

# CAVITY

Insulation for masonry cavity walls



# CAVITY

ROCKWOOL® Cavity insulation is a semi-rigid, full-fill insulation solution for masonry cavity wall construction, suitable for use in new builds or extensions.

Lightweight and easy to handle, the batts are simple to install and provide a close fit against brick and blockwork. ROCKWOOL Cavity full fill insulation batts are non-combustible and contain water repellent additives which prevent moisture transmission between the outer and inner leaf.





### Advantages

- Outstanding thermal, fire and acoustic insulation
- Acts as a cavity barrier
- Water repellent - prevents water transmission from outer to inner leaf
- Non-combustible - Euroclass A1
- Superior fit against blockwork
- Dimensional stability - no sagging or slumping

### Description

ROCKWOOL Cavity Batts provide thermal protection for external masonry walls, and thermal and sound protection within masonry party walls, between dwellings. The batts are quick and easy to accurately cut, and provide a great fit; reducing installation time, avoiding gaps and cold spots, and maximising long term performance. ROCKWOOL Cavity Batts are also used in masonry party walls to prevent the thermal bypass effect, and so achieve a zero U-value, while also providing the required sound protection and fire resistance.

### Applications

ROCKWOOL Cavity is batts are used for thermal insulation of external masonry cavity walls, and for the thermal insulation and acoustic protection of masonry party walls between dwellings.

ROCKWOOL Cavity has been examined by the British Board of Agrément (BBA) and granted Certificate 94/3079 for use in all exposure zones for domestic and non-domestic buildings that are up to 25m in height.

The NHBC accepts the use of ROCKWOOL Cavity Batt, other than in very severe exposure locations with fair-faced masonry, provided it is installed, used and maintained in accordance with the BBA Certificate, in relation to NHBC Standards, Chapter 6.1, External masonry walls.

Building standards have also recognised that where party cavity-walls between connected buildings are untreated, considerable heat can escape through them. Using ROCKWOOL Cavity Batt to fully fill the party wall will reduce the u-value to 0.00 W/m<sup>2</sup>K.

## Performance

### Thermal

ROCKWOOL Cavity Batt has a thermal conductivity of 0.037 W/mK.

### Fire classification

Achieves a reaction to fire classification of A1, as defined in EN13501-1. Resistance to fire spread between and within cavities. ROCKWOOL 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.

### Water resistance and moisture

The product will resist the transfer of water across the cavity. The orientation of the water repellent fibres prevent water crossing the wall construction, provided 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.

### Condensation

Will contribute to limiting the risk of condensation.

### Durability

The product will have a life equivalent to the wall structure in which it is incorporated.

### U-Values:

Approved Document L (2013 edition England and 2014 Wales) – U-value requirements for walls:

- New build dwellings:  
England 0.25-0.18W/m<sup>2</sup>K / Wales 0.21-0.18W/m<sup>2</sup>K
- New build non-domestic:  
England 0.26-0.22W/m<sup>2</sup>K / Wales 0.26-0.22W/m<sup>2</sup>K
- Extensions to dwelling:  
England 0.28W/m<sup>2</sup>K / Wales 0.21W/m<sup>2</sup>K
- Extensions to non-domestic:  
England 0.28W/m<sup>2</sup>K / Wales 0.26W/m<sup>2</sup>K

ROCKWOOL Cavity Slab (thermal conductivity 0.037 W/mK)

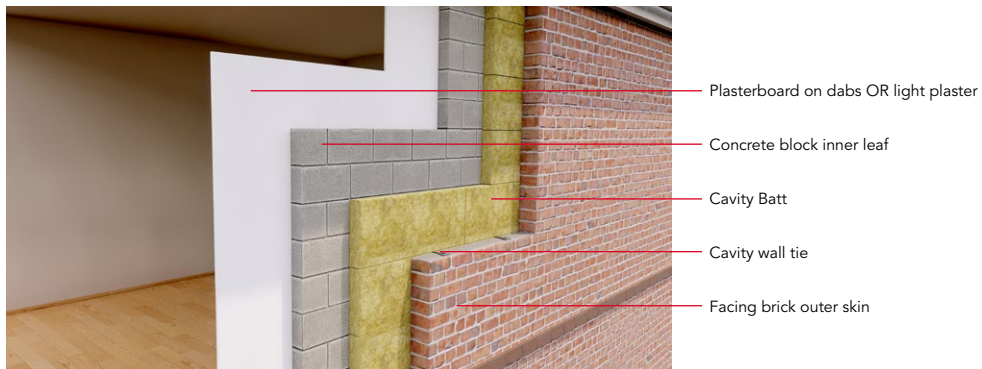


## CAVITY

**Table 1 - Construction 1:**

102mm Facing brick outer skin, ROCKWOOL Cavity full fill, 100mm internal concrete block (various densities) Internal finishes: light plaster or plasterboard on dab.

| Inner block<br>W/mK | Dense<br>1900-2250 kg/m <sup>3</sup><br>1.130 W/mK |                               | Medium dense<br>1400-1450kg/m <sup>3</sup><br>0.470 W/mK |                               | Aircrete Hi Strength<br>750kg/m <sup>3</sup><br>0.190 W/mK |                               | Aircrete Std<br>600kg/m <sup>3</sup><br>0.150 W/mK |                               |
|---------------------|--|-------------------------------|--|-------------------------------|--|-------------------------------|--|-------------------------------|
|                     | Light<br>plaster                                   | P/board on<br>dab             | Light<br>plaster   | P/board on<br>dab             | Light<br>plaster   | P/board on<br>dab             | Light<br>plaster                                   | P/board on<br>dab             |
|                     | U-value<br>W/m <sup>2</sup> K                      | U-value<br>W/m <sup>2</sup> K | U-value<br>W/m <sup>2</sup> K                            | U-value<br>W/m <sup>2</sup> K | U-value<br>W/m <sup>2</sup> K                              | U-value<br>W/m <sup>2</sup> K | U-value<br>W/m <sup>2</sup> K                      | U-value<br>W/m <sup>2</sup> K |
| 100                 | 0.32   | 0.30                          | 0.31   | 0.29                          | 0.28   | 0.27                          | 0.28   | 0.27                          |
| 130                 | 0.25   | 0.24                          | 0.25   | 0.24                          | 0.23   | 0.22                          | 0.23   | 0.22                          |
| 150                 | 0.22   | 0.22                          | 0.22   | 0.21                          | 0.21   | 0.20                          | 0.20   | 0.20                          |
| 175                 | 0.19   | 0.19                          | 0.19   | 0.18                          | 0.18   | 0.17                          | 0.18   | 0.17                          |



**Table 2 - Construction 2:**

Render on 100mm medium dense block outer, ROCKWOOL Cavity full fill, 100mm internal concrete block (medium dense or Standard Aircrete) Internal finishes: light plaster or plasterboard on dab.

| Inner block<br>W/mK | Medium dense - 1400-1450kg/m <sup>3</sup><br>0.470 W/mK |                               | Aircrete Hi Strength - 750kg/m <sup>3</sup><br>0.190 W/mK |                               |
|---------------------|---|-------------------------------|---|-------------------------------|
|                     | Light plaster   | P/board on dab                | Light plaster   | P/board on dab                |
|                     | U-value<br>W/m <sup>2</sup> K                           | U-value<br>W/m <sup>2</sup> K | U-value<br>W/m <sup>2</sup> K                             | U-value<br>W/m <sup>2</sup> K |
| 100                 | 0.3   | 0.29                          | 0.26  | 0.26                          |
| 130                 | 0.24  | 0.23                          | 0.22  | 0.22                          |
| 150                 | 0.21  | 0.21                          | 0.19  | 0.19                          |
| 175                 | 0.19  | 0.18                          | 0.17  | 0.17                          |

The U-values shown in the constructions above are based on the following:

- Internal face of walls is lined with either plasterboard on dab or 13mm lightweight plaster
- Block sizes assumed to be 440 x 215mm, mortar joints assumed to be 10mm wide
- Wall ties are stainless steel with a cross-sectional area of 12.5mm<sup>2</sup> for cavities up to 170mm wide
- For cavities widths greater than 170mm, the cross-sectional area of tie is assumed to be 25mm

**Party wall “thermal bypass effect” - achieving a zero heat loss**

Approved Documents L1A & L2A of England and Wales and Section 6 of Scotland’s Building standards have recognised that where party cavity-walls between connected buildings are untreated, considerable heat can escape through them.

A key feature of the SAP calculation is that party wall cavities should have a zero heat loss (U-value 0.0W/m²K). If these cavities are left unfilled and unsealed, a U-value of 0.5W/m²K will automatically be applied, making it extremely difficult to meet the TER compliance.

In calculating the DER for a Dwelling, the party wall U-value to be assumed for the type of construction adopted is set out in the Table 3 below.

**Table 3:**

| Party wall construction                          | U-value W/m²K |
|--|---------------|
| Unfilled cavity with no effective edge sealing   | 0.50          |
| Unfilled cavity with effective edge sealing only | 0.20          |
| Fully filled cavity and effective edge sealing   | 0.0           |

**Robust detail approval for use as acoustic insulation in masonry party wall constructions**

Robust Details Limited was formed in December 2003 in response to the housebuilding industry’s request for an alternative to pre-completion sound testing, as a means of satisfying the sound insulation requirements of the Building Regulations. Below are the constructions to achieve the referenced Robust detail for masonry construction.

| Robust detail wall reference | Party wall construction  | Party wall cavity size (mm) |
|------------------------------|--|-----------------------------|
| - masonry                    |  |                             |
| E-WM- 1                      | Dense blocks 1850-2300kg wet plaster   | 75-100                      |
| E-WM- 2                      | Light agg. blocks 1350-1600kg wet plaster  | 75-100                      |
| E-WM- 3                      | Dense blocks 1850-2300kg render faces/plasterboard on dab  | 75-100                      |
| E-WM- 4                      | Light agg. blocks 1350-1600kg render/plasterboard on dab finish  | 75-100                      |
| E-WM- 5                      | Besblock “Star Performer” dense aggregate cellular blocks/render /plasterboard on dab  | 75-100                      |
| E-WM-11                      | Lightweight 1350-1600kg agg. or nominated hollow or cellular blocks render/plasterboard on dab                                   | 75-100                      |
| E-WM- 16                     | Dense aggregate blocks 1850-2300kg render/plasterboard on dab  | 100                         |
| E-WM- 18                     | Dense blocks 1850-2300kg wet plaster   | 100                         |
| E-WM- 19                     | Monarfloor Bridgestop System 100mm Dense or lightweight blocks or nominated hollow or cellular blocks/render/plasterboard on dab | 100                         |

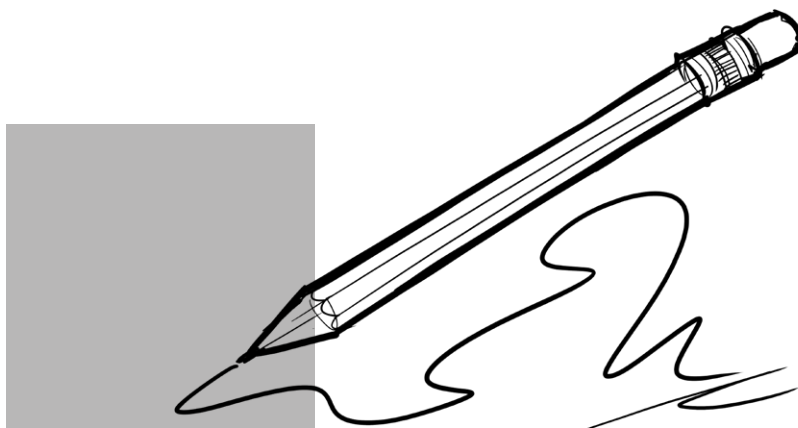
## Installation

### Designing the cavity wall

The use of ROCKWOOL 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 EN772 (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 perpend 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 2).
6. Vertical damp proof courses at wall openings should project at least 25mm into the cavity (see ROCKWOOL ROCKCLOSE® data sheet for details).



Installing ROCKWOOL Cavity

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 1). 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 2). 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 5).
5. It is essential that all the joints between ROCKWOOL Cavity batts are clean and tightly butted.

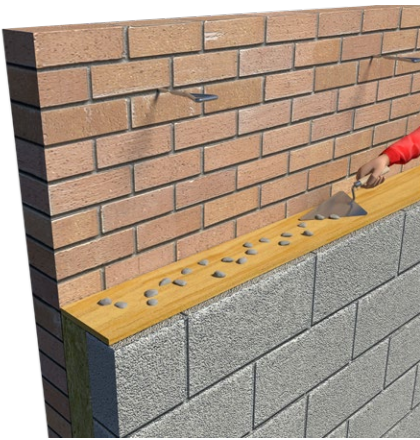


Figure 1

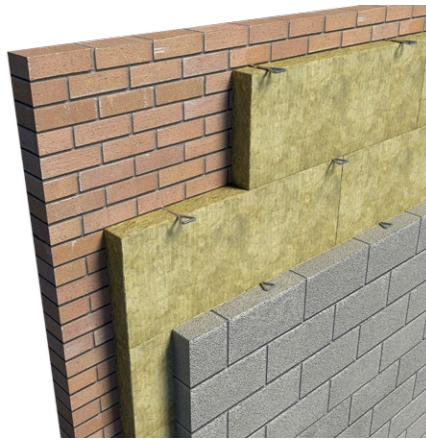


Figure 2

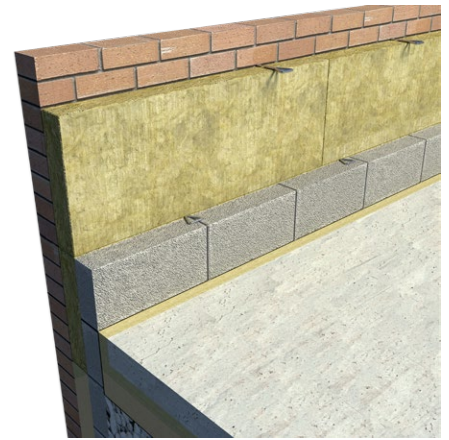


Figure 3



- 6. Raise the second leaf to the same level as the batts.
- 7. The as-built cavity width must not exceed the following dimensions:

| 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 ROCKWOOL Cavity batts are used, ensure that the vertical joints between the outer batts are staggered to those of the inner batts.*

- 8. Repeat this sequence to the top of the wall (see Figure 5). Alternatively, the top of the batts can be protected by using a cavity tray.
- 9. To minimise water penetration to the inner leaf during driving rain, it is essential that no gaps are left between the batts.
- 10. Cut the batts cleanly, using a sharp, long bladed knife and a straight edge.
- 11. 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 Figure 4).

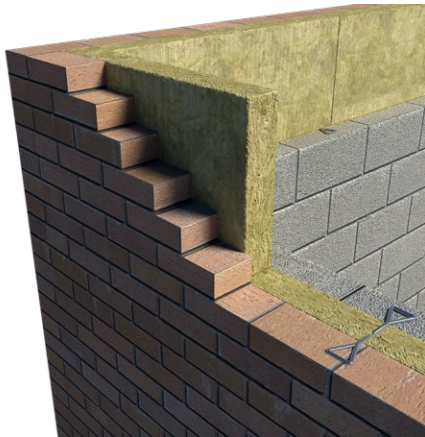


Figure 4



Figure 5

### Technical information

The following NBS clauses include ROCKWOOL Cavity:  
F30:10, F30:150

## Sustainability

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

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



**Fire resistance**



**Acoustic comfort**



**Sustainable materials**



**Durability**

## Health & Safety

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

A Material Safety Data Sheet is available and can be downloaded from [www.rockwool.co.uk](http://www.rockwool.co.uk) to assist in the preparation of risk assessments, as required by the Control of Substances Hazardous to Health Regulations (COSHH).

## Environment

Made from a renewable and plentiful naturally occurring resource, ROCKWOOL insulation saves fuel costs and energy in use and relies on trapped air for its thermal properties.

ROCKWOOL insulation does not contain (and has never contained) gases that have ozone depletion potential (ODP) or global warming potential (GWP).

ROCKWOOL is approximately 97% recyclable. For waste ROCKWOOL 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 these materials to our factory for recycling.



## Interested?

For further information, contact the Technical Solutions Team on 01656 868490 or email [technical.solutions@rockwool.co.uk](mailto:technical.solutions@rockwool.co.uk)

Visit [www.rockwool.co.uk](http://www.rockwool.co.uk) to view our complete range of products and services.

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### The ROCKWOOL Trademark

ROCKWOOL® - our trademark

The ROCKWOOL trademark was initially registered in Denmark as a logo mark back in 1936. In 1937, it was accompanied with a word mark registration; a registration which is now extended to more than 60 countries around the world.

The ROCKWOOL trademark is one of the largest assets in the ROCKWOOL Group, and thus well protected and defended by us throughout the world.

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