Protection from the outside world

ROCKWOOL Cavity full fill insulation batts are non-combustible and contain water repellent additives which prevent moisture transmission between the outer and inner leaf.
Cavity

Advantages

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

Standards and approvals

Rockwool 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, 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: 2001.

Rockwool cavity conforms to BS EN 13162:2012 ‘Specification for factory-made mineral wool products’.

Dimensions

Rockwool Cavity batts are 1200 mm long and 455 mm wide, suitable for use with wall ties spaced at 450 mm vertically and maximum 900 mm horizontally.

Standard thicknesses ranges are 50, 75, 80, 100 and 130 mm (other thicknesses are available but may be subject to minimum order quantity).

For applications which require a double layering of Cavity batts, the vertical joints between the inner and outer batt should be staggered.

Performance

Thermal

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

Durability

Rockwool 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.

Building regulations

The BBA is satisfied that Rockwool 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. 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.

Fire classification

ROCKWOOL 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).

ROCKWOOL 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 12-25m in height the BBA certificate imposes additional requirements.

Please note: ROCKWOOL 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 ROCKWOOL, together with an on-site examination of the work in progress by ROCKWOOL Limited.

Above-average site supervision is recommended during construction.
Cavity

U-values


- New build dwellings: England 0.25-0.18 W/m²K
  Wales 0.21-0.18W/m²K (pending design strategy)
- New build non-domestic: England 0.26-0.22 W/m²K/
  Wales 0.26-0.22 W/m²K (pending design strategy)
- Extensions to dwellings: England 0.28 W/m²K
  Wales 0.21 W/m²K
- Extensions to non-domestic: England 0.28 W/m²K
  Wales 0.26 W/m²K

ROCKWOOL Cavity Slab (thermal conductivity 0.037 W/m/K)

Table 1 - Construction 1 102 mm Facing brick outer skin, ROCKWOOL Cavity full fill, 100 mm internal concrete block [various densities] Internal finishes: light plaster or plasterboard on dab

<table>
<thead>
<tr>
<th>Inner block W/mK</th>
<th>Dense 1900-2250 kg/m³ 1.130 W/mK</th>
<th>Medium dense 1400-1450 kg/m³ 0.470 W/mK</th>
<th>Aircrète Hi Strength 750 kg/m³ 0.190 W/mK</th>
<th>Aircrète Standard 600 kg/m³ 0.150 W/mK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Light plaster U-value W/m²K</td>
<td>Plasterboard on dab U-value W/m²K</td>
<td>Light plaster U-value W/m²K</td>
<td>Plasterboard on dab U-value W/m²K</td>
</tr>
<tr>
<td>100</td>
<td>0.32</td>
<td>0.30</td>
<td>0.31</td>
<td>0.29</td>
</tr>
<tr>
<td>115</td>
<td>0.28</td>
<td>0.27</td>
<td>0.27</td>
<td>0.26</td>
</tr>
<tr>
<td>130</td>
<td>0.25</td>
<td>0.24</td>
<td>0.25</td>
<td>0.24</td>
</tr>
<tr>
<td>140</td>
<td>0.24</td>
<td>0.23</td>
<td>0.23</td>
<td>0.22</td>
</tr>
<tr>
<td>150</td>
<td>0.22</td>
<td>0.22</td>
<td>0.22</td>
<td>0.21</td>
</tr>
<tr>
<td>165</td>
<td>0.20</td>
<td>0.20</td>
<td>0.20</td>
<td>0.19</td>
</tr>
<tr>
<td>175</td>
<td>0.19</td>
<td>0.19</td>
<td>0.19</td>
<td>0.18</td>
</tr>
<tr>
<td>200</td>
<td>0.17</td>
<td>0.17</td>
<td>0.17</td>
<td>0.16</td>
</tr>
</tbody>
</table>

Table 2 - Construction 2 Render on 100 mm medium dense block outer, ROCKWOOL Cavity full fill, 100 mm internal concrete block [medium dense or Standard Aircrète] Internal finishes: light plaster or plasterboard on dab

<table>
<thead>
<tr>
<th>Inner block W/mK</th>
<th>Medium dense 1400-1450 kg/m³ 0.470 W/mK</th>
<th>Aircrète Standard 600 kg/m³ 0.150 W/mK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Light plaster U-value W/m²K</td>
<td>Plasterboard on dab U-value W/m²K</td>
</tr>
<tr>
<td>100</td>
<td>0.30</td>
<td>0.29</td>
</tr>
<tr>
<td>115</td>
<td>0.27</td>
<td>0.26</td>
</tr>
<tr>
<td>130</td>
<td>0.24</td>
<td>0.23</td>
</tr>
<tr>
<td>140</td>
<td>0.23</td>
<td>0.22</td>
</tr>
<tr>
<td>150</td>
<td>0.21</td>
<td>0.21</td>
</tr>
<tr>
<td>165</td>
<td>0.20</td>
<td>0.19</td>
</tr>
<tr>
<td>175</td>
<td>0.19</td>
<td>0.18</td>
</tr>
<tr>
<td>200</td>
<td>0.17</td>
<td>0.16</td>
</tr>
</tbody>
</table>

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

- Internal face of walls are lined with either plasterboard on dab or 13 mm lightweight plaster
- Block sizes assumed to be 440 x 215 mm, mortar joints assumed to be 10 mm wide.
- Wall ties are stainless steel with a cross-sectional area of 12.5 mm² for cavities up to 170 mm wide.
  For cavities widths greater than 170 mm, the cross sectional area of tie is assumed to be 25 mm².
Cavity

Minimising the party wall “thermal bypass effect” and achieving a zero heat loss U-value 0.0W/m²K

Building Regulations
Approved Documents L1A & L2A of England and Wales’s 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

<table>
<thead>
<tr>
<th>Party wall construction</th>
<th>U-value W/m²K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid</td>
<td>0.00</td>
</tr>
<tr>
<td>Unfilled cavity with NO effective edge sealing</td>
<td>0.50</td>
</tr>
<tr>
<td>Unfilled cavity with effective edge sealing around all exposed edges and in line with the insulation layers in abutting elements</td>
<td>0.20</td>
</tr>
<tr>
<td>Fully filled cavity with effective edge sealing around all exposed edges &amp; in line with the insulation layers in abutting elements</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Extensive site trials have demonstrated that the U-value for a masonry party wall can potentially be reduced to zero if the party wall cavity is fully filled with ROCKWOOL Cavity, and effective edge sealing, takes place around the party wall cavity using our ROCKWOOL Party Wall Cavity Barrier (PwCB) product. (for further information refer to the ROCKWOOL Cavity barrier data sheet).

Masonry party cavity walls

Table 4

<table>
<thead>
<tr>
<th>Robust detail wall reference - Masonry</th>
<th>Party wall construction</th>
<th>Party wall cavity size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-WM- 1</td>
<td>Dense blocks 1850-2300 kg wet plaster</td>
<td>75-100</td>
</tr>
<tr>
<td>E-WM- 2</td>
<td>Light agg. blocks 1350-1600 kg wet plaster</td>
<td>75-100</td>
</tr>
<tr>
<td>E-WM- 3</td>
<td>Dense blocks 1850-2300kg render faces/plasterboard on dab</td>
<td>75-100</td>
</tr>
<tr>
<td>E-WM- 4</td>
<td>Light agg. blocks 1350-1600 kg render/plasterboard on dab finish</td>
<td>75-100</td>
</tr>
</tbody>
</table>
| E-WM- 5                               | Besblock “Star Performer” dense aggregate cellular blocks/render/plasterboard on dab | 75-100 | ROCKWOOL PwCB Party wall cavity fully filled with ROCKWOOL Cavity batt

- **Perimeter edge sealing**: ROCKWOOL PwCB
- **Party wall Insulation**: 75 mm (min)-100 mm party wall cavity fully filled with ROCKWOOL Cavity
- **Party wall blocks**: 100 mm (min) each leaf, (Dense aggregate blocks density 1850-2300 kg or Lightweight aggregate blocks density 1350-1600 kg)
- **Wall finish to party wall**: Gypsum-based board (nominal mass 8 kg/m²) mounted on dabs with parged finish to block faces

ROCKWOOL Cavity has robust detail approval for use in the following masonry party wall constructions

Table 4
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 5 mm 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 450 mm centres (or a maximum of 900 mm centres) and be continuous across closely spaced openings (Figure 2).

6. Vertical damp proof courses at wall openings should project at least 25 mm into the cavity (see ROCKWOOL ROCKCLOSE® data sheet for details).
Cavity

Installing ROCKWOOL Cavity
It is the contractor’s responsibility to ensure that ROCKWOOL 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 150 mm) with no risk of capillary action to minimise cold bridging. The bottom row of ties should be at 450 mm 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 5 mm 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 900 mm horizontally (Figure 3). Ensure that all mortar joints are properly filled, particularly the perpends.

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 4). 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 7).

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

6. Raise the second leaf to the same level as the batts.
Cavity

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

Table 5

<table>
<thead>
<tr>
<th>Nominal Batt thickness (mm)</th>
<th>Permitted deviation maximum as built cavity widths (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-120</td>
<td>0-10</td>
</tr>
<tr>
<td>125-150</td>
<td>0-15</td>
</tr>
<tr>
<td>160-300</td>
<td>0-20</td>
</tr>
</tbody>
</table>

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 7 on previous page). 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 6 on previous page).

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

13. Avoid the build up of mortar on cavity trays.

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

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

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

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.

4 in 1

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

- Fire resistance
- Acoustic comfort
- Sustainable materials
- Durability

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 868621 or email technical.solutions@rockwool.co.uk

Visit www.rockwool.co.uk to view our complete range of products and services.

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