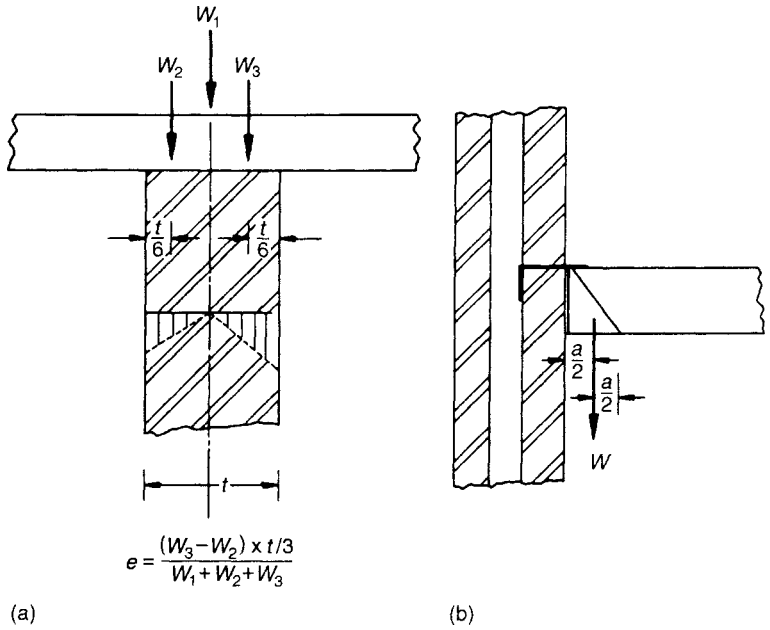

Fig. 5.8 (a) Eccentricity for continuous floor/wall; (b) assumed load position with joist hanger.

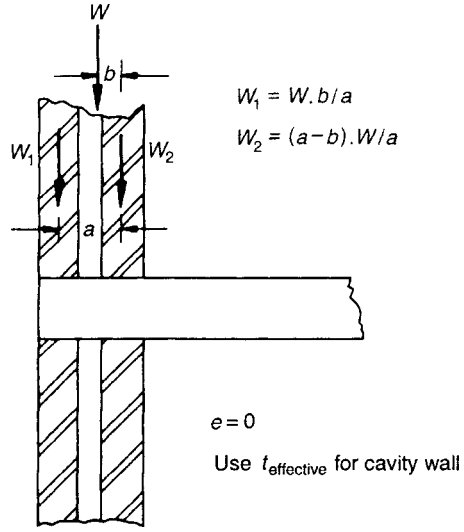

Fig. 5.9 Eccentricity for cavity wall.

Note that the eccentricity calculated above is the value at the top of the wall or column where the floor frames into the wall. In BS 5628 the eccentricity is assumed to vary from the calculated value at the top of the wall to zero at the bottom of the wall, subject to an additional eccentricity being considered to cover slenderness effects (see Chapter 4).

5.5.2 Simplified method for calculating the eccentricity (ENV 1996–1–1)

In order to calculate the eccentricities e_i or e_m it is necessary to determine the value of M_i or M_m and a simplified method of calculating these moments is described in Annex C of EC6. Using the simplified frame diagram illustrated in Fig. 5.10 in which the remote ends of each member framing into a joint are assumed to be fixed (unless known to be free), the bending moment M_1 can be calculated using:

$$M_1 = \frac{nE_1I_1/h_1}{nE_1I_1/h_1 + nE_2I_2/h_2 + nE_3I_3/L_3 + nE_4I_4/L_4}\left(\frac{w_3L_3^2}{12} - \frac{w_4L_4^2}{12}\right) \quad (5.8)$$

where n is taken as 4 if the remote end is fixed and 3 if free. The value of M_2 can be obtained from the same equation but replacing the numerator with nE_2I_2/h_2. Here E and I represent the appropriate modulus of elasticity and second moment of area respectively, and w_3 and w_4 are the design uniformly distributed loads modified by the partial safety factors. If less than four members frame into a joint then the equation is modified by ignoring the terms related to the missing members.

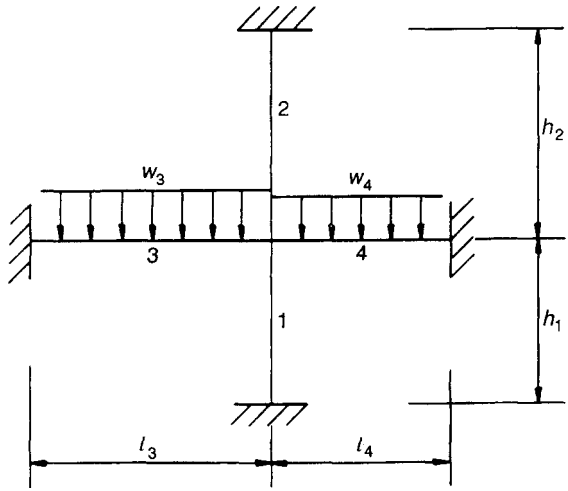

Fig. 5.10 Simplified frame diagram.