

# NATURHELD FLEX

Flexible Wood Fibre Insulation Batts for between Studs, Rafters and Joists



## Naturheld Flex Characteristics

Produced According to EN 13171

**Naturheld Flex** flexible wood fibre insulation is a natural product, which comes from renewable and sustainable PEFC certified timber off-cuts. These off-cuts are sourced from local sawmills and only new timber is used. Because the CE-marked wood fibre insulation significantly reduces heat loss from buildings, carbon emissions into the atmosphere are greatly reduced from the cradle to the grave. Due to Naturheld Flex's high density of 50 kg/m<sup>3</sup> it is very slump resistant and easy to install between studs, rafters and floor joists. It also absorbs airborne noise within cavities and reduces reverberation.

Naturheld Flex is both hygroscopic and vapour permeable due to its fibrous content. This means that it can absorb water vapour from the internal atmosphere and this will then travel through the building fabric so that it can be released to the outside by evaporation. It must be protected from excessive moisture however, so an airtightness membrane must be installed to the inside of the timber frame within 4 weeks max, and during the cold winter season, this must be installed immediately. In addition, the joints must be well-taped with airtightness tape. This system provides a drier, healthier and more comfortable internal micro-climate and significantly reduces the possibility of mould growth and condensation on the internal surfaces. Breathable insulation is particularly critical to keep timbers dry which prevents decay and rot. A dry structure is both warmer and healthier.

Naturheld Flex insulation provides excellent thermal resistance – it has a thermal conductivity figure of 0.036 W/mK which is similar, or even better, than most common man-made insulation materials. Because it is denser than most other flexible insulation materials, it very snugly fits within vertical cavities without sagging or falling out. Sagging would cause significant heat to escape which wastes energy. If even lower U-value figures are required, or a reduction in thermal bridging, it can be combined with various Naturheld wood fibre insulation softboards.

Naturheld Flex flexible wood fibre batts have a high Specific Heat Capacity and a long thermal lag time which means that it stores heat during the warmest times of the day and then releases it as the building cools. This high thermal mass quality means wood fibre keeps buildings warm in winter and cool in summer, creating an ambient, comfortable temperature all year round. This is particularly critical in lightweight buildings such as timber frame structures. Airborne noise will also be reduced in these buildings.

## Naturheld Flex

Thickness (mm)	Batt Size (cm)	No. Batts per Pack	No. Packs per Pallet	No. Batts Per Pallet	M <sup>2</sup> per Pack	M <sup>2</sup> per Pallet	KG per Pallet	Edge Profile
50	57.5 x 122	12	8	96	8.418	67.34	193	Square Edge
80	57.5 x 122	6	10	60	4.209	42.09	193	Square Edge
100	57.5 x 122	6	8	48	4.209	33.67	193	Square Edge
140	57.5 x 122	4	8	32	2.806	22.45	182	Square Edge

Other thicknesses are available to special order: 30\*, 40, 60, 120, 160, 180, 200, 220\*, 240, 260\*, 280\*, 300\*mm.

\* Longer lead times will apply

Technical Details	Naturheld Flex
Density (kg / m <sup>3</sup> )	50 kg/m <sup>3</sup>
Declared Thermal Conductivity $\lambda$ D (W/mK)	0.036
Vapour Diffusion Factor $\mu$	1 - 2
Specific Heat Capacity - C (J/kgK)	2100
Tensile Strength Perpendicular to Plane of Board (kPa)	-
Compressive Stress at 10% Compressive Deformation (kPa)	-
Fire Behaviour (EN 13501-1)	Class E

## Application

### Roofs

**Naturheld Flex** is easily and safely installed between the rafters in roof constructions because it is a flexible insulation which is very slump resistant due to its relatively high density. This will ensure a good fit without gaps, and therefore the avoidance of thermal leakage. It comes in a selection of thicknesses to further enhance the simplicity of the fitting process. It fits snugly between rafters at 600mm centres, and it can be cut to suit rafters at 400mm centres etc. If Naturheld Flex insulation is installed into roof constructions along with Naturheld wood fibre sarking boards, it will keep loft areas warmer in winter and cooler in summer, meaning much more comfortable living conditions. In a new build or major renovation, it is preferable if **Naturheld 140/180/220** sarking boards are laid above the rafters, as this allows the rafter space to be fully filled with Naturheld Flex wood fibre insulation. Vertical counter-battens must be installed above the sarking boards to provide adequate ventilation. This system reduces thermal-bridging through the rafters and provides a watertight roof covering before the breather membrane and tiles are fitted. External noise such as rain or traffic noise will also be reduced within the roof area. If insulating an existing roof without removing the tiles, a 45mm minimum ventilation space must be maintained between the insulation and the roof felt and tiles. Also, the upper surface of the Naturheld Flex must be protected with either the **Ampack Ampatop Protecta Plus Breather Membrane** or the water-resistant sarking board, **Naturheld 220**. This will prevent condensation from getting into the Naturheld Flex from above, but will allow water vapour to escape. The **Ampack Ampatex Eco 5 Airtightness Membrane** must be immediately fitted below the insulation, to control the rate at which moisture passes into the roof and insulation area from the building below.

### Walls

External walls are another major area of heat loss within buildings. **Naturheld Flex** is suitable for insulating between the studs of timber framed walls, giving very good thermal insulation results. This will provide a vapour permeable wall solution so that air moisture within the property will be regulated creating a drier and more comfortable internal environment. For optimal results, the external frame of the house should be insulated with **Naturheld 140/180/220** wood fibre sarking boards. This will provide a water-resistant covering and will also greatly reduce thermal bridging through the frame. These improved Y-values for the thermal bridging will help towards meeting Building Regulation requirements. If a sarking board cannot be used, then the **Ampack Ampatop Protecta Plus Breather Membrane** must protect both the frame and Naturheld Flex. The **Ampatex Eco 5 Airtightness Membrane** or taped and airtight OSB racking board must be used on the internal side of the insulation. Naturheld Flex is not suitable for using on the inside of solid masonry walls as it is not dense enough to hold all the water vapour that will be present in both the internal air and in the solid wall.

Some common man-made insulation materials are very vapour-open such as mineral wool, but they have poor hygroscopic and capillarity characteristics which means that if they do get damp from condensation, they will not be good at releasing this water vapour, and so will take a long time to dry out. This wet mineral wool etc tends to sag downwards with the weight of the water, which leaves gaps around the edges of the insulation allowing heat to escape, and therefore resulting in condensation or mould on the walls.

### Floors

**Naturheld Flex** is laid snugly between the joists in suspended timber floor structures to reduce cold coming up through the floor. For optimal results it is best used with rigid wood fibre boards on top of the floorboards to reduce thermal bridging through the joists. It is critical though that there is adequate ventilation in the cavity under the floor – 150mm minimum. Naturheld Flex cannot sit directly on solid ground floors. If used in the cavity of intermediate floors, Naturheld Flex will reduce some airborne noise (e.g. talking noise) and will also reduce reverberation within the cavity.

## Cutting and Storing Naturheld Flex

Naturheld Flex is easily cut with an insulation knife. It can also be cut with a hand saw or an alligator saw with a serrated blade. It is recommended to wear a dust mask for protection when cutting the insulation batts. Naturheld Flex will not irritate normal skin unlike many popular man-made flexible insulation products and so uncomfortable protective clothing is not required when fitting the insulation. Keep the slabs dry when in storage and protect from damage. Do not stack the pallets.



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