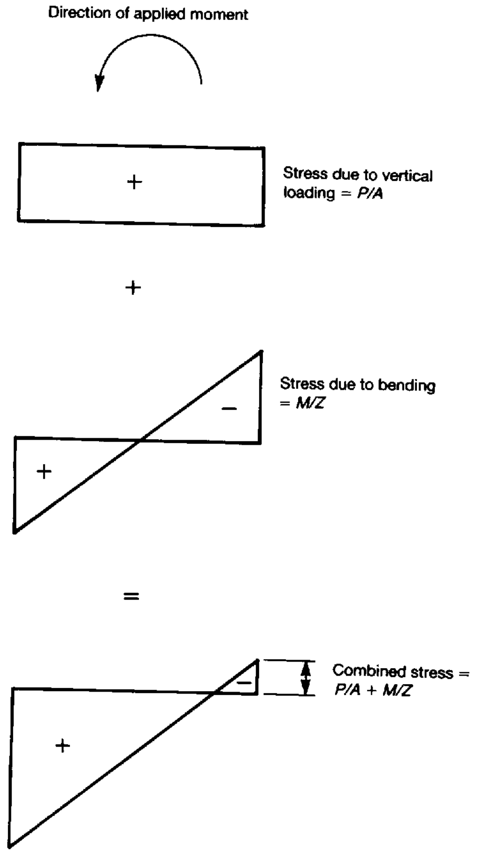

Figure 44: Stress diagrams at the base of the wall

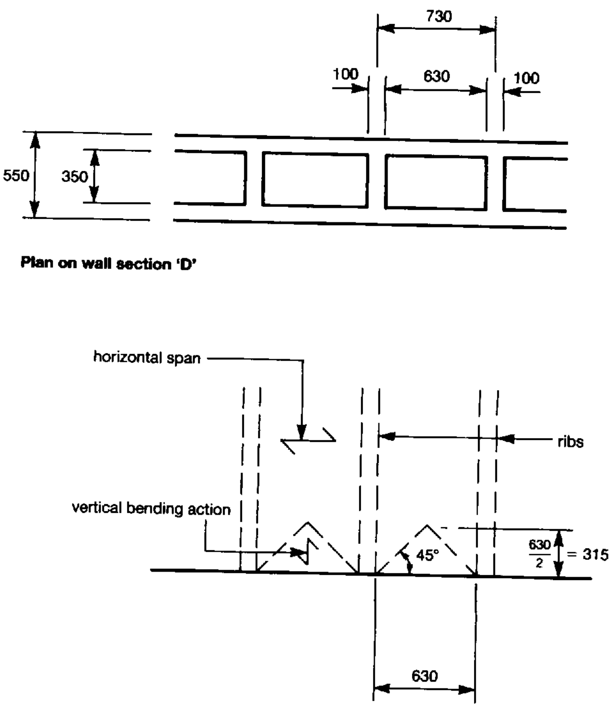

Figure 45: Flange restraint at the base of the wall

Design shear strength $= f_v/\gamma_m = (0.35 + 0.6\ g_A)/\gamma_m$

where g_A = Design vertical stress as previously calculated $= 0.027\ \text{N/mm}^2$

Design shear strength $= [0.35 + (0.6 \times 0.027)]/2.5$

$= 0.146\ \text{N/mm}^2 > v_h$ (satisfactory)

Stage 6. Calculate applied vertical shear stress at rib/flange interface

Check the shear stress at the rib/flange interface.

Vertical design shear force $V = 5.32$ kN per diaphragm

Vertical shear stress $v_v = K_1 V$ (see Table 1 for K_1)

$= 20.87 \times 5.32/10^3\ \text{N/mm}^2$

$= 0.111\ \text{N/mm}^2$

Shear strength of mortar joints only:

$f_v/\gamma_{mv} = 0.35/2.5 = 0.14\ \text{N/mm}^2$ (satisfactory)

Stage 7. Check compressive stress

Applied compressive stress (see Figure 44)

$= P/A + M/Z$

$= 0.027 + 3.65 \times 10^6/(39.2 \times 10^6)$

$= 0.12\ \text{N/mm}^2$

Height of block/least horizontal dimension

$= 215/100 = 2.15$

Therefore, from BS 5628, Table 2(d):

At the base, $\beta = 1$ (i.e. full restraint)

Design compressive strength $= f_k/\gamma_m = 6.4/2.5$

$= 2.56\ \text{N/mm}^2$

This is to be expected when a design is based on tensile stress; the applied compressive stress is much less than the design strength.

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