames 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 this house:

- Has, with one minor exception, no eave overhangs, and, therefore no effective way of shielding the cladding;
- Is in a medium wind zone;
- Is constructed to what is effectively two levels;
- Has two wall/roof intersections and has an overall envelope that is relatively simple in shape;
- Has no decks or balconies, but has two flat roofs to minimum falls;
- Has a pergola fixed to the building;
- Has face-fixed cladding with no drainage cavity; and
- Has external walls that are constructed from H1 Boric-treated timber, which provide some initial protection from initial decay.

Weathertightness performance

6.8 Generally the cladding appears to have been installed according to good trade practice and can be considered to be reasonably effective in preventing the penetration of water. Although the overall system is not a proprietary one, it does generally follow the details in the superseded E2/AS1 for solid plaster over a polystyrene backing sheet. I do not have details of the fixing method used, the size of the mesh or the details of the slip layer. However I note that the TA inspected the plastering when it was partly complete and finally approved it when it was completed. Furthermore, the TA in its notice to rectify (described in para 2.12) appears to have accepted that the cladding is an acceptable solution and that the only aspects of the cladding would be acceptable once the items 2.12 were rectified. I therefore accept that the mesh and the way it has been installed, and the presence of a slip layer, are in accordance with the details in the superseded acceptable solution.

6.9 There are however, defects in the cladding and roofing that will, with time, allow the ingress of moisture behind the cladding. These cladding and roofing will need to be rectified to ensure ongoing weathertightness.

6.10 Referring to the principal points of the TA's main submission (refer section 3.3 previous), I:

i. accept that the performance of many of the materials questioned in the TA's submission has been established through successful use in practise, but

ii. acknowledge that the building science surrounding such successful use is not so well known, or established, and

iii. consider that, in the absence of peer reviewed scientific research evidence to the contrary, the approved use of these materials should be based on their established performance in building work to-date in New Zealand, plus additional margins of safety to reflect known uncertainties.

Consequently, the new Acceptable Solution on timber treatment (B2/AS1) and the draft Acceptable Solution on external moisture (E2/AS1) which covers weathertightness detailing, both rely on established building science as well as observed field performance of the building systems concerned and building elements within these systems, in order to establish code compliant details for local use. Both these documents have been reviewed by appropriately qualified parties with experience across the building industry, and have been subject to the public consultation process as required by Section 49 of the Act.

The TA's submission effectively questions the technical basis of a number of the benchmarks for assessing likely code compliant performance of timber-framed construction in New Zealand as contained within these documents and proposes that an alternative (and more conservative) benchmark be used to assess likely Building Code compliance for monolithically-clad buildings within its jurisdiction.

6.11 I have carefully reviewed the general aspects of the TA's submission, alongside the benchmark provision it has already established to evaluate the anticipated overall performance of monolithically clad buildings in New Zealand. It has determined that the performance of building elements as now installed in this house should be based on the abovementioned code compliance benchmarks together with observations of the current state of the building, and not on the higher (albeit more conservative) performance levels suggested in the TA's submission.

6.12 The distinction does need to be made between the reliance on comparison with benchmarks when assessing a consent application for as yet unbuilt work and the assessment of a completed work for code compliance purposes when the actual performance of the building can be established. Use of the risk matrix in this situation will also be of lesser significance.

6.13 In other words, I believe, based on the evidence currently available to it, that if the TA's submission on the likely performance of fibre cement-based systems constructed without a cavity was soundly based, I would expect to see a far greater prevalence of failure in external walls of buildings with face-fixed monolithic claddings that were not subject to external moisture ingress than in fact has been the case. Having said that, I have noted the TA’s concerns and will ensure that theoretical investigations of the type referred to in the TA's submission are incorporated into any future development of the Department of Building and Housing’s wide work on durability and weather-tightness.

6.14 Notwithstanding the fact that the backing sheets are fixed directly to the timber framing, thus inhibiting ventilation behind the cladding sheets, I find that there are compensating provisions 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;
- Apart from the lack of eaves, the building does not display to any significant extent any of the weathertightness risk factors;
- The moisture level readings do not indicate any undue moisture ingress behind the cladding at the time of the determination; and
- The external wall framing is H1 Boric treated, which offers some inital degree of decay prevention.

6.15 I consider that these provisions adequately compensate for the lack of a drainage cavity and can allow the house to comply with the weathertightness and durability provisions of the building code.

7. CONCLUSION

7.1 I accept that the expert's report establishes that the cladding on this particular building complies in most respects with good trade practice. At the time of this determination there is no evidence of external moisture entering the building and therefore I consider that the cladding complies with clause E2.

7.2 While the building does not show any signs of water ingress at the present time, this building will also have to comply with the durability requirements of clause B2. This clause requires that a building continue to satisfy all the objectives of the code throughout its intended life, which includes the requirement for the building to remain weathertight. Because the cladding faults in this building are likely to allow the ingress of moisture in the future, the building will not achieve the durability requirements of B2. However, I also find that when the cladding faults have been satisfactorily rectified, this house should be able to remain weathertight and will thus comply with clause B2.

7.3 I find that all the following items of rectification should be competently carried out to ensure such compliance:

- A minimum 20 mm clearance is to be formed between timber decking and exterior cladding;
- The cladding is to be painted behind the spouting where it is adjacent to the wall cladding between bedroom 3 and the bathroom;
- The baluster and a fence post are to be appropriately fixed and sealed to the cladding;

- The meter box is to be sealed appropriately;
- The ground levels around the perimeter of garage and the front entrance are to be adjusted and the base of the cladding on the right hand side of the garage is to be rectified according to the recommendations of the expert;
- The stormwater discharge off the front entrance roof is to be provided with an adequate out fall;
- The 2 downpipes that discharge onto the membrane roofs are to be altered to ensure discharge away from the cladding;
- The junction between the fascia and the cladding on both eastern and western faces is to be sealed and painted where there is cracking;
- Sill flashings to the exterior joinery are to extend past the edge of the cladding; and
- The timber fascia at the front entrance is to be flashed where it abuts the cladding.

7.4 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.

7.5 I decline to incorporate any waiver or modification of the building code in its determination.

8 THE DECISION

8.1 In accordance with section 20 of the Building Act, I determine that the building is weathertight now and therefore complies with clause E2. However as there are a number of items to be remedied to ensure it remains weathertight and thus meet the durability requirements of the code, I find that the house does not comply with clause B2 of the code. Accordingly, I confirm the TA's decision to refuse to issue the CCC.

8.2 I find that because of the compensating factors in this case, the lack of a ventilated cavity behind the polystyrene sheets is not, on its own, sufficient grounds to withhold a CCC.

8.3 Therefore I find that once the items of non-compliance that are listed in paragraph 7.3 are rectified to the approval of the TA, together with any other instances of non-compliance that become apparent in the course of rectification, the cladding as installed on the house will comply with the building code, notwithstanding the lack of a drainage cavity.

8.4 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.

8.5 I consider that the cladding on the building will require on-going maintenance to ensure its continuing building code compliance.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 1 February 2005.

John Gardiner
Determinations Manager