

Masonry

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

The building units may be stones, bricks, or precast concrete blocks. Depending upon the types of building units used,

MASONRY can be classified into following categories :

Stone Masonry.

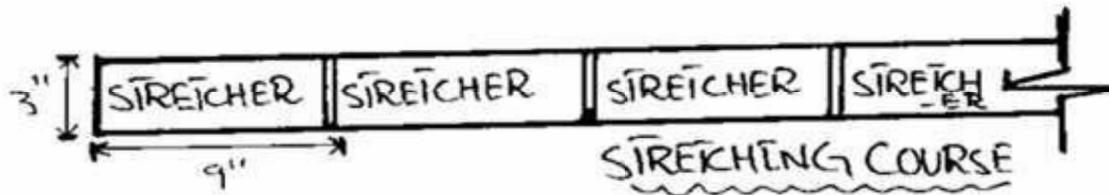
Brick Masonry.



Some Important Terms Used In Masonry

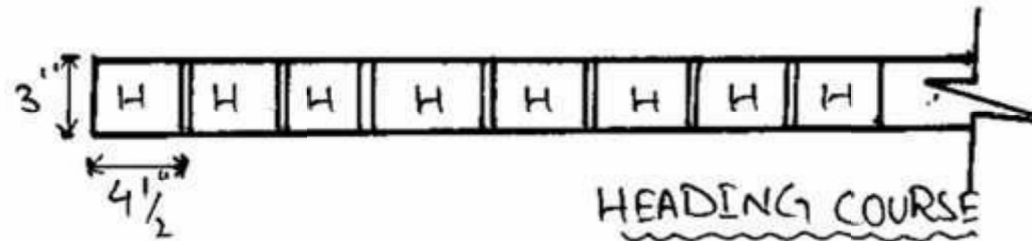
1. STRETCHER:

A brick, laid with its length horizontal and parallel with the face of the wall or other masonry member is called a "**Stretcher**" and a course, in which, all the bricks are laid as Stretchers is called a "**Stretching course**" or "**Stretcher course**".



2. HEADER:

A brick laid, so that only its end shows on the face of a wall is called a "Header" and a course, in which all the bricks are laid as headers, is known as "Heading Course" or "Header course".





3. ARISE:

The edges formed by the intersection of the plane surfaces of brick are called the arises and they should be sharp, square and free from damage.

4. BED:

It is the surface of stone perpendicular to the line of pressure. It indicates the lower surface of bricks or stones in each course.

5. BED JOINT:

If the joint is parallel to the bed of bricks or stones in a course then it is termed as bed joint.

6. PERPENDS:

The vertical joints separating the bricks in either length or cross direction are known as the Perpend.



7. BOND:

Bond is the arrangement of bricks or stones in each course, so as to ensure the greatest possible interlocking and to avoid the continuity of vertical joints in two successive courses, both on the face and in the body of a wall.

8. COURSE:

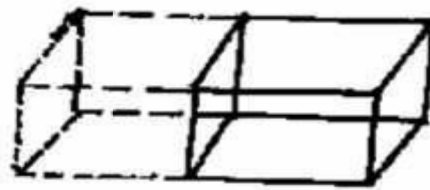
Each horizontal layer of bricks laid in mortar in a brick work is called a "course".

9. BRICK BATS :

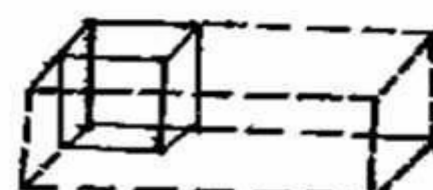
The pieces of bricks, cut long their length and having width equivalent to that of a full or half brick are called "**Brick bats**".



a) Three fourth BAI



(b) Square OR
CUBE BAI



(c) QUARTER BAI



10. QUEEN CLOSER:

Queen closer is a brick, which is half as wide as full brick and is made by cutting a whole brick lengthwise into two portions.

These are generally used next to the Quoin header for creating bonds in brickwork.

11. KING CLOSER:

A brick, whose one diagonal piece is cut off one corner by a vertical plane passing through the center of one end to the center of one side.

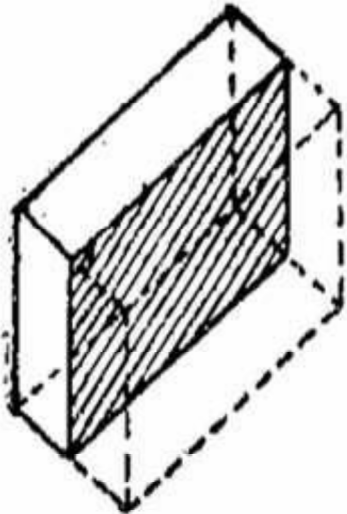
12. BEVELED CLOSER:

A brick cut longitudinally along a vertical plane, starting at the middle of one end to the far corner. One quarter of the brick is cut off in this way.

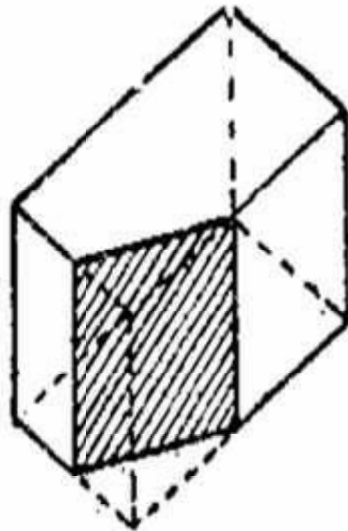
13. BULLNOSE :

A brick with rounded corners is called a “**Bull Nose Brick**”

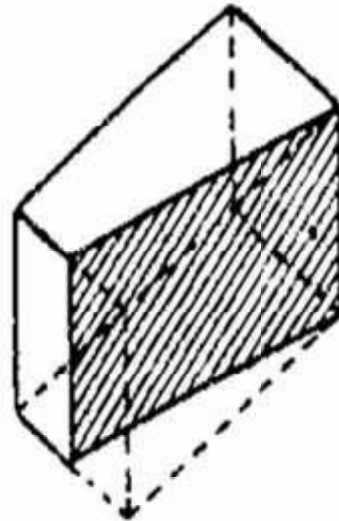




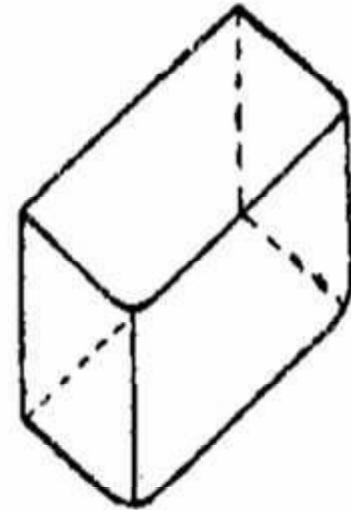
(a) QUEEN CLOSER



(b) KING CLOSER



(c) BEVELLED
CLOSER

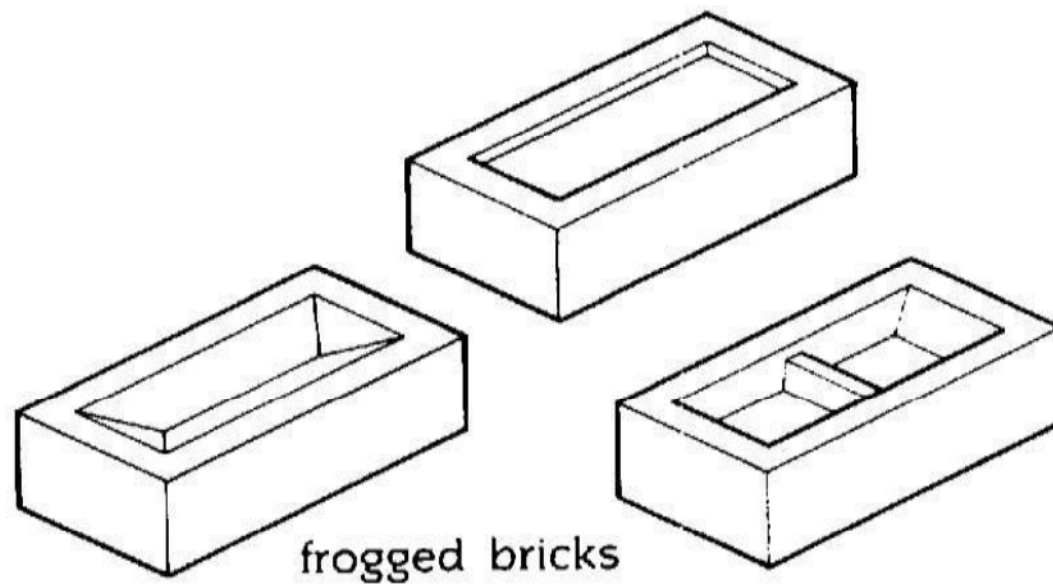


(d) BULL NOSE



14. FROG

Froged bricks shall have depressions in one or more bed faces but their total volume shall not exceed 20% of gross volume of a brick.

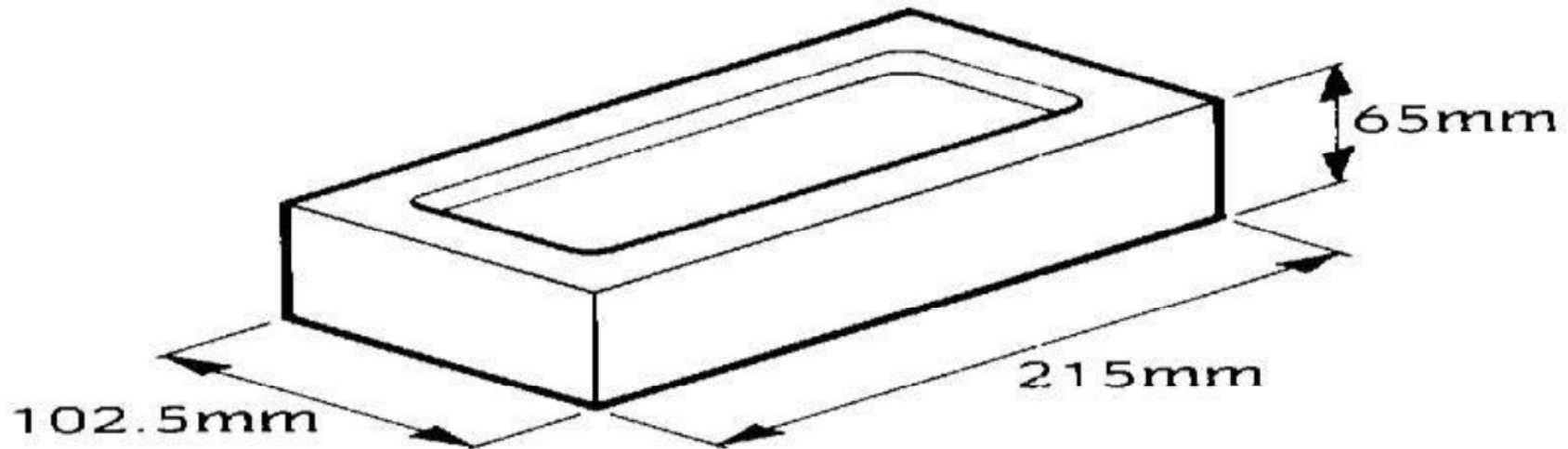


B.BRICK MASONARY



BRICK MASONARY

- Bond is the arrangement of bricks in each course, so as to ensure the greatest possible interlocking and to avoid the continuity of vertical joints in two successive courses, both on the face.



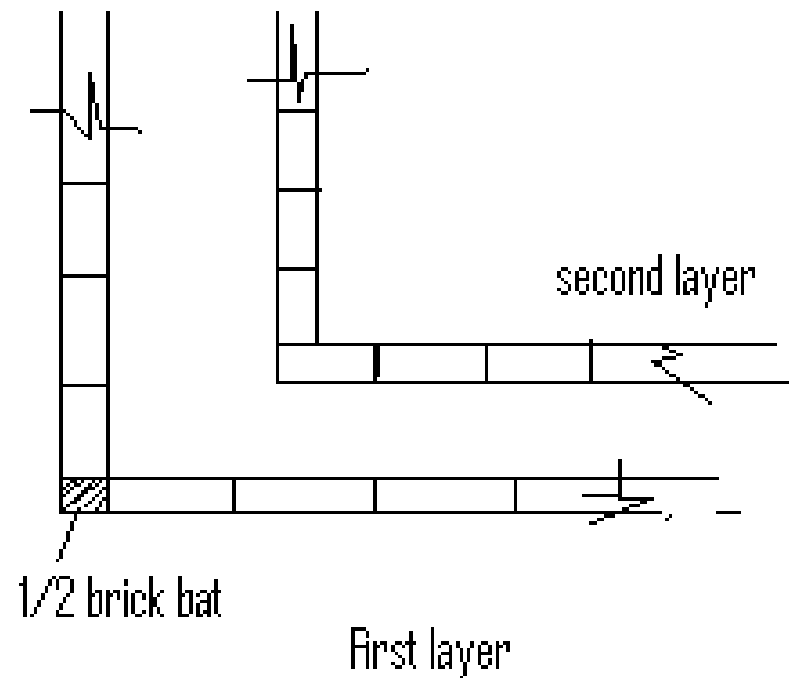
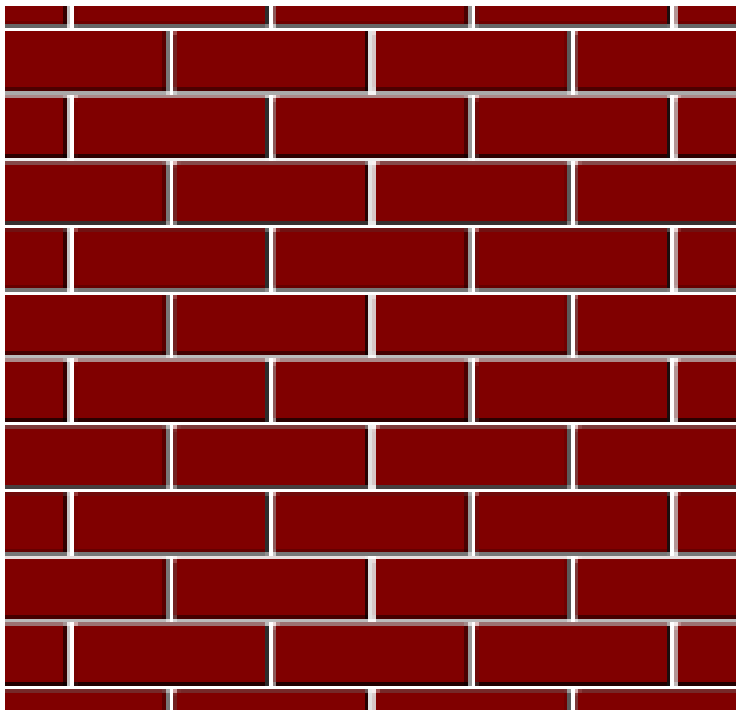
TYPES OF BONDS

- 1) Stretching Bond
- 2) Heading Bond
- 3) English Bond
- 4) Flemish Bond
 - (i) Double Flemish Bond
 - (ii) Single Flemish Bond
- 5) Garden Wall Bond
 - (i) English Garden Wall Bond
 - (ii) Flemish Garden Wall Bond
- 6) Raking Bond
 - (I) Herring Bone Bond
 - (II) Diagonal Bond
- 7) Dutch Bond



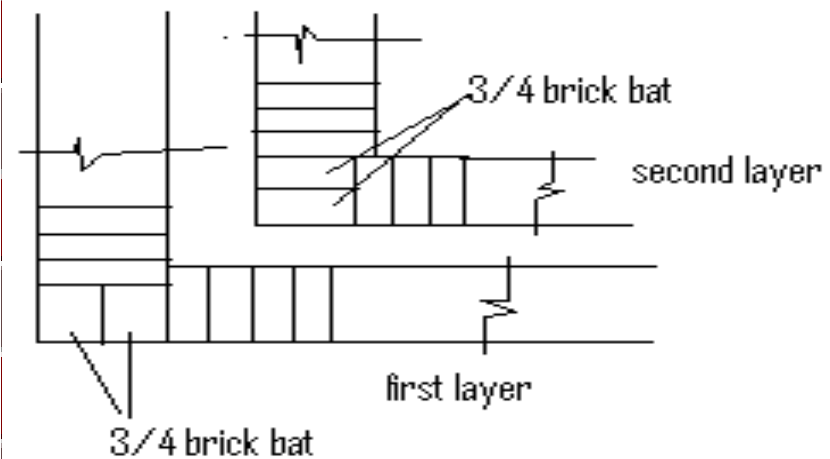
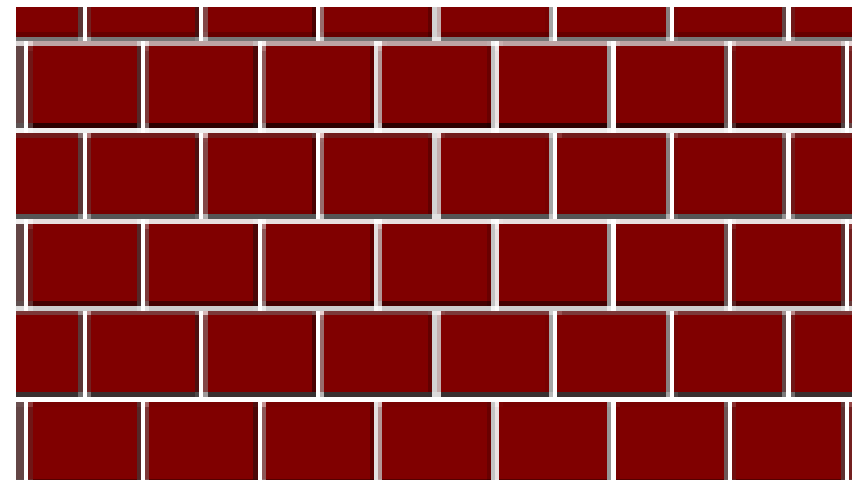
1. STRETCHER BOND

- The bond in which all the bricks are laid as stretchers in every course is called "**Stretcherbond**".
- Used in not more than one brick partition walls

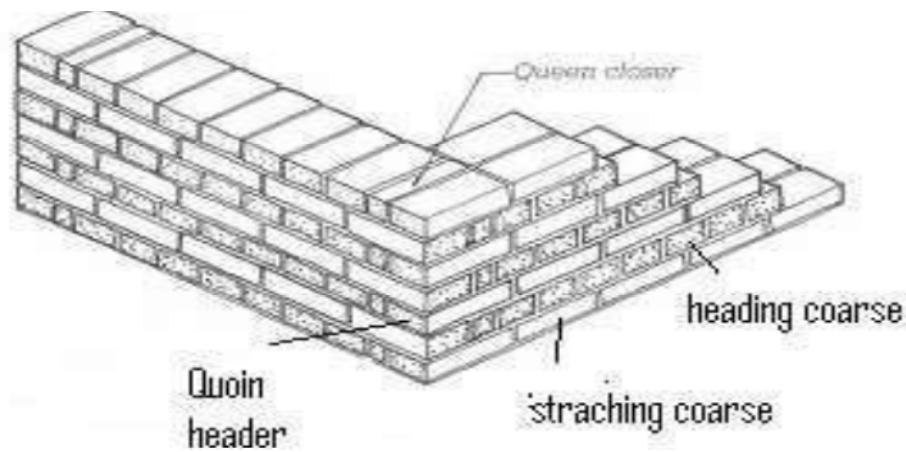
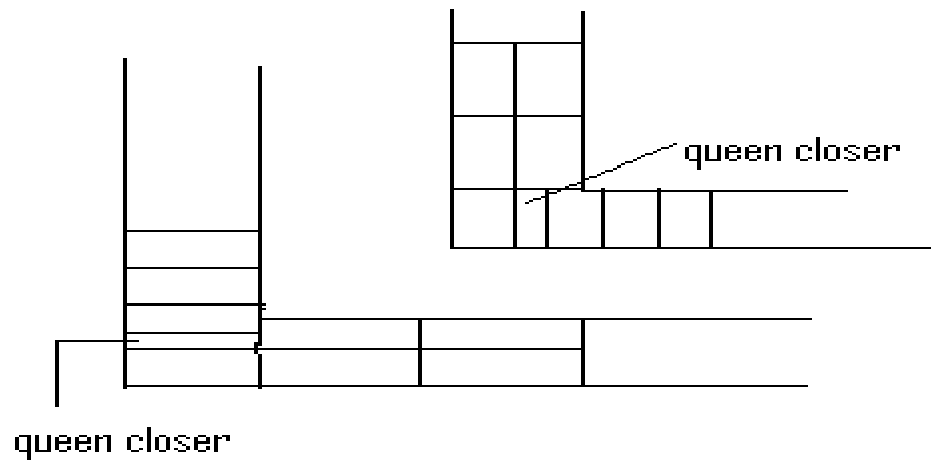


2.HEADER BOND

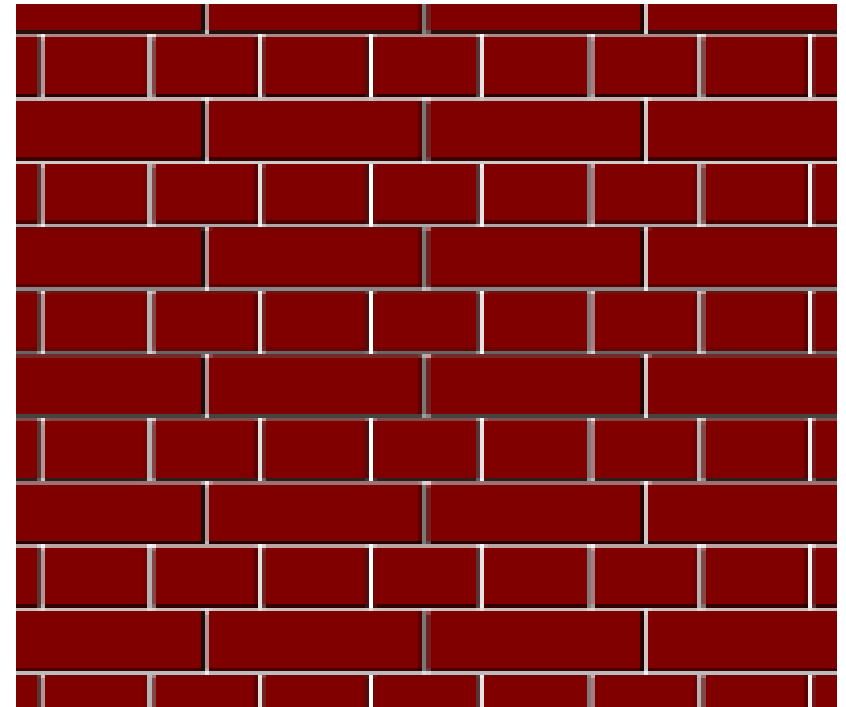
- The bond in which all the bricks are laid as headers in every course of a wall is called "**Header bond**".
- This bond is commonly used for constructing staining of wells, footings of walls and columns, corbels, cornices, etc.



3. ENGLISH BOND



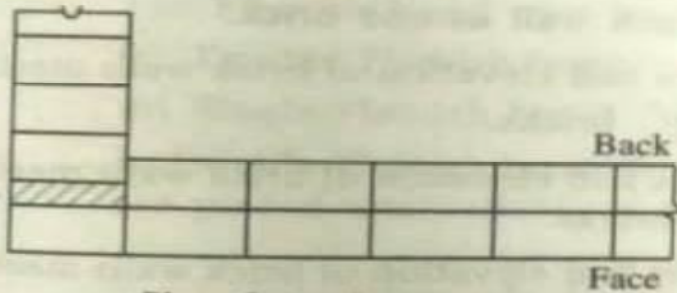
English bond



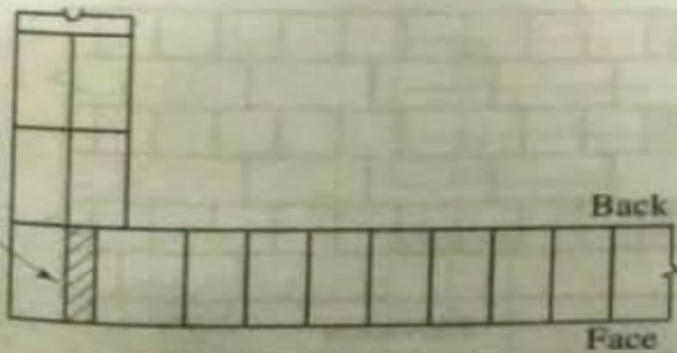
ENGLISH BOND



Elevation

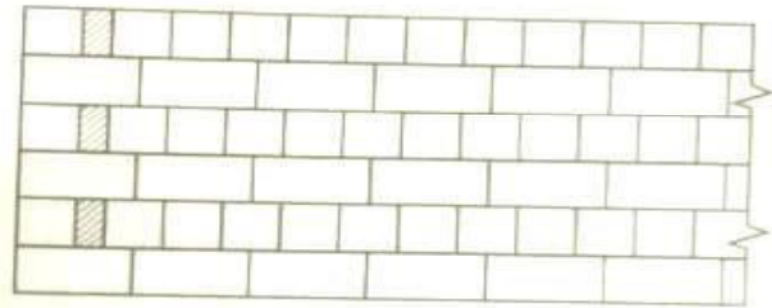


Plan of stretcher course



Plan of header course

English bond-1 brick wall



Elevation



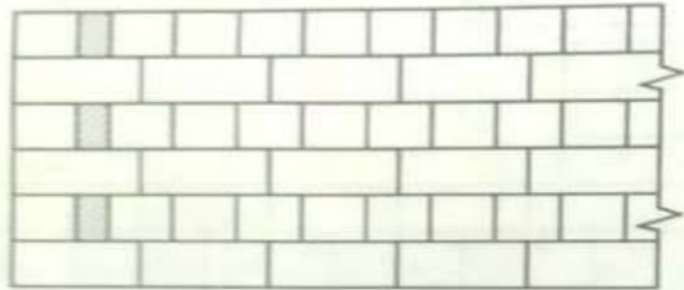
Plan of stretcher course



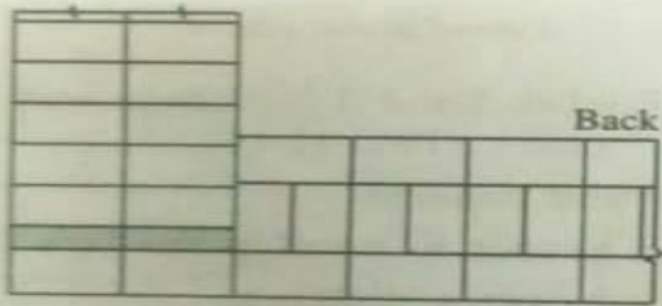
Plan of header course

English bond-1 1/2 bricks wall

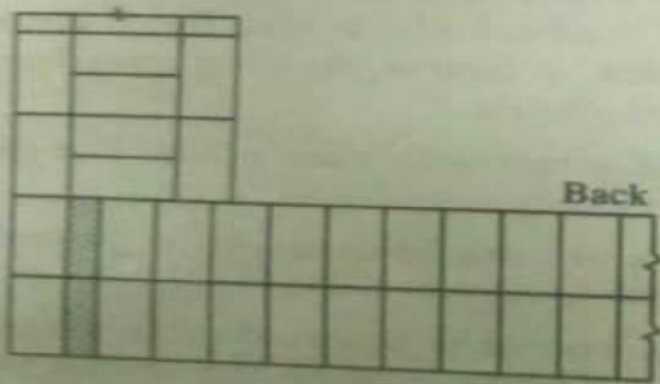
ENGLISH BOND



Elevation



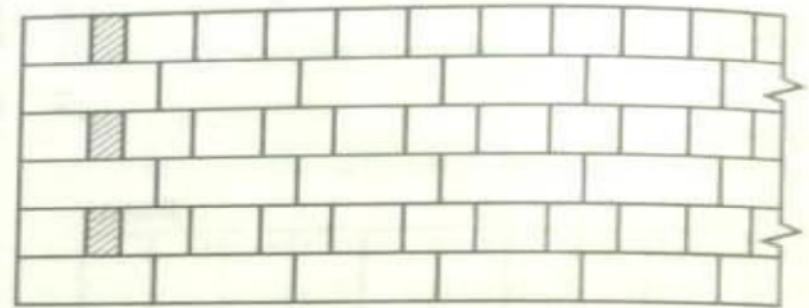
Plan of stretcher course Face



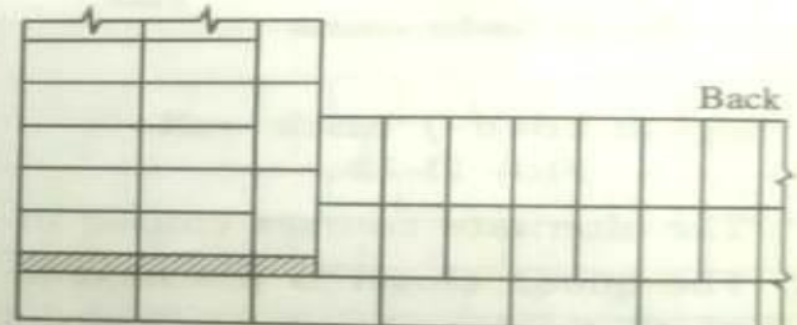
Plan of header course Face

English bond-2 bricks wall

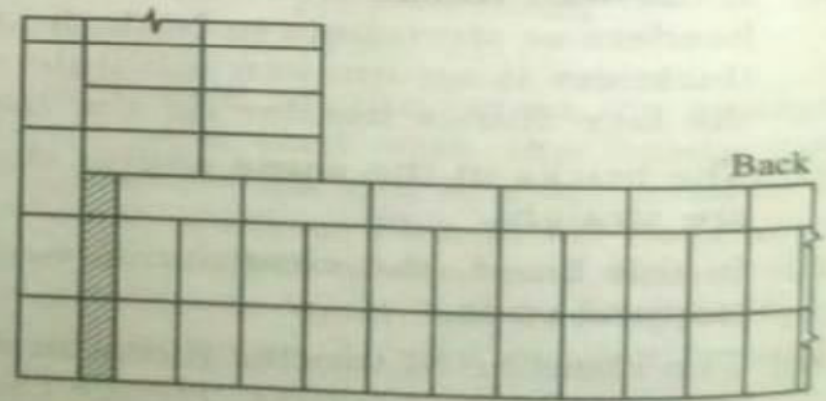
FIG. 11-15



Elevation



Plan of stretcher course Face



Plan of header course Face

English bond-2 1/2 bricks wall

ENGLISH BOND

- This bond consists of headers and stretchers laid in alternative courses.
- It is strongest of all the bonds.
- It provides rough appearance especially for one brick thick walls.
- There are no noticeable continuous vertical joint in the structure built in this bond.
- Much attention is not required in providing this bond.
- Progress of work is more.
- It is costly because the use of brick bats is not allowed.
- In stretcher course, the stretchers have a minimum lap of one fourth of their length.



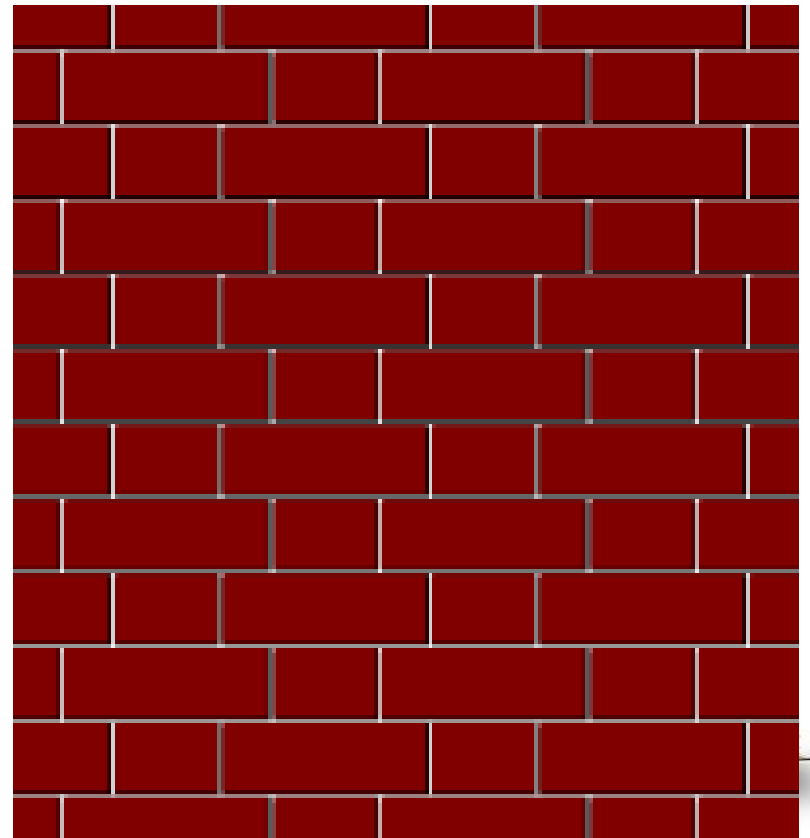
4.FLEMISH BOND

- In this type of bond, each course is comprised of alternate headers and stretchers.

Every alternate course starts with a Header at the corner *i.e.* quoin header). Quoin closers are placed next to the quoin header in alternate courses to develop the face lap. Every header is centrally supported over the stretcher below it.

Flemish bonds are of two types :

- (i) **Double flemish bond**
- (ii) **Single flemish bond.**



(i) Double Flemish Bond:-

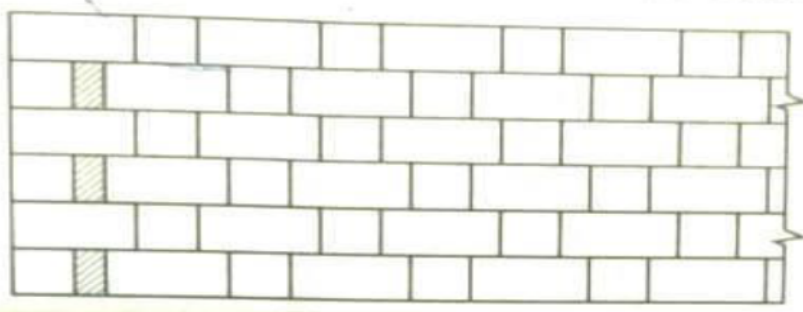
- The bond in which headers and stretchers are laid alternately in each course, both in the face and back of the wall, is called **Double Flemish Bond**.
- In the double Flemish bond, each course presents the *same appearance* both in the front face as well as in the back face.
- Flemish bond presents better appearance than English bond.



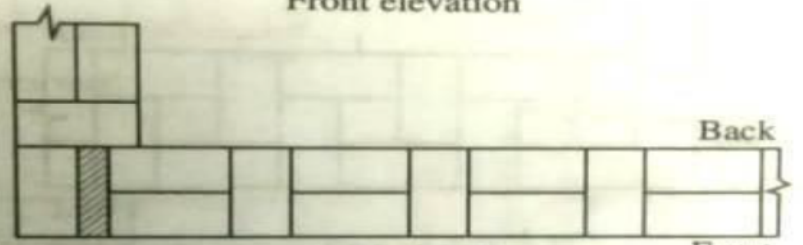
Special features of double flemish bond

- 1) Every course consists of headers and stretchers placed alternately
- 2) The facing and backing of the wall, in each course, have the same appearance.
- 3) Quoin closers are used next to quoin headers in every alternate course.
- 4) In walls having thickness equal to odd multiple of half bricks, half bats and three-quarter bats are amply used.
- 5) For walls having thickness equal to even multiple of half bricks, no bats are
- 6) required. A header or stretcher will come out as header or stretcher on the same course in front as well as back faces.

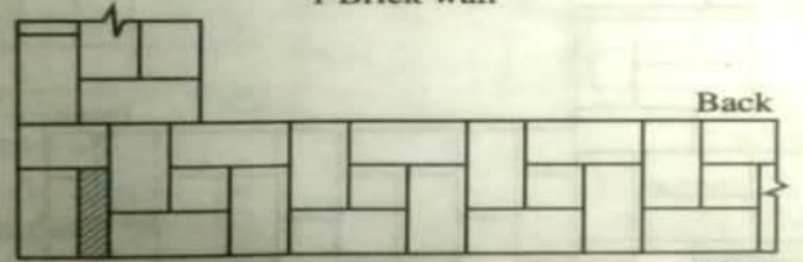




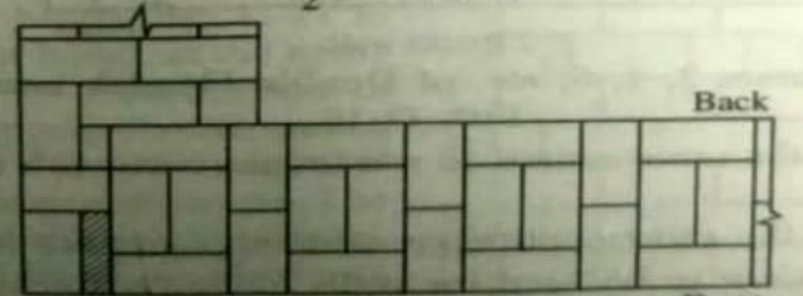
Front elevation



1 Brick wall



1 1/2 Bricks wall

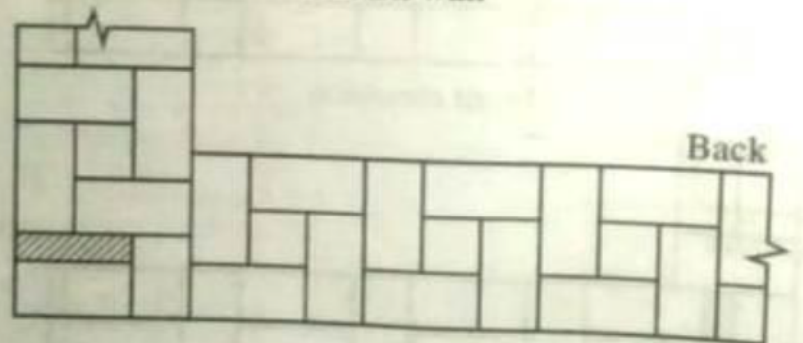


2 Bricks wall

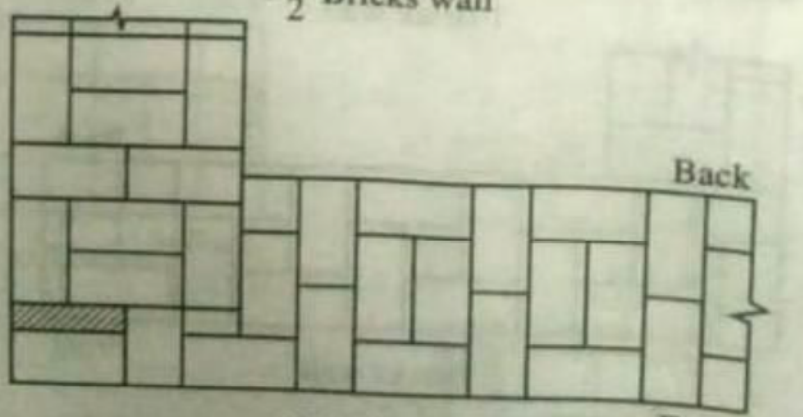
Courses 1, 3, 5, etc. of Double Flemish bond



1 Brick wall



1 1/2 Bricks wall



2 Bricks wall

Courses 2, 4, 6, etc. of Double Flemish bond
FIG. 11-18

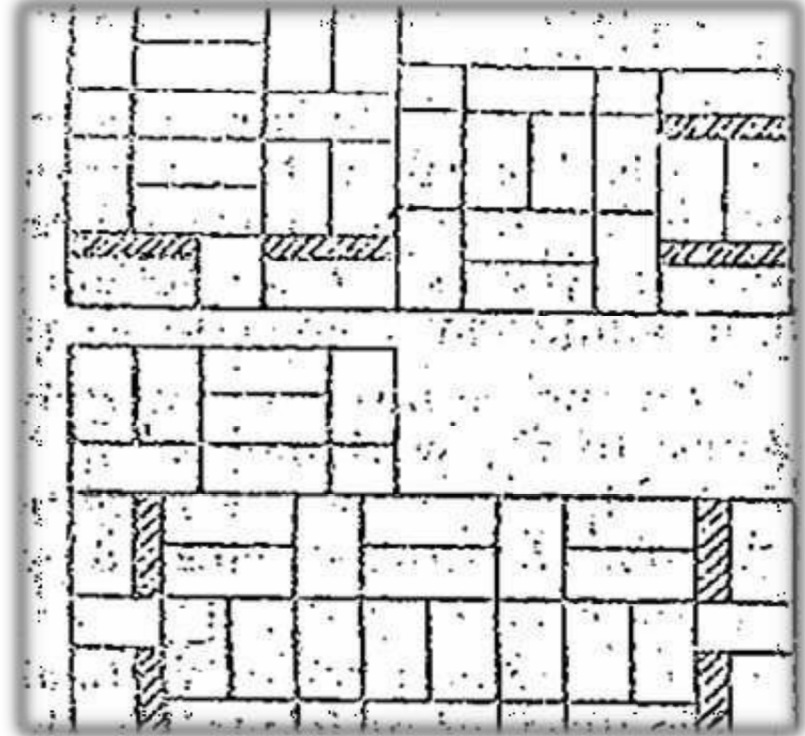
Double flemish bond



(ii) Single Flemish Bond:-

➤ The bond provided in a wall with Flemish bond in facing and English bond in backing is called "**Single Flemish bond**" or "**Cross bond**".

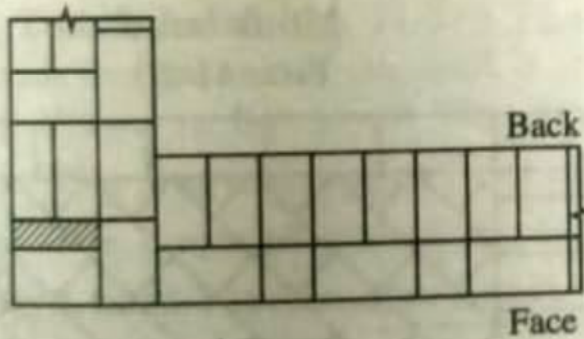
➤ This bond combines the advantages of both English and Flemish bonds and simultaneously eliminates their disadvantages.



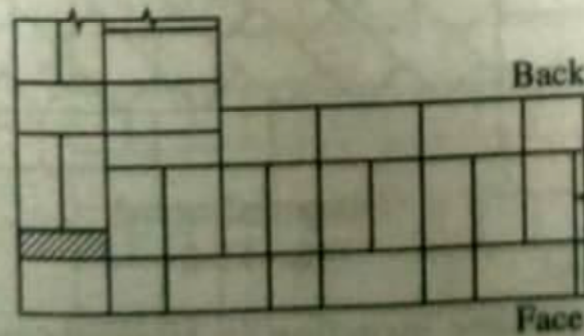
. Single flemish bond : Single flemish bond is comprised of double flemish bond facing and English bond backing and hearting in each course. This bond thus uses the strength of the English bond and appearance of flemish bond. However, this bond can be used for those walls having thickness **at least equal to 1 1/2** brick. Double flemish bond facing is done with good quality expensive bricks. However, cheaper bricks can be used for backing and hearting.



Front elevation

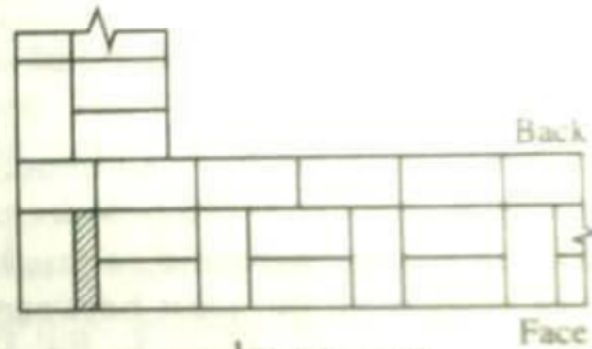


1 $\frac{1}{2}$ Bricks wall

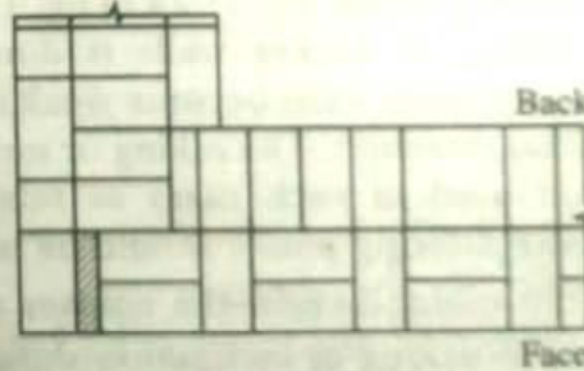


2 Bricks wall

Courses 1, 3, 5, etc. of
Single Flemish bond



1 $\frac{1}{2}$ Bricks wall



2 Bricks wall

Courses 2, 4, 6 etc. of
Single Flemish bond