Taking g_A, the design vertical load per unit area due to dead and imposed load, as zero, is conservative and equivalent to considering shear strength due to adhesion only. That is design shear strength on each surface $= f_v/\gamma_{mv} = 0.35/1.25 = 0.28\,\text{N/mm}^2$.

Combined resistance in shear on both surfaces is

$$2 \times \text{shear stress} \times \text{area} = 2 \times 0.28 \times (110 \times 1000/1000) = 61.6\,\text{kN/m}$$

In this example the required tie force of 48kN/m is provided by the shear resistance of 61.6kN/m, and additional steel ties are not required. If the shear resistance had been less than the required tie force, then the steel provided would be based on the full 48kN/m.

Alternatively the required resistance may be provided by the frictional resistance at the contact surfaces (Fig. 9.5). This calculation requires a knowledge of the dead loads from the floors and walls above the section being considered.

Assume dead loads as shown in Fig. 9.6. Using a coefficient of friction of 0.6 the total frictional resistance on surfaces A and B is

$$(20+10)0.6+(20+10+18)0.6=46.8\,\text{kN/m}$$

which would be insufficient to provide the required tie force. Note that the code states that the calculation is based on shear strength or friction (but not both).

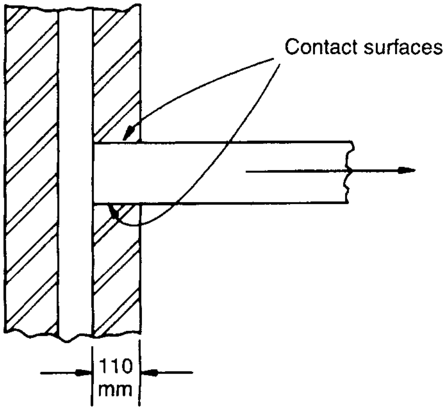

Fig. 9.5 Surfaces providing frictional resistances.

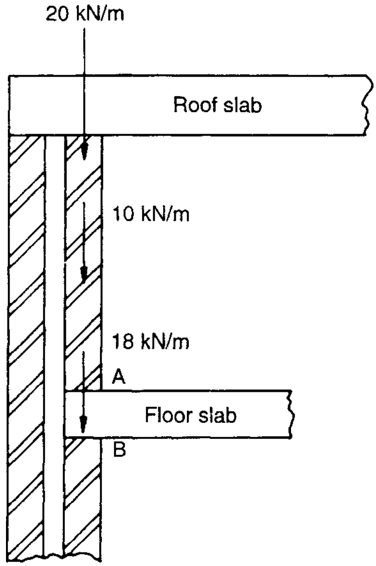

Fig. 9.6 Dead load distribution.