CHAPTER 14

Brick Reinforcement and Roof Ties

BRICK REINFORCEMENT AND ROOF TIES

In domestic housing, the brickwork of unreinforced walls are capable of carrying the downward load (compression) of the roof or upper storey. Walls are therefore strong in compression but weak in tension and shear. In other words, walls can bear the vertical load quite easily but are weak when supporting, for instance, a heavy gate or when having to withstand heavy pressures such as filling or strong winds.

Areas where brick reinforcement should be used:

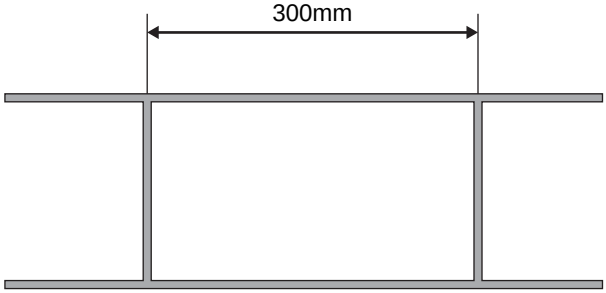
1. Lintels
2. Retaining walls
3. Decorative face brick panels where straight joints cannot be avoided. The most commonly used types of reinforcement are: expanded metal strips, brickforce, reinforcing rods, wire and hoop-iron.

Expanded metal strips

This is a diamond mesh available in a variety of sizes. This type of reinforcement is used in walls and partitions to resist both horizontal and vertical pressures, but is not commonly used in comparison to brickforce.

Brickforce

This consists of two strands of wire joined together by spot-welded cross wires at approximately 300mm intervals. Brickforce, obtainable in 15m rolls is available in widths of 76, 152 and 228mm.



14.1 - Brickforce

Reinforcing rods

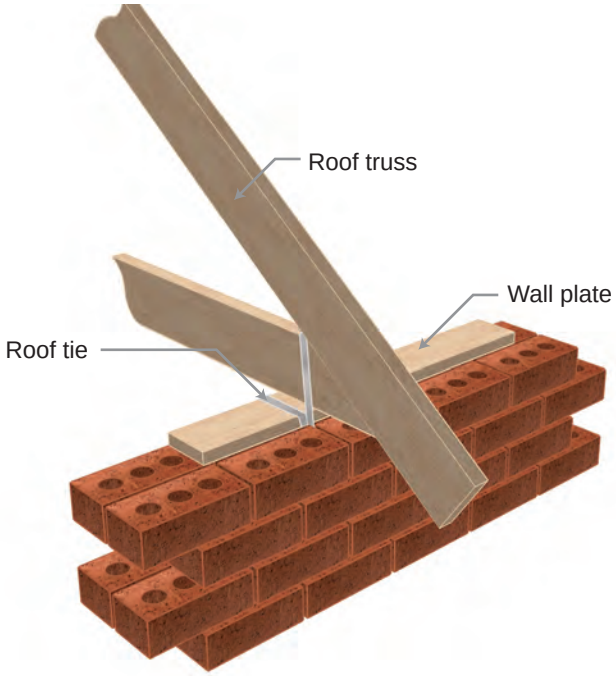
If available, mild steel rods can be used for reinforcing brickwork but may be more expensive than other types, but this is not common practice. The most common use of mild steel rods is for vertical reinforcement where the other types of reinforcing available do not perform satisfactorily.

Areas where vertical reinforcement is required :

1. Gate pillars
2. Retaining walls
3. Walls where the natural foundation is suspect
4. In houses located close to busy railway lines to counteract vibrations

Wire and Hoop-iron

Galvanised wire obtainable in rolls from building merchants is commonly used in South African construction to secure the roof to the superstructure. A double strand is built in 8 courses from the top (at intervals equal to the spacing of the roof trusses) and fastened around the bottom end of the trusses.



14.2 – Truss secured via roof ties

Galvanised hoop-iron

This used to be the traditional material for horizontal reinforcement, and for anchoring the roof to the superstructure. This method of securing the roof to the walls has fallen into disuse, but is still highly recommended.