However, if a solid wall or the loaded inner leaf of a cavity wall is constructed with standard format bricks, and the wall or leaf thickness is equal to the width of a single brick, then the value of f_k from Table 4.5a may be multiplied by 1.15. This increase in the compressive strength is based upon tests which have shown that such walls are stronger owing to the absence of vertical mortar joints within the wall thickness. It should be noted that this factor of 1.15 does not apply to cavity walls where both leaves are loaded.

Blocks

When a wall is constructed with blockwork, the increased size of the individual masonry units means that there are fewer joints compared with an equivalent wall of standard format bricks. Fewer joints result in a stronger wall, and hence the characteristic compressive strength of blockwork is influenced by the shape of the individual units.

The shape factor of a block is obtained by dividing its height by its lesser horizontal dimension. For example, for the block shown in Figure 4.2,

$$\text{Shape factor} = \frac{\text{height}}{\text{lesser horizontal dimension}} = \frac{200}{100} = 2$$

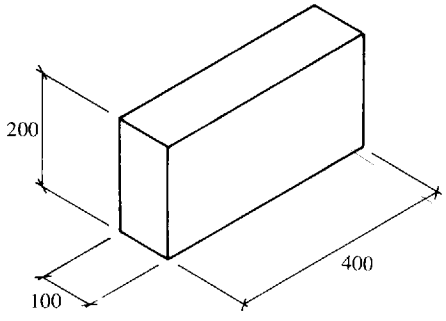

Figure 4.2 *Dimensions of a typical block*

Depending on the shape factor and the type of block, f_k is then obtained from the relevant part of Table 4.5:

(a) For hollow and solid blocks having a shape factor not greater than 0.6, f_k is obtained directly from Table 4.5b.

(b) For hollow blocks having a shape factor between 2.0 and 4.0, f_k is obtained directly from Table 4.5c.

(c) For solid blocks having a shape factor between 2.0 and 4.0, f_k is obtained directly from Table 4.5d.

In certain circumstances interpolation between the tables may be necessary as follows:

(d) For hollow block walls having a shape factor between 0.6 and 2.0, f_k is obtained by interpolation between the values in Table 4.5b and Table 4.5c.

(e) For solid block walls having a shape factor between 0.6 and 2.0, f_k is obtained by interpolation between the values in Table 4.5b and 4.5d.

Natural stone

For natural stone, f_k should generally be taken as that for solid concrete blocks of equivalent strength.

Random rubble masonry

For random rubble masonry f_k should be taken as 75 per cent of that for the corresponding strength of natural stone.

Modification to characteristic strength for shell bedding

Hollow concrete blocks are sometimes laid on a mortar bed consisting of two strips along the outer edges of the block. This is termed 'shell bedding' and is illustrated in Figure 4.3.

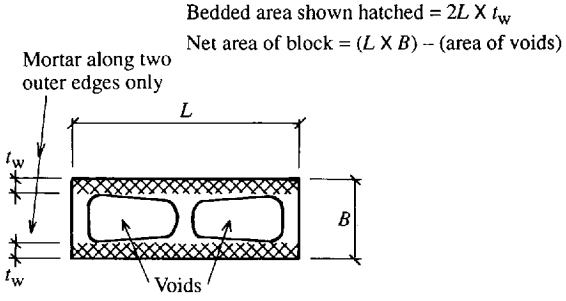

Figure 4.3 *Shell bedding to hollow blocks*

If such a construction procedure is to be permitted then the design calculations should be adjusted accordingly by reducing the characteristic strength. This is done by multiplying the value of f_k obtained from either Table 4.5b or Table 4.5c by a factor equal to the bedded area divided by the net area of the block:

$$\text{Shell bedded } f_k = f_k \text{ from table} \times \frac{\text{bedded area}}{\text{net area of block}}$$