



INSULITE STANDARD

Medium Density Aggregate Blocks

Insulite blocks are the perfect versatile all-round building blocks. These medium density aggregate blocks consist of up to 90% recycled raw materials, making them among the most environmentally friendly and sustainable building blocks available.

Insulite blocks are manufactured to BS EN 771-3 and are ISO 9001 Quality Assured, ISO 14001 Environmentally Certified and hold BES 6001 Responsible Sourcing certification.

*Note:
Medium-Dense aggregate blocks manufactured at our Sellite Blocks Limited division are known as 'Thermal' blocks whose details and properties are encompassed by this datasheet.*

TECHNICAL PROPERTIES

| Property | Value |
|--|--|
| Face Size (BS EN 771-3): | 440mm x 215mm |
| Dimensional Tolerance (BS EN 772-16): | Category D1 |
| Gross Dry Density (BS EN 772-13): | 1450 - 1550 kg/m ³ |
| Mean Compressive Strength (BS EN 772-1): | 3.6, 4.2, 7.3 & 10.4 N/mm ² |
| Manufacturing Category (BS EN 771-3): | Category II |
| Thermal Conductivity (BS EN 1745): | 0.49 W/mK (inner leaf) 0.54 W/mK (outer leaf) |
| Moisture Movement (BS EN 772-14): | < 0.6 mm/m |
| Fire Resistance (BS EN 13501-1): | Class A1 reaction to fire |
| Configuration (BS EN 1996-1-1): | Solid - Group 1 |
| Available Texture, Finish: | Standard |



APPLICATIONS

- Manufactured to BS EN 771-3.
- Inner & outer leaf of external cavity walls.
- Internal partition walls.
- Block & beam floor infill (7.3N/mm² or above).
- Foundation walls below dpc (7.3N/mm² or above).
- Acoustic separating party walls to Part E of the Building Regulations and Robust Details.
- Standard texture finish provides an excellent surface for mortars, renders and plasters.
- Robust, accepts most standard fixings.

PHYSICAL PROPERTIES

| Block Size mm | 'R' Value m ² k/W | Walled Weight kg/m ² See Note 1 | Sound Reduction R _w , dB See Note 2 | Block Weight kg See Note 3 | Fire Resistance Hours See Note 4 |
|---------------|------------------------------|---|---|-------------------------------|-------------------------------------|
| 75 | 0.18 | 108 | 43 | 11.5 | 2 |
| 90 | 0.21 | 124 | 45 | 13.8 | 3 |
| 100 | 0.24 | 138 | 46 | 15.3 | 4 |
| 140 | 0.33 | 193 | 49 | 19.7 | 4 |
| 190 | 0.45 | 262 | 52 | 26.5 | 4 |

1. Walled weight is for a single-leaf wall, plastered both sides.
2. Sound reduction R_w values are based on wall assuming a plastered finish both sides.
3. The block weights quoted above are approximate and include the typical additional weight from the moisture content.
4. Fire resistance periods to BS 5628-3 for a single-leaf, non-loadbearing plastered wall.

PACK DETAILS

| Block Size mm | Blocks per pack | m ² per pack |
|-----------------|---------------------|-------------------------|
| 75 | 96 | 9.6 |
| 90 | 80 | 8.0 |
| 100 (Void Pack) | 72 or 90 (84 or 86) | 7.2 or 9.0 (8.4 or 8.6) |
| 140 (Void Pack) | 60 (56) | 6.0 (5.6) |
| 190 | 40 | 4.0 |

Pack details may vary slightly between manufacturing locations. Always check details with your nearest sales office.

Thermal

The table below shows examples of how cavity walls built with a solid Insulite block inner leaf can meet a range of u-value targets. For specific calculations, please contact our technical department.

| U Value W/m ² K | Partially Filled Cavity Brick outer leaf 50mm clear cavity plasterboard on dabs | Fully Filled Cavity Brick outer leaf Fully filled cavity plasterboard on dabs |
|-------------------------------|---|---|
| 0.28 | 40mm PIR/PU @ 0.018 50mm PIR/PU @ 0.022 | 100mm batt @ 0.034 |
| 0.25 | 50mm PIR/PU @ 0.018 60mm PIR/PU @ 0.022 | 100mm batt @ 0.030 125mm batt @ 0.037 |
| 0.22 | 60mm PIR/PU @ 0.018 70mm PIR/PU @ 0.022 | 125mm batt @ 0.032 |
| 0.20 | 65mm PIR/PU @ 0.018 80mm PIR/PU @ 0.022 | 100mm batt @ 0.021 |
| 0.18 | 75mm PIR/PU @ 0.018 95mm PIR/PU @ 0.022 | 150mm batt @ 0.030 |
| 0.15 | 95mm PIR/PU @ 0.018 115mm PIR/PU @ 0.022 | 100mm batt @ 0.021 + 30mm insulated drylining |

Acoustic

Insulite blocks are suitable for use in acoustic separating party walls between dwellings and for internal partitions in accordance with Part E of the Building Regulations. They are also suitable for a range of Robust Standard Detail party walls. The figures below are predicted sound reduction ratings based on wall mass:

| Block Thickness mm | Walled Weight kg/m ² | Predicted Sound Reduction, Rw | | |
|--------------------------|---------------------------------------|-------------------------------|-----------|-----------|
| | | Unfinished | Plastered | Dry Lined |
| 75 | 108 | 42 | 43 | 43 |
| 90 | 124 | 44 | 45 | 45 |
| 100 | 138 | 45 | 46 | 46 |
| 140 | 193 | 48 | 49 | 49 |

Below Ground

All of our aggregate and dense concrete blocks are durable products which are suitable for use in soil conditions up to Design Sulphate class DS-3 as defined in BRE Digest Special Digest 1. Insulite blocks of 7.3N/mm² or above can be used below dpc; lower strengths are not suitable.

Suspended Block & Beam Floors

Insulite blocks of 7.3N/mm² or above can be used as infill blocks in block and beam suspended floors and can be laid either 440mm wide or 215mm wide.

Fire Resistance

Insulite blocks are non-combustible with zero spread of flame and are classed as Class 'A1' in accordance with BS EN 13501-1. Notional fire resistance periods are:

| Block mm | Loadbearing Wall | | Non-loadbearing Wall | |
|-------------|------------------|------------|----------------------|------------|
| | No Finish | VG Plaster | No Finish | VG Plaster |
| 90 | 1 hour | 2 hours | 3 hours | 3 hours |
| 100 | 2 hours | 4 hours | 4 hours | 4 hours |
| 140 | 3 hours | 4 hours | 4 hours | 4 hours |

"VG" = vermiculite / gypsum plaster or perlite plaster 13mm thick applied to both faces of single leaf walls.

NBS Codes for our concrete block products can be found on www.source.thenbs.com

Product details and availability may vary between manufacturing locations. Please contact your nearest regional sales office for sales, product and technical advice.

North East Region :

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North West, Cheshire, Staffordshire and West Midlands Region :

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Mortars

Insulite Standard blocks offer an excellent surface for accepting mortars and no pre-treatment is required other than ensuring that all dirt and debris is removed. Generally, in order to avoid unsightly cracking, the weakest mortar mixture appropriate to the structural requirements should be selected as per BS 5628-3. For most applications, we recommend that grade iii mortar is used.

| | BS 5628-3 Mortar Class | Recommended mix proportions of materials by volume (as per BS 5628-3) | |
|--------------|---------------------------|--|---|
| Above dpc | iii | 1 : 1 : 5 to 6 1 : 5 to 6 1 : 4 to 5 1 : 3½ to 4 | Cement : Lime : Sand Cement : Sand Masonry Cement : Sand (with non-lime filler) Masonry Cement : Sand (with lime filler) |
| | | <i>A stronger (class ii) mix is preferred - see below</i> | |
| Below dpc | ii | 1 : ½ : 4 to 4½ 1 : 3 to 4 1 : 2½ to 3½ 1 : 3½ to 4 | Cement : Lime : Sand Cement : Sand Masonry Cement : Sand (with non-lime filler) Masonry Cement : Sand (with lime filler) |

External Rendering

Insulite Standard blocks have a surface which provides an excellent key for adhesion. These blocks have low - moderate suction and no special pre-treatment of the wall is required other than ensuring that all dirt and debris is removed from the surface. It is important that blocks are protected from the weather prior to and during rendering.

Traditional renders should be applied in 2 coats. The first coat should not exceed 15mm and the second coat 5 - 7mm. The first coat should be slightly stronger than the second coat. Render designation iii/M4 should be used, recommended proportions:

| Cement : Lime : Sand With or without air entrainment | Cement : Sand With or without air entrainment | Masonry Cement : Sand With non-lime filler | Masonry Cement : Sand With lime filler |
|---|---|--|--|
| 1 : 1 : 5 or 6 | 1 : 5 or 6 | 1 : 4 or 5 | 1 : 3½ to 4 |

Wall Ties & Movement Joints

Generally under normal conditions, wall ties should be embedded 50mm into the mortar on each leaf, staggered in alternate courses and spaced in accordance with the following:

| Leaf Thickness mm | Cavity Width mm | Horizontal Spacing mm | Vertical Spacing mm | Ties per m ² |
|-------------------------|-----------------------|-----------------------------|---------------------------|-------------------------|
| Less than 90mm | 50 - 75 | 450 | 450 | 4.9 |
| Over 90mm | 50 - 150 | 900 | 450 | 2.5 |

For unreinforced masonry panels, the typical recommended spacing between vertical movement joints is as follows:

Internal Walls: 8m – 12m External Walls: 6m – 9m

Good Site Practice & Safe Handling

- Packs should be stored on firm, level ground no more than 2 packs high and protected from severe weather to preserve their quality. Care must be taken when removing the plastic bands as individual blocks may fall out. Never un-band packs above shoulder height.
- In the absence of a revised version of the HSE guidance given in their withdrawn Construction Sheet 37 'Handling Building Blocks' the following principles should be followed: There is a risk of injury in the repetitive handling of blocks heavier than 20kg. Repetitive manual handling of blocks over 20kg should be subject to a risk assessment and a safe system of work should be established before block-laying commences.
- Blocks should not be laid if the temperature is at or below 3°C and falling.
- Blocks should always be laid on a full bed of mortar and vertical joints filled.



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