

Hempcrete Properties

Listed below are the basic material properties

- Density: 93.6 to 136.4 Kgs/M3
- Compressive strength: 116 to 145 pounds per square inch (PSI)
- Flexural strength: 44 to 58 PSI
- Fire rating: approximately 1 hour per 100 mm of thickness
- RSI-value: .28/200mm to .14/500mm thickness available
- Air permeability: 1.0×10^{-6} PSI
- Vapor permeability: 3.4×10^{-5} PSI
- Carbon capture: 108kg/M3
- Achievable air tightness: <1.1 cubic feet per minute
- Acoustic absorption: 0.69 noise reduction coefficient (NRC)

Hempcrete Material

Hempcrete is a lightweight bio-composite building material made from industrial hemp stalks, a lime based binder, and water.

- Aggregate: Hemp hurd (the inside woody core of the hemp plant)
- Binder: hydrated air lime blended with selected cementitious, hydraulic and inorganic materials.
- Water: for mixing and curing

Hempcrete Benefits

The use of Hempcrete as a building material can have the following benefits:

- Non-toxic
- No off-gassing
- No solvents
- Mould resistance
- High vapor permeability
- Humidity control
- Durable
- Sustainable
- Carbon sequestration
- Fire and pest resistance
- Passive self regulation of temperature and humidity

Hemp Technologies Team



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All our team members are committed to building with Hemp/Lime and have multiple years in construction.



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Hempcrete Materials and Design



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Architectural Design
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Construction Assistance
Project Management

Proud members of:
The Hemp Industries Association
The Canadian Hemp Trade Alliance
International Hemp Building Association



Hempcrete – raw hemp hurd/shiv



Hempcrete – cast around frame



Hempcrete – roof insulation

Hempcrete & the Environment

Hempcrete can benefit the environment and create a healthy structure in many ways including:

Environmental Benefits:

- Non-toxic
- Sustainable
- Renewable
- Carbon sequestration
- Reduction of carbon dioxide emissions
- Low energy building product
- Reusable

Healthy Structure:

- Good vapor permeability (capillarity and hygroscopicity)
- Naturally provides a healthy internal environment
- Thermal comfort

Material Benefits:

- Good thermal performance (insulation and mass)
- Inherently air-tight material
- Energy efficiency
- Reduced heating and cooling requirements
- Low maintenance
- Multiple finish options

Hempcrete Structural/Construction

The hemp plant has been used for thousands of years for various trades, including rope making, ship sails, oils, textiles, paper, and construction materials. Though it doesn't have structural properties alone, it can enhance the structural components of a structure in several ways.

Structural:

- Can be used in load bearing applications with an integrated timber, steel, or concrete frame
- Provides racking/shear strength
- Can stiffen structural frames
- Can allow for increased spacing of structural members

General Information:

- Easy to handle and install
- Monolithic product
- Material costs: approximately \$12 CF

Construction:

- Wall construction including racking strength and insulation
- Protects timber from deterioration
- Durability and longevity
- Lightweight
- Site mixed
- Reusable

Hempcrete

Hempcrete is a lightweight bio-composite building material made from industrial hemp and lime that provides insulating and moisture regulating properties. Various finishes can be incorporated with Hempcrete.

Material Information:

- Lightweight sustainable bio-composite material
- Industrial hemp shiv with a lime based binder

Uses:

- Pre-cast blocks
- Cast-in-place walls
- Spray applied for in-fill of floor, wall, roof cavities
- Retrofit existing conditions
- Non-load bearing or infill conditions
- Load bearing with integrated structural frame
- Above ground/daylight walls

Benefits:

- Energy and thermally efficient
- Breathable insulating layers
- Vapor permeability
- Fire and pest resistant
- Acoustic insulating properties
- Easy to handle and install