

Brick Walls

Brick is probably the best known and, since the late 19th century, most commonly used building material in most parts of Cheshire. Especially in the west and south brick has a far longer history, extending to the early 17th century. By the mid 18th century building in brick was commonplace for all classes of building except in the Pennine stone areas of the country. The characteristics of the bricks and of walls have altered considerably over the centuries. When considering maintenance, repairs, alterations and extensions to brick buildings and garden walls it is essential to identify existing characteristics and carefully maintain or relate to them.

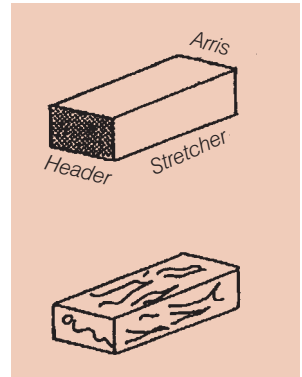
Brick characteristics

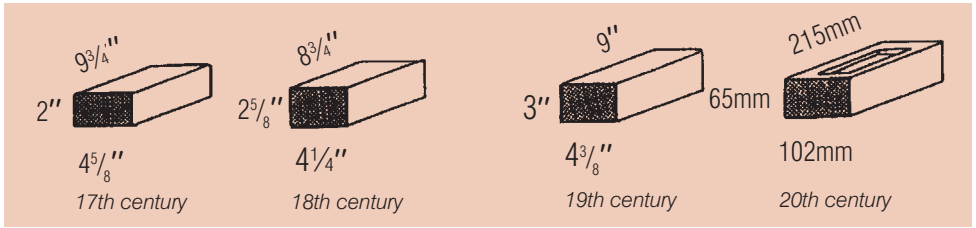
Size and shape

Bricks consist mainly of baked clay and sand and many of their characteristics vary with the type of clay and firing process. Their rectangular block shape results in small end faces "headers" and long side faces "stretchers" with edges or arrises.

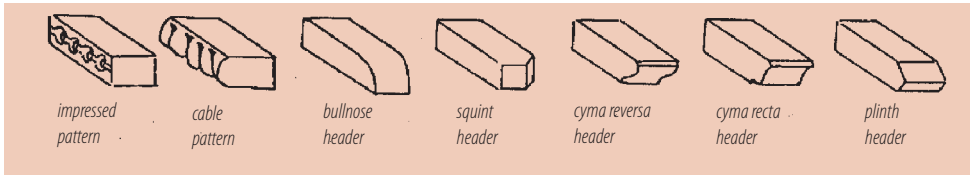
Prior to 1850 bricks were hand-made in wooden moulds. In the 17th and early 18th centuries bricks tended to be long and thin with irregularities in the shape, surfaces and edges giving a relatively rough texture.

During the 18th century bricks became shorter and deeper, more regular and smoother. After 1850 machine made bricks of uniform, regular shape and finish reached a maximum depth and largely replaced hand-made bricks. Today extensive ranges of both hand and machine made bricks are available. In many cases standard bricks are produced in both small and large sizes, the latter relating to Victorian brickwork.





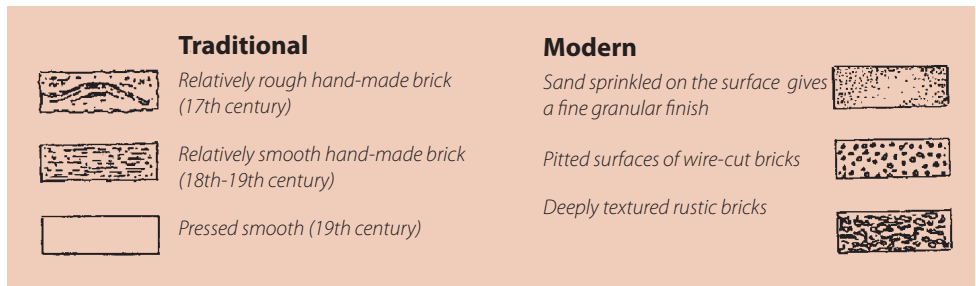
As part of the moulding process it was also possible to produce surface patterning and intricate shapes. These were used particularly in the Victorian and Edwardian periods especially for eaves, cornices, string courses and door surrounds.



Many brick makers supply a wide range of standard, special shapes or may make specials to match existing work to order.

Texture

Bricks range in texture from very even and smooth pressed faces to very rough rustic faces.



Modern sand-faced, wire-cut and rustic bricks are not generally appropriate for use in traditional buildings.

Colour

Brick colours depend mainly upon the clay and firing temperature. Most traditional buildings in Cheshire are built in red brick. The older bricks tend to be dark red-brown but during the 18th century brighter red-orange bricks were sometimes used. In the later Victorian and Edwardian period

harsh Accrington bricks or Ruabon bricks with more pink and purplish variations were widely used. Modern smooth bricks are often too uniform in colour to match older bricks of this type.

Some bricks have variations in colour either within the brick or between bricks and such variation should be matched in new work. Multi-coloured bricks need to be carefully mixed to avoid areas or bands of one colour standing out.

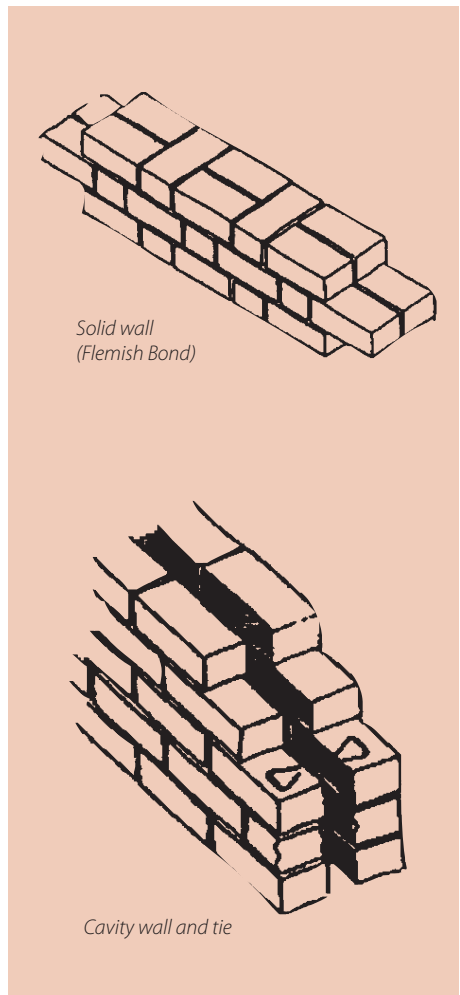
Also see decorative walling below.

Wall characteristics

Construction

Strong walls in traditional buildings were generally achieved through thickening and sound bonding and jointing. Walls were normally solid and consisted of 2 widths or skins of brick and in the earlier periods 3 or 4 giving roughly 9", 13" or 18" thick walls. The bricks were bedded in mortar and were also overlapped or bonded. Modern construction usually involves a cavity, between two brick skins with wall ties across the gap.

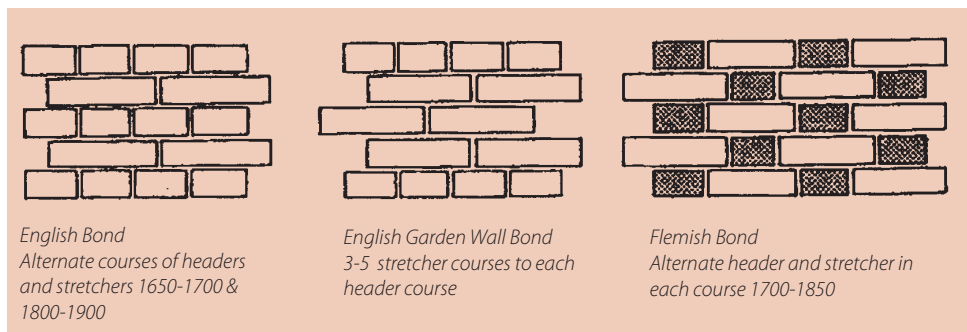
Irregularities in older brick surfaces tend to produce wider joints especially in comparison with fine joints up to 4mm wide associated with smooth machine made bricks of the late 19th century and rubbed bricks of earlier periods. Use of appropriately soft lime based mortar mixes and jointing details can cater for some movement



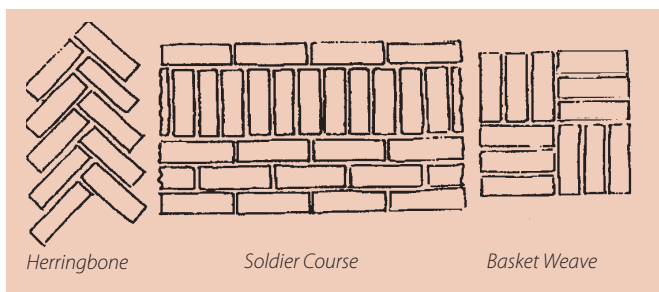
in the brickwork and generally prolong the life of brick walls.

Bonding patterns

The three most commonly used traditional bonds are English, English Garden Wall and Flemish. Modern stretcher bond is inappropriate for traditional buildings. Traditional bonds can still be achieved in cavity walls by using manufacturers' half bricks or bricks cut or snapped on site.

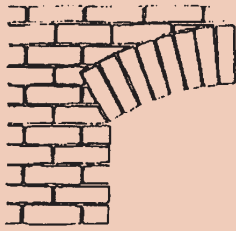


Occasionally decorative bonding such as herringbone may also be found in traditional buildings. The modern practice of using bricks standing on end in soldier course for cills, lintels and bands is inappropriate for use in traditional buildings.

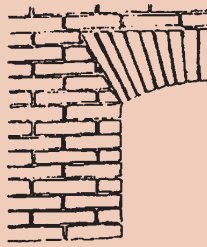


Openings

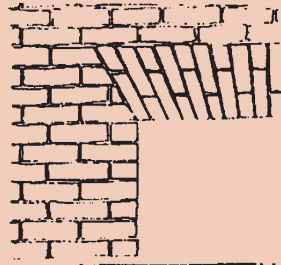
The heads of window and door openings were often finished with a timber or stone lintel or traditional brick arches bridging the opening as an important structural element. For best quality 17th century and many 18th century buildings arches were formed from soft, carefully cut and shaped bricks with very fine joints, (known as guaged work).



Segmental Arch
(Unshaped bricks)



Cambered



Gauged and Rubbed
Flat Arch

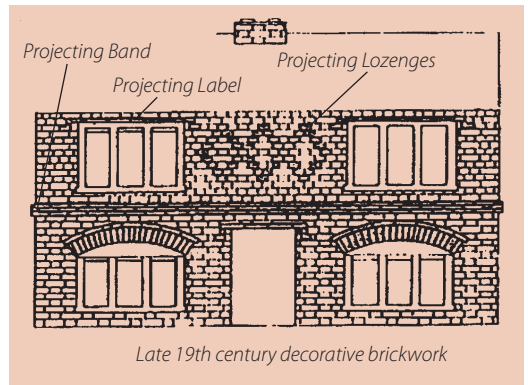
Decorative walling

Bricks were projected slightly in front of the face of the wall especially in the mid to late 17th century to form decorative shapes, bands, string courses, initials, numerals and labels (drip moulds) above doors and windows.

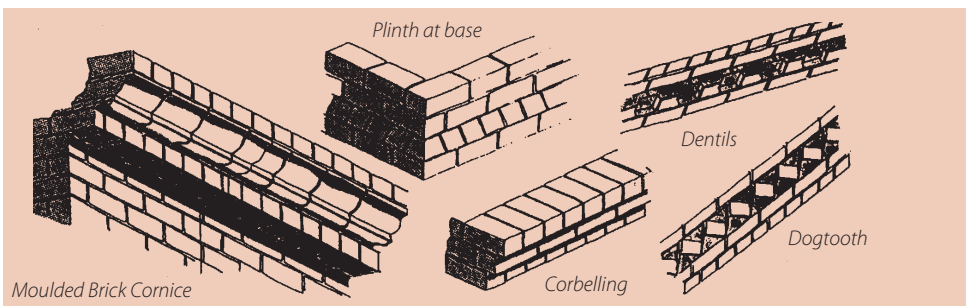
Bands of 3 bricks depth continued as a characteristic feature of early 18th century vernacular brick buildings.

Larger projections especially in the Victorian and Edwardian periods included stepped corbelling, elaborately shaped cornices and plinths. Especially at eaves level dentil and saw or dog-tooth courses were also incorporated. In new work in order to avoid weathering and staining problems cornices need to be of substantial size.

Recessed panels were also used sometimes.



Late 19th century decorative brickwork



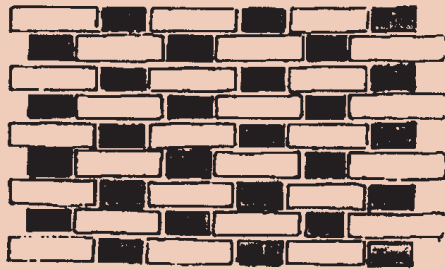
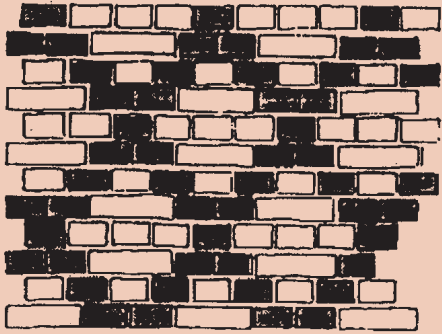
Moulded Brick Cornice

Plinth at base

Corbelling

Dentils

Dogtooth



18th century Chequer Work

In Flemish bonding the use of creamy or purple headers with red stretchers produced chequerwork c 1750-1850. In the 17th century and especially the Victorian period blue bricks were often used to pick out shapes or diaper patterns flush with the red brickwork.

During the 19th century blue, cream and red bricks were occasionally used to create more extensive surface patterning and contrasting coloured bricks were often used to emphasize features and break up blank areas (known as polychrome brickwork).

Common Faults and Repairs

Most decay in brickwork is caused by poor maintenance, damp, structural movement, inappropriate pointing or repairs. Repair of brickwork is useless unless the cause of decay is removed.

Spalling, Flaking and Erosion

Where bricks are badly decayed or cracked it may be necessary to cut out individual bricks and replace them with matching bricks. Cracks should not normally be pointed. Because of the difficulty of inserting individual gauged bricks or pointing them whilst maintaining very fine joints where repairs are essential, it may be necessary to carefully take down and rebuild using original bricks, matching bricks and the original joint size. This will require recording and numbering of the bricks.

Sources of matching bricks, which should be carefully selected, may include second-hand bricks, reversing the damaged brick if of suitable quality, ordering new specials to match or in special circumstances using bricks from elsewhere with the building or the grounds.

Bulges

Bulges may not necessitate demolition. Demolition and rebuilding should never be considered until all other remedial action has been ruled out after taking professional advice.

Painting, Rendering, Cladding

Painting and rendering or cladding of brick walls should normally be avoided. These finishes will radically alter the character of the building, break up important group relationships and may detract from the appearance of the whole street. Painting could lead to further decay of bricks or stone and rendering and cladding encourage spread of damp and form a constant maintenance problem. Painting, rendering or cladding listed buildings is likely to require listed building consent and rendering or cladding buildings in conservation areas requires planning permission. Care should be taken to maintain original, traditional renders especially by using appropriate ingredients and limework.

Damp

Well maintained brickwork and pointing should not enable water penetration and should require no additional external coatings to prevent water penetration. If the outer surface has been removed, for example by sandblasting, it may be necessary to seal the surface with a silicone treatment which allows outward migration of water. This is likely to require regular maintenance and should be carried out by specialist contractors.

Pointing

Mortar mixes and colours and pointing details are extremely important (refer to Pointing leaflet).

Further reading

R W Brunskill and A Clifton-Taylor

English Brickwork

for historical information

J & N Ashurst

Practical Building Conservation, Volume 2 - Brick, Terracotta and Earth

for repairs and technical details

1200	1300	1400	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	
13th	14th	15th	16th Century		17th Century		18th Century		19th Century			20th Century		
Medieval			Tudor	Elizabethan	Carolean		Queen Anne	Georgian		Regency	Victorian		Edwardian Inter War	Modern

Advice

Identifying sources of problems and appropriate remedial action will normally require the advice of professionals and contractors experienced in conservation work on traditional buildings.

For further information please contact

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Cheshire East Council
Town Hall
Macclesfield
Cheshire SK10 1DP

It is the owner's responsibility to comply with all statutory requirements and seek appropriate professional advice. The Council cannot be held responsible for the specific use of these general design guides.