



von Hanf

Hemplith® Modular

Hempcrete Block System with Tongue and Groove

Sustainable Building with Natural Materials

HEMPLITH Modular – Climate-Neutral New Construction with System Hemp Blocks

HEMPLITH Modular is the ideal solution for modern new construction projects that combine sustainability, energy efficiency, and construction speed. The system is suitable for a variety of building types and construction methods.

● New Residential Building Construction

Single-family homes, semi-detached houses, small multi-family homes (typically up to 2-3 stories, depending on structural requirements).

● New Non-Residential Building Construction

Offices, workshops, commercial buildings, halls with load-bearing structures (reinforced concrete, timber, or steel).

● Load-Bearing Structure + Infill

Ideal in combination with post-and-beam systems (concrete, timber, steel). HEMPLITH Modular provides walls, insulation, and indoor climate control, not primary structural support.

● Serial and Modular Construction

Standardized grids, repeatable details, short construction times. Suitable for standardized houses, terraced houses, and urban quarters.

● Energy-Efficient New Buildings

KfW/EH standards, passive house-like concepts (depending on wall thickness and overall system).

● Ecological New Construction

CO₂-storing, vapor-open, capillary-active. Suitable for projects with ESG, QNG, DGNB, or municipal sustainability goals.

● Architecturally Demanding New Buildings

Clear geometries, visible grid logic, well-plannable for prefabrication.

Hemplith® Modular revolutionizes the construction process through its unique dry installation of hemp concrete blocks, which integrate structure and insulation.

1. PRODUCT DESCRIPTION

The Hemplith® Modular consists of hemp concrete blocks that are laid dry (without mortar or adhesive) using a tongue-and-groove system. The blocks simultaneously serve as formwork and insulation for a load-bearing reinforced concrete frame structure (post-and-beam) that is poured into the designated recesses of the blocks.

Main Advantages:



2-in-1 Solution:

Wall construction and insulation in one step.



Dry Construction:

Fast assembly via a plug-in system.



CO₂ Sink:

CO₂ storage through plant-based aggregates.



Living Comfort:

High thermal inertia and humidity regulation.

Further Advantages:

- **Performance:** 30 m²/day with 2 skilled workers (structure included)
- **Compatibility:** Compatible with standard window solutions, integration of roller shutters possible
- **Easy Installation:** Simple routing for electrical conduits
- **Adaptability:** All roof and slab types are adaptable
- **RE2020-compliant:** Very low-carbon solution for RE2020 compliance

With Hemplith® Modular, builders and architects receive a sustainable, efficient, and adaptable solution that meets ecological standards and maximizes living comfort.

2. TECHNICAL PERFORMANCE DATA

The following technical data provide builders and architects with detailed insights into the outstanding properties of Hemplith® Modular. These specifications are crucial for planning energy-efficient, safe, and environmentally friendly buildings that meet the highest comfort requirements and comply with future construction standards.

The most impressive performance features at a glance:

- **CO₂ Sink:** -0.889 kg CO₂ eq/m² (Certified by FDES)
- **Fire Resistance:** EI 90 (90 minutes fire resistance for high safety)
- **Thermal Phase Shift:** 8 to 10 hours (Excellent for thermal comfort and energy efficiency)

Thermal Properties

Property	Value	Unit
Thermal Resistance (R) Block	4.21	m ² .K/W
Thermal Resistance (R) Wall*	4.60	m².K/W
Thermal Phase Shift	8 to 10	Hours
Thermal Conductivity (λ)	0.071	W/(m.K)

*Usable value of the finished wall including plaster

Acoustics & Fire Protection

Property	Value	Standard/Classification
Sound Reduction Index Rw (C;Ctr)	43 (-1; -2) dB	With plaster (15mm external / 5mm internal)
Fire Behavior (Material)	B-s1, d0	Flame retardant (Euroclass)
Fire Resistance (Wall)	EI 90	90 Minutes (Fire resistant)

Environment & Health

Property	Value	Remark
CO ₂ Balance	-0.889 kg CO ₂ eq/m ²	CO ₂ Sink (certified by FDES)
VOC Emissions	Class A+	Very low emissions

3. PRODUCT RANGE & DIMENSIONS

Our Hemplith® Modular System is characterized by its innovative and flexible construction. It allows for easy and precise installation, with individual blocks interlocking seamlessly to form a robust and homogeneous wall structure.

The system is based on a modular dimension of 30 cm thickness and 30.8 cm height.



Standard Block



Post Block



Double Post



U-Block

Block Type	Dimensions (L x W x H)	Weight (approx.)	Function
Standard Block	60 x 30 x 30.8 cm	21 kg	Regular Masonry
Post Block	60 x 30 x 30.8 cm	16 kg	Formwork for vertical concrete posts (Recess 15x15 cm)
Double Post	60 x 30 x 30.8 cm	15 kg	Formwork for reinforced posts or connections (Recesses 15x15 cm)
U-Block (Lintel/Bond Beam)	60 x 30 x 30.8 cm	14 kg	Formwork for bond beams/lintels (Recess 15x22 cm)
Base Block (Concrete)	60 x 10 x 25 cm	7.8 kg	Plinth finish (hydrophobic)

Consumption: approx. 5.4 blocks per m² wall surface.

4. SCOPE OF APPLICATION & STRUCTURAL ENGINEERING

Our Hemplith® modular system revolutionizes construction through the intelligent combination of sustainable hemp blocks and a robust reinforced concrete core. This innovative construction method utilizes the excellent insulating properties of the hemp blocks, while the concrete core bears the entire static load. This enables high energy efficiency and a healthy indoor climate without compromising structural integrity.

The hemp blocks themselves are **non-load-bearing**. Load transfer occurs exclusively via the reinforced concrete core.

Building Type:

Residential buildings, public buildings, commercial properties

Maximum Height:

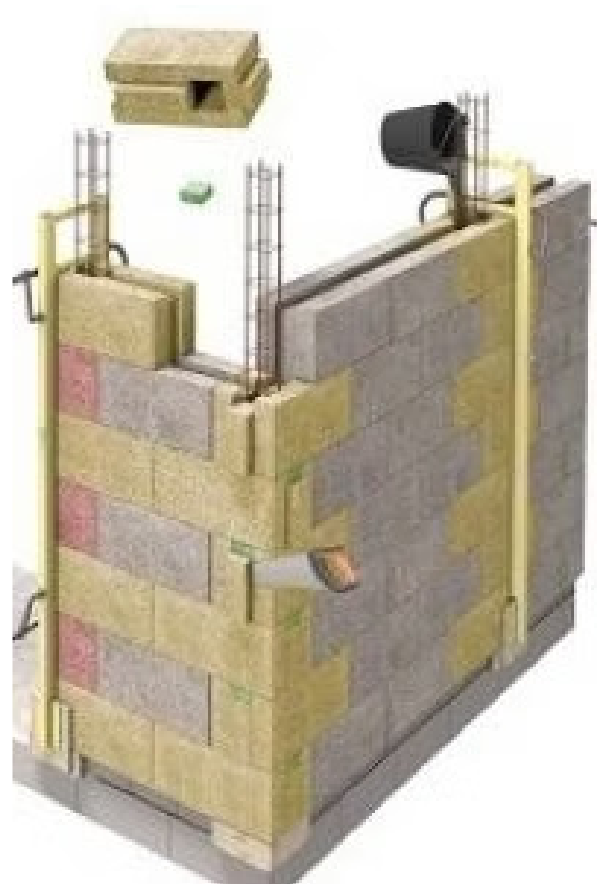
G+1 (Ground floor + 1 upper floor), max. floor height 3.00 m.

Finishes:

- *Interior:* Clay plaster or lime plaster.
- *Exterior:* Lime-based renders (reinforced mesh recommended), timber facade, or brick slips.

Seismic Zones:

Permitted in zones 1 to 3 (according to French classification).



5. PROCESSING INSTRUCTIONS (Infill Concrete)

The correct execution of the infill concrete is crucial for the structural integrity of the Hemplith® modular system. It serves for load transfer and stabilizes the construction by filling the hollow chambers of the post and U-blocks.

Concrete Class:

C25/30 (Minimum)

Consistency Class:

S4 (very soft/flowable)

Maximum Aggregate Size:

10 mm (largest grain)

Exposure Class:

According to Eurocode 2
(without considering protection
by the blocks)

Concrete Cover:

According to Eurocode 2 (can be
reduced by up to 10 mm
according to NF EN 1996-1,
corresponding to the plaster
layer on the exposed block side)

Processing:

- Pouring in layers of max. 2.15 m height
- **Without Vibration** (no shaking, to avoid damaging the blocks)
- Use of ready-mix concrete according to NF EN 206/CN

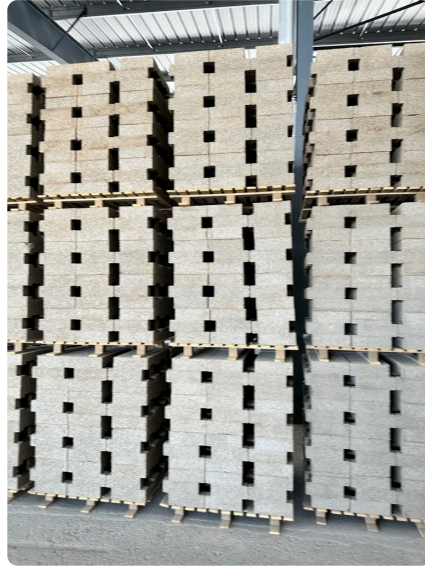
IMPORTANT: No Vibration!

When pouring the concrete, **vibration or shaking must be avoided at all costs**. This is crucial to prevent damage to the Hemplith® blocks and to ensure proper adhesion of the concrete.

Adherence to these properties and careful concrete processing are essential to ensure satisfactory filling quality, so that the post-and-beam structure can fulfill its load-bearing function.

6. STORAGE & TRANSPORT

Professional storage and careful transport are crucial to ensuring the quality and performance of Hemplith® hemp concrete blocks. This is the only way to ensure the long-term structural integrity of the building and avoid construction delays.



Delivery

The blocks are delivered on pallets.

Storage

Storage must be protected from weather influences (rain).

Drying Time

Drying time before delivery:
Minimum 28 days ex works.

Practical tips for handling on the construction site:

- **Careful handling:** Avoid impacts and rough treatment of the blocks to prevent damage.
- **Protection from moisture:** The blocks must also be protected from rain and excessive moisture on the construction site.
- **Stacking:** Do not stack pallets too high to ensure stability and avoid pressure on the lower blocks.
- **Delivery planning:** Coordinate delivery times precisely with construction progress to minimize long storage times on site and avoid unnecessary exposure to environmental influences.

Note: This data sheet is a summary of the technical documents (as per Avis Technique V2). For construction execution, the complete original documents and local building regulations must be strictly observed.