

## MINIMUM HORIZONTAL LOADS FOR BALUSTRADES

Extract from BS 6180:-

### Deflection

#### 6.4.1 Barriers for protection of people

Barriers for the protection of people should be of adequate strength and stiffness to sustain the applied loads given in BS 6399, without permanent deflection or distortion.

In addition, a barrier that is structurally safe should not possess sufficient flexibility to alarm building users when subject to normal service conditions. Therefore, for serviceability considerations, the limiting condition for deflection appropriate for a horizontal displacement of the barrier at any point from its original position should not exceed the deflection limits determined from the relevant structural design code for the material used or 25mm, whichever is the smaller.

Where a glass component of a barrier is subjected to imposed loads given in BS 6399-1, or of appropriate BS 6399-2, the displacement of any point of the glass component, relative of its fixings, should not exceed  $L/65$  or 25mm, whichever is the smaller where  $L$  is given in 8.3, 8.4 or 8.5.

This is used in conjunction with BS 6399, Table 4 as below.

**Table 4 – Minimum Horizontal Imposed Loads For Parapets, Barriers and Balustrades, etc**

TYPE OF ACTIVITY/OCCUPANCY FOR PART OF THE BUILDING OR STRUCTURE	EXAMPLES OF SPECIFIC USE	HORIZONTAL UNIFORMLY DISTRIBUTED LINE LOAD (kN/M <sup>2</sup> )	A UNIFORMLY DISTRIBUTED LOAD APPLIED TO THE INFILL (kN/M <sup>2</sup> )	A POINT LOAD APPLIED TO PART OF THE INFILL (kN)
A Domestic and residential activities	(i) All areas within or serving exclusively one dwelling including stairs, landings etc. But excluding external balconies and edges of roofs (see C3 ix)	0.36	0.50	0.25
	(ii) Other residential, (but also C)	0.74	1.0	0.5
B and E Offices and work areas not included elsewhere including storage areas	(iii) Light access stairs and gangways not more than 600mm wide	0.22	N/A	N/A
	(iv) Light pedestrian traffic routes in industrial and storage buildings except designated escape routes	0.36	0.5	0.25
	(v) Areas not susceptible to overcrowding in office and institutional buildings also industrial and storage buildings except as given above	0.74	1.0	0.5
C Areas where people may congregate	(vi) Areas having fixed seating within 530mm of the barrier, balustrade or parapet	1.5	1.5	1.5
C1/C2 Areas with tables or fixed seating	(vii) Restaurants and Bars	1.5	1.5	1.5
C3 Areas without obstacles for moving people & not susceptible to overcrowding	(viii) Stairs, Landings, Corridors, Ramps	0.74	1.0	0.5
	(ix) External balconies and edges of roofs. Footways and pavements within building cartilage adjacent to basement/sunken areas	0.74	1.0	0.5
C5 Areas susceptible to overcrowding	(xi) Theatres, cinemas, discotheques, bars, auditoria, shopping malls, assembly areas, studio. Footways or pavements greater than 3m wide adjacent to sunken areas	3.0	1.5	1.5
D Retail areas	(xiii) All retail areas including public areas of banks/building societies or betting shops. For areas where overcrowding may occur, see C5	1.5	1.5	1.5
F/G Vehicular	(xiv) Pedestrian areas in car parks including stairs, landings, ramps, edges or internal floors, footways, edges of roofs	1.5	1.5	1.5
	(xv) Horizontal loads imposed by vehicles	See clause 11		

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