

Architectural methods

The two types of wall are load bearing, which supports the weight of floors and roofs and nonbearing, which at most supports its own weight.

The load bearing wall of masonry is thickened in proportion to the forces it has to resist: its own load, the load of floors, roofs, persons, etc.

And the lateral forces of arches, vaults, wind, etc. that may cause it to crack or buckle. Its thickness often can be reduced at the top because loads accumulate toward the base. In high buildings this is done by interior or exterior setbacks at the floor level of upper stories. Walls that must resist lateral forces are either thickened along the whole length or at particular points where the force is concentrated.

The later method is called buttressing. Doors and windows weaken the resistance of the wall and divert the forces above them to the parts on either side, which must be thickened in proportion to the width of the opening.

In multistorey buildings, windows_ unless they are very small_ must be placed one above the other so as to leave uninterrupted vertical masses of wall between them to transfer loads directly to the ground. The number of openings that can be used depends on the strength of the masonry and the stresses in the wall.

Walls in light, wood frame structures and in reinforced concrete construction may have a bearing function also. But the nature of the material admits other means of resisting forces than the increase of mass.

The placement of walls determined by the type of support for floors and roofs. The commonest support is the beam, which must be jointed to the walls at both ends