

*Determination 2004/72****Refusal of code compliance certificates for 7 house units clustered into 3 separate buildings with “monolithic” cladding systems: House 55*****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 project manager for the owner of 7 house units and 7 garages (the “complex”), and is referred to throughout this determination as “the owner”. The other party is the territorial authority (TA). The application arises from the refusal of the TA to issue a code compliance certificate because there is doubt whether the cladding systems used to construct the complex comply with the building code.
- 1.2 The Authority’s task in this determination is to consider whether it is satisfied on reasonable grounds that the external wall cladding systems as installed (“the claddings”) on the complex comply with the building code (see sections 18 and 20 of the Act). By “external wall cladding systems as installed” we mean the components of the systems (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 In making its decision, the Authority has not considered any other aspects of the Building Act or the building code.
- 1.4 The complex is described in paragraphs 2.1 to 2.7 and paragraph 8 sets out the Authority’s final decision

2 PROCEDURE**The buildings**

- 2.1 The complex is comprised of three separate buildings containing a total of 7 two-storey house units. There are two blocks containing three units in each, and one free-standing unit. The free-standing unit has a separate single bay garage, while garaging to the other 6 units is provided by one block containing 4 garages and one block containing 2 garages. They are located on a generally flat site, with completed hard landscaping as well as newly planted shrubs and gardens. The site is in a medium wind zone in terms of NZS 3604: 1999 “Timber framed buildings”.
- 2.2 All three buildings containing the house units are similarly constructed in that they each have a concrete raft ground floor, timber-framed double-stud inter-tenancy walls between adjoining house units, and the other walls, floors, and roofs are timber framed. The gable roofs are built to a 10 degree pitch and clad with longrun galvanised prepainted steel. There are 750 mm wide eaves on either side of the buildings, but no verges on the gable ends. The bulk of the walls are clad with a 7.5 mm thick fibre-cement flat sheet system. The remainder of the wall cladding is a fibre-cement weatherboard system. The facings

around the windows are in some cases made of fibre-cement and in other cases polystyrene. There is a partially enclosed balcony at the first floor level on each of the units. The balconies, which have metal barriers fixed through the deck membrane, are not built over habitable living space. The inter-tenancy walls terminate below the roof envelope but a parapet, fabricated from prepainted galvanised steel, has been fixed to the roof above to express the line of the intertenancy walls below. There is a horizontal 60 mm diameter galvanised steel pipe bolted to the wing walls beside each balcony. A 100 mm structural steel post supports each balcony and is connected at its upper end to the horizontal 60 mm diameter pipe.

- 2.3 The garages have monopitch roofs clad with a longrun pre-painted ribbed steel product. There are 750 mm wide eaves on one side of each of the garages, but no eaves to the other three sides. The garage walls are clad with a monolithic cladding system using 7.5 mm thick fibre-cement sheets fixed directly over building wrap. This is the same product that is used to clad much of the house walls, but on the garages it is not installed over battens to create a cavity.
- 2.4 The houses are clad for the greater part with what is described as a monolithic cladding system. As specified in its technical information (the manufacturer's instructions), it incorporates 7.5 mm thick fibre-cement flat rigid sheets fixed through 20 mm thick H3 treated timber battens to form a drained and ventilated cavity between the sheets and the building wrap that is behind the battens and fixed directly to the framing timbers. The finish applied over the rigid sheets is an unspecified sprayed textured coating system. The manufacturer's instructions include details for flashings at various junctions, for movement joints, and require flashings at the heads, jambs, and sills of exterior joinery units such as windows.
- 2.5 The wall cladding used on the balance of the house units is a fibre-cement weatherboard system in which the horizontal boards are fixed over a building wrap and directly to the timber stud framing, (ie without a cavity between the boards and the wrap). The weatherboards are finished with a paint system.
- 2.6 The exterior window joinery is aluminium and the exterior door joinery is timber.
- 2.7 The owner advised the expert commissioned by the Authority (see paragraph 5.1) that timber treatment levels were as follows:

House units:

- | | |
|--|---------|
| • Exterior walls | H1 Plus |
| • Timber framing to wing walls, decks, etc | H3 |
| • Battens | H3 |
| • Bottom plate exterior walls | H3 |
| • Internal framing | H1 |

Garages:

- | | |
|------------------|---------|
| • Exterior walls | H1 Plus |
|------------------|---------|

The expert reported that although a request was made for evidence (such as invoices) to verify the levels of timber treatments used, no evidence was provided by the date of the report. Subsequently the expert received copies of invoices showing that the battens used to create the cavity, in those walls that had cavities, were H3 treated. No other evidence of timber treatment has been produced. The Authority notes that the specifications for the

buildings require H1 treated timber for all wall framing, making no differentiation between exterior and interior walls and not specifying H1 Plus for any purpose.

Sequence of events

- 2.8 The territorial authority issued a building consent in January 2003.
- 2.9 A series of inspections were made by the TA. These included so-called “pre-line” inspections that are recorded as “passed inspection”. The TA “Field sheets” appear to record that final inspections for code compliance certificate purposes for each unit were carried out on 1 April 2004 and that all the units “passed inspection”. The Authority is concerned to note that despite these inspections, all of which were passed, the TA is now saying its inspection regime was not sufficiently rigorous to provide the TA with reasonable grounds on which to issue a code compliance certificate. Clearly the TA is entitled to prescribe, at the time of issuing the consent, the inspections it regards as necessary to ensure compliance with the building code, and in this case it did so.
- 2.10 On 5 December 2003 the TA issued a media release headed *Council Requirements in Respect of Monolithic Cladding*. The release said:

Effective immediately Waitakere City has initiated a number of changes in respect of Building Consents, Inspections and Code Compliance Certificates where monolithic cladding is used.

Building Consent Applications

- All Building Consent applications that include the use of monolithic cladding must have a cavity system incorporated into the design. This will provide a first line of defence against the harmful effects of any water or moisture that may penetrate the cladding. In the interim until the amendments to the Building Code Clause E2 External Moisture become available, either specific design of the cavity will be required or the Building Industry Authority Consultation Document used as a basis for establishing compliance.

Building Inspections

- Further inspections will be required during the application of these systems. Should these inspections not be adhered to and passed, Council will not issue a Code Compliance Certificate.

Code Compliance Certificates

Note: The following shall not be construed to be a “blanket” approach and each decision will be made on a case by case basis. Where a building is deemed to be compliant a Code Compliance Certificate will be issued.

- Any building work that has a cavity installed behind the cladding and has been subject to and passed the new inspection regime, will be able to have a Code Compliance Certificate issued in the normal manner. Building work that has been completed or is in the process of being completed (and does not currently have a Code Compliance Certificate) or has a cavity that has not had the new required inspections will not be given a Code compliance Certificate unless Council can establish on reasonable grounds that the building will comply. If in Council’s opinion the building does not comply applicants will be issued with a Notice to Rectify.
- Where a Notice to Rectify is not complied with and/or a Code Compliance Certificate is not issued, the Consent Applicant will be advised to apply to the BIA for a determination.

These changes have been brought about by a number of drivers together with the “[Name]” Judgment, the first of WHRS adjudications which held that:-

- Council must put in place proper inspection processes at appropriate stages during construction of a building so that the Council is able to ensure compliance with the Building Code.

In light of this decision and the implications we consider we have no option other than to impose these requirements. Council has a duty not only to the Construction industry as a whole but also home owners and future home owners in terms of the projected life span of these buildings. One of the primary duties is to ensure that the quality of housing stock is compliant and remains compliant and in a safe and sanitary condition. This is not limited to the cladding system but the structure as a whole.

- 2.11 On 11 December the TA emailed the following message to the owner, apparently in response to a request for advice as to how the owner should proceed to obtain a CCC in light of the TA's media statement,

In response to your email yesterday querying the way forward you are advised:

1. For the standard (proprietary cladding) system without cavity used on the garages will need to obtain a determination from the Building Industry Authority for Council to issue a CCC.
2. If the cladding with a cavity has not had the new regime of inspections (4 in all) you will also need a determination for that also.
3. The (proprietary cladding) system is not recorded in Council's Blanket Approval register as having been approved by Council. This means an assessment of the system will have to be carried out as to whether Council will accept the system.

On 12 December 2003 the project manager for the construction of the buildings emailed the TA and said;

Given that during the construction of our cavity (proprietary cladding) system the "new inspection regime" had not been started is [the TA] able to "establish on reasonable grounds that the buildings will still comply". The installation has also been inspected by (cladding system manufacturer) during installation.

If not, what are our other avenues for obtaining compliance certificates?

- 2.13 In an emailed response to the project manager on 12 December 2003 the TA said,

That is the whole point.

The adjudication in the [named] case applied the retrospective principal (sic) of today's knowledge of cladding problems to the inspections that Council made in 1996 when cladding methods and inspections were far less restrictive than they are now. This decision has established legal precedent and all the future weathertightness claims will be judged under those same criteria. Hence, [named insurance organisation] who are the insurers for all the Council's (sic) in New Zealand, has had to arbitrarily apply today's knowledge retrospectively to all buildings that have not had a CCC issued.

Your only avenue at the moment is to apply to the Building Industry Authority for a determination pursuant (to) s17 of the Building Act 1991.

- 2.14 The TA issued a Notice to Rectify on 19 April 2004.

- 2.15 Attached to the Notice to Rectify was a document headed "Particulars of Contravention" which said,

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.

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 alternate approved system; or

Remove the monolithic cladding and replace with an approved cladding system and;

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 be processed.

- 2.16 The Authority notes the Notice to Rectify and the attached Particulars of Contravention appear not to recognise that the greater part of the housing units cladding does in fact incorporate a drained and ventilated cavity system.
- 2.17 The owner applied to the Authority for a determination on the complex on 3 June 2004.

3 THE SUBMISSIONS

- 3.1 The owner, at the time of applying for this determination, made a written submission and supplied copies of:
- A Producer Statement, dated 31 March 2004, from the contractor;
 - The Practical Completion certificate, dated 16 April 2004;
 - A letter dated 30 April 2004 from the TA confirming that subject to compliance with the Notices to Rectify to the satisfaction of the TA, the CCCs could be issued;
 - A letter from the architects explaining their rationale for the cladding design for the garages;
 - The plans for the building work;
 - The specifications for the work (which include some of the cladding manufacturer's specification sheets);
 - The TA's media release dated 5 December 2005;
 - Some correspondence between the owner and the TA;
 - A statement from the cladding system manufacturer about the extent of its involvement in the installation of the cladding systems;
 - A letter from the owner's architects confirming that they had been engaged by the owner for architectural services including observation of the works; and
 - Detail sheets published by the plaster systems manufacturer.
- 3.2 The owner wrote a further letter dated 4 June 2004 and enclosed:
- A letter from the cladding system manufacturer attaching the manufacturer's "Homeowner's Warranty Document", relating to the sheet cladding system, together with information on the maintenance requirements for the system.
- 3.3 The TA submitted a letter, dated 4 June 2004, which said,
Council makes this submission:
- a) Building Consent 20030010 was issued on 4th March 2003 by this Council for the erection of a 7 unit terraced housing development with monolithic plaster cladding as described in the determination application;
 - b) The work was undertaken during the period July 2003 and April 2004;
 - c) The cladding was not inspected by (the TA);
 - d) A cavity has not been installed behind the cladding of the fully lined garages;

- e) In the absence of the cladding inspections, and in the absence of a cavity on the garages as a second line of defence, the Council does not believe it is able to be satisfied, on reasonable grounds, that the cladding applied to the dwellings and garages will achieve the functional requirements of Clause E2.2, or the performance requirements of Clause E2.3.2, of the Building Code;
 - f) Building inspections in respect of this property were undertaken by [named TA inspector], who can be contacted on [TA's phone number] if there is any matter of detail which the Authority wishes to discuss with [the inspector]
- 3.4 Copies of the submissions and other evidence were provided to each of the parties. Neither party made any further submissions in response to the submission of the other.

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, in respect of each house unit and garage, because it was not satisfied that the cladding systems used on the complex complied with clauses B 2.3.1 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 approved under section 49 of the Act that cover the cladding systems used in this case. The cladding systems are not accredited under section 59 of the Act. The Authority is therefore of the opinion that the cladding systems as installed can be considered to be alternative solutions.

- 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

General

- 5.1 The Authority commissioned an independent expert ("the expert") to inspect and report on the cladding on the complex. Where necessary the expert used the numbering system shown on the consented plans to refer to units or groups of units.
- 5.2 The expert confirmed that a considerable proportion of the external walls of the house units were built with cavities as detailed in the consented drawings. It was also confirmed that the garage walls were clad with face-fixed cladding as shown in the drawings.
- 5.3 The expert reported no variations from the consented plans.
- 5.4 The expert said that the length of the walls in the house units was such that, to comply with the manufacturer's recommendations, vertical control joints were required. These were installed, although the expert was critical of the execution of vertical control joints formed on internal corners on the front of the housing units. Plaster had been used in place of the recommended flexible sealant, and the consequently rigid joints are cracking. The expert also noted that the sheet edges at horizontal control joints had not been primed or sealed prior to installation.
- 5.5 The expert observed that vertical control joints required for the 2 and 4-bay garage buildings were not installed.
- 5.6 The expert identified head, jamb, and sill flashings to the windows.
- 5.7 The expert identified the following faults in the installation of the cladding systems on the house units:
- Electrical cables penetrate the cladding in several places;
 - Penetrations such as ducting vents, lights, plumbing pipes, downpipe brackets, etc, are reliant on silicone;
 - Many of the holes created for the penetrations are oversized;
 - There is no clearance between the capping and cladding on the wing walls and balcony upstand where the capping is buried in the cladding;
 - There was no evidence of saddle flashings at the junction of wing walls and columns supporting the balcony, or the upstand on the balcony, instead these areas appear to be reliant on silicone sealant;
 - There was no seal between the fibre-cement sheet cladding system and the proprietary weatherboard systems at the junction of the wing walls to the

house walls. Clear silicone sealant was used, contrary to the manufacturer's recommendation;

- The bird's beak on the bottom of the metal capping of the balcony upstand has not been formed in a manner that sheds water away from the cladding;
- A slatted removable deck has been fitted over the balcony floor. The butyl rubber membrane on the deck has reacted with the timber treatment solution and has peeled off the floor in places;
- Barrier fixings for the balcony decks have been top-fixed and penetrate the horizontal surface of the upstand and membrane under – no fixings should penetrate the top surface or membrane;
- The workmanship of the butyl rubber membrane around the outlet on the balconies is poor with the butyl rubber noted as being loose and not properly joined. The expert opined that membranes should be formed around the outlet before the main body is laid – in this case the reverse has occurred;
- The bottom edge of the weatherboards around the balcony and dwelling units has not been painted or sealed;
- Head flashings have been sealed against the cladding whereas a 5 mm clearance should be provided;
- Facings around the windows have been fitted but in some cases they have not been sealed allowing moisture to get between the two surfaces, particularly around the top of the windows. On all units the top edge of the facing had not been fully painted, and the bottom edges have not been painted or plastered. On unit 10 the polystyrene facing has not been fitted properly and is loose. Generally the cladding underneath, whilst painted, is not texture coated as required. The expert said the coating system on the walls should have been completely finished before mouldings were fitted;
- On Unit 7 nails have popped on the exterior cladding;
- Sill flashings to windows across the front of the dwellings in the small bays do not extend beyond the opening and do not adequately cover the horizontal joint between two different cladding materials that occurs immediately below the windows; and
- The front faces of the balconies, which are formed with a sheet product have not been installed with an anti-capillary drip edge to prevent water being drawn underneath the balcony.

5.8 The expert reported the following fault in the garage units:

- The manufacturer's recommendation for vertical control joints at 5.4 m centres is applicable to the 2 and 4-bay garages.

5.9 Although the expert was not commissioned to examine the buildings for compliance with the fire safety requirements of the building code, the expert's report draws attention to the following matters that, in the expert's view, should be reviewed:

- Plumbing pipes penetrate the 200 mm fire-rated wing wall on the back of the multi-units;
- The fire-rated plaster board does not return 200 mm along the wall of the garages;

- There are no wing walls on the front face of the multi-unit blocks for fire-separation purposes; and
- Where the plaster coating is greater than 1 mm thick the fire performance of the coating system should be checked to verify if the coating system is appropriate for the application. (The expert referred to a clause in the product technical specification).

Moisture investigation

5.10 The expert took moisture level readings of the external wall cavities using a non-invasive moisture meter. The expert then took further readings using an invasive type of moisture meter. The measurements obtained show that the highest readings (18.9%) were measured in the lounge/dining/kitchen areas of three different house units. Readings of 18% were obtained in bedroom 1 of two of those same units and in the lounge/dining/kitchen area of a fourth unit. While moisture levels above 18% after cladding is in place generally indicate that external moisture is entering the structure, the expert said the moisture content readings indicated that there was no undue moisture presence in the wall cavities.

5.11 The expert observed,

- That all inspections required by the TA at the time the building consent was issued were undertaken and subsequently approved
- That the dwellings have been constructed with a drained and ventilated cavity on treated timber battens;
- That the garages do not have a cavity but are reasonably well ventilated and are not for habitable use; and
- That although the TA has carried out a final inspection of the buildings, there are weathertightness issues such as head flashings not being installed properly. These issues should have been noted by the TA at the time of the final inspection.

5.12 Copies of the expert's report were provided to each of the parties. None of the parties made comment on the expert's report.

6 THE AUTHORITY'S VIEW

General

6.1 The Authority has considered the submissions of the parties, the expert's report and the other evidence in this matter. The Authority's approach in determining whether building work complies with clauses B2/AS1 and E2.3.2, is to examine the design features of the building, including those intended to prevent the penetration of water, the surrounding environment, the cladding system, its installation, and the moisture tolerance of the external framing.

Weathertightness risk

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

6.3 The installation of exterior cladding to manufacturer's specifications and to accepted good trade practice is an important, but not the only, requirement to ensure good

weathertightness performance.

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

6.5 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 to admit moisture, the Authority believes that buildings in high and very high wind zones (as defined by NZS 3604) are likely to experience wind pressure differentials and thus a higher risk of water ingress;
- Taller buildings result in an effective increase in the catchment area of the wall. Available data suggests a clear correlation between a 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 the wall; and
- Recent data also shows that decks and balconies that are exposed in plan and/or cantilevered from the external walls are the most frequent location for water leaks.

6.6 Any likely penetration of moisture through the cladding can then be countered by a combination of effective drainage, ventilation of the drainage cavity and moisture tolerance in the external wall framing timber. In particular:

- The structure should allow water that has penetrated the cladding to drain out as quickly as possible. 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; and
- The external walls should have some degree of decay resistance or moisture tolerance to allow for situations when moisture circumvents the cladding and moisture barriers and moisture levels in the timber rise to more than 18%.

6.7 In relation to these characteristics, the Authority finds that each of the blocks of houses:

- Has 750 mm wide eaves on either side of the house unit buildings that will provide some weather protection in those locations. However as there are no eaves or verges at the gable ends no protection is provided at those locations.

- Is in a medium wind zone;
- Is constructed to two levels;
- Has partly enclosed balconies, on the upper floor level to each house unit, that are not built over habitable space;
- Has a simple 10 degree pitched roof;
- Is clad with a cladding system that embodies a drained and ventilated 20mm cavity; and
- Has external wall frames that, in the absence of any evidence to the contrary must be assumed to be constructed with untreated timber, which is likely to decay if it absorbs and retains moisture.

6.8 In relation to these characteristics, the Authority finds that each of the blocks of garages:

- Has 750 mm eaves at one end of the buildings that will provide some shelter to one wall;
- Is in a medium wind zone;
- Has a simple mono-pitch roof;
- Is constructed to one level;
- Does not have the vertical control joints that the manufacturer's advice would require on the 2 and 4 bay garage buildings;
- Is clad with a monolithic cladding system that does not embody a drained cavity; and
- Has external walls that are constructed from timber that must, in the absence of any evidence to the contrary, be assumed to be untreated and providing no resistance to decay should it become wet.

Weathertightness performance

6.9 The Authority finds that the performance of the cladding systems installed on the house units has been impaired by a number of faults in the way the system has been installed. The Authority believes it is at the joints, junctions and penetrations that cladding systems are rendered less effective by a lack of care and attention to detail. In this case the extra protection from leaking that might be expected from the use of a cladding system incorporating a drained cavity, has been compromised by a number of small but significant defects, listed in paragraphs 5.7 and 5.8 that must be fixed. These faults can be summarised as follows:

- Vertical control joints should be installed on the garage buildings and control joints in the housing units should be checked to ensure they are correctly constructed with appropriate sealants;
- The sill flashings to the windows to the bays at the front of the housing units should be modified to provide weather protection for the horizontal joint between two different cladding materials that occurs directly below the windows;
- Penetrations of the cladding should be properly finished so as not to rely on silicone sealant;
- Cappings and saddle flashings should be installed in place of silicone bead;

- Joints and edges should be checked to see that all sheet edges are sealed or painted;
 - The coating systems on the walls should be completed prior to fixing of the window and door facings, and the facings themselves should be completely coated; and
 - Drip edges should be formed to protect the underside of the balconies from water running down the face.
- 6.10 The Authority believes the present low moisture levels of the housing unit buildings, despite a number of faults in their cladding construction, is attributable to the use of a drained and ventilated cavity for the greater part of their cladding.
- 6.11 The Authority finds that the garage buildings, which do not have a drained cavity as a feature of their cladding system, are nonetheless not shown to be leaking.
- 6.12 The Authority concurs with the expert that the extensive use of silicone sealant as a means of waterproofing the buildings, in place of the correct flashing or seal system, and sometimes contrary to the recommendations of component manufacturers, is of concern. The use of such materials in locations exposed to the weather, and particularly to solar radiation, is known to be poor practice because of diminished durability and risk of failure to exclude water.
- 6.13 The Authority notes that typical side and front elevations of the buildings demonstrate a moderate weathertightness risk rating and typical rear elevations demonstrate a low weathertightness risk rating when calculated by the E2/AS1 risk matrix. The matrix is an assessment tool that is intended to be used at the time of application for consent, but must be supplemented at the time of issuing a code compliance certificate by careful inspection of the building as actually built.

7 CONCLUSION

- 7.1 The Authority accepts the expert's report that the cladding on the house units is not currently leaking. The Authority therefore believes the house units are compliant with clause E2 of the building code.
- 7.2 The Authority accepts the expert's report that the cladding on the garages is not currently leaking. The Authority therefore believes the garages are compliant with clause E2 of the building code.
- 7.3 The buildings will also have to comply with clause B2 of the building code. 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 these buildings are likely to allow the ingress of moisture in the future, the Authority finds that the units will also not achieve the durability requirements of B2.3.1 until the faults are rectified.
- 7.4 The Authority believes that because the faults in the complex are identifiable and discrete, and because the cavity provides an effective mechanism to drain and ventilate the back of the cladding, it is able to conclude that if those faults identified in paragraph 5.7 and summarised in paragraph 6.9, are fixed, the buildings in the complex can be brought into compliance with clause B2 of the building code.

- 7.5 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. In this regard the Authority is carrying out the function the TA is normally required to perform and is doing it in the manner the Act prescribes for the TA to do it. In other words the Authority seeks to discover whether there are “reasonable grounds” (s 43 (3)) on which it can be satisfied that the building complies with the building code. The Authority takes that approach to any building and believes that the presence of a drained and ventilated cavity is only one of the factors to consider before decisions about compliance are made.
- 7.6 The Authority notes (at paragraph 2.16) that the Notice to Rectify and its attached Particulars of Contravention issued by the TA on 19 April 2004 appear not to recognise that a substantial part of the cladding of the housing units in the complex was carried out using a drained and ventilated cavity system. It was not until 4 June 2004 that the TA, in its submission for the determination, acknowledged that its reason for refusing a code compliance certificate for the housing units was because they had not been adequately inspected, and not because a cavity had not been installed. In that submission the TA refers only to the garage buildings as not having claddings with a cavity.
- 7.7 The Authority is concerned to note the reference, in the TA’s email to the owner on 11 December 2003, to the proprietary cladding used on the garages being *not recorded in Council’s Blanket Approval register as having been approved by Council*. If, as the email words appear to imply, the TA approves the cladding system on a building, if that cladding is listed in the register, without reference to the way in which the cladding is to be fixed, jointed and otherwise applied in the particular design, then the undertaking to consider each building on a case by case basis, promised in the TA’s media release on 5 December 2003, is not being followed, and a blanket approach is actually being applied.
- 7.8 The Authority observes that many of the faults the expert identified were so obvious that they would have been evident if even a superficial examination of the buildings had been carried out by the TA, yet those faults are not mentioned in the Notice to Rectify or in other advice to the owner.
- 7.9 The Authority declines to incorporate any waiver or modification of the building code in this determination.
- 7.10 It is not for the Authority to prescribe how the building work on the complex is to be 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. The Authority recommends that the proposal for rectification should be consistent with the findings of this determination. In other words the proposal should encompass not only the faults identified so far, and noted in this determination, but should also include any other faults revealed during the rectification process.
- 7.11 The Authority notes 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 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. The Authority recognises that a territorial authority 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 territorial authority, bearing in mind that the nature of the advice, and the basis on which it is provided to the owner, are for the TA to decide.

- 7.12 The Authority recommends to the TA that the matters relating to the fire safety provisions in the building code, to which reference is made in paragraph 5.9 should be reviewed before code compliance certificates are issued.

8 THE AUTHORITY'S DECISION

- 8.1 In accordance with section 20 of the Building Act, the Authority determines that the cladding as installed on the house units and the 2 and 4-bay garage buildings does not comply with clause B2 of the building code. Accordingly, it confirms the territorial authority's decision to refuse to issue the code compliance certificates.
- 8.2 The Authority finds that rectification of the items outlined in paragraph 6.9 to the approval of the territorial authority, along with any other faults that become apparent in the course of that work, is likely to result in the buildings being weathertight and in compliance with clauses B2 and E2, notwithstanding the lack of a ventilated cavity in the cladding on the garage buildings.
- 8.3 The territorial authority has issued a Notice to Rectify, dated 19 April 2004. Under the Act, a Notice to Rectify can require that the owner bring the cladding into compliance with the code, but the Authority has already found in a previous determination (2000/1) that the Notice to Rectify cannot specify how that compliance is to be achieved. The Authority considers that this Notice to Rectify should therefore be put aside. A new Notice should be issued that requires the Owner to bring the building into compliance with the code without specifying the features that are required to be incorporated.
- 8.4 The Authority believes that the cladding system on the buildings in the complex will require ongoing maintenance to ensure its continuing compliance with the building code.

Signed for and on behalf of the **Building Industry Authority** on 29 November 2004.

John Ryan

Chief Executive