

Analysis of Brick Bonds

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Abstract

Masonry is one of the most commonly utilised materials in construction. A building's walls are typically made of bricks, and the process of combining bricks in various configurations is known as brickwork. The behaviour of bricks in masonry is determined by the brick bond type chosen, and thus the structure's overall strength. Bond strength is determined by a variety of interconnected elements that can either directly or indirectly effect bond development (e.g., unit surface absorption, pore structure, mortar composition, mortar water retentivity, and curing conditions). Energy consumption and pollution are two major environmental and cost challenges in the brick sector. The construction uses eleven brick bonds: Stretcher Bond, Header Bond, Flemish Bond, English Bond, Stack Bond, Garden Wall Bond, Zigzag Bond, Raking Bond, Facing Bond, Scottish Bond, and Rat Trap Bond. Stretcher, header, English, Flemish, and running bonds are the five most prevalent forms of bricklaying bonds. Because of its alternating layers of headers and stretchers, the English bond is considered the most durable type of brick bond. The stack bond is widely regarded as the weakest brick bond. This study use qualitative analysis approach. Bonding is required to strengthen and stabilise a brick wall, allowing it to withstand vertical and horizontal loads. While its primary job is to ensure the strength and stability of the brickwork, the brick bond can also influence the design of the façade and lend artistic character to the visual element of a wall. The method of bonding will vary depending on the use requirements, wall type, and other considerations. However, the metal tie method is commonly suggested for outside walls. Some of the benefits of this technology are increased resistance to rain penetration and ease of building. Metal ties also allow for tiny differential movements of the facing and backing, which can reduce tension and prevent cracking.

Keywords

Bonds, Bond functions, Brick, Metal ties, Construction.

