SNS COLLEGE OF TECHNOLOGY

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COIMBATORE

DEPARTMENT OF CIVIL ENGINEERING

23GET102 – BASIC CIVIL AND MECHANICAL ENGINEERING

I YEAR / I SEMESTER

Unit 2 : Building Components

Topic : Brick Masonry

MASONRY

"Masonry" may be defined as the construction of building units bonded together with Mortar.

TYPES OF MASONRY

- ✓ Brick Masonry Construction.
- ✓ Stone Masonry Construction.
- ✓ Concrete Masonry Construction.
- ✓ Veneer Masonry Construction.
- ✓ Gabion Masonry Construction.
- ✓ Composite Masonry Construction.

Brick Masonry

- Brick Masonry" refers to the part of the building built up by brick and cement (or) lime mortar.
- Two essential components of brick masonry are Brick and Mortar. Steps in brick manufacturing

✓ Moulding the clay in rectangular blocks of uniform size.

✓ Drying the clay.

✓ Burning the clay in the kiln.

TYPES OF BRICK MASONRY

- **Sun-Dried or Unburnt Clay Bricks**
- **Burnt Clay Bricks**
  - First class brick
  - Second class brick
  - Third class brick
  - Fourth class brick
- **Fly Ash Bricks**
- **Concrete Bricks**
- **Engineering Bricks**
- **Sand Lime or Calcium Silicate Bricks**

QUALITY OF BRICKS AT CONSTRUCTION SITE

The colour of bricks should be bright and uniform.

– The bricks should be well burned and have smooth surface and sharp edges.

– Thermal conductivity should be less and also sound proof.

– Bricks should not absorb more than 20% of weight when soak in water.

– When two bricks impinge together, the ringing sound must be produce.

– The brick structure must be uniform.

– Bricks should not be break when dropped from 1m height.

– There should be not any scratch when scratch with finger nail.

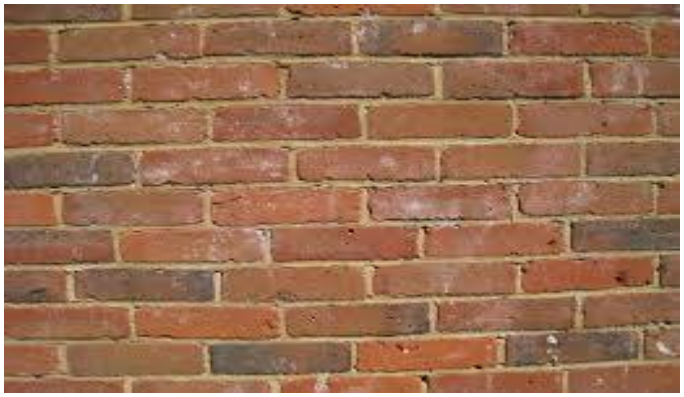
– There should not be any white deposit on brick after soak in water for 24 hours.

TYPES OF BRICK BONDING

Stretcher bond

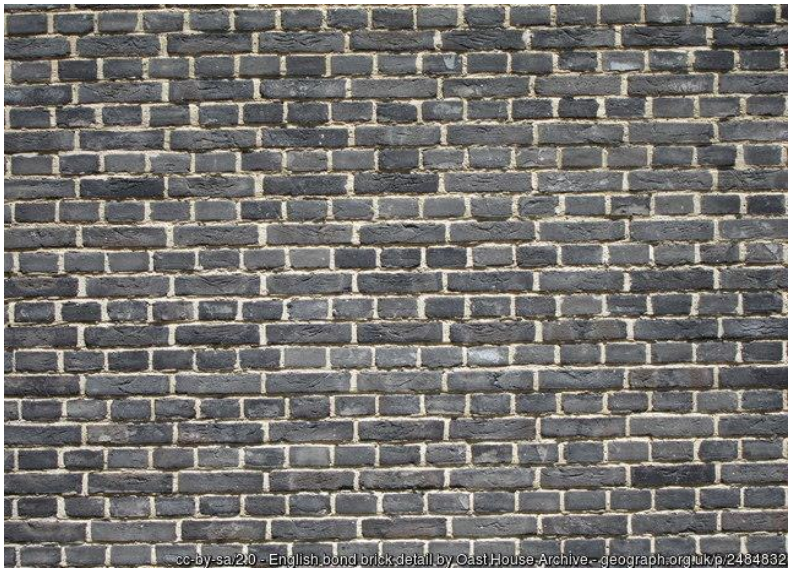
Stretcher bond is the most commonly used brick bond pattern in the UK. It is formed using only stretchers (bricks laid lengthwise), with the joins on each course centred above and below by half a brick. This type of bonding is not particularly strong.

A variation is the raking stretcher bond. The overlap between bricks is usually a third or a quarter of a brick, instead of half a brick.



English bond

English bond is a pattern formed by laying alternate courses of stretchers and headers. The joins between the stretchers are centred on the headers in the course below. This is one of the strongest bonds but requires more facing bricks than other bonds

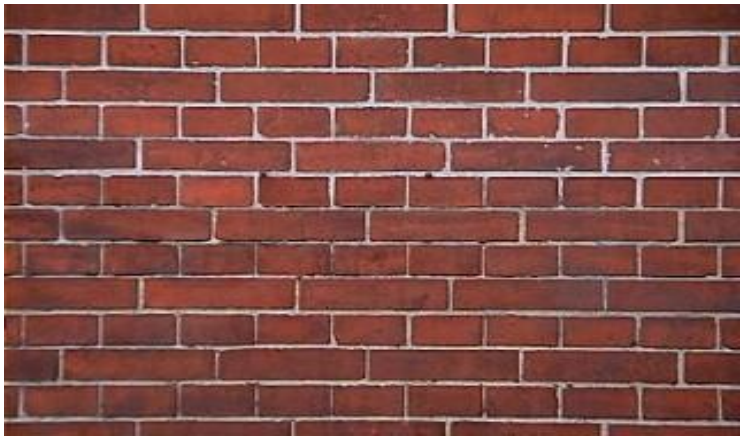


English garden wall

English garden wall bond is similar to the English bond but with one course of headers for every three courses of stretcher. The headers are centred on the headers in course below. This gives quick lateral spread of load and uses fewer facings than an English bond.

English cross bond

English cross bond alternates courses of stretchers and headers, with the alternating stretcher course being offset by half a brick. The stretchers are centred on the joins between the stretchers below them, so that the alternating stretcher courses are aligned. Staggering stretchers enables patterns to be picked out in different texture or coloured bricks.

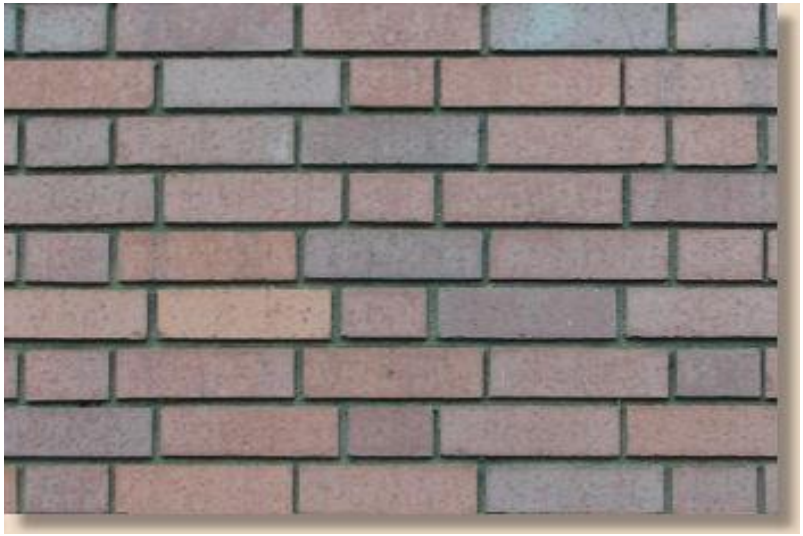


Flemish bond

The Flemish bond is formed by laying headers and stretchers alternately in each course. The headers of each course are centred on the stretchers of the course below. This bond is strong and often used for walls which are two-bricks thick.

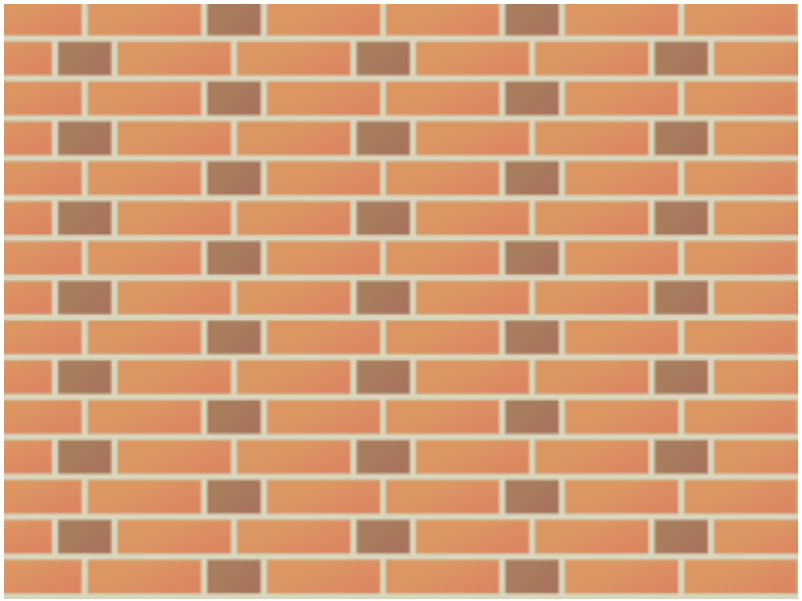
Flemish garden wall (also called Sussex bond)

The Flemish garden wall bond (or Sussex bond) is a variant of the Flemish bond, and uses one header to three stretchers in each course. The header is centred over the stretcher in the middle of a group of three in the course below.



Monk bond

The monk bond is a variant of the Flemish bond and involves two stretchers between the headers in each course. The headers are centred over the join between the two stretchers in the course below.



Header bond

The header bond features courses of headers offset by half a brick. It is similar to the stretcher bond but with headers instead of stretchers.

Stack bond

In stack bond, bricks are laid directly on top of one another with joins aligned, running vertically down the entire wall. Bricks can either be stacked horizontally or vertically.

The alignment of joints results in minimal bonding which means that this bond is weak and often structurally unsound unless wire bed-joint reinforcement is placed in every horizontal course or, where loading is moderate, every alternate course. This is often used purely for decorative purposes and in rain-screen applications.

Sussex bond

The Sussex bond is the same as the Flemish garden wall bond, and uses three stretchers and one header in each course.

Thank You!!