

BUILDING CONSTRUCTION

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(EX IES)



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Stone and Brick Masonry



Masonry : It is defined as construction of building units which are bounded together by the mortar.

— Depending upon the building units, masonry can be classified as follows:

- A. Stone masonry
- B. Brick masonry
- C. Hollow concrete block masonry
- D. Reinforced brick masonry
- E. Composite masonry

A. Stone Masonry

Materials required for construction of stone masonry are as follows:

1. Mortar
2. Stones



1. Mortar

- It is a paste prepared by the addition of water in specified proportion in mixture of binding material & aggregate.

$$\text{BM} + \text{Aggregate} + \text{H}_2\text{O} = \text{Mortar.}$$

- Mortar used in stone masonry may be lime, cement, gauged mortar.

2. Stones

- It is obtained by quarrying of rocks.
- Stone used for stone masonry must be hard, durable and sound.

NOTE:

Rocks from which stones are obtained are classified into 3 :

A. Igneous rocks. Ex : Granite

B. Sedimentary rocks. Ex : Limestone and sandstone.

C. Metamorphic rocks. Ex : Slate, Marble.

Classification of stone masonry

Depending upon arrangement of the stones in construction degree of refine-

ment use in shaping and finishing adopted masonry is classified as follows:

1. Rubble Masonry .
2. Ashlar Masonry .



1. Rubble Masonry

In Rubble Masonry block of stones used are

- (i) undressed or roughly dressed.
- (ii) irregular in size.
- (iii) wide or irregular joint.
- (iv) such they require more mortar.

— Rubble masonry is of following type:

A. Random Rubble masonry .

1. Uncoursed
2. Built to course.

B. Square rubble

1. Uncoursed
2. Built to course
3. Regular course.

C. Miscellaneous type

1. Polygon Walling
2. Flint Walling.



D. Dry Rubble Masonry .

A. Random Rubble

1. Uncoursed random rubble masonry

It is the most roughest and cheapest form of stone masonry .

- In this stones of different sizes are used and are not of uniform size.
- Width of the joint in this case is comparatively more.



2. Built to course random rubble masonry .

The method of construction in this case is same as that of above. Except that the courses varying from 30-45 cm thick are also provided.

NOTE: All the courses are not of same thickness.

B. Square Rubble



1. Uncoursed Square Rubble

It uses stones having straight bed and sides (square stone). The stones are dressed or straight cut finish.

- For proper arrangement depth of riser leveler snack must be in ratio of 3:2:1.

2. Built to course

This also uses same stones as use for uncoursed masonry.

Here work is carried out in courses of varying depth.

In each course the stones used are of different sizes.

3. Regular course

In this type of masonry the wall consists of various courses of the different heights, but the height of stones particular course is same.

C. Miscellaneous type



1. Polygon Rubble masonry

In this type the stones are hammered in the form of irregular polygon shape.

2. flint Walling

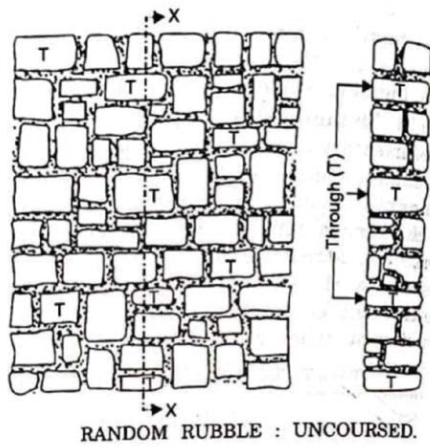
The stones used in this masonry are flint or gobblers which vary in thickness from 7.5 - 15 cm and in length from 30 cm to 15 cm.

- The stones are brittle and hard.

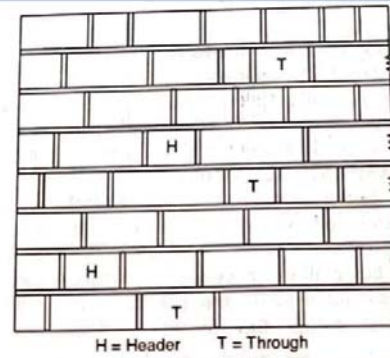
D. Dry Rubble masonry

In this type of masonry mortar is not used.

- This type of construction is cheapest
- Skilled workmanship is required for execution of dry rubble masonry.
- It is provided for non load bearing wall.

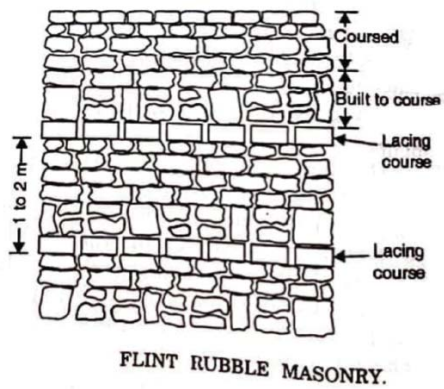


(i)

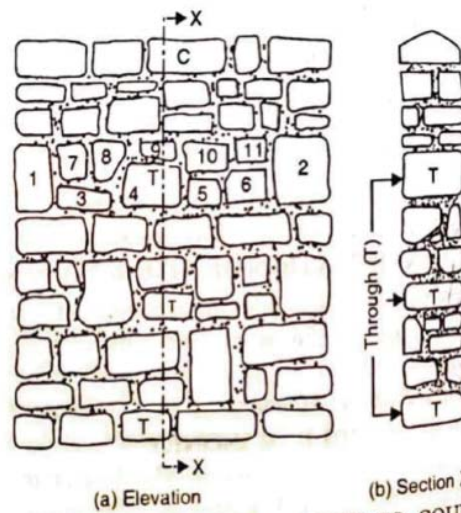


H = Header T = Through
SQUARE RUBBLE : REGULAR COURSED.

(ii)

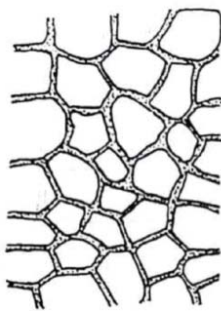


(iii)

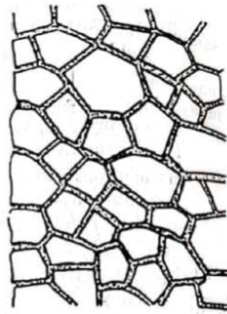


(a) Elevation (b) Section X-X
RANDOM RUBBLE : BUILT TO COURSES.

(iv)



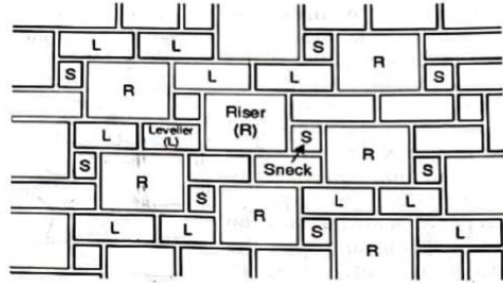
(a) Rough picked



(b) Close picked

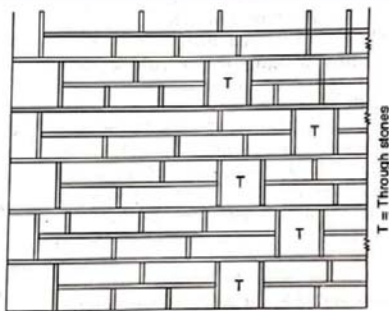
POLYGONAL RUBBLE MASONRY.

(v)



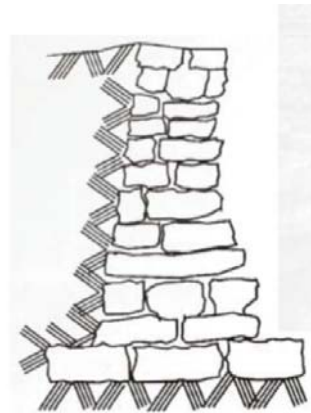
UNCoursed SQUARE RUBBLE.

(vi)



SQUARE RUBBLE : BUILT TO COURSES.

(vii)



(viii) Dry Rubble
Masonry



2. Ashlar Masonry

Here stones are used comparatively dressed.

The size of joints is comparatively smaller