

# Manual & installation guide



## Naturhemp insulation

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## Naturhemp insulation

P.2

# General description



1 Stock insulation panels in their wrapping away from rain and sun

2 Cut the insulating panels to the width of the studs and place with a slight compression (spring effect) to ensure a perfect contact between the studs



3 Make sure there is no gap between the connecting joint of two panels to avoid any loss or air infiltration.



4 Wear protective clothing to avoid injury when handling cutting tools during installation.



# Naturhemp insulation

# Naturhemp advantages



## Humidity control

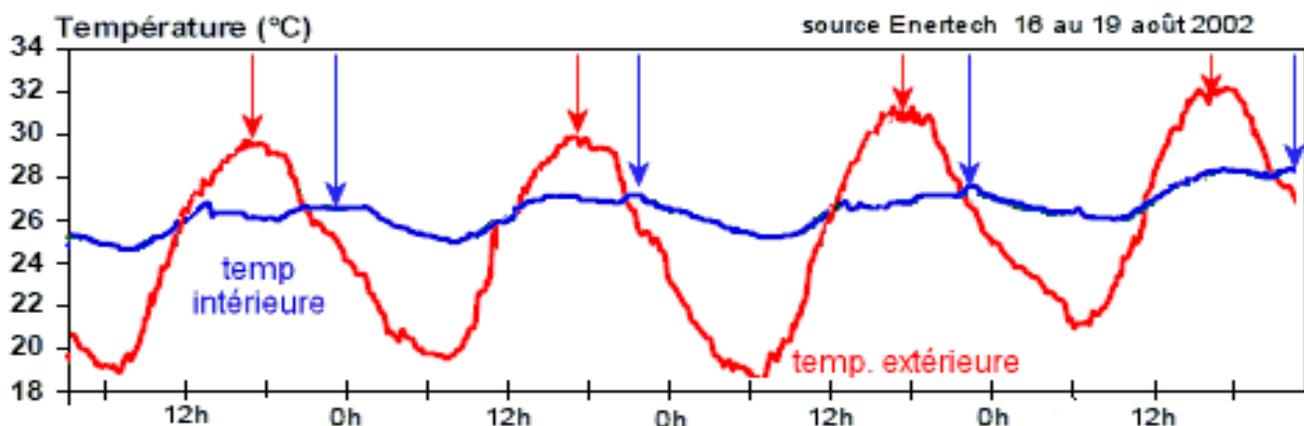
Humidity control by hemp insulation is one of the most advantageous elements in the competition. While the majority of insulation on the market acts as a water repellent barrier (does not allow any water vapor to pass), hemp on its side is able to absorb up to 20% of its weight in water before losing its insulating values. This results in better moisture management in your structures while avoiding the risk of mold. Products such as fiberglass lose 100% of their insulating factor when in contact with water and rockwool and other products block any movement of moisture which can sometimes translate into too much concentration moisture between the walls and thus allow the mold to spread. For its part, hemp absorbs excess humidity in the air during wet weather and repels it in dry weather to offer unequalled comfort and a reduction in heating costs and air exchanger.

## Thermal Inertia or Phase Shift

Thermal inertia is the ability of a material to store heat (or cold). In fact, the heavier a material is ( $\text{kg} / \text{m}^3$ ), the more it will have a great absorption capacity. Our insulation products with an average of  $35 \text{ kg} / \text{m}^3$  are part of the insulation considered as heavy and therefore have a higher inertia than conventional products.

Intimately related to inertia, the phase shift on its side can determine the temperature fluctuations in a building. Thus, hemp insulation will have a significant impact on maintaining a stable indoor temperature despite temperature fluctuations outside. This will result in a reduction of heating costs, but also air conditioning in warmer weather. See photo below to better visualize the impact of inertia in hot weather.

*Example of phase shift in summer with strong inertia*



# Naturhemp advantages



## Anti-rodent materials

Hemp is one of the most resistant insulation against rodents, mites and termites. Indeed, while fiberglass is a perfect nest for winter, the strong mechanical strength of hemp fiber prevents and deters our friend rodents to infiltrate. Moreover, as this plant has a high concentration of silica, it will prevent the development of mites and termites. In summary, the use of our insulators makes it possible to be better protected against these "invaders" and thus to preserve the insulation and the wooden frames.

## Produces two in one

In addition to the various performance factors presented above, hemp is naturally sound absorbing. This will have the effect of reducing the cost of materials in order to obtain a cut of wall which will be very well insulated, but also which will favor an absorption of the movements of the sound in your building.

## Unmatched ease of installation

Our insulating panels are very pleasant and safe to install. In addition, they have a very good mechanical strength, contributing to their ease of installation and the conservation of their effectiveness in the long term.

## Sustainable Buildings - Zero Carbon

Hemp contributes to soil regeneration because it requires little water, no fertilizer and no pesticides. In addition, during its growth hemp absorbs a large amount of CO<sub>2</sub>, thus reducing the carbon footprint of the buildings that use it.

Beneficial for health (made of natural product, without VOC and non-allergenic)



# Naturhemp Insulation

# Interior Wall Installation

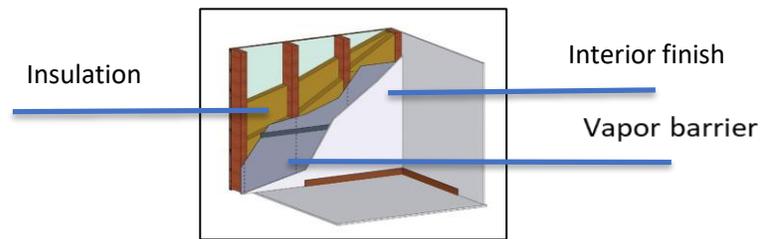


## Installation Guide

We say "integrated" insulation because the Naturhemp panels are laid between wood studs in 1 or 2 layers. In case of double, crossed, layer it is necessary to install perpendicular to the joists, a row of cleats, whose width will depend on the thickness of the second insulation layer.



### Exterior walls Wood framed house



#### 1-Insulation cutting

- Cut the insulation with an excess of 1/2" from the actual distance between the two joists. You can cut with an electric saw, manual saw or cutting disc.
- The thickness of the chosen insulation is determined by the desired thermal performance ( $R = 3.7 \text{ m}^2\text{K} / \text{W} \Rightarrow 145\text{mm}$  for a lambda of  $0.039 \text{ W} / \text{mK}$ ) as well as the depth of the joists.

#### 2-Installing insulation between joists

- Place the insulation between the joists and slightly compress both sides and let it take advantage of the "spring effect". The insulation will regain its initial shape by marrying perfectly the wooden uprights, thus avoiding thermal bridge risks.
- Adjust the insulation strips to make them perfectly joined.
- Ensure continuity of insulation at junctions between wall, floor, ceiling and crawling space. If necessary, complete with "cuts" of insulation produced on the site.

#### 3-Possible installation of a second layer (cross-jointed)

- Screw horizontal battens (2.5 " wide minimum, depth equal to that of the second insulating layer, 24 " spacing on uprights).
- Insert the insulation horizontally between the cleats by compressing it slightly (spring effect).
- Adjust the insulation strips to make them perfectly joined and ensure continuity of insulation at junctions between wall, floor, ceiling and crawling space.



# Naturhemp Insulation

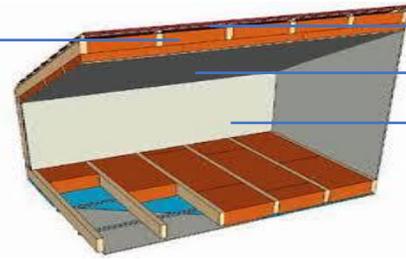
# In Between Trust Installation Guide



The attic consists of wooden trusts composed of inclined rafters. The first step of installation is to place a layer between the rafters, then complete with a second layer perpendicularly crossed or installed in the same way as the first layer.

## Cathedral ceiling between rafter insulation

Insulation



Wood fibre

Vapor barrier

Interior finish



### 1-Prior to installation

- Depending on the situation, the installation of a water proof wood fiber board on the outside (cold) and a vapor barrier on the inside (hot) is mandatory or recommended, especially to ensure airtightness.
- Ensure that the surface to be insulated is clean, in good condition, is dry and does not show any leakage.



### 2-Between rafter installation

- Place the insulation between the rafters and compress it slightly in the sense of the width to benefit of its "spring effect". The insulation will regain its initial shape by perfectly marrying the rafters, thus avoiding a thermal bridge risks.
- Adjust the insulation strips to make them perfectly joined.
- Ensure continuity of insulation at junctions between wall, floor, ceiling and crawling space. If necessary, complete with "cuts" of insulation produced on the site.



### 3-Possible installation of a second layer (cross-jointed)

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# Naturhemp Insulation

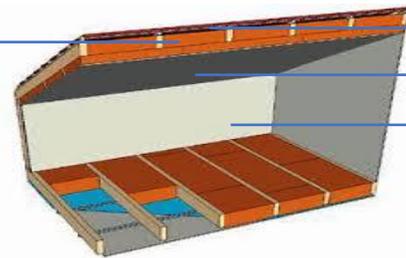
# In Between Trust Installation Guide



## Cathedral ceiling between rafter insulation

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Insulation



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### 4- Vapor barrier

- Attach the Salola vapor barrier to the heated side of the building by stapling it or nailing it to the studs of the primary framework or on the cleats of the secondary framework.
- It is essential to respect an overlap of 2.5 '' between each strips.
- Be sure to seal by fixing the strips with a suitable adhesive.
- Particular attention should be paid to the tightness at the junctions wall / ceiling, wall / floor, angles, connections with the bays, and all the singular points (chimneys, pipes, vents).



### 5-Interior siding finish

- The use of plasterboard on a wooden frame, refer to the manufacturer's manual.
- In all cases, refer to the regulations in force and the recommendations of the manufacturers.

# Naturhemp Insulation

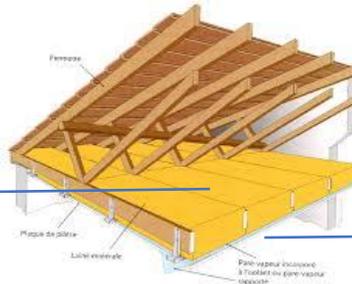
# Roof - Attic Insulation Installation Guide



## Roof - Attic

The attic, consists of a traditional frame, is ventilated, undeveloped and unheated. To install simply unroll the insulation on the ceiling or between joists and complete the insulation with a second crossed layer if necessary.

Insulation



Vapor barrier



### 1- Prior to installation

- The installation of a vapor barrier is generally required,
- The undeveloped attic space must be correctly ventilated.



### 2- Cutting the insulation

- The thickness of the insulation depends of the desired thermal performance.
- In the case of an in-between joist installation, for spacing different from 24", cut the insulation  $\frac{1}{2}$ " wider to ensure good contact with the joists.



### 3- Insulation installation

- Lay the insulation on the floor, taking care not to leave any empty space at the junctions between the floor and the walls or crawling space.
  - Adjust the insulation strips to make them perfectly contiguous to each other.
  - Make sure there is no gap at the junctions between the floor and walls or crawling space to avoid thermal bridges.
  - If necessary place a second layer of insulation, parallel, with cross joints above the first layer with the same recommendations as above.
- Insulation must not obstruct the vents or be in direct contact with heat sources (chimney, spot lighting, ...). Depending on the case, you may use protective covers or create a chamber, and build frames at 6" around chimney ductwork using non-combustible material.

# Naturhemp Insulation

# Tools

## Suggested accessories



Table saw



Insulation knife



1" blade utility knife



Miter saw



Grinder



Diamond blade



Metal cutting blade



Circular saw



Measuring tape

