

## Brick Technical Bulletin - Durability

BTB 6

There are no known instances of failure of correctly manufactured concrete bricks used in masonry walls due to frost action.

Marshalls, in conjunction with the Building Research Establishment Scottish Laboratory, commissioned accelerated freeze/thaw testing of a variety of concrete bricks in the 1990s, which recorded no frost damage and concluded that the bricks have durability at least equivalent to the old clay brick 'F' classification.

More recently Marshalls has commissioned further product testing with accredited laboratories to confirm the durability classification. Marshalls has adopted the BSI document for testing clay masonry units because there is no test method specified in BS EN 772. This enables Marshalls to meet the requirements needed to state the exposure classification of its bricks.

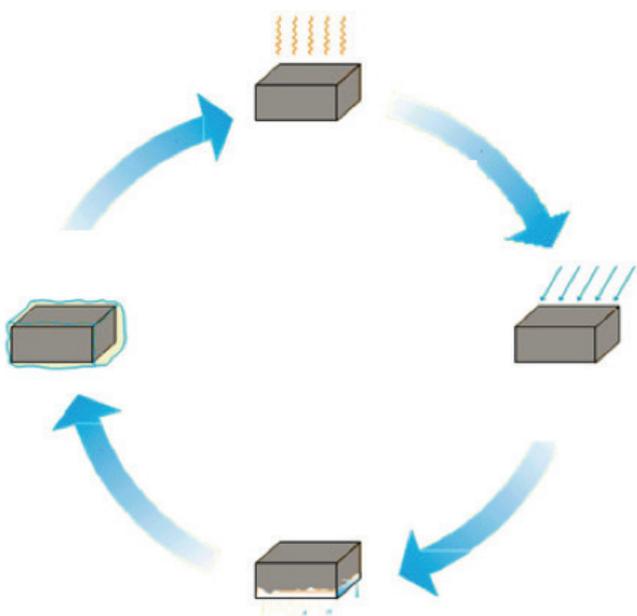
Sample bricks are tested for determination of freeze/thaw resistance in accordance with the British Standard Technical Specification method of testing clay masonry units DD CEN/TS 772-22: 2006. This involves subjecting a panel of brickwork to repeated freeze/thaw cycles designed to simulate naturally occurring weather conditions. From the test results the manufacturer gives the bricks a declared freeze/thaw resistance classification by reference to its applicability or intended usage and whether it is subjected to passive, moderate or severe conditions.

The brick classifications are

F2	Severe Exposure
F1	Moderate Exposure
F0	Passive Exposure

The panel of brickwork tested is subjected to 100 cycles, each cycle consisting of a flood coat of water, a drain period, a freezing period, and a thawing period, with a cycle time of circa four hours. After each cycle the panel is visually examined for damage with every tenth cycle including a physical "soundness" test and a final examination of each brick after the 100 cycles are complete.

### RETROSPECTIVE INSTALLATION OF MOVEMENT JOINTS



Marshalls facing bricks can be classified as F2 and are suitable for use in building situations where they are subjected to repeated freezing and thawing.

**Note:** An F2 classification brick will provide excellent resistance to frost attack but in particularly wet or exposed locations even F2 products may exhibit some signs of damage, eg. steps, retaining type walls and exposure to de-icing salts.