

Brick Technical Bulletin - Fire Resistance

BTB 14

The ability of a material to reduce the transmission of sound or noise (noise being unwanted sound) through a panel or wall is primarily based on the mass of that material, although it is also affected by air paths. Consequently the sound reduction of a panel or wall is directly linked to its total mass, including any mortar joints or finishes.

The “Mass Law” establishes a relationship between Mass and the Sound Reduction Index (SRI) when measured over a range of frequencies.

The average built wall weights for Marshalls bricks, assuming a coat of lightweight plaster on one leaf of the 100mm wall and two coats of lightweight plaster on the 215mm thick wall, are as follows:

Solid Dense Brick of approximately 3.1Kg in weight:	100mm thick wall @ 214kg/m ²
Solid Dense Brick of approximately 3.1Kg in weight:	215mm thick wall @ 458kg/m ²
Frogged/Perforated Dense Brick of approximately 2.5Kg in weight:	100mm thick wall @ 189kg/m ²
Frogged/Perforated Dense Brick of approximately 2.5Kg in weight:	215mm thick wall @ 405kg/m ²

The Building Regulations Approved Document E details the requirements for satisfying the criteria for Party and Separating Walls in dwellings. Alternatively, a system of Robust Details may be used, which if followed avoids the need for pre-completion testing.

For those details shown in the Building Regulations, the use of solid dense bricks in both a 215mm thick wall and in a wall constructed of two leaves of 100 mm brick with a 50mm cavity would exceed the 415kg/m² requirement.

By utilising Marshalls dense bricks, particularly those in a solid form, these could be considered to be similar in performance to that of dense aggregate blocks which are acceptable under the following Robust Details Notations.

Solid Dense Brick:	100mm wall @ 46dB
Solid Dense Brick:	215mm wall @ 50dB
Frogged/Perforated Dense Brick:	100mm wall @ 45dB
Frogged/Perforated Dense Brick:	215mm wall @ 48dB

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Two leaves of Dense Solid Bricks with a 75mm cavity and 13mm plaster:	RD Notation: E-WM-1
Two leaves of Dense Solid Bricks with 8mm parging and drylining:	RD Notation: E-WM-3
Two leaves of Dense Solid Brick with a 100mm cavity and 13mm plaster:	RD Notation: E-WM-18
215mm Solid Wall (on Raft Foundations only), 15mm dense plaster and drylining:	RD Notation: E-WM-9

Refer to the Robust Details Handbook for full details of the above, including specification of flanking elements.

Notes: *Good practice points must be followed in all elements of separating wall construction, including:*

- *Direct air paths must be avoided, hence the necessity for wet plaster or parging.*
- *Careful detailing at junctions with flanking walls, ceilings and floor slabs.*
- *No services should pass through the walls and any chasing, especially back to back, should be avoided.*

It should be noted that changes to Part L1A in the Building Regulations for England and Wales state that cavity separating walls can lose a significant amount of heat by convection via the cavity. Consequently, edge sealing to prevent convection is a requirement in order to achieve U values of 0.02W/m²K or 0.0W/m²K if the cavity is sealed and filled with the appropriate insulation. Full details are given in the Robust Details information.

The density of Marshalls bricks can give an advantage in external use, particularly in flanking walls with lightweight structures such as timber framed constructions, as the bricks offer higher resistance to sound transmission.