The only LABC registered foam glass gravel available in the UK!

GEOCELL® FOAM GLASS GRAVEL

HIGH PERFORMANCE IN EVERY ASPECT

THE ECOLOGICAL ALTERNATIVE FOR ALL FOUNDATIONS
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GEOCELL® FOAM GLASS GRAVEL

WHAT IS GEOCELL?

Manufactured from 100% recycled WASTE GLASS

GEOCELL foam glass gravel is now LABC registered, this certification now boasts GEOCELL as the only foam glass available in the UK with LABC approval!

Ecofriendly insulation for floor construction and foundations. Independently approved thermal and load bearing properties. Cost saving compared to conventional floor construction. Manufactured from 100% recycled waste glass. Low embodied carbon - Sustainable - Lightweight - Easy to handle. Reduced construction time and costs.

THE ECOLOGICAL ALTERNATIVE FOR ALL FOUNDATIONS
GEOCELL® FOAM GLASS GRAVEL

ADVANTAGES OF GEOCELL

INSULATING
GEOCELL foam glass gravel consists of millions of closed cells, the air locked inside these cells are responsible for GEOCELL's outstanding insulating properties - 0.080 W/mK.

ANTI-CAPILLARY
With its closed cell structure, GEOCELL forms a capillary break keeping moisture away from the building fabric resulting in no mould growth and structural damage.

FREEZE–THAW RESISTANT
GEOCELL does not react to the freeze–thaw cycle and thus effectively protects against the impact of frost. No additional frost protection is required.

DRAINAGE
With GEOCELL, rain water is immediately drained away from the building whilst offering the additional advantage of insulating the outside of existing walls.

LIGHTWEIGHT
With a dry bulk density of approx 150kg/m³, GEOCELL is extremely lightweight making installation quick and easy.

LOAD–BEARING
Due to its glass cell structure, GEOCELL provides excellent compressive strength - 275 KN/m² (27.5 tonne/m²) at compaction factor 1.3 : 1.

SAVING WITH GEOCELL

- Less excavation.
- All-in-one foundation in a single step.
- Compensating and adaptable, no cutting required.
- Easy insulation of pipes.
- Considerable saving in terms of construction time due to fast installation.

THE ECOLOGICAL ALTERNATIVE FOR ALL FOUNDATIONS
The benefit of a GEOCELL® insulation under the floor slab is a structure without thermal bridges. Since it is an exterior insulation, heat cannot dissipate. Thus, there is no water condensation and as a consequence, no mould formation appears.

The selection of appropriate insulation material is especially crucial in old buildings. GEOCELL® combines drainage layer and insulation in a single product, thus reducing building height. Moreover, GEOCELL® is diffusible, an important property for an insulating material when humidity is an issue.
GEOCELL® is easy to handle and can be driven over and walked on during construction. It is resistant to rotting, maintains its form and thanks to its high insulating properties, prevents frost damage. Ideal for landscaping and gardens. With a density of less than 150 kg/m³ and a 45 degree repose angle, GEOCELL® can be used effectively on roof construction - from flat roofs to underground parking garages and tunnels.

**ADVANTAGES**
- **LIGHT WEIGHT MATERIAL:** saves structural design
- **NON COMBUSTIBLE:** Classified as an A1 building material
- **MOULDABLE:** a 45 degrees repose angle allows creative roof design
- **INSULATES AND DRAINS** prevents frost damage

GEOCELL® not only reduces the applied load, but is also load bearing. Pavement for paths and roads can be laid directly in a leveling layer on the compacted GEOCELL. Even blacktopping directly on GEOCELL® is possible. Due to the lightness of the material, there are hardly any restrictions for the creative landscape architect.

**ADVANTAGES**
- **LIGHT-WEIGHT GEOCELL®** is a fraction of the weight of gravel. This makes it easy to transport and work with
- **STRONG** excellent compressive strength
- **NON COMBUSTIBLE:** Classified as an A1 building material

**APPLICATIONS - LANDSCAPING**
- **LOAD-BEARING CONSTRUCTION**
- **GEOCELL® Schaumglasschotter**
- **Geotextil/Abdichtung nach Erfordernis**
- **Baugrund/Tiefgaragendecke**
- **1 concrete roof/tunnel/car park**
- **2 sealing**
- **3 geotextile**
- **4 GEOCELL®**
- **5 geotextile**
- **6 substratum**
- **7 vegetation**
- **8 pavement**

**THE ECOLOGICAL ALTERNATIVE FOR ALL FOUNDATIONS**
CONSTRUCTION DETAILS

DOMESTIC BUILDING - GROUND FLOOR CONSTRUCTION

Conventional Construction (Typical Details)

A

1 : 3 CEMENT : SAND SCREED

100mm EPS INSULATION

100mm CONCRETE

SAND BLINDING – Min 50mm

COMPACTED HARDCORE/WELL GRADED SUBBASE (TYPE 1)

B

1 : 3 CEMENT : SAND SCREED

100mm EPS INSULATION

PRECAST BEAM AND BLOCK FLOOR

VENTILATED UNDERFLOOR VOID – Min 150mm

THE ECOLOGICAL ALTERNATIVE INCORPORATING GEOCELL

GROUND FLOOR – NEW BUILD
(Or renovation if DPC or Radon barrier is required)

GROUND FLOOR – RENOVATION
(Breathable GlassCrete system)

CEMENT/SAND or LIME/SAND SCREED

COMPACTED GEOCELL FOAM GLASS

SUBSOIL

DPM position may vary as required

GEOTEXTILE

DPM or Radon

GEOTEXTILE

GEOTEXTILE

THE ECOLOGICAL ALTERNATIVE FOR ALL FOUNDATIONS
### SUPPLY AND INSTALLATION OF GROUND FLOORING

**CONVENTIONAL CONSTRUCTION**

Based on prices May 2016

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Rate</th>
<th>Amount £</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Supply and install compacted well graded granular sub-base as Type 1 150mm thik</td>
<td>0.15</td>
<td>m³</td>
<td>7.5</td>
<td>165.00</td>
</tr>
<tr>
<td>2</td>
<td>Supply and install sand blinding 50mm thk</td>
<td>0.05</td>
<td>m³</td>
<td>2.5</td>
<td>155.00</td>
</tr>
<tr>
<td>3</td>
<td>Supply and install 1200 gauge dpm</td>
<td>50</td>
<td>m²</td>
<td>2.15</td>
<td>107.50</td>
</tr>
<tr>
<td>4</td>
<td>Supply and install 100mm thk oversite concrete grade GEN 1 or ST2 consistency class S2</td>
<td>0.10</td>
<td>m³</td>
<td>5</td>
<td>180.00</td>
</tr>
<tr>
<td>5</td>
<td>Supply and install 100mm EPS/PUR insulation lambda 0.023 W/mK</td>
<td>50</td>
<td>m²</td>
<td>22.25</td>
<td>1112.50</td>
</tr>
<tr>
<td>6</td>
<td>Supply and install vapour barrier</td>
<td>50</td>
<td>m²</td>
<td>1.60</td>
<td>80.00</td>
</tr>
<tr>
<td>7</td>
<td>Supply and install premixed 1:4 cement: sand screed with micro fibre reinforcement 65mm thk.</td>
<td>50</td>
<td>m²</td>
<td>19.10</td>
<td>955.00</td>
</tr>
<tr>
<td>8</td>
<td>Clean up on completion including the provision of a skip for the disposal of off cuts of EPS insulation</td>
<td>Item</td>
<td></td>
<td>200.00</td>
<td></td>
</tr>
</tbody>
</table>

**ANTICIPATED TIME FOR UNDERTAKING THESE WORKS**

4 days

**TOTAL**

4980.00

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**THE ECOLOGICAL ALTERNATIVE FOR ALL FOUNDATIONS**

**DOMESTIC BUILDING - GROUND FLOOR CONSTRUCTION**

**CONVENTIONAL CONSTRUCTION (Typical Detail)**

- 1:3 CEMENT : SAND SCREED
- 100mm EPS INSULATION
- 100mm CONCRETE
- SAND BLINDING - Min 50mm
- COMPACTED HARDCORE/WELL GRADED SUBBASE (TYPE 1)

**COST COMPARISON - CONVENTIONAL CONSTRUCTION**

**DOMESTIC BUILDING - GROUND FLOOR CONSTRUCTION**

**CONVENTIONAL CONSTRUCTION (Typical Detail)**

- 1:3 CEMENT : SAND SCREED
- 100mm EPS INSULATION
- 100mm CONCRETE
- SAND BLINDING - Min 50mm
- COMPACTED HARDCORE/WELL GRADED SUBBASE (TYPE 1)

**GEOCELL® FOAM GLASS GRAVEL®**

**FIGURES ARE FOR COMPARISON ONLY - CONTRACTOR COSTS MAY DIFFER**
SUPPLY AND INSTALLATION OF GROUND FLOORING

**ECOLOGICAL ALTERNATIVE WITH GEOCELL FOAM GLASS GRAVEL**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Rate</th>
<th>Amount £</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Costings based upon replacing an existing floor of typical area of</td>
<td>50</td>
<td>m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supply and install GEOCELL foam glass gravel</td>
<td>0.35</td>
<td>m³</td>
<td>22.75</td>
<td>120.00</td>
</tr>
<tr>
<td></td>
<td>including all compaction, Lambda 0.08 W/mK 350mm thk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Supply and install geotextile</td>
<td>100</td>
<td>m²</td>
<td>1.56</td>
<td>156.00</td>
</tr>
<tr>
<td>3</td>
<td>Supply and install 1200 gauge dpm</td>
<td>50</td>
<td>m²</td>
<td>2.15</td>
<td>107.50</td>
</tr>
<tr>
<td>4</td>
<td>Supply and install premixed 1:4 cement: sand screed with micro fibre</td>
<td>50</td>
<td>m²</td>
<td>19.10</td>
<td>955.00</td>
</tr>
<tr>
<td></td>
<td>reinforcement 65mm thk.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Clean up on completion</td>
<td>incl.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ANTICIPATED TIME FOR UNDERTAKING THESE WORKS**

2 days

**3948.50**

FIGURES ARE FOR COMPARISON ONLY - CONTRACTOR COSTS MAY DIFFER

THE ECOLOGICAL ALTERNATIVE FOR ALL FOUNDATIONS
GEOCELL is an aerated foam glass gravel manufactured from 100% recycled waste glass.

GEOCELL is light weight material having a loose bulk density of approx 150kg/m³.

Uses of GEOCELL include:

• Load bearing thermal insulation beneath floor slabs providing a complete replacement for conventional hardcore, blinding, oversite concrete and expanded polystyrene construction or precast beam and block and polystyrene insulation flooring.

• Load bearing thermal insulation beneath foundations.

• Light weight fill for landscaping including french drains.

GEOCELL is chemically inert and complies with requirements for environmental compatibility.

GEOCELL does not present any hazard to the health and safety of persons involved with its installation or use.

GEOCELL offers: frost resistance, prevents condensation in the building component, self–draining, diffusible, no gas emission and odor free, anti–capillary against rising water, incombustible class A1, anti–aging, rodent, bacteria, and rot resistance, long–term stability, no damage to concrete.

Design characteristics of GEOCELL:

Nominal value for compressive strength

\( f_{c,\text{nom}} \)

570 kPa

>570 (kN/m²)

Nominal value for compressive stress

\( f_{cd} = \frac{f_{c,\text{nom}}}{Y \cdot \alpha} \)

275 kPa

275 (kN/m²)

For full details see GEOCELL Technical Data Sheet
Design thickness of GEOCELL:

- Minimum compacted thickness of GEOCELL 10/30 is 100mm.
- Minimum compacted thickness of GEOCELL 10/60 is 150mm.
- Maximum compacted single layer thickness 300mm.
- For design thickness greater than 300mm, placing and compaction is to be undertaken in two or three layers.
- Maximum compacted thickness beneath floor slabs and foundations is 900mm.
- Compaction ratio i.e. loose material to compacted state is 1.3 : 1.

**U – Values achieved using GEOCELL in situ:**

(Example based on design area of 50m² with 25m exposed perimeter and clay subsoil)

<table>
<thead>
<tr>
<th>U – Values (W/m²K)</th>
<th>Loose thickness (mm)</th>
<th>Compacted thickness (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.36</td>
<td>130</td>
<td>100</td>
</tr>
<tr>
<td>0.29</td>
<td>195</td>
<td>150</td>
</tr>
<tr>
<td>0.24</td>
<td>260</td>
<td>200</td>
</tr>
<tr>
<td>0.21</td>
<td>325</td>
<td>250</td>
</tr>
<tr>
<td>0.19</td>
<td>390</td>
<td>300</td>
</tr>
<tr>
<td>0.14</td>
<td>585</td>
<td>450</td>
</tr>
<tr>
<td>0.09</td>
<td>975</td>
<td>750</td>
</tr>
</tbody>
</table>

**U – Values of GEOCELL as stand alone material:**

<table>
<thead>
<tr>
<th>U – Values (W/m²K)</th>
<th>Loose thickness (mm)</th>
<th>Compacted thickness (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.80</td>
<td>130</td>
<td>100</td>
</tr>
<tr>
<td>0.53</td>
<td>195</td>
<td>150</td>
</tr>
<tr>
<td>0.40</td>
<td>260</td>
<td>200</td>
</tr>
<tr>
<td>0.32</td>
<td>325</td>
<td>250</td>
</tr>
<tr>
<td>0.27</td>
<td>390</td>
<td>300</td>
</tr>
<tr>
<td>0.18</td>
<td>585</td>
<td>450</td>
</tr>
<tr>
<td>0.11</td>
<td>975</td>
<td>750</td>
</tr>
</tbody>
</table>
Ground floor - renovation
Breathable GlassCrete system - LABC registered

1:3 or 1:2 Lime : Sand Screed
Geotextile
Compacted GeoCell Foam Glass
Geotextile
Subsoil

Cork Perimeter Board
Natural Hydraulic Lime Screed
E’Grid 2020 Biaxial Geogrid for Clipping UFH Pipes
Geotextile Membrane
GEOCELL Foam Glass Aggregate
Geotextile Membrane
Subsoil

Typical build up from top:
Flagstone/floor finish
Lime Screed
E’Grid 2020 Geogrid (if fixing UFH pipes)
Geotextile membrane
GeoCell Foam Glass Aggregate (compacted)
Geotextile membrane

Moisture vapour
No Capillary draw

Mike Wye - GlassCrete Insulated Floor

The ecological alternative for all foundations
GEOCELL® FOAM GLASS GRAVEL

PROJECT REFERENCES

Basement insulation, under slab as well as backfill, rooftop insulation and road construction: GEOCELL is an all-rounder with many benefits, cutting construction time and costs.

1. Passive house, Bruck/Waasen, Austria
2. Renovation of a historic basement and arch, Stadtkeller Pregarten, Austria
3. Passive house, Auleiten, Austria
4. Kindergarten (Passive house standard) Siloah, Hannover, Germany
5. Low-energy supermarket Vienna, Austria
6. Glashau Castle Renovation, Germany
7. AFG Fußball-Arena, St.Gallen, Switzerland
8. Passive house kindergarten, Robert Koch Strasse, Wels, Austria
9. Highschool, Lappersdorf, Germany

THE ECOLOGICAL ALTERNATIVE FOR ALL FOUNDATIONS
DELIVERY OPTIONS

FORMS OF DELIVERY FOR GEOCELL FOAM GLASS GRAVEL

BULK LOOSE MATERIAL – Max 90m³
Walking floor truck – 18m x 2.5m x 4m

Pre-packed Bigbags – Max 66m³
Walking floor truck – 18m x 2.5m x 4m

Pre-packed Bigbags – 16m³ per load
Crane off load – Local delivery only

Pre-packed Bigbags – Qty as required
Pallet distribution network

Bigbags Sizes

BigBag 1 m³ ~ 150 kg
BigBag 2 m³ ~ 300 kg
BigBag 3 m³ ~ 450 kg
GEOCELL meets RIBA Product Selector & NBS Plus

It’s now even easier to specify GEOCELL Foam Glass Aggregate by searching for applications and specifications on RIBA Product Selector and the National Building Specification (NBS Plus)

The sustainable choice of aggregate is increasingly being used in the UK for renovations, construction, landscaping and civil engineering applications due to its load-bearing, lightweight and insulating properties.
