

Cavity

Protection from the outside world

Cavity full fill insulation is reliable, non-combustible and contains water repellent additives that prevent water from passing through to the inner leaf of new build external masonry cavity walls.

The lightweight batts are produced from highly sustainable volcanic rock, helping to keep the planet healthy, occupants warm and energy bills low.



The following NBS clauses include Cavity: 130:10, 130:150

Cavity

Advantages

- BBA certified for all exposure zones
- Acts as a cavity barrier
- Water repellent
- Outstanding thermal and fire insulation
- Superior fit against blockwork

Product properties and design

Dimensions

Cavity is 1200mm long and 455mm wide. Standard thicknesses are 50, 75, 80, 100, 110, 120, 130 and 150 mm. For thicknesses greater than 150mm use two layers of Cavity batts with staggered vertical joints.

This product is suitable for use with wall ties and should be spaced at 450mm vertically and at maximum intervals of 900mm horizontally.

Installation guidance

Designing the cavity wall

The use of Cavity does not affect the choice of wall ties to BS EN 845-1 or DD140. Ties should be selected according to structural requirements, cavity size, building height and location.

The outer leaf is the first line of defence against rain and the following will help to improve its effectiveness:

1. Consider the dimensional tolerances of the wall before designing the width of the cavity. An extra 5mm above the nominal batt thickness will normally be sufficient.

2. Select porous bricks, which in periods of brief, heavy showers will absorb the moisture. A non-absorbent brick will channel water into the mortar joints.

There are two British Standards of notable importance for clay bricks:

BS 3921: 1985 (Material Specification Standards)

BS 5628 (Part 3): Masonry Design and Detailing.

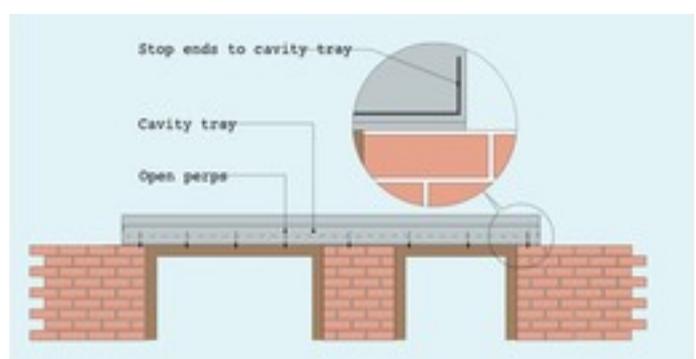
3. Select a lime mortar mix that does not contain detergent-type plasticisers, which reduce the water resistance of the joints.

4. Specify weather-struck, flush or bucket-handle joints. Recessed joints increase the risk of water penetration. Ensure all bed and perp joints in the external wall are fully filled with mortar.

5. Cavity trays should incorporate stop ends, have weep holes at approximately 450mm centres (or a maximum of 900mm centres) and be continuous across closely spaced openings (Figure 1).

6. Vertical damp proof courses at wall openings should project at least 25mm into the cavity. (See Fire Rated Cavity Closers data sheet for details.)

Figure 1. Cavity trays



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Installing Cavity

It is the contractor's responsibility to ensure that Cavity is fitted in accordance with the recommendations of this data sheet and BBA Certificate.

1. The installation of the batts should commence below the damp proof course (preferably by at least 150mm) with no risk of capillary action to minimise cold bridging. The bottom row of ties should be at 450mm centres horizontally. If necessary, the width of the first course of batts can be cut to suit the height of the next row of wall ties. The width of cut batts should always be 5mm greater than the width to be insulated, e.g. wall tie centres.

2. It is recommended that the external leaf be constructed ahead of the internal one so that any mortar protruding into the cavity space from the back of the external leaf can be cleaned off before installing the batts.

3. Build up a complete section of the leading leaf to one course above the next row of wall ties spaced at a maximum of 900mm horizontally (Figure 2). Ensure that all mortar joints are properly filled, particularly the perpend.

4. Before installing each course of batts, excess mortar must be removed from the inside face of the leading leaf, and mortar droppings cleaned from the exposed edges of the batts. This is made easier by the use of a cavity board (Figure 3). This sequence should be maintained progressively until it reaches the wall plate or cavity tray. It is important for the insulation to be carried to the highest level possible. (Figure 6).

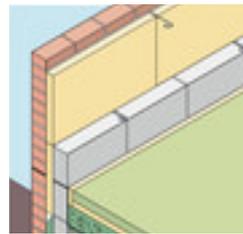


Figure 2

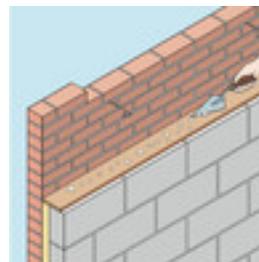


Figure 3

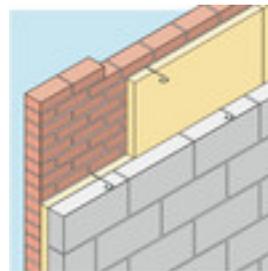


Figure 4

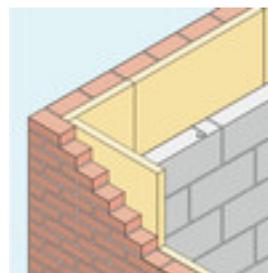


Figure 5. Batts close butted at corners



Figure 6. Installation of Batts in gable end wall

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6 It is essential that all of the joints between Cavity batts are clean and tightly butted.

7 Raise the second leaf to the same level as the batts.

8 The as-built cavity width must not exceed the following dimensions:

Table 1

Nominal Batt thickness (mm)	Permitted deviation Maximum as built cavity widths (mm)
80-120	0+10
125-150	0+15
160-300	0+20

Please note: Where two layers of Cavity batts are used, ensure that the vertical joints between the outer batts are staggered to those of the inner batts. For thicknesses greater than 150mm use two layers of Cavity batts with staggered vertical joints.

9 Repeat this sequence to the top of the wall (see Fig 6). Alternatively, the top of the batts can be protected by using a cavity tray.

10 To minimise water penetration to the inner leaf during driving rain, it is essential that no gaps are left between the batts.

11 Cut the batts cleanly, using a sharp, long bladed knife and a straight edge.

12 Fit the batts closely around wall openings. Slit them neatly where additional wall ties occur and be careful not to impale or tear them. At corner joints, edges must be cut accurately to ensure close butting (see Fig 5 on previous page).

13 Cut the batts accurately to fit between wall ties, if not conventionally coursed. Ensure closely butted joints by cutting the batts 5mm larger in size than the wall-tie centres.

14 Avoid the build up of mortar on cavity trays.

15 Where make-up pieces have to be used, ensure that they are installed with the same direction of grain.

16 Protect the top of the cavity wall insulation, when not working on the area, with a waterproof covering.

17 Store or cover unused Cavity to protect it from site damage.

Durability

Cavity has over 30 years' proven service in all types of climate and degrees of exposure, providing effective insulation for the lifetime of the building.

Standards and quality approvals

Cavity has been examined by the British Board of Agrément (BBA) and granted Certificate 94/3079 for use in all exposure zones for buildings that are up to 12m in height, as well as for buildings that are over 12m, and up to 25m, in height in zones where the exposure factor does not exceed 120.

To comply with the requirements of the BBA Certificate, and ensure trouble free performance, masonry walls must be built in accordance with BS EN 1996-1-2-3 and workmanship on site must comply with BS 8000: Part 3: 1989.

Cavity conforms to BS EN 13162:2008 'Specification for factory-made mineral wool products'.

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Building regulations

The BBA is satisfied that Cavity adheres to the following building regulations and standards:

Fire

Approved Doc 'B' (E+W) Technical Booklet E (NI).
Building Standards Section 2 (Scotland).

Resistance to fire spread between and within cavities. Cavity is non-combustible and therefore suitable for use in buildings of every purpose group. It also acts as an effective cavity barrier when tightly fitted between masonry leaves where an insulated wall connects with an uninsulated wall cavity.

Fire classification Cavity achieves a reaction to fire classification of A1 as defined in EN 13501-1.

Water resistance and moisture

Approved Doc 'C' (E+W) Technical Booklet C (NI) .
Building Standards Section 3 (Scotland).

Cavity does not absorb water by capillary action and may therefore be used in situations where they bridge the damp proof course. (See Section 8.1 of the BBA certificate).

The orientation of the water repellent fibres prevent water crossing the wall construction provided that the batts are correctly installed and sound building techniques are applied to the cavity wall construction (see installation notes). Any water penetrating the outer leaf will drain down the surface of the batts.

Use in tall buildings

For buildings from 12m – 25m in height the BBA certificate imposes additional requirements.

Please note: Cavity may be used above the BBA certified height, subject to an assessment waiver by the board of the building in question.

A written approval form is to be completed and returned to Company, together with an on-site examination of the work in progress by Company.

Above-average site supervision is recommended during construction.

Product performance

Thermal Performance

Cavity has a thermal conductivity (K value) of 0.037W/mK.

U-values

Approved Document L (2010 edition) U-value requirements:

Extensions: 0.28w/m²k.

Renovation and Repair: 0.30w/m²k.

New build: can range between: 0.27 and 0.22w/m²k .

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Construction 1

102mm facing brick outer skin, Cavity full fill Internal block 100mm (see table below)

Internal finishes: plaster or plasterboard on dabs

Block type >	Dense 1900-2250kg/m ³		Medium dense 1400-1450kg/m ³		Aircrete 750kg/m ³		Aircrete 600kg/m ³		Aircrete 470kg/m ³	
W/mK >	1.130 W/mK		0.510 W/mK		0.190 W/mK		0.150 W/mK		0.110 W/mK	
Finishes >	Pb/dab	Plaster	Pb/dab	Plaster	Pb/dab	Plaster	Pb/dab	Plaster	Pb/dab	Plaster
U-values										
0.30	105mm	110mm	100mm	105mm	90mm	95mm	85mm	90mm	80mm	85mm
0.28	110mm	115mm	110mm	110mm	100mm	110mm	95mm	100mm	90mm	95mm
0.27	115mm	120mm	115mm	115mm	100mm	110mm	100mm	105mm	95mm	95mm
0.25	125mm	130mm	125mm	130mm	115mm	115mm	110mm	115mm	105mm	110mm
0.22	145mm	150mm	145mm	145mm	135mm	140mm	130mm	135mm	125mm	125mm
0.20	165mm	170mm	160mm	165mm	150mm	150mm	145mm	150mm	140mm	145mm
0.18	190mm	195mm	185mm	190mm	170mm	175mm	165mm	170mm	160mm	165mm
0.15	230mm	235mm	230mm	230mm	215mm	220mm	215mm	220mm	210mm	215mm

Construction 2

Render on 100mm Medium dense block outer skin, Cavity full fill Internal block 100mm (see table below)

Internal finishes: plaster or plasterboard on dabs

Block type >	Dense 1900-2250kg/m ³		Medium dense 1400-1450kg/m ³		Aircrete 750kg/m ³		Aircrete 600kg/m ³		Aircrete 470kg/m ³	
W/mK >	1.130 W/mK		0.510 W/mK		0.190 W/mK		0.150 W/mK		0.110 W/mK	
Finishes >	Pb/dab	Plaster	Pb/dab	Plaster	Pb/dab	Plaster	Pb/dab	Plaster	Pb/dab	Plaster
U-values										
0.30	100mm	105mm	95mm	100mm	85mm	90mm	80mm	90mm	75mm	80mm
0.28	110mm	115mm	105mm	110mm	95mm	100mm	90mm	95mm	85mm	90mm
0.27	115mm	120mm	110mm	115mm	100mm	105mm	95mm	100mm	90mm	95mm
0.25	125mm	130mm	120mm	125mm	110mm	115mm	105mm	110mm	100mm	105mm
0.22	145mm	150mm	140mm	145mm	130mm	135mm	125mm	130mm	120mm	125mm
0.20	160mm	165mm	155mm	160mm	145mm	150mm	140mm	145mm	135mm	140mm
0.18	185mm	190mm	180mm	185mm	170mm	170mm	160mm	175mm	155mm	160mm
0.15	230mm	235mm	225mm	230mm	215mm	220mm	210mm	215mm	205mm	210mm

■ Note: For cavities greater than 150mm use two layers of Cavity batts with staggered vertical joints.

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Specification clause

The full-fill cavity wall insulation is to be*mm thick Cavity, manufactured by the Company, installed as work proceeds in accordance with the recommendations of British Board of Agrément Certificate no. 94/3079.

* Insert thickness to correspond with the cavity width, within the tolerance limits shown in Table 1 in BS 6676: Part 2: 1986.

Sustainability

As an environmentally conscious company promotes the sustainable production and use of insulation and is committed to a continuous process of environmental improvement.



All products provide outstanding thermal protection as well as four added benefits:

- Fire resistance
- Acoustic comfort
- Durability
- Sustainable materials

Health and safety

The safety of stone wool is confirmed by current UK and Republic of Ireland health & safety regulations and EU directive 97/69/EC: fibres are not classified as a possible human carcinogen.

Environment

Relying on entrapped air for its thermal properties, we are proud to say that insulation does not contain (and has never contained) gases that have ozone depleting potential (ODP) or global warming potential (GWP) therefore complies with the relatively modest threshold of GWP<5 included in documents such as the Code for Sustainable Homes.

It is increasingly involved in recycling waste material that may be generated during installation or at end of life.

We are happy to discuss the individual requirements of contractors and users considering returning materials to our factory for recycling.