

Refusal of a code compliance certificate for a building with a “monolithic” cladding system: House 35

1 THE DISPUTE TO BE DETERMINED

- 1.1 This is a determination by the Building Industry Authority (“the Authority”) of a dispute referred to it under section 17 of the Building Act 1991 (“the Act”). The applicant is the owner. The other party is a territorial authority. The application arises from the refusal by the territorial authority to issue a Code Compliance Certificate (CCC) for a new house unless changes are made to its monolithic cladding system.
- 1.2 The Authority’s task in this determination is to consider whether it is satisfied on reasonable grounds that the external wall 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” we mean the components of the system (such as the backing sheets, the flashings, the joints, the plaster and/or the coatings) as well as the way the components have been installed and work together.
- 1.3 The house itself is described in paragraphs 2.1 to 2.3, and paragraph 8 sets out the Authority’s final decision.

2 PROCEDURE

The building.

- 2.1 The building is a detached two-storey house on a level site. It is of conventional light timber frame construction and is of a reasonably simple shape, incorporating wall-roof intersections in each elevation. The cladding in question, apart from a 2.3 metre panel incorporating the front entrance, is to the top storey only and the ground floor is faced with a brick veneer. There are no balconies and the eaves overhangs are generally 450 mm wide, plus a 125mm wide spouting. There is also a set of shutters fixed adjacent to one large window. The building is in a low wind zone in terms of NZS 3604: 1999 “Timber framed buildings”.
- 2.2 The timber framing to the external walls is H3 LOSP treated.
- 2.3 The cladding system is known as a monolithic cladding system. As specified in its manufacturer’s July 1998 technical information manual (“the manufacturer’s instructions”), it incorporates fibre-cement backing sheets fixed through the building wrap directly to the framing timbers and finished with a choice of joint and coating systems. The manufacturer’s instructions include details for flashings at various junctions (but not all of the junctions actually present in the house). For the purposes of this determination,

the manufacturer of the fibre-cement sheets and the flashing kit is regarded as the manufacturer of the system, despite the fact that each of the joint and coating systems is itself proprietary to other manufacturers. The manufacturer's instructions identify the joint and coating systems by reference to those other manufacturers and their system brands but give no other information about them. A textured coating system has been applied to this building.

- 2.4 The Authority also notes that the fibre cement panels used were different from those specified in the drawings in that they were from the same manufacturer but were constructed to a specification that made them less moisture absorbent.

Sequence of events:

- 2.5 The territorial authority issued a building consent on 27 November 2002. The consent noted:

Clause B2 (Section2) of the Building Codes Acceptable Solutions specifies the requirements relating to the durability of specific building elements.

Please note that many of these elements require regular maintenance to be undertaken to achieve the durability requirement.

- 2.6 The territorial authority made various inspections between 18 December 2002 and 25 November 2003, and on the Final Check List issued after the 25 November inspection, it was noted:

No cavity to [the cladding] failed – apply to the BIA for a Determination.

- 2.7 On 6 January 2004, the territorial authority issued a Notice to Rectify as required by section 43(6). The “Particulars of Contravention” attached to the Notice to Rectify noted that:

The following items have not been installed per the manufacturers [sic] specifications

- No evidence of vertical control joints in walls over 6.0m long.
- No evidence of sealant above windows, between bottom edge of sheet and head flashing.
- The bottom edge of the aluminium window sills are in most cases sealed to the wall linings, not open with the sill flashing exposed.
- Bottom edge of the cladding in places closer than 150mm and 225mm to paving and ground respectively.

The following items have not been installed per accepted trade practice

- The garage roof/wall intersection flashing adjacent to the front entry has been returned up the face of the wall cladding and not returned behind the wall linings.

It also included a statement that the territorial authority:

- Has recently received information which shows that monolithic cladding systems without a 20 mm 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.

- 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...Accordingly, the works do not comply with the requirements of Clause E2.3.5 and E2.3.6 of the New Zealand Building Code 1992 (the "Code")

and that the owner was 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 related to the above are resolved.
- 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.
- 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 code 1991 [sic].

2.8 The owner applied for this determination on 10 December 2003.

3 THE SUBMISSIONS

3.1 The owner provided:

- The building consent documentation; and
- A document headed "Construction of Monolithic Cladding", which described the cladding and external wall construction.

3.2 The owner also summarised the sequence of events leading up to the refusal of the territorial authority to issue a code compliance certificate. While the owner stated that they were prepared to address some of the concerns raised in the Notice to Rectify, they objected to some of the conclusions reached by the territorial authority in it. They also said that the building frame had been dried out thoroughly before they lined it. Finally, they stated:

We are of the view that, notwithstanding the release by the BIA on 9 February 2003 of an interim amendment to E2/AS1, the [cladding] as fixed to the dwelling, in conjunction with the design of the dwelling and the construction works, is an Acceptable Solution, and the requirement that it be removed, a cavity placed, and the cladding reinstalled is unreasonable and unwarranted.

3.3 In addition, the owner also submitted:

- A producer statement for the installation of the entire cladding; and
- Warranties for the cladding and for the jointing and coating systems.

3.4 The territorial authority was invited by the Authority to make a submission on the issues but declined to do so.

- 3.5 The territorial authority requested a formal hearing, which was held before a committee of the Authority (“the Tribunal”), duly appointed to act for and on behalf of the Authority in respect of this tribunal. The owner and the territorial authority spoke and called evidence at the hearing.
- 3.6 The territorial authority made a lengthy submission for the hearing in a letter dated June 30 2004. The territorial authority also tabled a new submission at the hearing. Because the owner had not seen this later submission, the Authority ruled that the territorial authority could not table the material, but could give a brief explanation of it.
- 3.7 The 30 June 2004 submission from the territorial authority made a large number of points. The Authority has reviewed that submission and has identified the territorial authority’s five key concerns.
- 3.8 The five concerns held by the territorial authority are as follows:
 - The territorial authority has changed its view since its submission to the public consultation on the acceptable solution E2/AS1. It now disagrees with “the low risk high risk basis and would support a no or very low risk policy.” The Authority takes this to mean that the territorial authority now disagrees with the way the new acceptable solution on external moisture E2/AS1 uses the risk matrix to evaluate the risk of weathertightness failure and the way it approves the use of face fixed monolithic cladding in low risk houses (i.e. houses with a risk score of 6 or below).
 - The territorial authority believes that sufficiently high levels of relative humidity (RH) and vapour pressure (VP) can exist within the timber frame behind a face fixed fibre cement cladding system as a result of daily heating and cooling cycles. This means that decay can occur without the ingress of any external moisture.
 - The territorial authority considers that there is insufficient scientific research into the overall performance of monolithic claddings constructed without a cavity. Until that is available, face-fixed monolithic claddings cannot be considered compliant with clauses B2 and E2 of the code.
 - The territorial authority considers that any departure from manufacturer’s recommendations makes the cladding to be non-code compliant.
 - The territorial authority considers that the Authority should not be able to decide on the code compliance of this building on reasonable grounds because it does not have sufficient information on the as built construction.
- 3.9 The territorial authority gave a number of factual examples of these five concerns in its submissions, which the Authority has considered in making its decision. The Authority’s views on these factual examples are expressed in a general way in its response to the five key concerns.
- 3.10 The owner submitted a report to the hearing from an independent consultant that stated that once the cladding defects are rectified, the house will be weathertight. The owner then proceeded to discuss the points raised by the territorial authority in its submission. In particular, the owner:
 - Confirmed by means of a letter from a timber supplier that all external framing was H3 LOSP treated;

- Described the drying out of the building;
 - Stated that the material supplier for the backing sheets provided a warranty for the entire cladding system;
 - Despite considering that the 6340 mm wall did not require a vertical joint, confirmed that the builder would put one in;
 - Supported the accuracy of the moisture readings;
 - Submitted that neither the territorial authority nor the Authority should be responsible for ensuring the ongoing maintenance of the house; and
 - Believed that the house was “low risk”.
- 3.11 The owner concluded by saying that the five items listed under Clause A in the Notice to Rectify would be fixed. The owner did not agree to the other request from the territorial authority contained in the Notice to Rectify that he “provide adequate ventilation to the monolithic claddingby means of either a ventilated cavity or alternative approved system”. The owner also questioned why the previous 56 houses constructed on behalf of the owner which did not have cavities were given code compliance certificate certificates and this particular house was not.
- 3.12 At the hearing, two representatives of the owner attended and the territorial authority was represented by two of its officers. Four staff members of the Authority were also in attendance.
- 3.13 Evidence from those present enabled the Authority to amplify or correct various matters of fact that were not adequately identified in the draft.

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 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 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 Authority disagrees with the owner's view that this cladding is an Acceptable Solution. The cladding is not accredited under section 59 of the Act. The Authority is 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 has 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.
- 5.2 The expert stated that the cladding appeared to have been installed to the manufacturer's requirements. The exterior finish is of a good quality and the textured coating is of a good standard. The expert's report made the following specific comments on the building envelope:
 - A horizontal control joint has not been installed to the full-height section of the cladding adjacent to the main entrance, and as a consequence, a crack could form in the medium term and allow the ingress of moisture;
 - There are significant gaps between the junction of the cladding and the brickwork veneer, which could be vulnerable to moisture ingress;

- The windows have head flashings;
 - The apron flashing over the lower level garage roof is likely to allow water ingress into the building;
 - A verge tile/upper cladding junction was poorly constructed and a shoulder formed on top of the fascia at this point could possibly channel water into the building;
 - Sill flange/cladding junctions in some locations have not been sealed although this is not a manufacturer's requirement;
 - One area of cladding that is approximately 600 mm wide has its base less than 150 mm above the ground;
 - It was not possible to check the effectiveness of the sealing of the shutter fixing penetrations.
- 5.3 The expert also commented on aspects of the Particulars of Contravention set out in the territorial authority's Notice to Rectify, that had not already been covered elsewhere in his report:
- It was unlikely that the absence of a vertical control joint in cladding to a wall 6.4 metres long (1.0m longer than the manufacturer's recommended spacing for control joints) would compromise the cladding system; and
 - All junctions between the bottom edge of the cladding and the joinery head flashings had been sealed.
- 5.4 The expert also used a non-invasive moisture meter applied to the external face of external walls to detect areas of moisture ingress. The figures indicated that generally moisture levels were between 6.7% and 11.3%. While a moisture reading of less than 18% does not of itself indicate that the cladding is code compliant, it is indicative of the efficiency of the cladding in preventing moisture ingress to date.
- 5.5 Copies of the expert's report were provided to each of the parties. In a letter dated 21 April 2004, the territorial authority commented on the expert's report, and the main areas of concern can be summarised as:
- The substituted cladding panels should be installed to the same detail as those specified;
 - Sill flashings are required;
 - A 5 metre distance between control joints is required;
 - The ground clearance requirements for cladding sheets were less than those specified by the manufacturer and there was thus a risk of water ingress when the walls were washed; and
 - The territorial authority also made further references to the expert's report in its hearing submission.

- 5.6 The owner in an e-mail to the Authority on 22 April 2004, stated that they had no further comment to make on the expert's report.

6 THE AUTHORITY'S VIEW

General

- 6.1 The Authority has considered the submissions of the parties, the evidence presented at the hearing, and the expert's report. The Authority's approach to determining whether building work complies with clauses 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 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 utilising design measures that minimise the effects of the rain impacting on the walls
- 6.5 Important matters for consideration are outlined below.
- 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 require little or no wind pressure differential, the Authority believes 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,
 - Decks and balconies that are exposed in plan and/or cantilevered out from the external walls are the most frequent location for water leaks.

- 6.6 Any penetration of moisture through the cladding can then be addressed by a combination of effective drainage, ventilation of the drainage cavity and moisture tolerance in the external wall framing timber.
- The structure should allow water that has penetrated the cladding to drain out as quickly as possible. The Authority believes 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, the Authority believes that the drainage cavity should be not less than 20 mm deep,
 - 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, the Authority finds that this house:
- Has a low risk roof design with 575mm wide eaves, which are, to all elevations (taking into account the additional spouting width), which are considered to be effective in shielding the cladding;
 - Is in a low wind zone;
 - Is constructed to two levels, with the top storey clad in monolithic cladding and the bottom storey predominately faced with brick veneer;
 - Incorporates some complex wall/roof intersections, generally at mid height on the second storey, which will improve ventilation into the second storey wall space down from the roof space above and up from the ground floor roof space.
 - Has an overall envelope that is relatively simple in shape;
 - Has no decks or balconies;
 - Has face-fixed cladding with no drainage cavity; and
 - Has external walls constructed from H3 LOSP treated framing that is effective in delaying the onset of decay.

Weathertightness performance

- 6.8 The Authority has reviewed the five key concerns submitted by the territorial authority listed in paragraph 3.10:
- 6.9 The Authority notes the territorial authority disagrees with the way E2/AS1 uses the weathertightness risk matrix, and in particular, the way it allows face fixed fibre cement claddings in low risk situations.

- 6.10 The new acceptable solution covering timber treatment (B2/AS1) and the new acceptable solution on external moisture (E2/AS1) covering weathertightness detailing, rely on established building science, as well as observed field performance of the building systems and elements, to establish code compliant details for local use. The final weathertightness risk matrix included in E2/AS1 reflects this approach. Both these documents have been widely reviewed by appropriately qualified parties with experience across the building industry. They have also been subject to the public consultation process as required by section 49 of the Act before being issued for general use by the Authority. The Authority suggests that the territorial authority accept the status of the E2/AS1 document and the weathertightness risk matrix contained in it as section 49 approved documents.
- 6.11 The Authority notes the territorial authority's view that daily heating and cooling cycles will generate high RH levels within face fixed fibre cement cladding and that those high RH levels will cause timber decay to start even when the wall is completely sealed against external moisture.
- 6.12 The territorial authority tabled a research paper at the hearing that presented the results of an insitu test of four different monolithic walls, which measured VP and RH within the wall during the daily heating and cooling cycles. The research paper examined RH and VP levels behind 2 face fixed fibre cement walls and 2 proprietary EIFS walls constructed with grooves in their back face. It demonstrated that there was a greater range of RH and VP readings behind the fibre cement walls. The RH and VP differences were not reflected in the moisture content of the timber recorded during the test. Only one wall (a fibre cement wall) showed elevated moisture content levels and that was attributed to a fault in the cladding installation that was allowing external moisture to get in. The tests did not examine the link between RH/VP levels, timber moisture content and/or and the likelihood of timber decay in these walls.
- 6.13 The Authority acknowledges the lack of accurate scientific data on the moisture transport mechanisms in external walls. Because of the complexity of the subject, and in particular, the large number of external variables, the Authority believes that it is unwise to draw broad conclusions on the probability of timber decay from these experiments. The Authority concludes that the paper does not demonstrate any link between the RH and VP conditions existing behind weathertight fibre cement walls and decay in the timber framing.
- 6.14 The Authority therefore does not agree with the territorial authority's claim that relative humidity and temperature are more important as contributory factors towards timber decay than moisture content of the timber.
- 6.15 The Authority also notes that despite some notable weathertightness failures, there are a large number of face-fixed fibre cement clad buildings that are meeting the performance requirements of the code. They are remaining dry and are not subject to decay. The Authority believes that if the territorial authority's premise was true, it could expect to see a more universal failure of face-fixed fibre cement claddings, particularly in high humidity climates. The Authority has seen no evidence of this happening in practice. The Authority believes that, in the majority of cases, decay in external timber frames can be attributed to moisture ingress, which in turn is due to discrete failures in the external cladding. It believes that these failures can usually be attributed to poor design and installation of the cladding and that the risk of cladding failure increases with increasing design and overall shape complexity – in other words, the weathertightness risk factors.

- 6.16 In response to the territorial authority's assertion that departure from manufacturer's recommendations is a reason for the cladding to be non code compliant, the Authority emphasises that New Zealand's building control framework is based on a performance based code. The territorial authority suggests that the manufacturer's specification of relief joints at 5400mm centres is an absolute figure and implies that the cladding would fail if joints were at, say, 5410mm apart. This cladding is an alternative solution and clearly the exact length between control joints is not a determinant of compliance. What is important is the performance of the cladding (and its control joint spacing) in maintaining its weathertightness. That performance depends on many factors particular to the building concerned. Under the Building Act only an acceptable solution is deemed to provide automatic compliance. If a detail lies outside the acceptable solutions, the territorial authority is required under the Act to make an assessment of the performance of that detail. In this case the cladding is an alternative solution and the Authority has made an assessment that because of the geometry of the wall in question and the foundation conditions, the lack of a relief joint in this panel of 6400mm length is not a reason, in itself, for the wall to be not compliant with the code. The Authority has followed the same approach when examining the gap between the cladding and ground level.
- 6.17 The Authority emphasises that the manufacturer's specification for a relief joint spacing is not an acceptable solution and does not establish compliance with the code, however the figure provided by this manufacturer provides a good indication of a suitable construction specification which must represent a worst case installation situation.
- 6.18 The Authority notes that in this case the owner offered to install a control joint in the 6400mm long wall, not despite the Authority's view that one was not necessary.
- 6.19 The Authority has considered the territorial authority's suggestion that it has insufficient information with which to make this determination. The Authority has been asked to determine whether the cladding on this house is compliant with the code. Because the cladding is already installed, the Authority is restricted in the extent of its examination of the cladding. It must therefore make a judgement based on what is reasonably available to it. That includes the territorial authority's own inspection records, the detailed report from the expert which involved appropriate invasive testing, and the information supplied by the owner. The Authority accepts that, in respect of some aspects of the construction, it may have less information than would have been available, for example, to the territorial authority inspector during the construction process. It has considered the consequences of that lesser knowledge of the building's overall construction and performance when making its determination.
- 6.20 The Authority finds that the cladding itself appears to have been installed according to good trade practice and generally to manufacturer's instructions. It can be considered to be effective in preventing the penetration of water because the expert's examination did not indicate any areas where moisture levels were high. Although it appears to be dry at the moment there are defects that are likely, with time, to allow the ingress of moisture behind the cladding. These minor defects need to be addressed to ensure ongoing weathertightness.
- 6.21 The Authority notes that a joint warranty was produced in the names of the backing board manufacturer and the jointing and coating supplier and that the entire cladding system was installed by one organisation, who provided a warranty covering their workmanship.

- 6.22 The Authority finds that the lack of window sill flashings in this case are not in themselves a reason for the cladding to not be code compliant. E2/AS1 includes sill flashings as part of the acceptable solution for windows face fixed over fibre cement and the Authority recommends this detail. This house however has windows that have metal head flashings and have jamb flanges that are sealed between the flange and the cladding and are thus protected from UV attack. In this case, the Authority considers that sill flashings are not required.
- 6.23 Despite the fact that the backing sheets are fixed directly to the timber framing, thus inhibiting ventilation behind the cladding sheets, the Authority finds that there are compensating provisions that assist the performance of the cladding. These are:
- Apart from some specific minor details, the cladding as a whole has been carefully installed according to good trade practice and to manufacturer's specifications;
 - The design of this house presents a low risk of weathertightness failure. It has a simple building envelope and roof design, and has eaves; and
 - The timber is treated to an H3 level that will provide good resistance to decay.
- 6.24 While the statement made by the territorial authority and set out in paragraph 2.6, has the appearance of being a blanket policy on monolithic claddings, the Authority accepts the assurance of the territorial authority that each building with monolithic cladding is assessed on a case-by-case basis.

7 CONCLUSION

- 7.1 The submissions by the owner and the territorial authority have not persuaded the Authority to make any significant changes to the view that it took in the draft determination.
- 7.2 The Authority accepts that the expert's report establishes that the cladding complies in most respects with the manufacturer's instructions. As there is no evidence of external moisture entering the building, the Authority finds that the cladding on this particular building complies with clause E2.
- 7.3 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. B2 requires that a building continue to satisfy all the objectives of the code throughout its life, and that includes the requirement for the building to remain weathertight for its prescribed life. Because the cladding faults in this building are likely to allow the ingress of moisture in the future, the building does not achieve the durability requirements of B2.
- 7.4 However, the Authority also finds that when the cladding faults have been satisfactorily rectified, it is satisfied that this house should be able to remain weathertight and will thus comply with clause B2. It is essential that all the required items of rectification set out below and which are detailed more specifically in the expert's report be competently carried out to ensure such compliance:

- A horizontal control joint to be installed above the front door;
 - Remedial work is required to one apron flashing and to the verge tile/cladding junction;
 - The gap where the cladding adjoins the brickwork veneer should be correctly sealed;
 - The sealing of the shutter fixings penetrations to be checked and rectified if found to be deficient; and
 - The bottom edge of the cladding sheets in the front entrance should be sealed.
- 7.5 The Authority notes the importance of the owner's responsibility for ongoing maintenance to the cladding. The code assumes that normal maintenance necessary to ensure the durability of the cladding, is carried out and thus clause B2.3.1 of the building code requires that the cladding be subject to "normal maintenance". That term is not defined, so the Authority takes 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.
- 7.6 The Authority considers that in this case, the smaller clearances between cladding and paving around the main door are acceptable because the adjacent ground is paved, because the paved area falls away from the cladding and because there is a canopy over the door which will limit the amount of water that falls on the paved area.
- 7.7 The Authority emphasises 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.
- 7.8 The Authority declines to incorporate any waiver or modification of the building code in its determination.

8 THE AUTHORITY'S DECISION

- 8.1 In accordance with section 20 of the Building Act, the Authority determines that the house is weathertight now and therefore the cladding 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, the Authority finds that the house does not comply with clause B2 of the code. Accordingly, it confirms the territorial authority's decision to refuse to issue the code compliance certificate.
- 8.2 The Authority finds that because of the compensating factors in this case, the lack of a drained cavity behind the cladding is not, on its own, sufficient grounds to withhold a code compliance certificate.
- 8.3 The Authority, therefore, finds that once the items of non-compliance that are listed in paragraph 7.4 are rectified to the approval of the territorial authority, 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. It is not for the Authority to decide directly how the defects are to be remedied and the cladding brought to compliance with the building code. That is a matter for the owner to propose and for the territorial authority to accept or reject, with

either of the parties entitled to submit doubts or disputes to the Authority for another determination.

- 8.4 The Notice to Rectify issued by the territorial authority is superseded by this decision and is now void.
- 8.5 The Authority considers that the cladding will require on-going maintenance to ensure its continuing code compliance, and that this maintenance programme should be undertaken after consultation with the territorial authority.

Signed for and on behalf of the **Building Industry Authority** on 21 September 2004.

John Ryan
Chief Executive