PROCESSING INSTRUCTIONS

INTERI
INSULATION
OR

INTERIOR INSULATION OF EXTERIOR WALLS

INSULATION OF THE TOP FLOOR CEILING

FLOOR INSULATION

Status: 08/25

www.Naturheld.global

Interior processing instructions

Contents

Version 004, 01.08.2025

Product overview

Product	Thicknesses in mm	Insulation value W/mK		Compressive strength in kPa
Plasterable insulation for internal wall insulation: (blunt-edged)		**λD**	**λB**	
Naturheld 140	60 - 120	**0.041**	0.043	>100
Naturheld 110	80 - 120	**0.039**	0.041	>50
Particularly suitable for top floor ceilings: (blunt-edged)				
Naturheld 140	60 - 180	**0.041**	0.043	>100
Naturheld 110	80 - 200	**0.039**	0.041	>50
Naturheld 100	120 - 200	**0.037**	0.039	>40
Insulation boards for impact sound insulation under floor coverings:				
Naturheld 220	22 - 35	**0.047**	0.049	>200
Naturheld 180	40 – 120	**0.043**	0.045	>150
Naturheld 140	60 - 180	**0.041**	0.043	>100
Compartmentalised insulation				
Naturheld FLOW	∞	**0.038**	0.040	-
Naturheld FLEX	30 – 300	**0.036**	0.038	-

Product data sheets available for download at:

https://www.naturheld.global/downloadbereich/

Storage and transport

Check the condition of the goods upon receipt, observe the package inserts and keep them together with the delivery notes.

Unloading and transport on the construction site must be carried out using a suitable crane or forklift truck.

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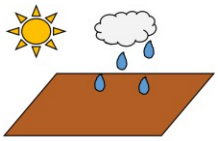
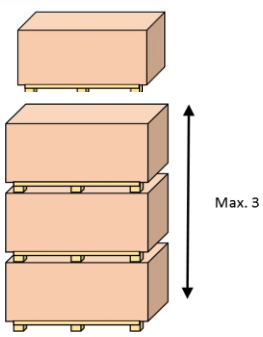
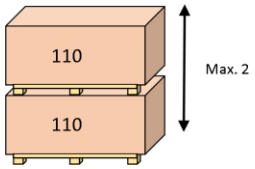
The insulation materials must be kept dry and protected from UV radiation and
mechanical damage.



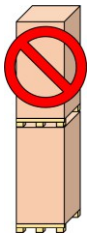
A maximum of three pallets of insulation boards with a bulk density of 140–220 kg/m³ may be stacked on top of each other.



Two pallets of insulation boards with a bulk density of 110 or 100 kg/m³ may be stacked.



Flex cavity insulation and blow-in insulation must not be stacked.



Processing

Cutting

- Naturheld insulation boards can be processed using standard woodworking tools. Hand and table saws, band saws and special insulation saws are suitable. Cut-outs can be made using jigsaws with serrated blades.

- Due to the dust generated, a powerful extraction system is recommended.

- Wear a dust mask.

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Internal insulation of external walls

Internal insulation can be an alternative to external insulation if the latter is not possible for reasons of monument protection or ownership. This can significantly improve the indoor climate with little effort. However, internal insulation always causes condensation to form in the wall structure.

In capillary-active and diffusion-open systems such as those using Naturheld wood fibre insulation materials, the heat storage capacity and moisture transport properties of the wood fibre board, as well as the suitable plaster components, are used to achieve long-term functionality of the insulated exterior wall.

- **The thickness of the insulation on the room side is limited in this case.**
- **The diffusion capacity of the insulation structure must be maintained. Diffusion-inhibiting layers, such as large-area tiled areas, are not possible on interior insulation.**
- **The insulation must be tightly adjacent to suitable, water-absorbent layers; air pockets and backflow must be avoided.**

Examples of insulation thicknesses on standard wall materials

Based on the structures determined by the Federal Ministry for Economic Affairs and Energy in the research project "Increasing energy efficiency through interior insulation systems", we recommend the following possible insulation thicknesses when using natuheld insulation materials:

Building material of the existing wall	40 mm	60	80	100
30 cm Solid or vertically perforated brick, U-value 1.5 [W/(m²K)]	√	√	√	√
24 cm sand-lime brick, U-value 2.0 [W/(m²K)]	√	√	√	√
30 cm aerated concrete, U-value 0.3 [W/(m²K)]	√	√	√	√
30 cm pumice concrete, U-value 1.0 [W/(m²K)]	√	√	√	
30 cm hollow concrete block, U-value 1.3 [W/(m²K)]	√	√	√	
30 cm double-shell masonry, U-value 1.3 [W/(m²K)]	√	√	√	
30 cm natural stone (tuff), U-value 1.2 [W/(m²K)]	√	√		
16 cm half-timbered construction with clay, U-value 1.5 [W/(m²K)]	√	√		

Up to 60 mm insulation thickness, the structure can be recommended without further ado if the substrate test (see below) is successful.

Greater insulation thicknesses work under the following conditions:

- The wall is load-bearing, made of suitable material and protected against driving rain and rising damp.
- The connections between ceilings and floors do not represent a weak point in terms of weather protection and airtightness, e.g. no continuous ceiling beams as in half-timbered construction.
- For building locations higher than 680 m above sea level, the structural feasibility must be checked separately.
- Diffusion-inhibiting coatings (e.g. paint, wallpaper, adhesive films and pure gypsum plasters) must be removed before internal insulation measures are carried out.

Moisture protection certificate

If the above points cannot be answered conclusively or if even greater insulation thicknesses are required, moisture protection certification is necessary.

Transient hygrothermal simulations are necessary to verify the moisture protection of such an internal insulation system. Suitable software can realistically simulate the behaviour of components and entire buildings in terms of heat and moisture development over several years.

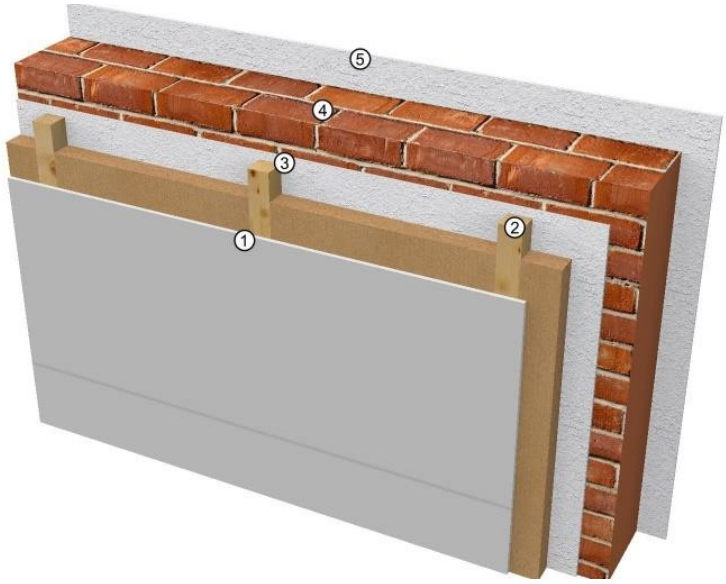
An example of suitable software is the product WUFI pro (developed by the Fraunhofer Institute for Building Physics IBP). In addition to DIN EN 15026, the WTA information sheets 6-1, 6-2 and 6-8 (Scientific-Technical Working Group for Building Maintenance and Monument Preservation) form the basis for calculation and evaluation.

Inspection and preparation of the substrate

- The substrate inspection should be documented in writing and with photographs.
- The substrate must be dry, dust-free, level and sufficiently load-bearing, as well as free of separating substances such as formwork oil residues.
- Loose plaster and paint layers must be removed and any imperfections must be levelled out. Plastering and screeding work on the interior should be completed in order to prevent increased moisture in the exterior wall.
- The plaster must be suitable for absorbing and dissipating moisture. Pure gypsum plasters must be removed; lime and clay are suitable.
- In old buildings in particular, additional care must be taken to ensure that rising damp is prevented.
- Major unevenness should be levelled out with a levelling plaster, which must be completely dry before the insulation boards are glued on.

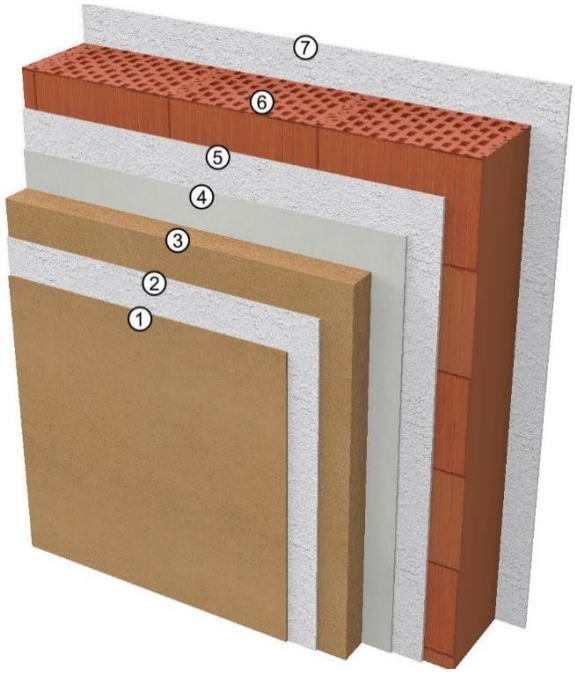
Interior insulation option 1 Naturheld FLEX between studs

1. Interior panelling
2. Studs with Naturheld FLEX max. 60 mm
3. existing plaster
4. dry masonry
5. Intact exterior plaster



Interior insulation variant 2
Naturheld 110 or 140 bonded to masonry

1. Suitable interior plaster, in this case clay
2. Suitable reinforcement plaster
3. Naturheld 110 or 140
4. Suitable reinforcement or adhesive mortar, covering the entire surface
5. Existing, load-bearing plaster
6. Masonry
7. Intact exterior plaster



Insulation of the top floor ceiling

Legal obligation: According to GEG §47, it is mandatory to insulate the top floor ceiling. For this
There are several insulation options. The most common method is to lay insulation on the ceiling in the form of insulation boards, mats or loose insulation materials. All Naturheld boards are suitable for this purpose. They differ in terms of compressive strength and can be selected according to the subsequent load. It often makes sense to install the insulation in two layers. This makes it easier to transport through the roof hatch and any joints are concealed when laid.

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If the floor slab is to remain accessible, Naturheld insulation boards can also be covered with P5 chipboard, laying board or MDF board. In this case, a vapour barrier layer must be installed below the insulation. The component can be evaluated particularly well with a glazier's building physics programme, such as the U-value calculator from UBAKUS.

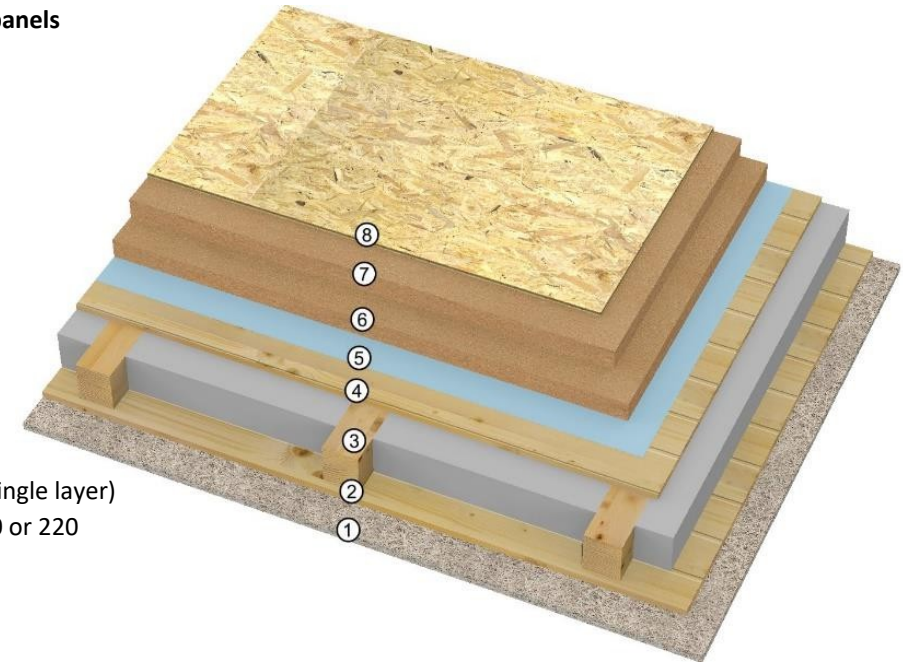
It is also common practice to inflate Naturheld FLOW openly or to lay out Naturheld Flex, but these two options should only be chosen if the existing roof is reliably watertight and the roof space does not need to be accessed.

In the case of wooden beam ceilings, the areas between the ceiling beams (compartments) can also be filled with insulation material; here, Naturheld FLOW or FLEX can be used as compartment insulation.

Typical structure of an insulated top floor ceiling in existing timber construction Insulated with pressure-resistant Naturheld panels

Existing building:
1. Old ceiling cladding, in this case lightweight wood wool panels
2. Plank flooring
3. Beam layer with fill
4. Old floor of the top floor ceiling

New:
5. Vapour barrier, usually necessary
6. and 7. (also possible with a single layer) Naturheld 100, 110 or 140 (180 or 220 also possible)
8. OSB as flooring, floating installation



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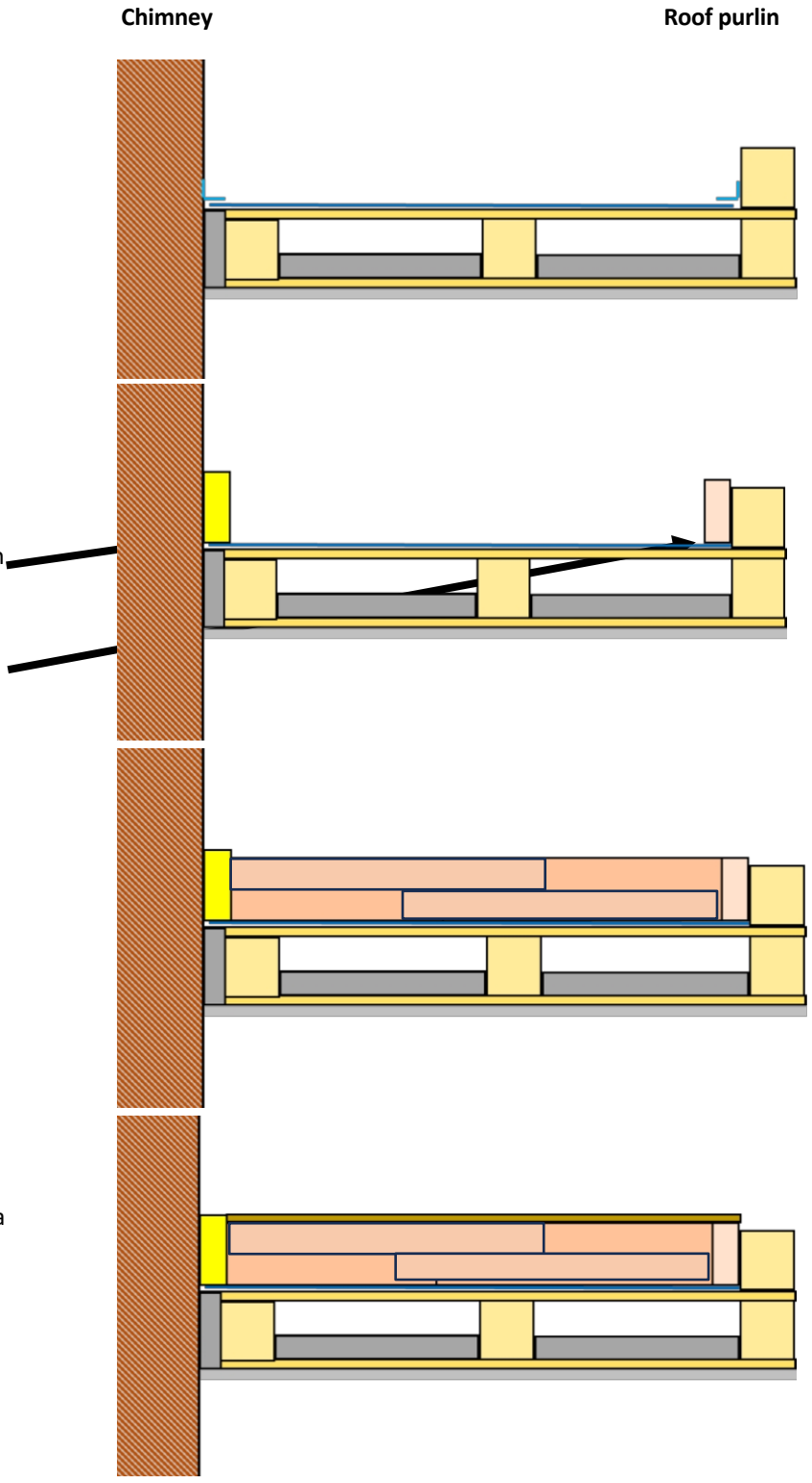
Installation of Naturheld insulation boards in an existing wooden beam ceiling made of roof beams, board cladding and fill, schematic:



1. Installation of a suitable vapour barrier on the existing floor, professional connections to adjacent components.

2. Allow for a 5 cm gap around the perimeter to adjacent components . Around the fireplace should be filled with **non-combustible insulation**. On all other sides, , **naturheld FLEX** 6 cm is very well suited as a filler.

3. Installation of **Naturheld 110** or **140**. For higher loads, also **Naturheld 180** or **220**. It is often advantageous to install the insulation in several layers .

4. Cover with a suitable Wood-based panel, laid as a floating floor.

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Floor insulation with naturheld

Naturheld wood fibre insulation is usually used in floors to decouple floors energetically and improve sound insulation, especially impact sound. There are a variety of options available for this.

The requirements for sound insulation are specified in DIN 4109. The minimum values can be easily achieved with Naturheld wood fibre insulation. Its fibrous structure, elasticity and high density are ideal for this purpose. However, many properties of the raw ceiling play a decisive role. In addition to continuous decoupling with an elastic and heavy insulation material, weight and airtightness play important roles in reducing sound transmission. A variety of different layers and a heavy structure, e.g. through ballast from fillings, can

Impact sound can be improved by a consistently airtight construction.

Special case: floorboards

In general, it is important that the insulation decouples the layers of the floor. Therefore, no continuous components may be installed, as these would act as sound bridges. In the case of screeds or coverings with wood fibre boards as a substrate for laminate, for example, a floating construction can be used.

For floorboards, a strip is required to secure the boards. This can consist of 38 mm roof battens, so that 40 mm insulation boards can be used as impact sound insulation underlay. A multi-layer construction with a lower, continuous layer of Naturheld 220 or 180 is also possible.

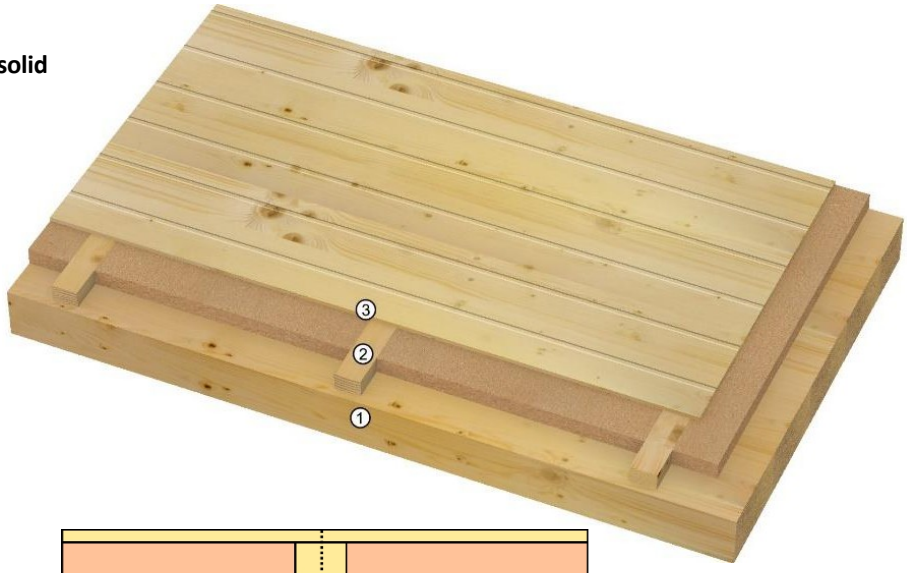
Plank flooring with substructure on solid wood

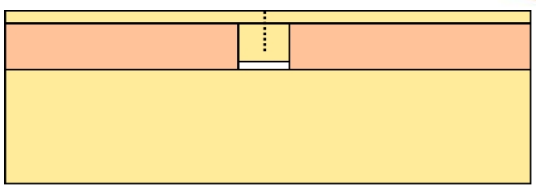
1. Solid wood ceiling
2. Naturheld 180 or 140 with support timbers
3. Floor covering

Detail:

The square timbers are used to fasten the floorboards; to effectively reduce impact sound, they must not be in contact with the floor.

The combination of 38 mm roof battens and 40 mm naturheld 180 has proven itself





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For mineral screed, Naturheld insulation can be laid as a floating floor.

Depending on the selected floor covering and structure, Naturheld insulation materials can be laid in up to three layers and, depending on the load and screed design, up to 140 or even 200 mm thick. The requirements for the insulation material must be agreed with the screed supplier.

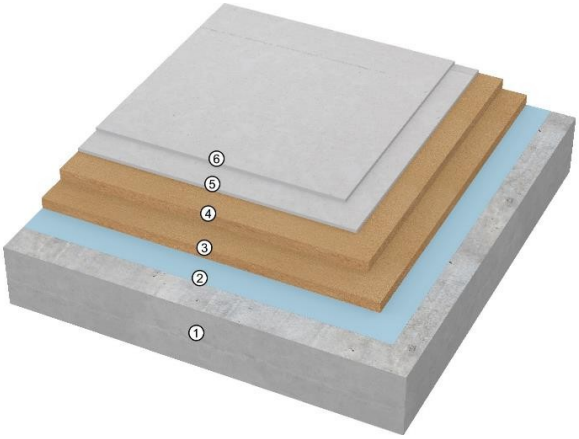
If the subfloor is made of concrete, a dense membrane should be used as a separating layer between the concrete floor and

insulation to prevent rising damp. Under cast screed, a moisture barrier must also be installed above the insulation material. This also allows underfloor heating to be installed. Asphalt screed must be separated from the insulation by a temperature-resistant foil, as the installation temperature exceeds 200°C.

Components in contact with the ground or floor slabs should be subjected to a hygrothermal test. In most cases, at least part of the perimeter insulation, e.g. foam glass, must be used here.

Insulation under dry screed with naturheld insulation boards

1. Existing raw floor, in this case concrete
2. Vapour barrier foil as a separating layer
3. and 4. Naturheld 220 in two layers
5. Dry screed
6. Flooring



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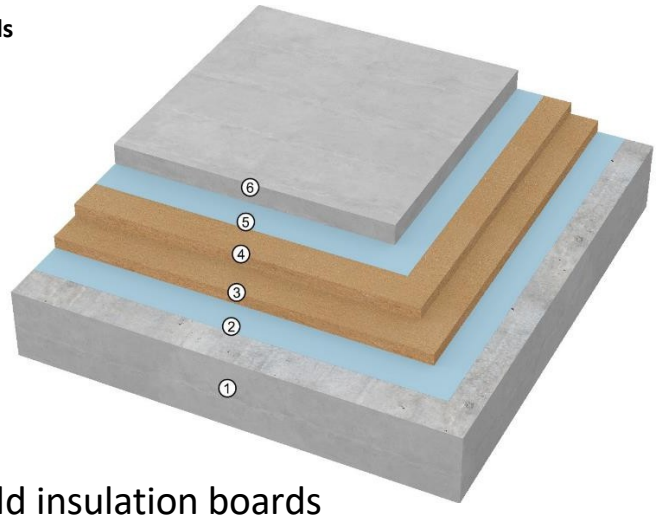
Insulation under wet screed with naturheld panels

1. Existing raw ceiling, in this case concrete
2. Vapour barrier foil as separating layer
3. and 4. Naturheld 220, 180 or 140 in two layers
5. Suitable for screed Moisture protection foil
6. Screed with reinforcement and heating cables if required



Overhead installation of Naturheld insulation boards

It is possible to install Naturheld insulation boards as plaster base boards on interior roof slopes or as insulation for basement ceilings from below overhead. It should be noted that the amount of fasteners required is higher than for wall mounting. In addition, a substructure with a maximum centre distance of 420 mm should be planned for rafters or ceiling beams.

In a rafter roof, an additional substructure also decouples the movements of the roof truss caused by wind and temperature changes from the insulation boards, thereby preventing cracks in the plaster coating.

The following information on fasteners and the substructure must be observed:

Tongue and groove insulation boards for fastening under rafters or wooden ceilings	Naturheld 180	Naturheld 140
Maximum distance between substructures	420 mm	
Required fasteners per m²		
STRH dowels per m²	8	10
HFS dowels per m²	10	12
Wide-back staples	15	18

Insulation boards with blunt edges for insulation from ceilings made of CLT or concrete from below	Naturheld 140 install	Naturheld 110
Required fasteners per m², evenly distributed across the panel surface		
STRH/STRU dowels per m²	10	12
HFS dowels per m²	12	14
Wide-back staples	18	20

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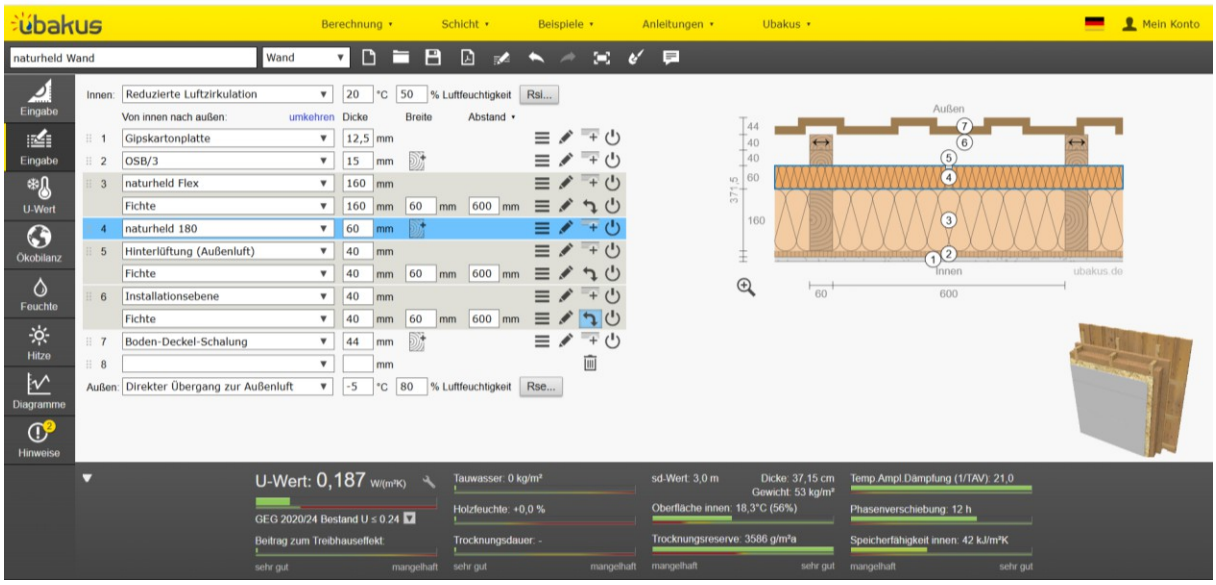
Building physics and component testing

All naturheld insulation materials are registered with , where proof of the U-value and moisture protection in accordance with DIN EN 4108-3 can be easily generated for individual roof structures:

www.ubakus.de/u-wert-rechner/



Contact naturheld Technology

Do you have any questions about our

products? We are happy to help.

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