Today at Colinwell we utilise lightweight aggregates to produce our Primatherm range of lightweight insulation block.

Lightweight aggregates have been used for millennia. In 126 AD the Romans used lightweight concrete to construct the dome of the Pantheon in Rome, calculating that only by using lightweight Pumice could the unreinforced dome be constructed.

Today at Colinwell we utilise lightweight aggregates to produce our Primatherm range of lightweight insulation block.
Primatherm blocks are manufactured from approved lightweight aggregates and cement.

Benefits:
- Lightweight
- High Thermal Efficiency
- Fire Resistant
- Good Sound Insulation
- Loadbearing
- Easily plastered
- Low Shrinkage
- Easily cut & chased
- Excellent fixability

Applications

Colinwell Primatherm blocks are intended for general construction above and below the D.P.C.

They provide an excellent key for plastering, rendering and fixings.

The usual colour of the blocks is grey.

Applications:
- External Walls - both inner & outer leafs
- Internal load bearing walls
- Internal partition walls
- Party/flanking walls
- Walls below D.P.C.
- Semi Exposed Walls
- Suspended Floors

Drying

Shrinkage

Approx 0.035%.

Approval

Colinwell Primatherm blocks are manufactured to BS EN771.3.

Colinwell has achieved the Quality Assurance Accreditation under ISO 9001 and the Environmental Management System under ISO 14001.

CE Marking complies with the requirements of the mandate given under the EU Construction Products Directive (89/106/EEC).

Form

Blocks are produced in a variety of sizes and in three basic formats:

1. Solid blocks, which have no formed voids.
2. Cellular blocks which have formed voids that are effectively sealed at the base of the block.
3. Hollow blocks which have cores that fully penetrate through the block.

Block Specials

A range of reveal and closer blocks are produced, other specials are available depending on demand and quantities.

Strength

Solid, 5.5N/mm²
Cellular, 5.5N/mm²
Hollow, 5.5N/mm²

Fire

The pumice utilised in the manufacture of both Primatherm blocks are classified as a non combustable class 1 aggregate in accordance with BS 476 Part 6.

If load-bearing a 100mm thick block will give a fire resistance time of 2 hours, while a 140mm thick block will give a fire resistance time of 4 hours.
Density
Solid, approx 1100 kg/m³
Cellular, approx 850 kg/m³
Hollow, approx 700 kg/m³

These densities are measured in accordance with BS EN 771.3 and hence results for hollow and cellular blocks are dependent on core dimensions.

Durability
USE BELOW D.P.C.
All lightweight blocks with strengths of 7N/mm² are suitable for use below the D.P.C. while 5.5N/mm² are suitable on the inner leaf of cavity walls and partitions.

Acoustic Performance
A. SOUND REDUCTION INDEX
The average SRI for plastered leaf partitions, when calculated over a frequency range of 100-3150 Hz gives results between 40 and 46 dB dependent on the block type and thickness. Further details are given in the table below.

<table>
<thead>
<tr>
<th>Thickness (mm)</th>
<th>Average SRI (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>40</td>
</tr>
<tr>
<td>140</td>
<td>42</td>
</tr>
<tr>
<td>190</td>
<td>44</td>
</tr>
<tr>
<td>215</td>
<td>44</td>
</tr>
</tbody>
</table>

B. THERMAL RESISTANCE
The equivalent resistances of lightweight blocks are given in the table below. These figures should be used as a guide only.

<table>
<thead>
<tr>
<th>Sizes (mm)</th>
<th>at 3% m/c (m²K/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>440 x 215 x 75</td>
<td>0.25</td>
</tr>
<tr>
<td>440 x 215 x 100</td>
<td>0.34</td>
</tr>
<tr>
<td>440 x 215 x 140</td>
<td>0.47</td>
</tr>
<tr>
<td>440 x 215 x 190</td>
<td>0.63</td>
</tr>
<tr>
<td>440 x 215 x 215</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Site Information
A. STORAGE
Where possible blocks should be stored clear of the ground and protected against snow and rain. Incomplete work should be protected.

B. LAYING, CUTTING, CHASING AND FIXING
Full guidance is contained in the Colinwell Technical Bulletin.

C. RENDERING
On lightweight blocks the mix should be between 1:1½:4½ and 1:1:6 or equivalent, dependent on exposure and render type. In all cases rendering should be carried out to the thickness and recommendations given in BS EN 13914-1:2005

D. MORTAR MIXES
A 1:1:6 mix or equivalent is recommended for normal use above and below ground level.

How to Specify
Specifications should read as follows:
Colinwell Primatherm Lightweight blocks to be (size and form) of (strength N/mm²), produced and supplied by Colinwell Architectural Masonry, built in Standard cement, lime sand mortar (1:1:6) pole pointed joints as work proceeds.
Typical U Value Calculations

<table>
<thead>
<tr>
<th>Layer</th>
<th>Building Finish</th>
<th>Thickness</th>
<th>K Value</th>
<th>R Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSI</td>
<td></td>
<td></td>
<td>0.13</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>External Render</td>
<td>19mm</td>
<td>0.63</td>
<td>0.03</td>
</tr>
<tr>
<td>2</td>
<td>Outer Leaf of Block</td>
<td>100mm</td>
<td>1.1</td>
<td>0.08</td>
</tr>
<tr>
<td>3</td>
<td>Unventilated Cavity</td>
<td>50mm</td>
<td>-</td>
<td>0.15</td>
</tr>
<tr>
<td>4</td>
<td>Kingspan Kooltherm K8 Cavity Board</td>
<td>100mm</td>
<td>0.02</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Primatherm Lightweight Block</td>
<td>100mm</td>
<td>0.3</td>
<td>0.34</td>
</tr>
<tr>
<td>6</td>
<td>Internal Skim</td>
<td>3mm</td>
<td>0.16</td>
<td>0.02</td>
</tr>
<tr>
<td>7</td>
<td>Internal Plaster</td>
<td>13mm</td>
<td>0.59</td>
<td>0.22</td>
</tr>
<tr>
<td>RSI</td>
<td></td>
<td></td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>6.02</td>
<td></td>
</tr>
<tr>
<td>U value = 0.17 W/m²K</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Layer Building Finish Thickness K Value R Value
RSI 0.13
1 Clay Brick 100mm 0.29 0.34
2 Unventilated Cavity 100mm - 0.15
3 Kingspan Kooltherm K8 Cavity Board 75mm 0.02 3.75
4 Primatherm Lightweight Block 100mm 0.3 0.34
5 Internal Skim 3mm 0.16 0.02
6 Internal Plaster 13mm 0.59 0.22
RSI 0.04
Total 4.99
U Value = 0.20 W/m²K

Layer Building Finish Thickness K Value R Value
RSI 0.13
1 External Render 19mm 0.63 0.03
2 Outer Leaf of Block 100mm 1.1 0.08
3 Unventilated Cavity 50mm - 0.15
4 Kingspan Kooltherm K8 Cavity Board 75mm 0.02 3.75
5 Primatherm Lightweight Block 100mm 0.3 0.34
6 Internal Skim 3mm 0.16 0.02
7 Internal Plaster 13mm 0.59 0.22
RSI 0.04
Total 4.99
U Value = 0.20 W/m²K

These tables above should be used for guidance purposes only.

Solid Units

PTA1
12kg
100 215
440

PTA2
9kg
75 215
440

PTA3
9kg
100 140
440

Closer Units

PTD2
15kg
100 215
440

Hollow & Cellular Units

PTA8
12kg
140 215
440

PTA3
9kg
215 or 190
440

PTA6
9kg
140 215
440

PTD4
9kg
100 215
440

Average block weights are given above.

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