BUILDING CONSTRUCTION & MATERIALS
CV0312
DEPARTMENT OF CIVIL ENGINEERING

CONSTRUCTION MATERIALS

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2 BRICKS

- Bricks are one of the oldest and most popular building materials.The reson for bricks being very popular and widely used construction material are,

. :-They are cheap

. :- They are durable

:- They are easy to handle and work with

LENGTH OF BRICK=2×width of brick+thickness of mortar

HEIGHT OF BRICKS=19×9×9cm and 19×9×4cm

3 CLASSIFICATION OF BRICKS

- *Based upon the physical and mechanical properties the bricks are classified into four types such as , first class , second class , third class , fourth class.*

A) First class:

.These are thoroughly burnt and are of deep red , cherry or copper colour.

.The surface should be smooth and rectangular , with parallel , sharp and square corner.

.These are free from cracks and stones

.Water absorption should be 12 -15 % of its dry weight when immersed in cold water .

.The crushing strength of the brick should not be less than 10 N/mm2.

Uses:-First class bricks are recommended for pointing , exposed face work in masonry structures , flooring and reinforced brick work

B)Second class:

.Small cracks and distortion are permitted

.A little higher water absorption of about 16- 20% of its dry weight is allowed.

.The crushing strength should not to be less than 7.0N\mm2 .

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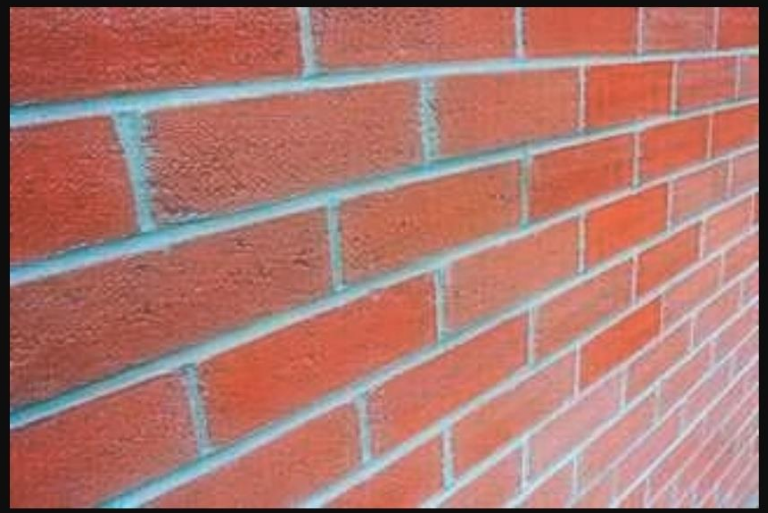

Uses:- Second class are recommended for all important or unimportant hidden masonry works and centring of reinforced brick and RCC structures

C)Third class bricks:
.These bricks are under burnt.
.They are soft and light – colored .
.They produce a dull sound when struck against each other
.Water absorption is about 25%of dry weight

Uses: Its is used for building temporary structures

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C) Third Class brick

D) Fourth class bricks:

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.These bricks are over burnt .

.Badly distortion in size and shape

Brittle in nature

Uses:

The ballast of such bricks is used for foundation and floors in lime conrete and road metal

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10 WHAT IS AGGREGATE?

- The materials used for manufacture of mortar and concrete such as sand , gravel etc are called aggregate

11 CLASSIFICATION OF AGGREGATE

. Nature Aggregate:- These aggregate are generally obtained from natural deposits of sand and gravel, or from quarries by cutting rocks The cheapest among them are the nature sand and gravel. Which have been reduced to their present size by natural agents ,such as water, wind and snow, etc. The river deposits are the most common and are good quality.

12 ARTIFICIAL AGGREGATE

- The most widely used artificial aggregate are clean broken bricks and air cooled fresh blast- furnace-slag.The broken bricks of good quality provide a satisfactory aggregate for the mass concrete And are not suitable for reinforced concrete work if the crushing strength of the brick is less than 30 to 35 Map.The brick aggregate is not suitable for waterproof construction .it has poor resistance so it is not used for road work

Fig. Artificial Aggregate

13 CLASSIFICATION ACCORDING TO SIZE:

- Fine aggregate: The aggregate which passes through 4.75mm sieve and retained on 75 micron sieve are known as fine aggregate.

14 COURSE AGGREGATE

- Course aggregate basic material of the concrete . Crushed stone or gravel used in concrete are called coarse aggregate and the average size of this aggregate is ¼ inch- in diameter.

15 CLASSIFICATION ACCORDING TO SHAPE:

- Rounded shape: The aggregate with rounded particles (river or seashore gravel) has minimum voids ranging 32 to 33 %. The only disadvantage is that interlocking between its particle is less and hence th bond is poor,so making it unsuitable for high strength concrete and pavement.

Fig. Rounded Aggregate

16 IRREGULAR AGGREGATE:

- The aggregate having partly rouded particles (pit sand and gravel) has higher voids ranging from 35 to 38%. Its required more paste for a given workability.

Fig. Irregular Aggregate

17 ANGULAR AGGREGATE:

- The aggregate with sharp, angular and rough particles (crushed rocks) has a maximum of voids ranging from 38 to 40%. The interlocking between the particles is good

18 FLAKY AGGREGATE

- An aggregate is termed flaky when its least dimension (thickness) is less than three – fifth of its mean dimension. The presence of these particles should be restricted to 10 to 15 %

- THANK YOU