Schönthaler

Producing concrete blocks and
building materials since 1964.

Hemp bricks

TECHNICAL

FACT SHEET 2017

www.hanfziegel.ch

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Hemp bricks

PRODUCTS

The symbiosis of the oldest plant cultivated by mankind (hemp) with one of the oldest and most tried-and-tested building materials (natural lime) is the building material of the future. The two materials are pressed to form a brick using a cold air process. The hemp plant grows approx. 50 times faster than wood; biomass sufficient for a small single-family house will grow in only five months on one hectare of land. The connection of loose hemp shives with natural limestone and minerals make the material as hard as stone and resistant to external influences, meaning that buildings will stand for many generations, saving the environment and money. Excellent thermal properties make additional insulation such as polystyrene unnecessary. Hemp-lime has similar properties to clay with regard to air purification and moisture regulation, ensuring a healthy living environment and clean air. The cycle binds more CO^2 than it releases, actively saving the environment.

PROPERTIES

- Heat storage and thermal insulation
- Acoustic comfort, sound absorption and sound insulation
- Hemp lime regulates humidity by absorbing moisture, cleansing and releasing it evenly
- non-flammable, does not release toxins in the event of fire, 100% recyclable product, rodent- and vermin-resistant, mould-resistant, open to diffusion

AREAS OF APPLICATION

Partition walls, exterior walls, construction of new insulation walls, full heat insulation of existing buildings, interior insulation of existing buildings, underfloor insulation, internal acoustic walls, complete heat insulation of new buildings, renovation of old buildings.

PROCESSING

Lay hemp bricks using an insulating mortar or lime-hemp mortar (Röfix). Basic and fine plaster must be respiratory-active (e.g. Röfix hemp-lime plasters, lime putty, NHL, lime, hemp or clay plaster). Coats of lime milk paint or clay paint can be painted directly onto hemp bricks, or they can be left without plaster. Cut with a hand, motor or circular saw.

CE

TECHNICAL SPECIFICATIONS

Wall thickness	8	12	20	24	38	Full brick
Dimensions cm	8x50x22	12x60x22	20x55x22	24x48x22	38x50x22	6x22x11
Pieces/m2	9	7.5	8	9.5	9	–
Pieces/m3	111	62.5	40	38.5	23.8	500
Thermal conductivity W(mK)	0.07	0.07	0.07	0.07	0.07	0.07
Heat transfer coefficient in W (m2K)	0.76	0.53	0.33	0.27	0.18	–
Density in kg/m3	300	300	300	300	300	300
Sound absorption coefficient	0.8	0.8	0.8	0.8	0.8	0.8
Phase shift in hours	3:09	5:53	12:06	14:48	24:30	–

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PROCESSING

CUTTING AND MILLING

Hemp bricks are very user-friendly when cutting and milling. Hand saws, circular saws, band saws, motor saws, masonry cutters or normal milling machines can be used.

TEMPERATURE

For temperatures above 30 °C, moisten the brick slightly before laying. High temperatures and dry air can cause the lime mortar to burn up due to excessive absorption rates. When plastering at high temperatures, the brick must also be moistened beforehand.

Minimum temperature	+5 °C
Maximum temperature	+35 °C

FIRST ROW OF BRICKS

For exterior walls and walls on damp ground, a bitumen strip is laid under the wall. The first row is then laid with aerated concrete blocks, which are coated with sealing slurries on all sides. Alternatively, a hydrophobic offset block can also be used.

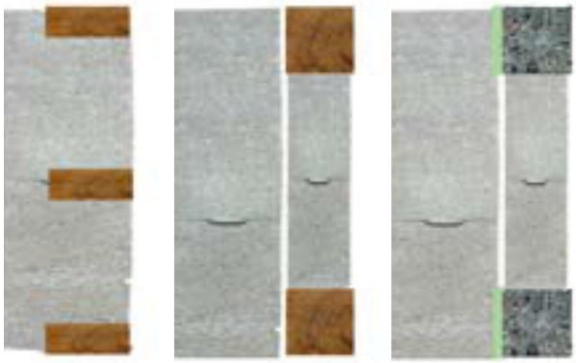
Top view

Perspective

APPLICATION

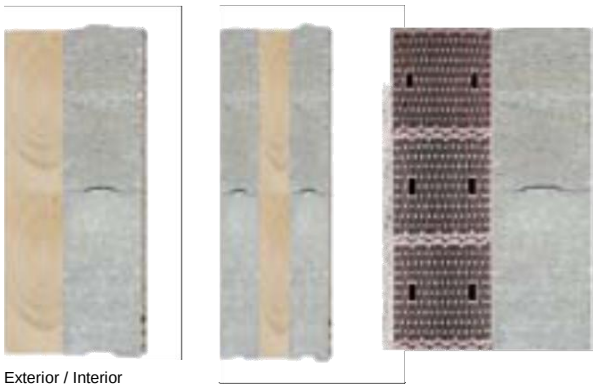
NEW BUILDING

Exterior walls with wooden or concrete skeleton construction



Exterior / Interior

Exterior walls with wood or clay bricks



Exterior / Interior

RENOVATION

As hemp-lime bricks are highly moisture-tolerant and -regulating, prevent mould and have good insulation values, they are particularly suitable for renovations and for energy rehabilitation measures.

PARTITIONING WALLS, ACOUSTIC WALLS, BAFFLES

Due to their excellent properties with regard to air purification and moisture regulation, hemp stones are very well suited for partitioning walls. As hemp concrete is very inhomogeneous, disordered and composed of different densities, they effectively interrupt sound waves, reducing the decibel level. Room sound, too, is also absorbed very well due to the coarse surface.

UNDERFLOOR SCREED

The combination of hemp bricks and hemp fibre footfall sound insulation offers a natural and technically reasonable option for floors.

WALL MORTAR AND PLASTER

Hemp bricks must be plastered with breathable plasters (e.g. Röfix Hemp-Lime Plaster System). Lime putty paints or clay paints are ideal for whitewashing. Hemp-lime masonry mortar (Röfix) is used for exterior walls, and lime-insulating masonry mortar for exterior walls.

WALL HEIGHT AND LENGTH

MAXIMUM HEIGHT

Hemp brick walled into in supporting structure

120 mm	6 metres*
200 mm	9 metres*
250 mm	9 metres*
300 mm	10 metres*
380 mm	10 metres*

Hemp stone wall without support structure

120 mm	4 metres*
200 mm	6 metres*
250 mm	6 metres*
300 mm	8 metres*
380 mm	8 metres*

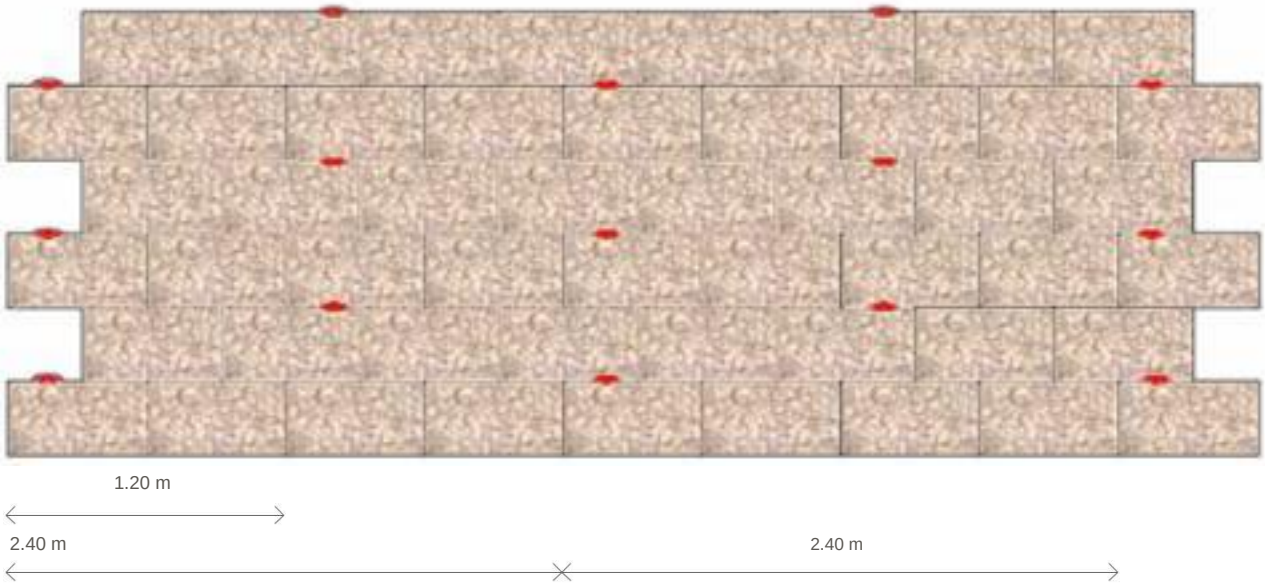
MAXIMUM LENGTH

Hemp brick

120 mm: For wall heights of less than 3 metres:	6 metres*
120 mm: For wall heights of more than 3 metres:	3 metres*
200 - 380 mm: For wall heights of less than 3 metres:	6 metres*
200 - 380 mm: For wall heights of more than 3 metres:	4 metres*

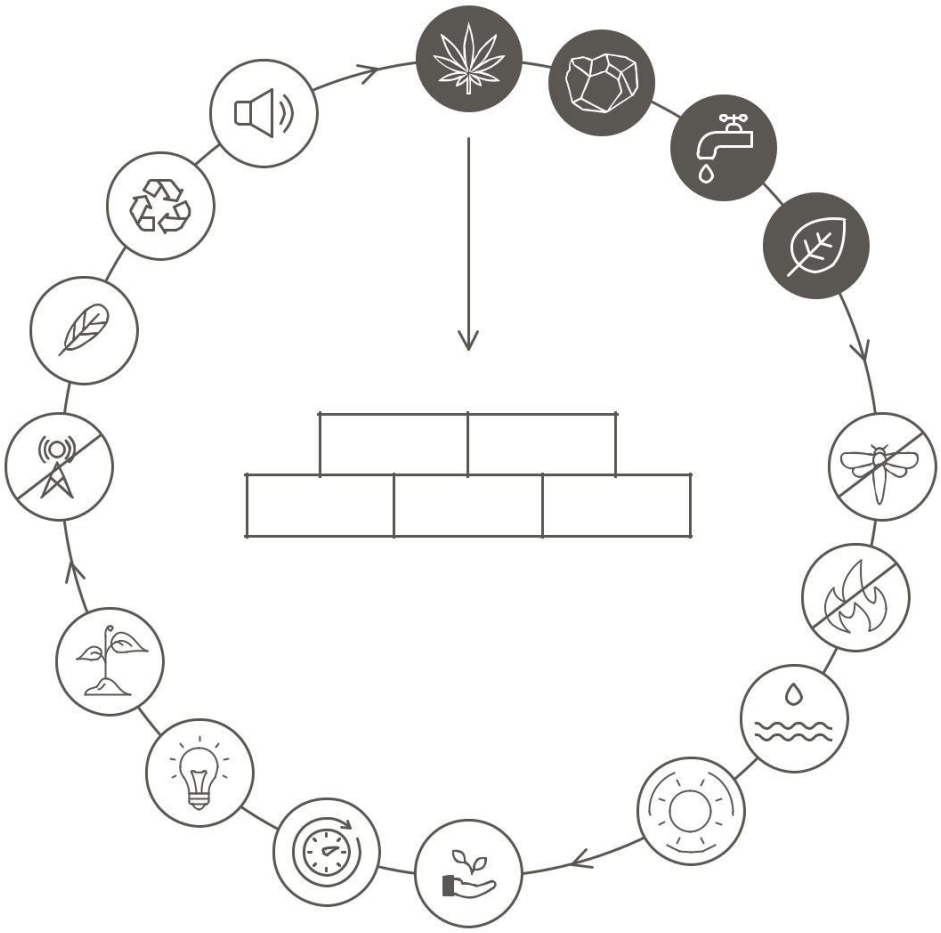
*No guarantees can be given regarding maximum wall widths and heights. We did not calculate the stated maximum widths and heights ourselves; these are based on the documentation, tests and recommendations of a competitor with an equivalent product (Isohemp).

MOUNTING OF HEMP BRICKS FOR INSULATION (DOWELS)



WINDOW, CROSSBAR, MOUNTING

OVERVIEW



Hemp
+ lime
+ Minerals
+ Water
= 100% natural - CO2 negative

PROPERTIES

Vermin-resistant
Fireproof
Moisture-tolerant
Heat-accumulating /
Heat-reflecting

Energy-efficient

Lasts for centuries
Stable / solid
Tradition / innovation
Sustainable

Ray-absorbing
Lightweight construction
Recyclable

Biodegradable
Sound insulation /

Sound absorption

APPLICATION

Exterior walls
Internal insulation
External insulation
Partitioning walls
Subfloors
Noise barriers

Acoustic walls
Renovation

CLIMATEHOUSE

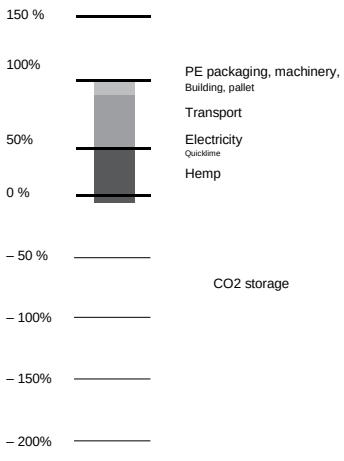
A nature, A, B or C

TAX SAVINGS

ecobonus up to 65%

CARBON FOOTPRINT

minus 160%



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Concrete paving stones
Paving stones
Retaining blocks
Kerbs

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Concrete barriers
Precast concrete columns
Raised beds
Irrigation plinth
Site fence plinth
Glass concrete fields
Cellar shafts

Precast concrete parts -
Customised production

CEILING SYSTEMS

Plate floor
Hollow stone ceiling
Unisol ceiling

CONCRETE BRICKS + EXPANDED CLAY BRICKS

Shelving systems
Cantilever racks
Pallet racks
Industrial shelving

Formwork systems
Concrete piles - Hop piles
Natural bricks made from hemp and lime
As a supplement to the
Construction we offer all
Building materials

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