

1.5 Concrete hollow blocks – Lightweight concrete blocks

The hollow blocks are widely used in masonry as it reduces the construction time and require less cement, steel which saves money. The weight of the construction is minimized and enhance the noise and thermal insulation. The electrical conduit, water, and soil pipes are easily accommodated. In recent times, we have seen a drastic transition from brick masonry to concrete block masonry due to its numerous advantages such as fire resistance, good acoustic performance, cost-efficiency, and strength. Hollow and solid concrete blocks shall be sound and free from cracks, broken edges, honeycombing, and other defects that would interfere with the proper placing of block or impair the strength or performance during construction. The concrete block units shall be made in sizes and shapes to fit different construction needs. They include stretcher, corner, double corner or pier, jamb, header, bullnose, and partition block, and concrete floor units.

Depending upon the structure, shape, size and manufacturing processes concrete blocks are mainly classified into 2 types and they are

- Solid concrete blocks
- Hollow concrete Blocks

Solid concrete blocks are commonly used, which are heavy in weight and manufactured from dense aggregate. They are very strong and provides good stability to the structures. So for large work of masonry like for load bearing walls these solid blocks are preferable. They are available in large sizes compared to bricks. So, it takes less time to construct concrete masonry than brick masonry.

Hollow concrete blocks contain void area greater than 25% of gross area. Solid area of hollow bricks should be more than 50%. The hollow part may be divided into several components based on our requirement. They are manufactured from lightweight aggregates. They are light weight blocks and easy to install.

Lightweight concrete blocks

There are various options available in cement concrete blocks for masonry purpose. Every type has its own merits and demerits. Those who want lightweight walling units having density between 700 to 900 Kg/m³, they can use CLC or AAC blocks. Unfortunately, the quality of Cellular Light Weight Concrete Blocks (CLC) and Autoclaved aerated concrete (AAC) blocks manufactured in India by some of the manufacturers is not up to mark due to lack of subject knowledge and unhealthy price war. The major disadvantage in poor quality lightweight blocks is that of too high Water absorption. In these lightweight blocks, the density is reduced by introducing air voids in the concrete.

Major advantages of LHB

- Water Absorption: 12%
- Sufficient compressive strength in accordance with applied BIS code
- It is a green product as fly ash is used
- Sound insulation
- Fire resistant
- Transportation cost reduces due to low density
- The consumption of Steel and Cement is reduced drastically due to lower density
- Easy to cut and handle at site
- The hollow passage can be used for concealed service lines