

Types of Masonry Walls in Building Construction

There are various types of masonry walls used in building construction. Masonry walls are the most durable part of any building or structure. They provide strength, durability to the structure and also helps to control indoor and outdoor temperature. It separates a building from outside world.

Masonry is the word used for construction with mortar as a binding material with individual units of bricks, stones, marbles, granites, concrete blocks, tiles etc. Mortar is a mixture of binding material with sand. Binding materials can be cement, lime, soil or any other.



Print



PDF



Email

& Ad Free! [EXPLORE](#) [VIP Membership](#)

The durability and strength of masonry wall construction depends on the type and quality of material used and workmanship.

Contents: [\[show\]](#)

Types of Masonry Walls in Building Construction

Based on the type of individual units used for masonry walls and their functions, the types of masonry walls are:

1. Load Bearing Masonry Walls

Load bearing masonry walls are constructed with bricks, stones or concrete blocks. These walls directly transfer loads from the roof to the foundation. These walls can be exterior as well as interior walls. The construction system with load bearing walls are economical than the system with framed

structures.



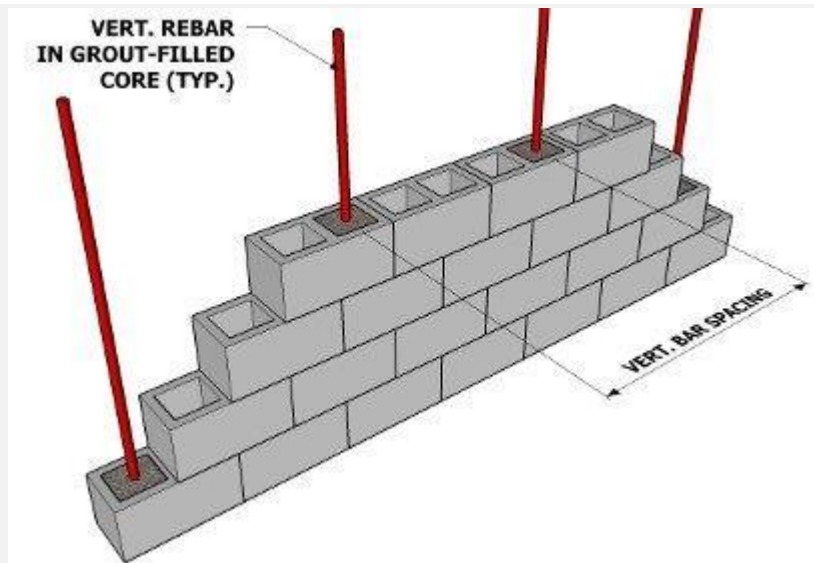
Fig: Load Bearing Masonry Wall

The thickness of load bearing walls is based on the quantity of load from roof it has to bear. For example a load bearing wall with just a ground floor can have its outer walls of 230mm, while with one or more floors above it, based on occupancy type, its thickness may be increased.

The load bearing walls can be reinforced or unreinforced masonry walls.

2. Reinforced Masonry Walls

Reinforced masonry walls can be load bearing walls or non-load bearing walls. The use of reinforcement in walls helps it to withstand tension forces and heavy compressive loads. The un-reinforced masonry walls are prone to cracks and failure under heavy compressive loads and during earthquakes. They have little ability to withstand lateral forces during heavy rain and wind. Cracks also develop in un-reinforced masonry walls due to earth pressure or differential settlement of foundations.



To overcome such problems, reinforced masonry walls are used. Reinforcement in walls are at required intervals both horizontally and vertically is used. The size of reinforcement, their quantity and spacing are determined based on the loads on the walls and structural conditions.

3. Hollow Masonry Walls

Hollow or Cavity masonry walls are used to prevent moisture reaching the interior of the building by providing hollow space between outside and inside face of the wall. These walls also helps in temperature control inside the building from outside wall as the hollow space restricts heat to pass through the wall.

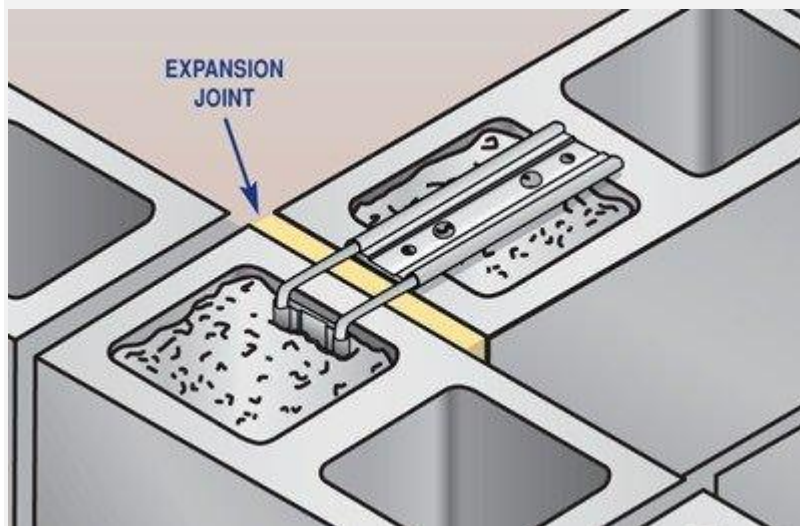


Fig: Hollow Masonry Wall

When the wall is exposed to moisture for a sustained period and penetrates through the outer face, the water reaches the cavity or the hollow space and flows down. Then they are drained through the weep holes to the exterior of

the building. These hollow spaces may be coated with water repellent coating or damp-proofing to further reduce the ingress of moisture.

4. Composite Masonry Walls

These walls are constructed with two or more units such as stones or bricks and hollow bricks. This type of masonry wall construction is done for better appearance with economy.

In composite masonry walls, two wythes of masonry units are constructed bonding with each other. While one wythe can be brick or stone masonry while the other can be hollow bricks. A wythe is a continuous vertical section of masonry one unit in thickness.

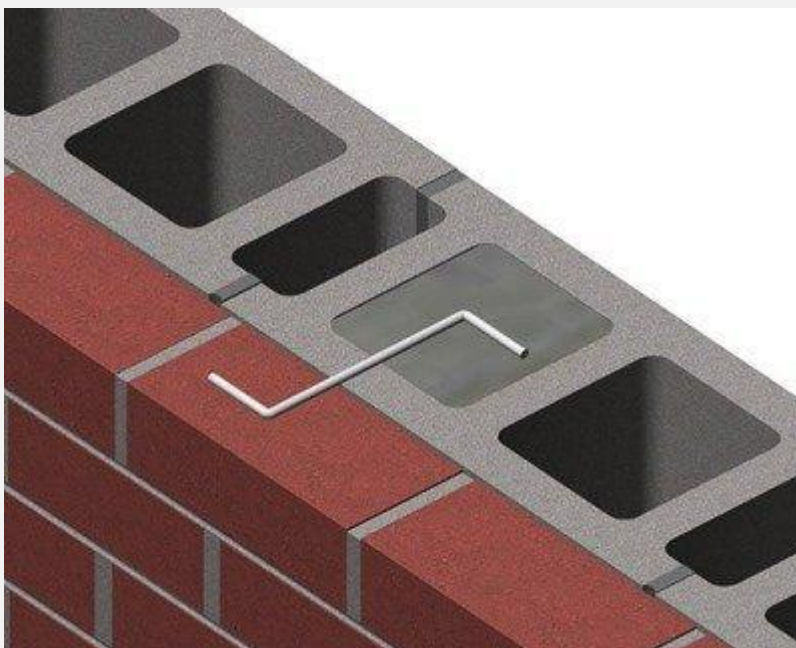


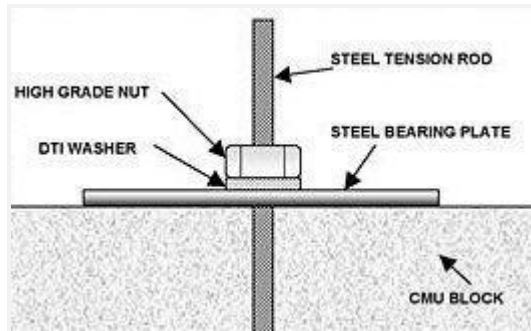
Fig: Composite Masonry Wall

These wythes are interconnected either by horizontal joint reinforcement or by using steel ties.

5. Post-tensioned Masonry Walls

Post-tensioned masonry walls are constructed to strengthen the masonry walls against the forces that may induce tension in the wall such as earthquake forces or wind forces.

These walls are constructed from the foundation level and post-tensioning rods are anchored into the foundation. These rods are run vertically between the wythes or in the core of concrete masonry units.



After the masonry wall construction is completed and cured, these rods are tensioned and anchored on the steel plate at the top of the wall.