

INSULATION AND
CIVIL ENGINEERING

MORE REASON TO FEEL GOOD

LOAD-BEARING
INSULATION
FOR GROUND SLABS



A HIGH QUALITY RECYCLING GLASS PRODUCT

GEOCELL
SCHAUMGLAS

GEOCELL®

THE SOLID BASIS FOR MORE WARMTH

AND COMFORT



IS THERE AN INSULATION MATERIAL FOR UNDERGROUND STRUCTURES, THAT SAVES ENERGY, INSULATES AND CONTRIBUTES TO A COMFORTABLE INDOOR ENVIRONMENT? A BUILDING MATERIAL THAT IS BOTH ECONOMICAL AND ENVIRONMENTALLY SOUND?

THE ANSWER IS YES! GEOCELL® FOAM GLASS GRAVEL IS A HIGH QUALITY INSULATING MATERIAL MADE OF 100% RECYCLED GLASS.

GEOCELL® FOAM GLASS GRAVEL IS QUITE VERSATILE BECAUSE OF ITS UNIQUE LIGHT WEIGHT, LOAD BEARING, DRAINING AND INSULATING PROPERTIES PROVIDING A SUSTAINABLE REPLACEMENT FOR CONVENTIONAL BUILDING MATERIALS.

AN ALL-ROUNDER WITH MANY ADVANTAGES

- **EXCELLENT INSULATING VALUES**
the large number of enclosed cells in each pellet, ensures excellent insulation characteristics. $\lambda = 0,08 \text{ W/mK}$
- **INCREDIBLY STRONG**
Due to its glass cell structure, GEOCELL provides excellent compressive strength
- **NON-CAPILLARY, NON COMBUSTIBLE**
Cellular glass is comprised of closed cells that do not absorb water. Classified as an A1 building material
- **PERMANENTLY STABLE**
Stability, durability, resistance against insects and rodents
- **SUSTAINABLE AND ENVIRONMENTALLY FRIENDLY**
made from 100% recycled glass
inert and essentially pH-neutral
- **SAVING TIME AND MONEY**
GEOCELL is quicker to install than conventional methods
cutting construction time and cost

THE FUNDAMENTAL ALTERNATIVE FOR MANY APPLICATIONS:

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



(Foto: Passiv Architekten)

1



(Foto: Josef Singer/Bau)

2



(Foto: Passiv Architekten)

3



(Foto: Vorrnk Wagner/Architekturbüro)

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(Foto: Stefan Chalmers)

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(Foto: GEB Bau/Architekten)

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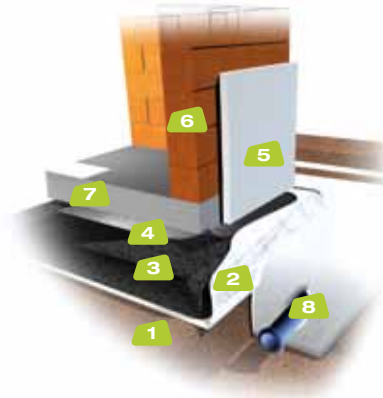
- 1 Passive house, Bruck/Waasen, Austria
- 2 Renovation of a historic basement and arch, Stadtkeller Pregarten, Austria
- 3 Passive house, Auleiten, Austria
- 4 Kindergarden (Passive house standard) Siloh, Hannover, Germany
- 5 Low-energy supermarket Vienna, Austria
- 6 Glachau Castle Renovation, Germany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

BUILDING INSULATION BELOW FLOOR SLAB

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.

ADVANTAGES

- Suitable for **THERMAL INSULATION** under the foundation slab of single/multi family houses, production halls, schools, swimming pools and ice rinks, etc.
- **HIGHER COMPRESSIVE STRENGTH** than other competing materials. Simpler and more cost-effective installation technology
- Single steps such as grading excavation, gravel installation and laying insulation boards can be eliminated.
- **NO FROST BARRIER REQUIRED**



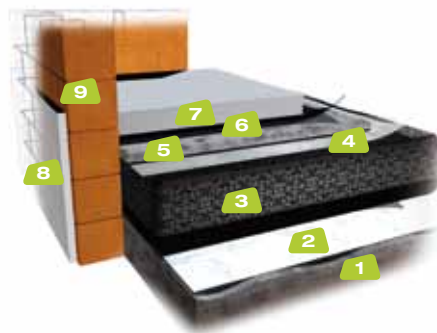
- 1 planum/formation level
- 2 geotextile
- 3 GEOCELL®
- 4 PE-foil
- 5 wall insulation
- 6 exterior wall
- 7 concrete floor slab
- 8 drainage pipe

BUILDING INSULATION EXISTING FLOOR RENOVATION

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.

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
- **WATERPROOF** thanks to the closed cell structure, GEOCELL® is completely unaffected by water
- **ENVIRONMENTALLY GREEN**
GEOCELL® is made from waste glass and can be reused or recycled at any time



- 1 planum/formation level
- 2 geotextile
- 3 GEOCELL®
- 4 PE-foil
- 5 subbase*
- 6 sealing*
- 7 screed
- 8 wall insulation
- 9 exterior wall

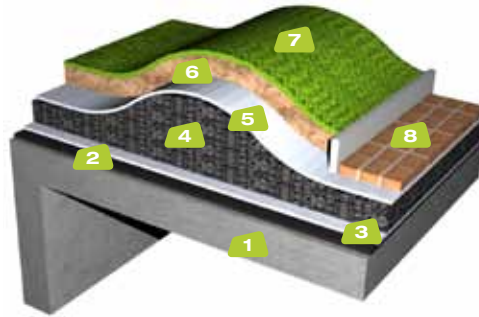
*if required

LANDSCAPING LIGHT WEIGHT MATERIAL FOR GREEN ROOFS

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



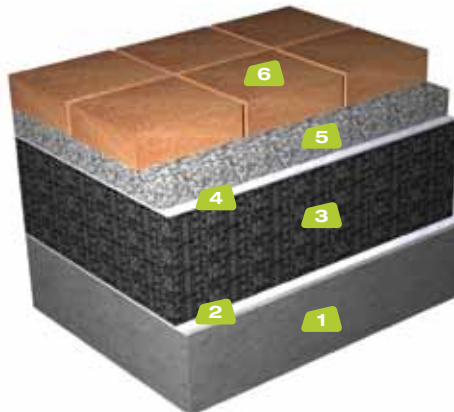
- 1 concrete roof/tunnel/car park
- 2 sealing
- 3 geotextile
- 4 GEOCELL®
- 5 geotextile
- 6 substratum
- 7 vegetation
- 8 pavement

LANDSCAPING LOAD-BEARING CONSTRUCTION

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

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- **STRONG** excellent compressive strength
- **NON COMBUSTIBLE:** Classified as an A1 building material



- 1 Baugrund/Tiefgaragendecke
- 2 Geotextil/Abdichtung nach Erfordernis
- 3 GEOCELL® Schaumglasschotter
- 4 Geotextil
- 5 Lastausgleichsschicht
- 6 Oberbelag: Betonwerkstein (Drainpflaster), Naturstein oder Holzbelag

ROAD CONSTRUCTION AND ADDITIONAL APPLICATIONS

CIVIL ENGINEERING

- Soil improvement, soil replacement
- Drainage beds
- Insulation of water/district heating pipelines
- Supply line insulation at low earth coverage
- Underground tank insulation (water storage, biogas plants)

ROAD CONSTRUCTION

- Bridge abutment backfilling
- Light-weight and draining backfill for retaining structures
- dam construction
- sub-base for road construction
- Light fill on tunnels

TOP PERFORMANCE IN EVERY ASPECT

ZULASSUNGEN

Building Material Approval DiBt Z-23.34-1579

THERMAL CONDUCTIVITY

Thermal Conductivity (dry) λ 0,080 [W/m·K]
 Thermal Conductivity (wet) λ 0,11 [W/mK]

LOAD CAPACITY

Design value of compressive strength (σ_{cd}) 275 [kN/m²] at compaction factor 1,3 : 1
 Design value of compressive strength (σ_{cd}) 320 [kN/m²] at compaction factor 1,6 : 1
 Compressive strength (10% compression) 570 [kN/m²] according to DIN 826

GENERAL DATA

Density (dry bulk)	approx. 150 [kg/m ³]
Delivery	lose oder verpackt in BigBags
Granular size	10 - 60 mm
Internal water absorption	0 Vol%
Water adsorption	< 10 Vol%
Diffusion properties	diffusible, $\mu < 1$
Fire resistance/ gassing with heat	incombustible class A1/ no gas emission, odor free
Friction angle	45-48°
Capillarity	anti-capillarity against rising water
Material radiation	no radiation or odors
Freeze-thaw	frost resistant according to DIN 52104-1
Alkali resistance	long-term stability, no damage to concrete
Environmental impact	considered unpolluted excavation.
Resistance to environmental influences	durable, rodent-, bacteria- and rot-resistant

GEOCELL® FOAM GLASS GRAVEL

THE ECOLOGICAL ALTERNATIVE FOR ALL FOUNDATIONS.

APPROVED QUALITY

DIBT-ZULASSUNG Z-23.34-1579

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**PASSIVHAUS
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