

Brick Technical Data Sheet - Performance when Laying

BTDS 6

Does the different type of manufacturing process affect the performance of Marshalls Facing bricks?

Marshalls bricks are produced in three distinct forms:

- Solid bricks, frequently called Atlas bricks, are fully solid with no perforations or frogs. There are a number of permutations of texture available with these bricks.
- Frogged bricks, with an indent in one bed face. The texture on the stretcher face of these bricks can be classed as ex-mould with a smooth/regular finish .A tumbled version (Vintage Sandstock) is produced in this form.
- Perforated bricks. These have three regular perforations which pass right through the brick. The exposed stretcher face of the brick can be smooth or lightly textured .In order to identify the front face an indent is cast into the back face of the brick.

In terms of technical performance; compressive strength, durability, thermal and acoustic performance and moisture movement, there is minimal difference between the three product forms but because of the manufacturing process there are slight differences in both the rate and ultimate water absorption. These differences should not affect the ultimate performance of the product in practice but adjustments may need to be made to the mortar and use on site to maximise their effectiveness when laying.

In order to demonstrate the differences in absorption a number of tests were carried out on the three different brick types to measure both the rate of water absorption and their ultimate (after 24 hours) value. The test method used was as follows;

Bricks were oven dried until they had reached a constant weight with zero free water content. They were then fully immersed in water at 20 degrees C and then reweighed at the prescribed intervals. Any excess water was carefully wiped off. The increase in weight through absorption was the calculated as a percentage increase over the dry weight. The tests gave the following results:

PERCENTAGE INCREASE IN ABSORPTION MEASURED OVER THE PERIOD OF TIME, (MINUTES/HOURS)

	15Mins	30Mins	60Mins	120Mins	4Hrs	8Hrs	24Hrs
Solid brick	2.3%	2.6%	3.3%	3.3%	4.3%	5.0%	5.3%
Perforated brick	9.6%	10.4%	10.8%	10.8%	10.8%	10.8%	10.8%
Frogged brick	7.9%	8.3%	9.1%	9.1%	9.5%	9.5%	9.5%

CONCLUSIONS

The Solid brick can be deemed to have low-medium absorption similar to that of a clay Class A or B Engineering brick, dense concrete block or dense Ashlar unit. The rate of absorption is reasonably regular throughout the period tested.

Both the Perforated and Frogged brick could be classed as having a medium absorption with a large proportion of it occurring in the first 60/120 minutes.

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EFFECT

Although all concrete masonry should be kept as dry as possible both prior to, during and after laying to minimise the possible effect of shrinkage, the Solid brick may be more sensitive to moisture content than the other two bricks. In practice this may mean that the mortar chosen when using Solid bricks should be adjusted to allow for the extra weight of the brick and initial reduction in uptake of water from the workable mortar. The use of retarded or "tub" mixed mortars may cause problems in that as they are retarded for up to 48 hours, high point loads in a wall during the curing period may cause a certain degree of "squeezing" out of the joints. Any mixes used for Solid bricks should have their workability specified to allow for the lower rate of absorption and weight of the unit.

Perforated and Frogged bricks, which have a medium total absorption and a quite high rate of absorption at the early stages, should also be kept dry prior to use but the initial suction should allow tooling of the joint within a few hours.

With all brick forms, silo based mortars allow the most flexibility in allowing adjustments to be made in the workability of the mortar to suit the relative absorption characteristics of the bricks.