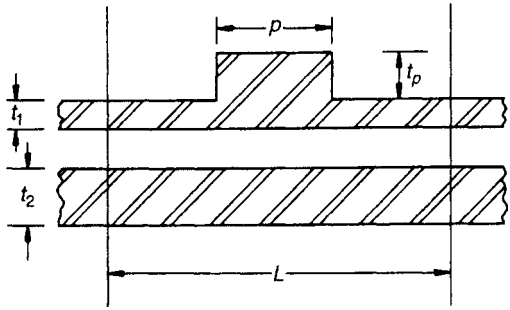

Fig. 5.6 Cavity wall with piers.

Effective thickness is taken as the greatest value of:

- $\frac{2}{3}(t_1 + Kt_2)$
- t_1
- Kt_2

According to the code the stiffness coefficients given in Table 5.1 can also be used for a wall stiffened by intersecting walls if the assumption is made that the intersecting walls are equivalent to piers of width equal to the thickness of the intersecting walls and of thickness equal to three times the thickness of the stiffened wall. However, recent experiments do not confirm this. A series of tests conducted by Sinha and Hendry on brick walls stiffened either by returns or by intersecting diaphragm walls under axial compressive loading showed no increase in strength compared to strip walls for a range of slenderness ratios up to 32.

(b) ENV 1996–1–1

In the Eurocode the effective thickness of a cavity wall in which the leaves are connected by suitable wall ties is determined using:

$$t_{ef} = (t_1^3 + t_2^3)^{1/3} \tag{5.7}$$

5.5 CALCULATION OF ECCENTRICITY

In order to determine the value of the eccentricity, different simplifying assumptions can be made, and these lead to different methods of calculation. The simplest is the approximate method given in BS 5628, but a more accurate value can be obtained, at the expense of additional calculation, by using a frame analysis. Calculation of the eccentricity

according to the Eurocode is performed using the equations given in section 5.3. The approach using these equations is similar to the method given in BS 5628.

5.5.1 Approximate method of BS 5628

1. The load transmitted by a single floor is assumed to act at one-third of the depth of the bearing areas from the face of the wall (Figs. 5.7(a) and (b)).
2. For a continuous floor, the load from each side is assumed to act at one-sixth of the thickness of the appropriate face (Fig. 5.8 (a)).
3. Where joist hangers are used the load is assumed to act at the centre of the joist bearing areas of the hanger (Fig. 5.8(b)).
4. If the applied vertical load acts between the centroid of the two leaves of a cavity wall it should be replaced by statically equivalent axial loads in the two leaves (Fig. 5.9).

In the above the total vertical load on a wall, above the lateral support being considered, is assumed to be axial.

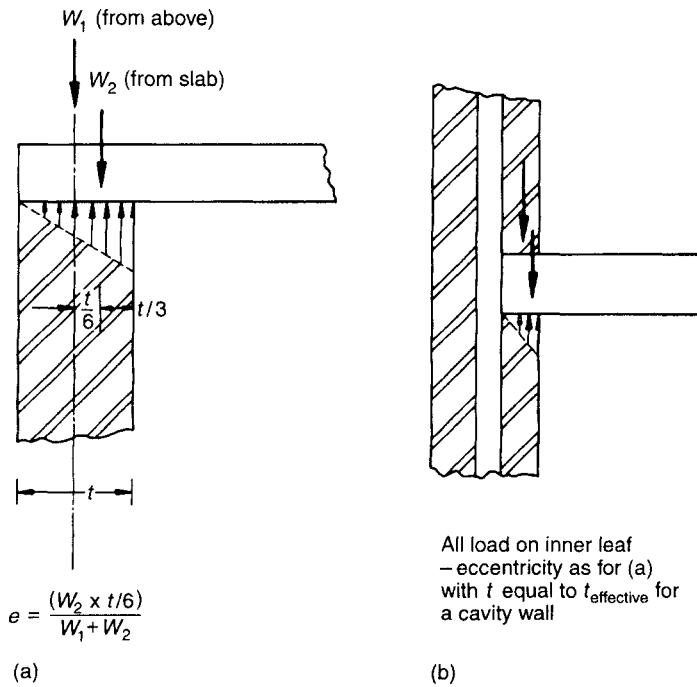

Fig. 5.7 (a) Eccentricity for floor/solid wall; (b) eccentricity for floor/cavity wall.