

## ***Three safety barriers in a house***

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

- 1.1 The matter before the Authority is a dispute about whether each of three different barriers in a house will adequately restrict the passage of children.
- 1.2 The Authority takes the view that it is being asked to determine whether the barriers concerned comply with clause F4 “Safety from falling” of the building code (the First Schedule to the Building Regulations 1992).
- 1.3 In making its determination the Authority has not considered any other aspects of the Building Act 1991 or of the building code.

### **2 THE PARTIES**

- 2.1 The applicant was the owner of the building acting through a firm of architects. The other party was the territorial authority.
- 2.2 Both the applicant and the territorial authority indicated that they wished to speak and call evidence. However, both parties accepted a draft determination without the need for a formal hearing, and that draft is now formally issued as this determination.

### **3 THE BARRIERS AND THE SUBMISSIONS**

- 3.1 The three barriers are to decks in a new house. The territorial authority did not accept that they complied with clause F4.
- 3.2 The barriers are different from each other, but each consists of a low wall, one of concrete block and two of timber framing clad with weatherboards, topped by a balustrade, one of glass and two with vertical steel balusters.
- 3.3 The applicant confined its submissions to drawings of the barriers and correspondence with a member of the Authority’s staff who had previously given a personal opinion tagged with a disclaimer to the effect that the Authority might come to a different conclusion in a determination.
- 3.4 The Authority obtained, and copied to the parties, a report (“the consultant’s report”) from a firm of engineering and design consultants having special experience with safety barriers.

## 4 CLAUSE F4 OF THE BUILDING CODE AND F4/AS1 IN APPROVED DOCUMENT F4

4.1 The relevant provisions of clause F4 of the building code are:

**F4.3.1** Where people could fall 1 metre or more from an opening in the external envelope or floor of a building, or from a sudden change of level within or associated with a building, a barrier shall be provided.

**F4.3.4** Barriers shall:

(g) Restrict the passage of children under 6 years of age when provided to guard a change of level in areas likely to be frequented by them.

4.2 The relevant provisions of the acceptable solution, F4/AS1 in Approved Document F4 are:

**1.2.1 Buildings frequented by young children** Barriers located in any part of a building likely to be frequented by children under the age of 6 years shall have:

(b) No toeholds between the heights of 150 mm and 760 mm above floor level (or stair nosing), except that perforated sheet, mesh, or trellis rigidly fixed over the full barrier height is acceptable provided that openings have a maximum dimension (other than perimeter) of 50 mm.

**Comment:**

While 50 mm openings could offer a toehold to children, a continuous mesh of this size is difficult for a child to climb.

Where barriers are provided for protection at a change of level in any building classified as Housing they will need to be constructed to restrict children under 4 years of age. Commercial buildings containing shops or health care facilities are also likely to need barriers that will restrict young children as are some Communal Residential and Communal Non-residential buildings such as motels and museums.

## 5 DISCUSSION

### 5.1 General

5.1.1 In this case, the Authority takes the view that the house concerned is likely to be frequented by children and therefore each of the barriers is required to restrict the passage of children under 6 years of age.

5.1.2 The acceptable solution F4/AS1 is not the only means of complying with the building code, but it may be used as a guideline or benchmark when assessing other solutions<sup>1</sup>.

5.1.3 Tests commissioned by the Authority<sup>2</sup> established that the acceptable solution is 100% effective for children under 3 but can be climbed by many 3 year olds and by most 4 year olds. It is legitimate to conclude that the acceptable solution will prevent the passage of children under 3 and will restrict but not prevent the passage of older children.

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<sup>1</sup> *Auckland CC v NZ Fire Service* 19/10/95, Gallen J, HC Wellington AP336/93, partially reported at [1996] 1 NZLR 330

<sup>2</sup> See the article "Climbing great heights" in *BIA News* No. 108, November 2000.

## 5.2 Barrier 1 (outside the master bedroom)

### 5.2.1 The consultant's report said:

This barrier is . . . 1000mm high and [consists of] a galvanised mild steel balustrade over a timber framed partition clad with weather boards. The . . . height of the top of the timber frame portion . . . appears to be at approximately 500mm from floor level.

This barrier does not conform with . . . F4/AS1 and also we believe that it comprises a significant risk, as a child could easily obtain a significant toe-hold between the balusters and from there a relatively easy climb over the remaining 500mm high steel balustrade.

### 5.2.2 The Authority agrees with the consultant's assessment that Barrier 1 does not comply with the acceptable solution F4/AS1.

### 5.2.3 The acceptable solution is not the only means of complying with the building code. However, using F4/AS1 as a benchmark or guideline, the Authority considers that Barrier 1 would be easier to climb than, and therefore would not restrict the passage of children to the same extent as, a barrier complying with F4/AS1. The Authority therefore concludes that Barrier 1 does not comply with clause F4 of the building code.

## 5.3 Barrier 2 (outside the laundry chute)

### 5.3.1 The consultant's report said:

This barrier is . . . 1000mm high and [consists of] a 10mm toughened glass set in a timber framed partition clad with weather boards. The . . . height of the top of the timber frame portion . . . appears to be at approximately 500mm from floor level.

This barrier does not conform with . . . F4/AS1. A toe-hold at the top of the timber portion, whilst not as significant as [Barrier 1], is still sufficient to allow a child to climb easily.

### 5.3.2 The Authority agrees with the consultant's assessment that Barrier 2 does not comply with the acceptable solution F4/AS1.

### 5.3.3 The acceptable solution is not the only means of complying with the building code. However, using F4/AS1 as a benchmark or guideline, the Authority considers that Barrier 2 would be easier to climb than, and therefore would not restrict the passage of children to the same extent as, a barrier complying with F4/AS1. The Authority therefore concludes that Barrier 2 does not comply with clause F4 of the building code.

#### **5.4 Barrier 3 (to paved courtyard)**

5.4.1 The consultant's report said:

This barrier is . . . 1100mm high and [consists of] a steel balustrade of 50x8 GMS flat bar at 100mm centres, dynabolted to the top of a concrete block wall [300mm high].

This barrier does not conform with . . . F4/AS1.

5.4.2 The Authority agrees with the consultant's assessment that Barrier 3 does not comply with the acceptable solution F4/AS1.

5.4.3 The acceptable solution is not the only means of complying with the building code. Using F4/AS1 as a benchmark or guideline, the Authority notes that the vertical separation of toeholds on Barrier 3 is 800 mm (from the top of the block wall to the top of the balustrade) compared with the 610 mm "between the heights of 150 mm and 760 mm above floor level" allowed by F4/AS1. The height of Barrier 3 is 1100 mm compared with the 1000 mm allowed by F4/AS1. The Authority concludes that Barrier 3 would restrict the passage of children at least as effectively as a barrier complying with F4/AS4.

5.4.4 Furthermore, the tests mentioned in 5.1.3 above indicated that the absence of horizontal members in the upper part of a barrier below the handrail makes climbing that barrier more difficult for children.

5.4.5 The Authority therefore concludes that Barrier 3 complies with clause F4 of the building code.

### **6 THE AUTHORITY'S DECISION**

6.1 In accordance with section 20 of the Building Act, the Authority hereby determines that Barriers 1 and 2 do not comply with clause F4 "Safety from falling" of the building code, but Barrier 3 does comply with that clause.

Signed for and on behalf of the Building Industry Authority on this 14<sup>th</sup> day of November 2001

W A Porteous  
Chief Executive