

**Large proportions of all buildings in use today, include brick in some way. For new buildings this is usually as an external wall finish. Older buildings will often include brick as the main structural material for walls.**

There are many different types of brick, far too many to list them in detail here. Modern bricks are classified by their structural strength, frost resistance and salts content. While strength is a key attribute of a brick, most bricks are much stronger than they need to be for the use they are put to.

Bricks are classified as 'Facings' or 'Commons'. The facings are the better looking bricks used for the external finish on buildings. As facings can be much more expensive some buildings are built with a front facade in facings and the rear of the building in cheaper common bricks.



### TYPES OF WALL

There are two common types of external brick wall used in buildings;- 'cavity walls' and 'solid walls'.

Most new buildings will have a cavity wall where any water that penetrates through the outside brickwork can drain down inside the cavity without making the inside wall damp.

Solid walls work on an entirely different principle sometimes called the sponge principal. Rainwater landing onto the outer face is absorbed by the wall, which relies on thickness to store the water until it can be dried by evaporation. Some bricks are able to adsorb much more water than others. Usually the minimum wall thickness for solid walls is one brick (nine inches approximately 225mm). In wet districts or exposed locations greater thickness is often needed.

Modern buildings often use brickwork as a facing with the structure behind of concrete block, timber or steel.

For buildings above 12 metres high the brickwork is usually supported by the structure behind rather than simply resting on a foundation below.



### MORTAR

The other essential component of brickwork is the mortar, which joins the bricks together. Modern buildings usually have mortar made from sand and cement (with other additives).

Older buildings will more often have mortar of sand and lime. This tends to be softer and more flexible and may be able to accommodate slight movements without showing visible cracks.

The colour of the mortar greatly affects the appearance of the wall. Coloured mortars can be used to contrast with the bricks and accentuate the joint pattern, or to blend with the bricks and hide the joints.

However, over time mortar may erode by wind, rain and or frost if this does occur re-pointing may be required. Bricks can also become eroded by frost especially in exposed locations causing crumbling and falling away of the brick face.

### GETTING THE BEST FROM BRICKWORK

Brickwork is used because of its strength, durability, weather resistance and attractive appearance. Properly designed and constructed it can give excellent performance in use.

Structural problems can often show up at openings (windows and doors) as this is a weak point in the wall. The brickwork above the opening has to be supported in some way, traditionally this was usually by an arch but modern buildings typically have a lintel. The lintel is often concealed within the cavity behind the brick face. Arches work by pushing against the brickwork on either side. If the wall moves the arch can drop. This is particularly a problem with older bay windows.

Durability of brickwork can vary enormously. Early failure is usually due to incorrect use of materials for the exposure situation. All brickwork exposed to weathering will deteriorate over time and will eventually need repair. In some situations it is best to do nothing for as long as possible. Advice from a Chartered Building Surveyor experienced in repair of brickwork can help avoid costly mistakes or inappropriate attempts at repair.

### THERMAL INSULATION

Brickwork is not a particularly good insulator. Homes built after about 1975 usually have a cavity wall including an inner leaf of insulating block-work rather than a brick inner leaf. Cavity walls with a brick or block inner leaf can usually be improved by adding an insulating cavity filling at the time of construction which provides a big improvement in thermal insulation at a moderate cost.

Brickwork is an excellent modern building material when properly used but care and attention to detail is needed for the best results to be obtained.

### DEFECTS

Some suggestions for repair of common defects are given below but works should always be decided following a professional assessment of what is needed.

The wall has a crack in the mortar joint. Establish the cause of movement before deciding on a repair. All that is needed may be to cut out and repack the joint with a suitable mortar.

Vertical cracks may occur near corners. This often occurs in buildings built without adequate movement joints. Repairing the crack will probably not help unless movement joints are provided.

Tapering cracks. This can be any shape of crack with more movement at the top or bottom of the wall. It may pass down into the ground. Tapered cracks tend to indicate foundation movement. If the movement is progressive extensive repairs may be needed.

The wall face may “bulge” outward from the building. This may indicate that the brick facing is not adequately connected to the structure behind. Professional advice should be obtained as the wall may be unsafe.

The face may be stained by water running off from the top of the wall. Usually a projecting coping gives the best result. For parapets the water should always be directed back onto the roof and not allowed to run down the face of the wall.

Salts in the bricks may cause white staining on the face of the wall. This can usually be avoided by using “low salts bricks”. If it does occur it can usually be cleaned of by washing with water.

### FIND AN RICS MEMBER

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