

# ***Cladding incorporating a proprietary plaster coating***

## **1 THE MATTER TO BE DETERMINED**

- 1.1 The matter before the Authority is a dispute as to whether a code compliance certificate should be issued in respect of a house having a cladding system incorporating a proprietary plaster coating which was not applied in accordance with an appraisal certificate as required by the building consent.
- 1.2 The Authority takes the view that it is being asked in effect to determine whether the cladding system complies with clauses B2 and E2 of the building code (the First Schedule to the Building Regulations 1992). In particular, there was no dispute as to whether the system complied with clause B1 of the building code.
- 1.3 In making its determination the Authority has not considered compliance with any other provisions of the building code or of the Building Act 1991 (“the Act”).

## **2 THE PARTIES**

- 2.1 The applicant was the owner, the only other party was the territorial authority.

## **3 BACKGROUND**

- 3.1 The building is a new two-storey house of light timber frame construction. A building consent was issued in respect of plans and specifications that included a proprietary exterior cladding, referred to as an external insulation and finishing system (“EIFS”).
- 3.2 The territorial authority approved the use of that system on the basis of an appraisal certificate issued by an appraisal organisation. That certificate was issued in 1991 and has not been withdrawn or amended since.
- 3.3 In the appraisal certificate, the external wall cladding system was specified as incorporating an expanded polystyrene sheet substrate finished with an “approximately 5 mm” thick layer of a proprietary polymer-modified cement-based plaster reinforced with chopped fibreglass strands and a fibreglass mesh applied in two coats. The plaster finish was to be coated with “a good quality 100% acrylic-based paint system or other suitable weather protective coating system”. The plaster finish was applied so as to give “an undulating adobe effect”.

- 3.4 An inspection by an official of the territorial authority after the cladding system had been installed resulted in a field memorandum in which the official said:

It appears the [proprietary wall cladding] system has not been installed in accordance with the specifications and instructions of [the proprietor] and the provisions of the . . . appraisal certificate.

There are many areas of concern including:

- resistance to penetration of moisture from the outside to satisfy Clause E2 NZBC
- providing of expansion joints
- thickness of plaster

A Code Compliance Certificate will not be issued if the Council is not satisfied the above is complied to.

- 3.5 The owner engaged a building consultant (“the owner’s consultant”) to investigate the areas of concern. In respect of the cladding system, and specifically the plaster coating, the owner’s consultant reported that:

- (a) There were areas of plaster significantly less than 5 mm thick, in one case less than 2 mm thick.
- (b) There were some cracks in the plaster, including at locations where aluminium joinery was embedded in the plaster.
- (c) There were areas where the plaster had less than the minimum slope of 15 degrees recommended in the appraisal, and in some areas ponding was observed.
- (d) Some penetrations through the cladding had not been sealed.
- (e) The plaster did not contain any fibreglass strands as specified in the appraisal.
- (f) Movement joints required by the appraisal certificate had not been installed.
- (g) The plaster had been coated with a cementitious paint instead of the specified “good quality 100% acrylic-based paint system or other suitable weather protective coating system”.

- 3.6 Rectification work was accordingly undertaken. When it was completed, the owner’s consultant reported that the matters listed in 3.5 above had been brought to compliance with the appraisal certificate except for the omission of the fibreglass strands, the omission of control joints, and the use of cementitious paint. The owner’s consultant said that, notwithstanding those departures from the appraisal certificate, in its opinion “the cladding, as applied, and the subsequent repairs will reasonably meet the requirements of clause E2 of the New Zealand Building Code”.

- 3.7 The territorial authority did not accept that opinion, and refused to issue a code compliance certificate because the wall cladding system did not comply with the specifications as set out in the appraisal certificate and for which the building consent had been issued.

#### 4 SUBMISSIONS

- 4.1 The owner submitted:

- (a) The two reports from the owner's consultant outlined in 3.5 and 3.6 above,
- (b) A statement from the proprietor of the cladding system,
- (c) A statement from the manufacturer of coating materials, which supplied materials to the proprietor and was also a distributor of the system,
- (d) A statement from an appraisal consultant employed by the appraisal organisation that issued the appraisal certificate, and
- (e) A statement from the plasterer,

each of which was to the effect that the system as installed was satisfactory.

- 4.2 As mentioned in 3.7 above, the territorial authority submitted that it did not accept those statements as amounting to reasonable grounds on which it could issue a code compliance certificate. The remedial work which had been done was "an attempt to 'patch up' the cladding system", which still did not comply with the appraisal certificate. In particular, the territorial authority was not satisfied in respect of:

- (a) The omission of the specified fibreglass strands,
- (b) The recommended minimum slope of 15 degrees to prevent ponding,
- (c) The thickness of the applied coats,
- (d) The control joints, and
- (e) The weather protective coating system.

The territorial authority observed:

When this system fails due to incorrect construction or installation methods, it is not the installer or manufacturer who is left to resolve the defects caused, it is the territorial authority.

- 4.3 The plasterer responded to the territorial authority to the effect that the cladding as installed did comply with the appraisal certificate in all except "few and minor" areas. The plasterer submitted that the other statements submitted by the owner did in fact amount to reasonable grounds on which the territorial authority should be satisfied as to compliance with the building code. As the plasterer stood behind its work, the proprietor stood behind its

system, and the manufacturer stood behind its products, the territorial authority could issue a code compliance certificate without “[putting] itself in the position of accepting any liability for the construction of the system”.

## 5 THE LEGISLATION

5.1 As to compliance with the building code (the First Schedule to the Building Regulations), the relevant provisions of the code are clauses B2.3.1(b) and E2.3.2:

**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:

- (b) 15 years if:
  - (i) Those building elements (including the building envelope . . . ) 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.

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

5.2 As to the territorial authority’s decision whether or not to issue a code compliance certificate because the cladding system did not comply with the appraisal certificate and therefore with the building consent, the relevant provisions of the Building Act are in sections 43(3)(a) and (8):

(3) . . . the territorial authority shall issue to the applicant . . . a code compliance certificate, if it is satisfied on reasonable grounds that—

- (a) The building work to which the certificate relates complies with the building code.

(8) Subject to subsection (3) of this section, a territorial authority may, at its discretion, accept a producer statement establishing compliance with all or any of the provisions of the building code.

where “producer statement” is defined in section 2 as follows:

"Producer statement" means any statement supplied by or on behalf of an applicant for a building consent or by or on behalf of a person who has been granted a building consent that certain work will be or has been carried out in accordance with certain technical specifications:

5.3 As to the Authority’s determination, the relevant provision of the Building Act is section 20:

A determination by the Authority in relation to a matter referred to it under section 17 of this Act may incorporate waivers or modifications and conditions that a territorial authority is empowered to grant or impose and shall—

- (a) Confirm, reverse, or modify the disputed decision to which it relates or determine the matter which is in doubt . . .

## **6 DISCUSSION**

### **6.1 The appraisal certificate**

6.1.1 An appraisal amounts to the technical opinion of an individual or an organisation. In this case, the territorial authority accepted the specifications set out in the appraisal certificate as being an alternative solution complying with the building code. In other words, the territorial authority decided that the appraisal certificate was reasonable grounds on which it was satisfied that the completed work would comply with the building code if it complied with the specifications set out in the appraisal certificate. That decision was not disputed, and has been accepted by the Authority for the purposes of this determination only. The Authority emphasises that this determination is not to be taken as equivalent to an accreditation of the appraised cladding system under section 59 of the Building Act.

### **6.2 Evidence that the cladding system as installed complies with the building code**

6.2.1 A territorial authority is required by section 43(3) of the Building Act to issue a code compliance certificate if “satisfied on reasonable grounds” that the building work concerned complies with the building code. Section 43(8) provides in effect that a producer statement is capable of being “reasonable grounds”. Each of the reports and statements listed in 4.1 above is evidence, some of greater weight than others, tending to establish compliance with the building code. Some of them come within the section 2 definition of “producer statement” because they relate to “certain technical specifications”, whereas others are inspection reports relating to the actual condition of the cladding system rather than to compliance with any particular technical specifications. The Authority takes the view that it is irrelevant whether any particular item of evidence is or is not a “producer statement” as defined in section 2. The question is whether the totality of the evidence amounts to reasonable grounds on which the territorial authority, or the Authority, should be satisfied as to compliance with the building code.

6.2.2 The plasterer appears to take the view, see 4.3 above, that a territorial authority should accept producer statements when the makers of the statements “stood behind them” and thus protected the territorial authority from liability.

6.2.3 The Authority disagrees. The primary concern, for both the territorial authority and the Authority itself, is compliance with the building code. It is not enough simply to obtain producer statements from persons who are prepared to stand behind them, it is also necessary to make an informed judgment as to the reliability of the statements and the weight to be given to the statements and any other relevant evidence. That judgment must take account of the skill and experience of the person making the producer statement. It must also take account of the fact that any producer statement (other than a peer review) is likely to be to the effect that the maker of the statement did in fact comply with relevant statutory or contractual obligations. That does not of itself prevent the statement from being correct and reliable, but it does mean that appropriate care must be taken when considering whether or not to rely on the statement.

### **6.3 The perceived deficiencies (see 4.2 above)**

6.3.1 *Omission of the specified fibreglass strands*

6.3.1.1 The owner's consultant stated that "the [cladding system as installed] appears to be performing satisfactorily".

6.3.1.2 The proprietor of the cladding system described the system and said:

By far the primary reinforcement in [the system] is the woven and coated fibreglass mesh at specification 158 gms/m<sup>2</sup>. The loose fibreglass added at mixing time is only at around 5gms/m<sup>2</sup> and at such a low addition is insufficient in quantity to either bond with itself or to contribute in any measurable way to the cured laminate strength – its function is rather to add body to the wet plaster mix for easier trowelling at higher builds and as an aid against plastic surface shrinkage cracking which may occur in the initial 24 hr plaster set-up.

. . . we are satisfied that the system without the mixing fibre as used . . . will conform to the relevant durability requirements of the NZ Building Code.

6.3.1.3 The manufacturer of coating materials said:

Thin layer cement plaster of itself has no effective tensile strength which in an EIFS system comes from the incorporation of a relatively high weight woven fibreglass scrim into the surface laminate, and this woven layer is integral to every EIFS system performance. On the other hand small quantity loose fibre additions such as referred to in the [owner's consultant's] report are made for reasons of wet plaster workability and as other additives can accomplish this anyway such additions may or may not be present in other manufacturer's systems.

6.3.1.4 The appraisal consultant said that in his personal opinion the lack of fibreglass in the plaster would not affect compliance with the building code because:

- Four out of the six EIFS systems covered by . . . Appraisal certificates [issued by the appraisal organisation] do not use fibreglass strands in the plaster mixes.
- Fibres of any sort are rarely added to stucco plasters.
- The purpose of the fibres is to:
  - a) Aid in the application of the plaster, especially when applying plaster as a single coat.
  - b) To control shrinkage cracking in the first few weeks or months whilst the plaster is curing fully.

As with any stucco plaster system, compliance of most if not all EIFS systems with B2 and E2 is always dependent on proper maintenance being carried out to ensure the weather protective coating system and sealant weatherseals are maintained in a satisfactory condition.

The fibreglass strands will not prevent cracking due to excessive structural movement, or excessive vibrations and movement during subsequent construction processes, such as lining out the building.

6.3.1.5 On the basis of those statements, the Authority accepts that the specified fibreglass strands were intended to serve two functions:

- (a) To aid trowelling.

The only relevant purpose for aiding trowelling is to make it easier for the plasterer to achieve the required effect while ensuring that the plaster was of the required uniform consistency and thickness. It is not clear whether the omission of the fibreglass strands contributed to the fact that some areas of plaster were found to be significantly less than the required thickness, see 3.5(a) above.

There being no evidence to the contrary, the Authority accepts the statement of the owner's consultant, see 3.6 above, that the areas of plaster where the coating depth was found to be inadequate have now been built up. The Authority concludes that, in this case, the omission of the fibreglass strands has not caused variations in consistency or thickness likely to significantly affect the performance of the cladding.

- (b) To aid against plastic surface shrinkage cracking during the initial 24 hours or so.

There being no evidence to the contrary, the Authority accepts the statement of the owner's consultant that the rectification work mentioned in 3.6 above corrected any significant cracking in the plaster. Therefore, in this case the omission of the fibreglass strands has not resulted in cracking likely to significantly affect the performance of the cladding.

### 6.3.2 *Minimum slope to prevent ponding*

6.3.2.1 In the report mentioned in 3.6 above, following the rectification work, the owner's consultant said:

- To overcome the lack of slopes to the top of the balconies, additional coats of paint have been applied to these areas and checked to ensure that no ponding occurs.
- The windowsill to the kitchen has been altered slightly to avoid ponding.

6.3.2.2 There being no evidence to the contrary, the Authority accepts the statement by the owner's consultant as establishing that the rectification work mentioned in 3.6 above has prevented ponding likely to adversely affect the performance of the cladding.

### 6.3.3 *Thickness of plaster coat*

6.3.3.1 In the report mentioned in 3.6 above, following the rectification work, the owner's consultant said:

- The areas of plaster where the coating depth was found to be inadequate have been built up.

6.3.3.2 There being no evidence to the contrary, the Authority accepts that statement as establishing that the thickness of the plaster coat is now adequate.

#### 6.3.4 *Omission of control joints*

6.3.4.1 The appraisal certificate specified that walls were to be divided by control joints into “sections no more than 6 metres long and 14 metres square”. No control joints were provided even though several walls appear to exceed those dimensions.

6.3.4.2 The plasterer stated:

Control joints were not deemed necessary at the time of installation based on experience and actual wall dimensions. They weren't considered as part of the remedial work as the walls were clearly coping without them.

6.3.4.3 At the Authority's request, the owner's consultant, now acting as the Authority's consultant, re-inspected the building to report on adverse effects caused by the omission of control joints. The consultant reported:

There is no cracking, which I would contribute (*sic*) to the lack of control joints other than a small crack above the head of [one] window [which] may have formed with or without the control joints being present.

[Also] of concern is the continuing formation of small fine cracks at internal corners . . . thought to be only in the outer coats of paint and not through to the substrate although that cannot be confirmed.

[The plasterer] informed [the owner] while I was there that the small cracks are warranty issues and he was prepared to make repairs.

. . . it has been two years since the dwelling was built and in that time [the owner], who has been involved in building construction for many years, has found no evidence of water ingress.

6.3.4.4 That report was copied to the parties, who made no comments on it.

6.3.4.5 The Authority observes that the purpose of control joints is to ensure that shrinkage movement occurs at the joint and does not result in cracking elsewhere. In practice, any significant cracking is likely to occur during or comparatively soon after construction. From the report quoted above, the Authority considers that the omission of control joints will not result in non-compliance with the building code.

#### 6.3.5 *Weather protective coating system*



- 6.3.5.1 In the inspection report mentioned in 3.5 above, the owner's consultant said that the plaster had been coated with a cementitious paint instead of the acrylic-based paint specified in the appraisal certificate.
- 6.3.5.2 However, the manufacturer of coating materials stated that the coating was in fact a full acrylic system but designed to give a "cement effect" appearance in the final coat.
- 6.3.5.3 In the report mentioned in 6.3.4.3 above, the owner's consultant said, in connection with the small fine cracks at internal corners:
- . . . while I accept [the manufacturer's] statement that the paint is a full acrylic it does behave unlike other acrylics both in appearance and in its brittle nature so that it has very little ability to absorb movement.
- 6.3.5.4 There being no evidence to the contrary, the Authority also accepts the manufacturer's statement. Provided that repairs are made as indicated in 6.3.4.3 above, the Authority considers that the behaviour of the protective coating will not result in non-compliance with the building code.

## 7 CONCLUSIONS

- 7.1 The various proprietary EIFS claddings in use in New Zealand can be seen as examples of the type of innovation that is encouraged by the Building Act (even though the system concerned pre-dates that Act). The spirit of the Act encourages innovation, while the procedures of the Act are intended to ensure that innovations achieve the performance criteria specified in the building code.
- 7.2 Thus the detailed plans and specifications in accordance with which the building is intended to be constructed must be checked by a territorial authority or building certifier. Before a building consent is issued, the territorial authority or building certifier must be satisfied on reasonable grounds that the building will comply with the building code if properly completed in accordance with those plans and specifications. When the building is completed, the territorial authority or building certifier must be satisfied on reasonable grounds that the building does in fact comply with the building code.
- 7.3 In this case, the appraisal certificate formed part of those plans and specifications, but in fact the cladding did not comply in various respects. The territorial authority did its job correctly in identifying the items of concern. That led to extensive rectification work.
- 7.4 That work could not cure all of the non-compliance, specifically the omission of fibreglass strands and the omission of control joints. Thus the cladding system as installed did not comply with the appraisal certificate. It therefore did not comply with the building consent. The territorial authority said that it refused to issue a code compliance certificate for that reason.
- 7.5 It might well be that the failure to comply with the appraisal certificate amounted to the offence of doing building work otherwise than in accordance with the building consent, see

section 80(1)(a). That does not necessarily mean that the building work concerned did not comply with the building code.

- 7.6 Section 43(3) provides that the territorial authority “shall” issue a code compliance certificate when satisfied on reasonable grounds as to compliance with the building code, not as to compliance with the building consent. The Authority takes the view that even when the building work does not comply with the building consent the territorial authority should consider the evidence as to whether or not the work complies with the building code. The territorial authority should then make a reasonable decision, on the basis of that evidence, as to whether or not to issue a code compliance certificate. In this case, the territorial authority does not appear to have looked beyond the fact that the work did not comply with the appraisal certificate.
- 7.7 For the reasons discussed in 6 above, the Authority is satisfied that rectification work was successful and that the remaining non-compliance with the appraisal certificate has not prevented the system from complying with the building code.
- 7.8 Whether that is so because of good luck or good judgement is not for the Authority to say. What the Authority does say is that this determination cannot be used to justify anything less than scrupulous care in complying with the plans and specifications for which a building consent has been issued. To put it bluntly, those responsible “got away with it” in this case, because, after the rectification work, the remaining non-compliance did not significantly affect the performance of this particular building. It could be very different with another building.

## **8 THE AUTHORITY'S DECISION**

- 8.1 In accordance with section 20, the Authority hereby reverses the territorial authority’s decision and determines that a code compliance certificate is to be issued for the building.

Signed for and on behalf of the Building Industry Authority on this 28<sup>th</sup> day of August 2000

W A Porteous  
Chief Executive