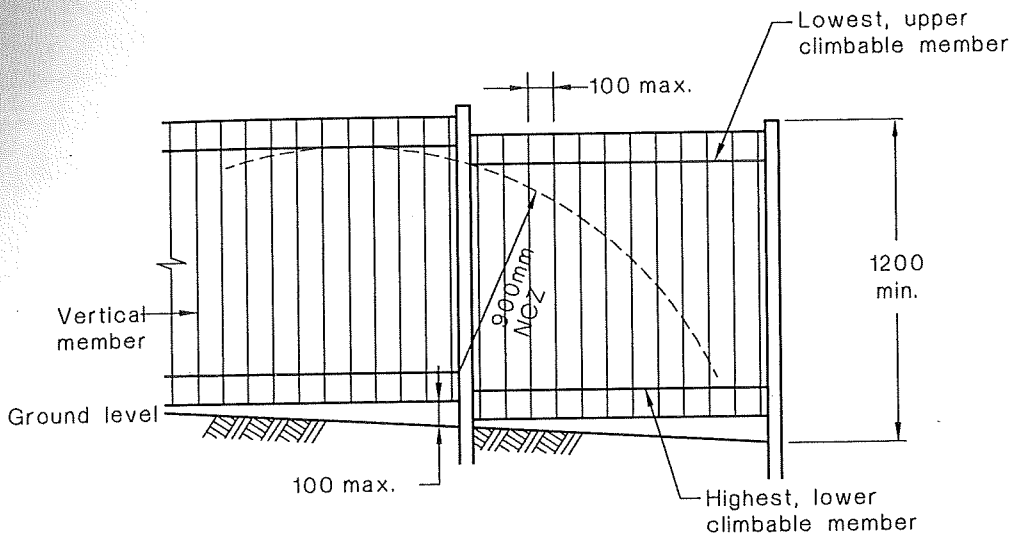


(c) Slightly sloping ground

DIMENSIONS IN MILLIMETRES

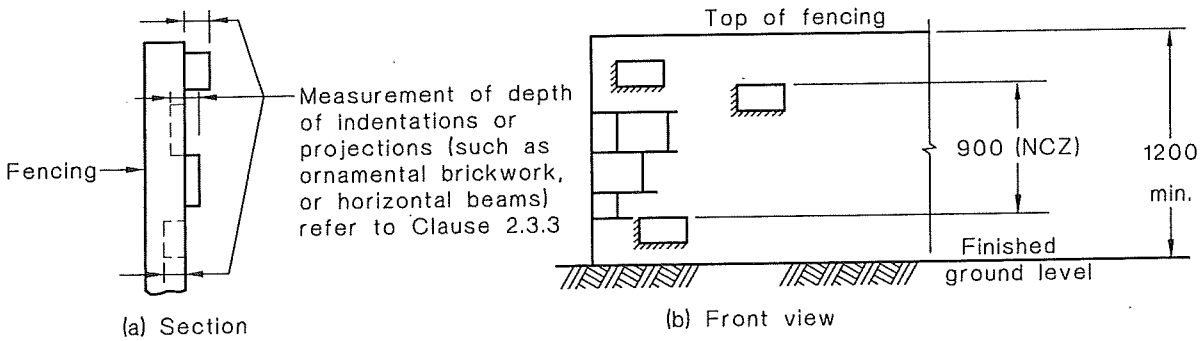
FIGURE 2.2 (in part) PERPENDICULAR FENCING DIMENSIONS

2.3.3 Surface projections and indentations

A1 Projections and indentations, or any combination thereof, within the NCZ, shall not form a substantially horizontal surface with a depth greater than 10 mm (see Figure 2.3(A)).

Projections or indentations that form a substantially horizontal surface do not act as a hold for climbing if they comply with Figure 2.3(A) and 2.3(B).

The fence shall be designed to be vertical or, where specifically designed to lean away from the pool, it shall not do so by more than 15° to the vertical.



(a) Section

(b) Front view

NOTE: The 900 NCZ may be between any two (2) points at any level on the outer face of the wall.

FIGURE 2.3(A) FENCING WITH PROJECTIONS SUCH AS ORNAMENTAL BRICKWORK OR STONEWORK

METRO PERFORMANCE GLASS

Technical Bulletin 31

Balustrade Design Summary

NZBC

There are several parts of the NZ Building Code (NZBC) that effect the design and installation of balustrades and they are as follows

- F2 - Hazardous Materials
- F4 - Safety from Falling
- B1 - Structure
- B2 - Durability
- D1– Access Routes
- E2 – External Moisture

F2 – Hazardous Building Materials deals with the human impact safety requirements in accordance with NZS 4223 Part 3, and Safety glass is required for all balustrades.
B1/AS1 Amendment 11 has deleted Table 3.8 for partly framed balustrades as this did not comply with AS/NZS 1170, but structural balustrades are still by specific design.

F4 – Safety from Falling deals with when barriers are required and barrier design issues including height.

F4/AS1 Barrier Heights (Balustrades) – 3 rd edition – Revised September 07

Building Type	Location	Min Barrier Height
Detached dwellings and within household units of multi-unit dwellings.	Stairs and ramps and their landings. Balconies and decks, and edges of internal floors or mezzanine floors.	900 mm 1000 mm
All other buildings and common areas of multi-unit dwellings.	Stairs and ramps. Barriers within 530mm of the front of fixed seating. All other areas.	900 mm 800 mm 1100 mm

Note. Changes from previous version are highlighted in the table

In addition a toe hold is defined as a 15mm ledge, and if greater than 15mm a 60 degree fillet angle to the horizontal is required.

The key change with the Acceptable Solution F4/AS1 was the height of barriers for "all other buildings and common areas of multi-unit dwellings" (public areas) was raised to 1100mm.

There is still a problem with the junction from 900 to 1100 on commercial (other) buildings and the DBH have published a Codeworks article (Issue 032) for guidance.

Para	Current provisions	Amendments	Explanatory notes
		passage of a sphere of a diameter of 150mm.	
H.3.4.6	The requirements under paragraph H.3.4 do not apply to promenades and boardwalks at ground level along the waterfront or houses built by the owners for their own use.	[No change.]	
H.3.4.7	The requirements in paragraph H.3.4.3 (b) do not apply to bay windows in a residential unit.	[Note: This clause has been relocated to clause H.3.4A.4 (b).]	
H.3.4A	**Requirements to prevent climbing**		Requirements on climbability is moved to this part of the document
H.3.4A.1		In all buildings except industrial buildings, the barrier at a location where there is a vertical drop in level of 1.0m or more shall have a height of at least – (a) that specified in paragraph H.3.2.1; or (b) 850mm measured from the last climbable toehold, whichever is higher. See Figure H.3.4A.1(a).	The amendments are to provide clarity to the climbability requirements.
H.3.4A.2		A toehold means – (a) any opening in a perforated sheet or mesh having a horizontal dimension of more than 50mm and a vertical dimension of more than 30mm; or (b) a kerb or protrusion having a width of more than 50mm and has a chamfer gentler than 45˚ relative to the horizontal plane. See Figures H.3.4A.2(a), (b) and (c) for an illustration of the toehold dimensions.	The amendment here is to provide clarity on the toehold requirements.
H.3.4A.3		A toehold is considered to be climbable if it measures within 600mm vertically from – (a) the finished floor level; (b) a step; or (c) another climbable toehold.	The amendment here is to provide clarity on the toehold requirements as well as climbability requirements.