

# ***Weathertightness of an infill wall-column junction***

## **1 THE MATTERS TO BE DETERMINED**

- 1.1 The matter submitted for determination by the Authority is the weathertightness of the junction between an infill wall and a structural column.
- 1.2 The Authority takes the view that it is being asked to determine whether the junction as installed is such that the exterior wall complies with clause E2.3.2 of the building code (the First Schedule to the Building Regulations 1992).
- 1.3 In making its decision, the Authority has not considered whether the wall complies with any other provisions of the building code, and has not considered any part of the building other than the junction.

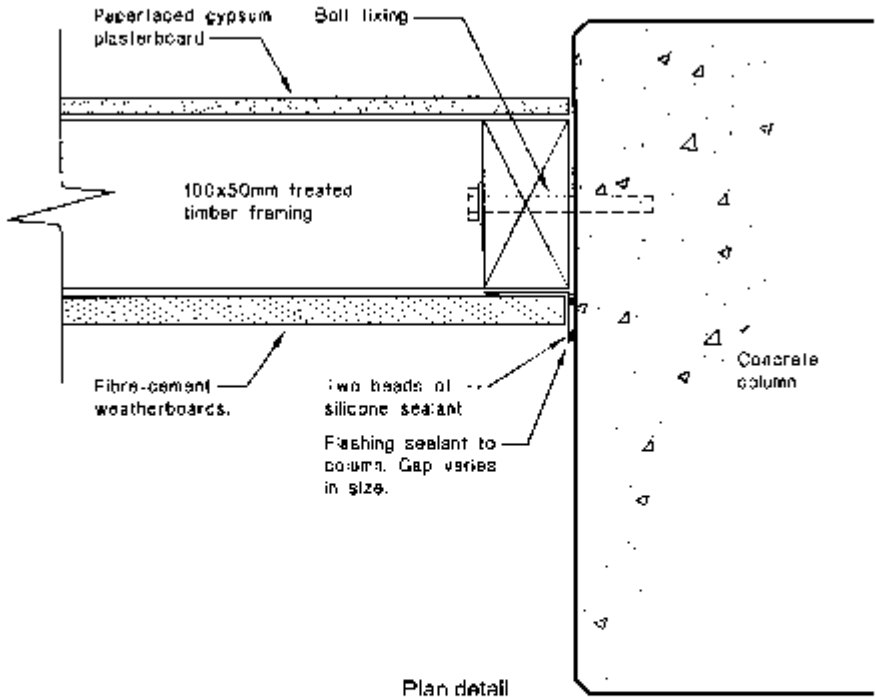
## **2 THE PARTIES**

- 2.1 The applicant was the territorial authority acting through its construction consents administration section (“the applicant”). The only other party was also the territorial authority, as the owner of the building, acting through its community facilities section (“the owner”). The builder was treated as being an “appropriate person” under section 19(1)(b) of the Building Act and was sent the application and accompanying documents so that it would be able to make submissions to the Authority.

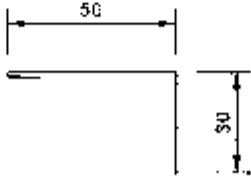
## **3 THE BUILDING**

- 3.1 The infill wall was installed in the course of alterations to an existing building owned by the territorial authority.
- 3.2 The infill wall consists of treated timber framing with fibre-cement weatherboards on the exterior face and paper-faced gypsum plasterboard on the interior face. The junctions between walls and columns are as shown in Fig. 1 (which has been prepared from the applicant’s and the builder’s submissions).
- 3.3 The territorial authority’s community facilities section was uncertain about the junction as installed, while the construction contracts administration section was not satisfied that it complied with the building code and applied for this determination.

Figure 1:



Plan detail



Flashing size

SubmissionFIG1.dwg 040303

## 4 THE BUILDING CODE

4.1 The relevant provision of the building code is:

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

## 5 THE SUBMISSIONS

5.1 The applicant submitted a report from the Building Research Association of New Zealand's advisory service ("BRANZ"). In its letter requesting that opinion, the applicant said:

"The windows in the [infill wall] have a chased in flashing on the vertical joints with a sealant bead over the top. [The applicant] has no issue with this joint."

5.2 The BRANZ report cited clause E2 of the building code and said:

. . . the obvious first reference to compliance is the Acceptable Solution . . . E2/AS1.

Although there is no specific reference in E2/AS1 about how the junction of [the fibre-cement weatherboards] and a concrete column should be formed, paragraph 3.0 "Exterior Joinery" is a direct parallel with your situation, "Windows, door, roof lights and hatches, and joints between them and the cladding material shall be as weatherproof as the cladding itself.

. . . I believe for a number of reasons that the flashing detail that has been installed will fail. I comment as follows:

The joint is reliant on a sealant to

- waterproof the junction to the flashing and concrete column
- act as a gap filler since the flashing is not in continuous contact with the column. . . .

There is no evidence of any second line of defence against the ingress of moisture . . .

Given that in general, the flow of water at vertical joints is much greater than the average flow of water over the wall, even if the flashing was well secured and waterproofed to the flashing/column junction water will get behind the ends of [the fibre-cement weatherboards]. The other concerns that I have [include]:

given the way in which the ends of [the fibre-cement weatherboards] have been fitted to or near the flashing, gives rise to "wicking" of moisture through the end and back of [the fibre-cement weatherboards]. Fibre cement as a material is prone to such a problem to a greater extent than many other cladding materials. . . .

5.3 The builder submitted that the manufacturer warranted the sealant for 10 years (life expectancy 20 years).

5.4 The builder submitted manufacturer's data about the sealant, which said that:

- The sealant was suitable for “adhering sheet metal, . . . concrete”
- For joint depth exceeding 6 mm [a specified filler rod] should be used
- Maximum joint width 20 mm.

The builder also stated that the sealant had been “applied with good trade practice” and was “accessible to be replaced at the end of its life. If a cover flashing were fitted, it would not be.”

5.5 The builder also cited paragraph 3.2.1 of E2/AS1, which reads:

Joints between windows and doors, and the cladding shall be made weatherproof by one or a combination of the following systems:

- a) Head, jamb and sill flashings,
- b) Scribes,
- c) Proprietary seals,
- d) Sealants that are:
  - i) not directly exposed to sunlight or weather,
  - ii) easy to access and replace.

## 6 DISCUSSION

6.1 Paragraph 3.2.1 of E2/AS1 says is that joints “shall be made weatherproof by one or a combination of” flashings, scribes, seals, and sealants”. It does not say that the use of any particular flashing, or any particular sealant, or any particular combination of the listed items, complies with E2/AS1 and must therefore be accepted as complying with the building code. They comply with E2/AS1 only if they do in fact make the joint weatherproof.

6.2 The Authority notes that the junction does not comply with the manufacturer's data in respect of a filler rod, and that the exterior bead of sealant is exposed to sunlight and weather, contrary to paragraph 3.1.1 of E2/AS1.

6.3 That being so, the Authority considers that the builder's submissions do not establish that the junction complies with the building code, and that the BRANZ report indicates that it does not comply.

**7 THE AUTHORITY'S DECISION**

7.1 In accordance with section 20 of the Building Act, the Authority hereby:

- (a) Determines that the junction as installed does not comply with the building code, and
- (b) Confirms the applicant's decision to refuse to issue a code compliance certificate.

Signed for and on behalf of the Building Industry Authority on this 23<sup>rd</sup> day of April 2003.

Richard Martin  
Acting Chief Executive