

A crystal-clear choice for green builders

KOLJERN® is part of FOAMGLAS®
www.koljern.se

FOAMGLAS®

KOLJERN®





Foundations, Walls, Roofs, Decks ...

Leading global technology for sustainable building.
The highest environmental performance and quality – at low cost.



- 1 A system for complete houses. Villa Mård, Sundsvall, Sweden
- 2 KOLJERN® mother element, an ecologically and climate smart element made of recycled glass and steel purlins

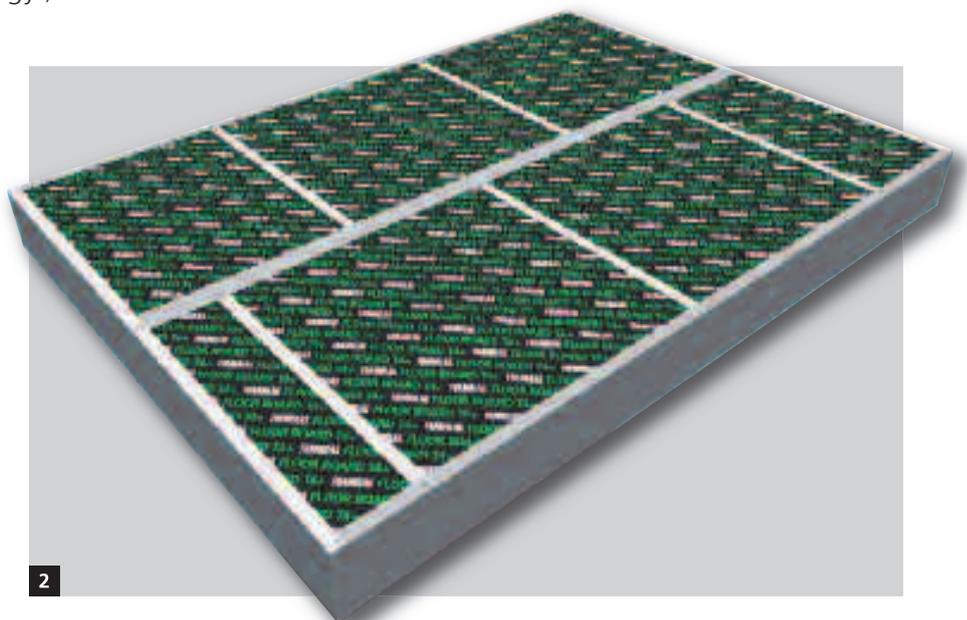
The “glass house” for those who want to build sustainably and ecologically

KOLJERN® is the building technology of the future. It is a building solution that provides a healthy indoor environment and lower energy consumption, as well as having a long life. KOLJERN® is a light-weight building technique that combines steel purlins with a thickness of 1,5–3 mm with cellular glass insulation – which consists of 60 % of recycled glass – and can be used for building foundations, wall elements, curtain walls, cantilevered decks or roofs. It is easy to handle and quick to install, offering benefits all round. Cellular glass is a sustainable insulation, which has been proven through tests done on projects that were installed for over 50 years ago, that still has the same properties as virgin products. Together with smart building technology the KOLJERN® building technology can be used to build Plus Energy Houses even in harsh Nordic climate. (i.e. houses that generate a surplus of energy)

Patented building element

KOLJERN® is a unique, patented method that turns the building material into a component with many exceptional benefits, especially for those who want to build sustainably and use energy wisely.

The recycled glass elements are made from natural materials: cellular glass boards and light weight steel purlins with a variety of claddings.



Dry, damp-proof climatic barrier

The cellular glass insulation is both airtight, dry and does not absorb moisture, thus eliminating damp problems in all parts of the building. If there is a water leak in the building there is no risk of water or moisture getting into the insulation, since cellular glass does not absorb any moisture. This means also that drying out takes less time. Cellular glass never rots or goes mouldy.

The steel purlins in the foundation slab prevent moisture, odours and gases, such as radon, from penetrating into the building. It also acts as a barrier to ants, mice and other pests.

Airtight structure saving energy

Unlike many insulation materials cellular glass is airtight and therefore prevents air movements occurring from weather changes. Cellular glass insulation has good thermal insulation properties preventing heat from coming in during the summer and keeping heat indoors during the winter. In contrast to other insulating materials it maintains its insulation performance throughout its life cycle.



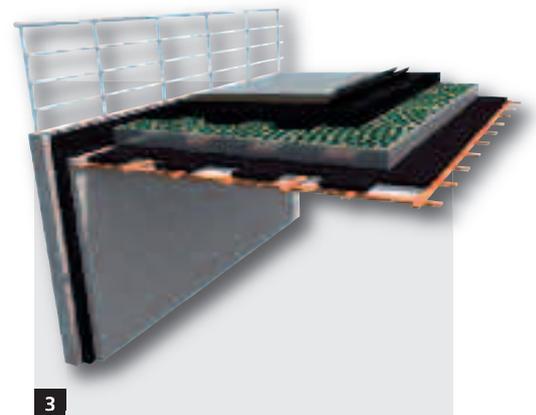
Cellular glass does not give rise to cold bridging, unlike concrete or steel beams for example, which can easily conduct heat out of the building. These properties contribute to a radical reduction in energy consumption.

From foundation to roof

We offer building elements that use KOLJERN® technology for foundations, walls, roofs and terrace elements – the entire climate shell of your building. This guarantees you a healthy build-

ingconstructed using a material that is maintenance free and dimensionally stable.

Cellular glass is highly durable, has good compressive strength and can support large, tall buildings. Because it does not require any drying out period the building process is quicker. At the same time, it provides a great working environment without the risk of allergies or need for heavy lifting. This is known as sustainable building.



- 1 Austrup Faernley museum, Oslo, Norway. 2500 m² of roof elements delivered in 2011.
- 2 Fibercement panel as support for render façade. Various kind of finishing material is possible.
- 3 KOLJERN® terrace elements integrated as loadbearing element can reduce building height on roof terraces with as much as 50%



1



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Many good reasons

- Reduces the need for heating and cooling
- Provides a healthy indoor environment by eliminating problems of odours, damp and radon
- Reduces greenhouse gas emissions
- Maintains a steady indoor temperature
- Fireproof construction
- Any damage is easy to repair
- Water leaks will not affect insulation
- Maintains insulation performance over time
- Rapid building process, without the need for drying out
- Can be reused and recycled
- Sustainable building
- KOLJERN® technology will become ETA certified in 2015. (European Technical Approval).
- Saves as much as 50 % on the building height on roof-terraces
- Enables the possibility to reduce secondary support in roof structures
- Integrated Radon protection in the ground-slab
- Several finishing layers is possible as façade material.

- 1 KOLJERN® Roof elements that is later covered with a layer of FOAMGLAS insulation and a membrane.
- 2 The KOLJERN® building technology was one of the winners in 2012 "GREEN INNOVATION CONTEST"
- 3 The first KOLJERN® "plus" energy house. A house, in northern European climate, that produces energy instead of using it.



3



Quality and sustainable building

We set high standards and aim to deliver long-term sustainable solutions and products with low running costs. Our environmental policy is to create a healthy environment for ourselves and for future generations. Our guarantee of quality means that we always deliver the right product from the environmental viewpoint and we carry out work that is free from defects. This may seem obvious, but it is especially

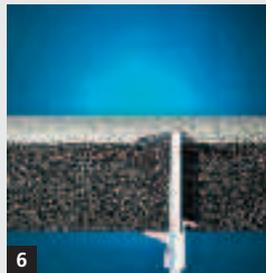
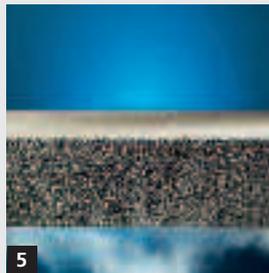
important in an industry that has experienced problems due to lack of quality and hidden faults.

We deal with consultants, building companies, property owners and other companies, as well as individuals who seek products of high quality – combined with sustainable solutions that are carbon neutral.

- 1 Terrace, Roof and ground slab elements in Floda, Gothenburg
- 2 KOLJERN® Roof elements for the Austrup Faernley museum in Oslo



FOAMGLAS® insulation: unrivalled performance



1 Waterproof

FOAMGLAS® is waterproof because it consists of pure glass.

Advantage: does not absorb any moisture and does not swell.

2 Pest-proof

FOAMGLAS® cannot rot and is pest-proof because it is inorganic.

Advantage: insulation without risk, especially in the base area and the soil. No basis for nesting, breeding or seed germination.

3 Compression-proof

FOAMGLAS® is extraordinarily in-compressible even with long-term loads due to its cell geometry without deformation.

Advantage: use as load-bearing thermal insulation without risk.

4 Incombustible

FOAMGLAS® cannot burn because it consists of pure glass. Fire behaviour: Classification according to EN 13501: A1.

Advantage: storage and processing not hazardous. No propagation of flames in the event of fire (chimney effect) in ventilation space.

5 Vapour-tight

FOAMGLAS® is vapour-tight because it consists of hermetically sealed glass cells.

Advantage: cannot soak through and already contains the vapour barrier. Constant thermal insulation value over decades. Prevents the penetration of radon.

6 Dimensionally stable

FOAMGLAS® is dimensionally stable because glass neither shrinks nor swells.

Advantage: no dishing, contracting or creep. Low coefficient of expansion, nearly equal to that of steel and concrete.

7 Acid-resistant

FOAMGLAS® is resistant to organic solvents and acids because it consists of pure glass.

Advantage: no destruction of the insulation by aggressive mediums and atmospheres.

8 Easy to work with

FOAMGLAS® is easy to work with because it consists of thin-walled glass cells.

Advantage: with simple tools like a saw blade or hand saw, FOAMGLAS® can be cut to any desired measurement.

9 Ecological

FOAMGLAS® is free of environmentally damaging flame retardants and propellants, no relevant eco-toxic components.

Advantage: After generations of use as thermal insulation, FOAMGLAS® can be used again: as filler in landscaping or thermally insulating granulate. Ecologically sensible recycling through re-use.

KOLJERN® is part of FOAMGLAS®
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about our products and business.

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