

# Wells Street

London W1



architect's rendering



site photo

Address: 56-59 Wells Street, London W1

Client: Derwent London

Material: stone, glass, bricks, tiles

Architect: BuckleyGrayYeoman

Refurbishment of office space in the heart of West End, just north of Oxford Street. Over 6,000 sq. ft spreading over three floors, common areas and a new front entrance.



## Brick masonry construction

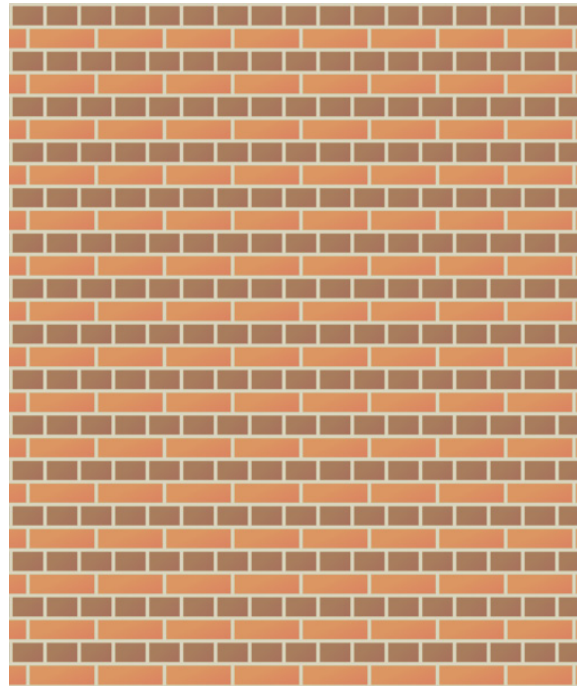
A brick is a block or single unit of kneaded concrete material. They are laid in courses and numerous patterns known as bonds, and collectively known as brickwork. They are used together with mortar to hold the bricks together to make a durable structure. They can be produced in numerous classes types and sizes, which vary depending on the region they are manufactured. Since different countries and regions have different standard and regulations for the optimum size that the brick should be. Bricks can be classified into two main categories: fired and non-fired brick.

Bricks are one of the longest lasting and strongest building material which have been around since the ancient times, around 5000BC. And can sometimes be called artificial stone.

(left) site photographs showing the facade behind the plastic sheets, revealing the materials used for construction. Including wood and bricks.



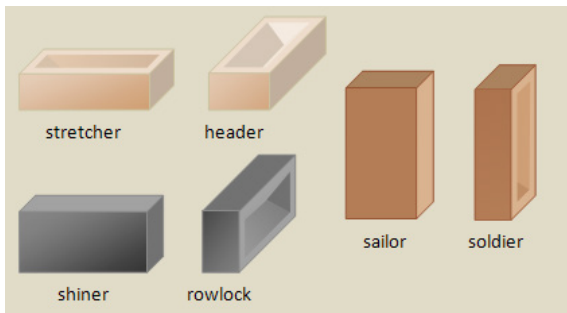
rendering of an entrance



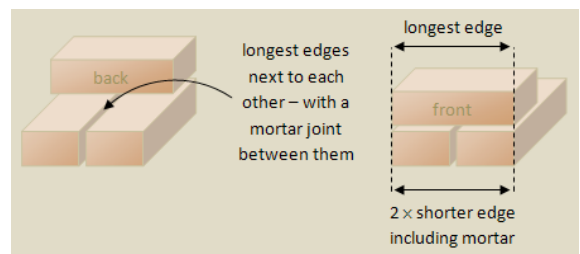
English bond

## English bond

This bond has alternating stretching and heading courses, with the headers centred over the midpoint of the stretchers, and prepends in each alternate course aligned. Queen closers appear as the second brick, and the penultimate brick in heading courses. A muted colour scheme for occasional headers is sometimes used in English bond to lend a subtle texture to the brickwork.



anatomy of the brick



how the bricks are laid piece by piece

## Characteristics & Strength

For efficient handling and laying, bricks must be small enough and light enough to be picked up by the bricklayer using one hand. So that the other would be free for the trowel. Bricks are laid flat onto the surface.

Face brick (house brick) sizes in the UK: 215 x 102.5 x 65 mm

The bigger the bricks the thicker (and more insulating) the wall would be. So in colder climates larger bricks are more often used in the historical structures.

The brick's colour, surface texture, density, weight, absorption and pore structure, thermal characteristics and fire resistance are the basic categories in which to choose the correct brick type.

The compressive strength of bricks in England can go up to 100MPa, but usual house brick is likely to be around 20-40 MPa.

(right) a brick should be small and light enough to be hold in one hand





brick structures are destroyed during earthquake

## Limitations

Since the 20<sup>th</sup> century the use of brickwork declined due to several factors including its weakness against earthquakes. Earthquakes such as the San Francisco earthquake of 1906 revealed the weaknesses of brick masonry in earthquake-prone areas. During the seismic events, the mortar cracks and crumbles, and the bricks are no longer held together. Brick masonry with steel reinforcement, which helps hold the masonry together during earthquakes, was used to replace many of the unreinforced masonry buildings.



concrete bricks

## Concrete bricks

Bricks of concrete with sand aggregate can be made using a simple machine and a basic assembly line. A conveyor belt adds the mixture to a machine, which pours a measured amount of concrete into a form. The form is vibrated to remove bubbles, after which it is raised to reveal the wet bricks, spaced out on a plywood sheet. A small elevator then stacks these palettes, after which a forklift operator moves them to the brickyard for drying.

Can come in many colours and can be suitable for harsh environments.

## Mortar

Mortar is a workable paste used to bind building blocks such as stones, bricks, and concrete units together. They fill and seal the irregular gaps between the units, and sometimes add decorative colours or patterns in masonry walls. It becomes hard when it cures, resulting in a rigid aggregate structure; however the mortar is intended to be weaker than the building blocks because mortar is easier and less expensive to repair than the building blocks.

Typically made from a mixture of sand, a binder, and water. The most common binder since the early 20<sup>th</sup> century is Portland cement.



mixing mortar



brick and mortar laying