

walls or piers, provided that the design of the blocks permits the formation of continuous ducts for the reinforcing bars.

Prestressed masonry elements are usually post-tensioned, the steel, in strand or bar form, being accommodated in ducts formed in the masonry. In some examples of cellular or diaphragm wall construction the prestressing steel has been placed in the cavity between the two masonry skins, suitably protected against corrosion. It is also possible to prestress circular tanks with circumferential wires protected by an outer skin of brickwork built after prestressing has been carried out.

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Bricks, blocks and mortars

2.1 INTRODUCTION

Masonry is a well proven building material possessing excellent properties in terms of appearance, durability and cost in comparison with alternatives. However, the quality of the masonry in a building depends on the materials used, and hence all masonry materials must conform to certain minimum standards. The basic components of masonry are block, brick and mortar, the latter being in itself a composite of cement, lime and sand and sometimes of other constituents. The object of this chapter is to describe the properties of the various materials making up the masonry.

2.2 BRICKS AND BLOCKS

2.2.1 Classification

Brick is defined as a masonry unit with dimensions (mm) not exceeding $337.5 \times 225 \times 112.5$ ($L \times w \times t$). Any unit with a dimension that exceeds any one of those specified above is termed a block. Blocks and bricks are made of fired clay, calcium silicate or concrete. These must conform to relevant national standards, for example in the United Kingdom to BS 3921 (clay units), BS 187 (calcium silicate) and BS 6073: Part 1 (concrete units). In these standards two classes of bricks are identified, namely common and facing; BS 3921 identifies a third category, engineering:

- *Common bricks* are suitable for general building work.
- *Facing bricks* are used for exterior and interior walls and available in a variety of textures and colours.
- *Engineering bricks* are dense and strong with defined limits of absorption and compressive strength as given in [Table 2.2](#).