4.9.5 Effective thickness

The effective thickness t_{ef} parameters for walls and columns are illustrated in Figure 2 of BS 5628. They are basically divided into two categories in relation to whether stiffening piers or intersecting walls are present or not.

Category 1 walls and columns not stiffened by piers or intersecting walls

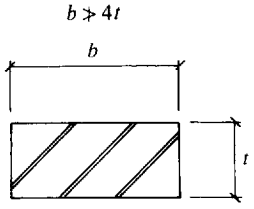

Figure 4.11 *Plan on a column*

(a) Columns as shown in Figure 4.11: $t_{ef} = t$ or b depending in which direction the slenderness is being considered.

(b) Single leaf walls as shown in Figure 4.12: t_{ef} = the actual thickness t.

(c) Cavity walls as shown in Figure 4.13: t_{ef} = the greatest of $2(t_1 + t_2)/3$ or t_1 or t_2.

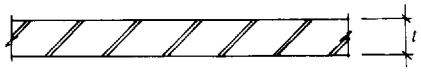

Figure 4.12 *Plan on a single leaf wall*

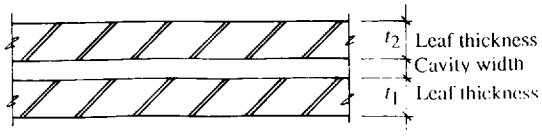

Figure 4.13 *Plan on a cavity wall*

Category 2: walls stiffened by piers or intersecting walls

(a) Single leaf wall with piers shown in Figure 4.14: $t_{ef} = tK$, where K is the appropriate stiffness coefficient from BS 5628 Table 5, reproduced here as Table 4.7.

(b) Cavity wall with piers as shown in Figure 4.15: t_{ef} = the greatest of $2(t_1 + Kt_2)/3$ or t_1 or Kt_2, where K is again the appropriate stiffness coefficient from Table 4.7.

For the purpose of category 2 an intersecting wall may be assumed to be equivalent to a pier with the dimensions shown in Figure 4.16.

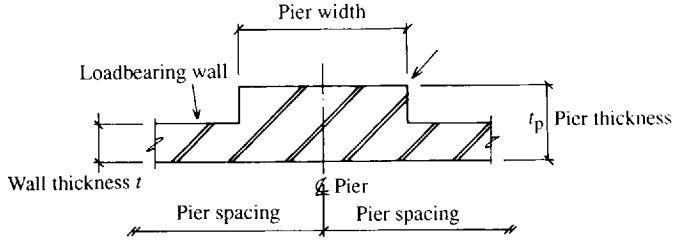

Figure 4.14 *Plan on a single leaf wall with piers*

Table 4.7 Stiffness coefficient for walls stiffened by piers (BS 5628 Part 1 1978 Table 5)

Ratio of pier spacing (centre to centre) to pier width	Ratio t_p/t of pier thickness to actual thickness of wall to which it is bonded		
	1	2	3
6	1.0	1.4	2.0
10	1.0	1.2	1.4
20	1.0	1.0	1.0

Note: Linear interpolation between the values given in table is permissible, but not extrapolation outside the limits given.

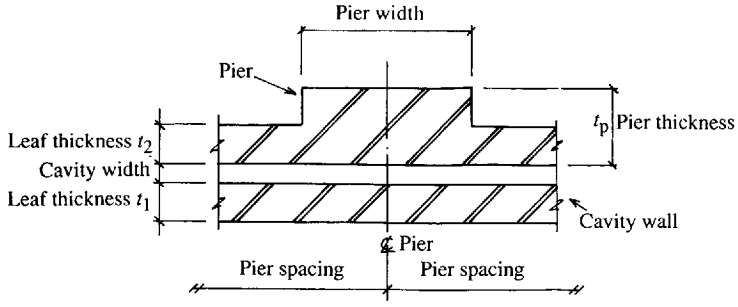

Figure 4.15 *Plan on a cavity wall with piers*

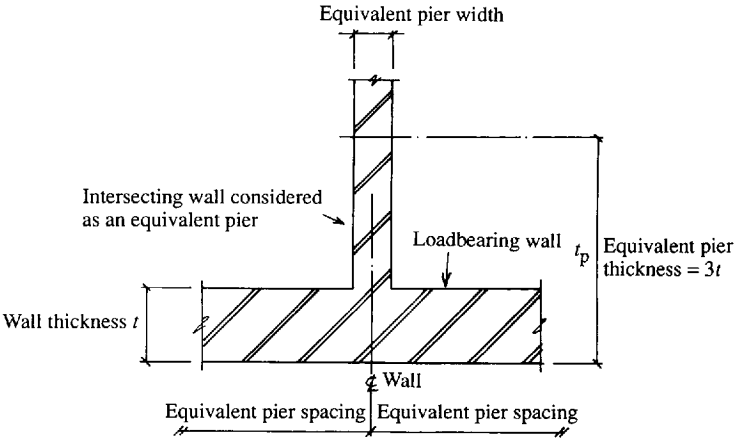

Figure 4.16 *Plan on an intersecting wall considered as an equivalent pier*

4.9.6 Capacity reduction factor for slenderness

As stated earlier, the slenderness ratio is a measure of the tendency of a wall or column to fail by buckling before crushing. To take this into account, the design strength of a wall or column is reduced using a capa-