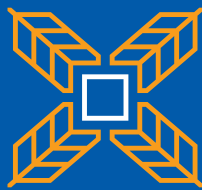


Building ecologically with straw



maxit[®] *strohpanel*

For drywall construction and insulation



A new take on traditional material

- ✓ **CO₂ absorbing**
- ✓ **Sustainable**
- ✓ **Free of emissions**
- ✓ **Fire resistant**
- ✓ **Tough**

A new take on traditional material

USES	PAGES	3
STRAW AS A BUILDING MATERIAL		4 - 5
MAXIT STROHPANELS FOR DRYWALL CONSTRUCTION		6 - 9
MAXIT STROHPANELS FOR INTERIOR AND EXTERIOR INSULATION		10 - 15
FLOORING SOLUTIONS WITH MAXIT STROHPANELS		16 - 17
FREEDOM OF DESIGN WITH MAXIT STROHPANELS / CEILING CLADDING		18 - 19

maxit strohpanels – ecological & innovative

One building material, two uses

maxit strohpanels are a chemical- and plastic-free alternative to conventional building materials. The sustainable straw carrier boards for lime plaster made of natural straw are ideal for drywall construction, while the ecological straw insulating panels can be used for interior and exterior insulation. The process for manufacturing these products is low energy and they are recyclable as well as industrially compostable.



maxit Kalk-Stroh-Putzträgerplatte

For drywall construction

- + Interior applications
- + Made from purely ecological materials
- + Sustainable and low energy manufacturing process
- + Can be used like conventional interior plaster carrier boards



maxit Stroh-Dämmplatte

For insulating solutions

- + Suitable for interior and exterior use
- + Building material provided by nature
- + Completely sustainable and chemical-free manufacture
- + Can be used like conventional insulating panels

maxit strohpanels – building ecologically with straw



Building in harmony with nature

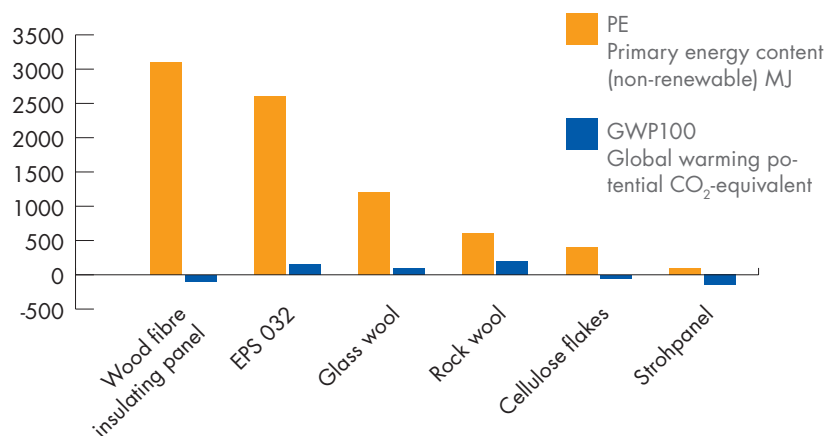
Green building is growing increasingly in importance. Ecological alternatives to conventional building materials are needed not only for new buildings, but also when it comes to energy-related or sustainable refurbishment.

However, not all natural materials are suitable for use in house construction. As with conventional building supplies, it is important that ecological construction materials are both durable and safe.

Straw – the natural building material

To meet the growing demand for natural building materials, the **maxit strohpanel** has now been developed: for both drywalling construction and insulation. **maxit** uses straw, a traditional building material and an agricultural by-product which is available locally and in large quantities – a decisive advantage, especially in times of raw material shortages. It is estimated that about 20 per

Primary energy content (non-renewable) and global warming potential of selected materials/m³



cent of the straw produced in agriculture remains unused. And straw does not require additional arable land either, so it does not compete with food crops.

For centuries, straw has been used in house construction due to its permeability and robustness. What is more, straw has an outer layer of silica which acts as a natural fire protection. During growth,

straw binds carbon and thus reduces the impact of CO₂ on the atmosphere. 1 tonne of straw stores about 420 kilograms of carbon – an incredible capacity which remains largely unexploited. The great potential of this material, mainly used in animal husbandry today, has now been revived by **maxit** in the form of sustainable plaster carrier boards and insulating panels.



Layers of a maxit strohpanel in drywall applications

straw



lime or
clay plaster

Advantages of straw as a building material

- + Ecological, annually renewable natural product
- + Cultivated locally without requiring additional land
- + Readily available
- + Agricultural by-product
- + Cultivation and processing are environmentally sustainable
- + Reduces CO₂ in the atmosphere
- + Natural heat protection
- + Low waste disposal costs
- + Chemical-free
- + Resource-saving
- + Suitable for allergy sufferers
- + Industrially compostable

The manufacturing process

The manufacture of **maxit strohpanel** is 100 per cent ecological. Not only is the raw material itself of natural origin, but a special lime-based binder has also been developed to replace man-made binders such as PU adhesives. The fact that the raw material is locally available means that manufacture is uncomplicated and that quality control and assurance are also straightforward.

Since loose straw is not economical to use as a building material, **maxit** developed a special manufacturing process in which straw is squeezed into shape together with the ecological binder by

applying pressure and heat. This production process requires only a small amount of additional energy, about a mere 5 per cent. Consequently, the entire product – from raw material to finished panel – is manufactured in a completely eco-friendly manner, is industrially compostable, and meets all the requirements for a robust and safe building material.

When the material's positive properties are also taken into account, the contribution **maxit strohpanel** make to climate protection is actually twofold: first, due to the low consumption of energy



during their manufacture and, second, thanks to the use of a carbon-binding material.

maxit strohpanel – uses for drywall construction

Kalk-Stroh-Putzträgerplatte



Kalk-Stroh-Putzträgerplatte – Straw carrier boards for lime plaster

maxit strohpanels are also ideal for interior use as carrier boards for lime plaster and are an ecological alternative to plaster carrier boards made of gypsum. The plaster carrier boards made of straw can be installed and plastered like conventional interior plaster carrier boards.

As they are made of renewable raw materials, they ensure a pleasant and healthy indoor climate. The combination of lime or clay plasters and straw enhances the feeling of comfort in your home and encourages green building methods. Straw is a robust raw material and in conjunction with the specially developed

manufacturing process the resulting plaster carrier board is extremely resistant to age, dimensionally stable, and boasts a high level of durability. The boards should only be used on the inner sides of outer walls with prior constructional approval. They are not suitable for use in rooms with a high level of humidity.



100 per cent sustainable

Stud frames made of wood or metal are suitable substrates for the straw carrier boards for lime plaster. It is essential that the stud frame is level, stable, load-bearing, and suitable for holding the mounting components.

Dimensions

- Width: 625 mm
- Length: 1250 mm
- Thicknesses: 10/22/30/40/50 mm
- Board surface area: 0.78 m²

Constructional properties

Bulk density	220 kg/m ³ (+/- 15 kg/m ³)	
Thermal conductivity reading	0.059 W/(m·K)	
Rated thermal conductivity value λ_B	0.069 W/(m·K)	
Reaction to fire	E according to DIN EN 13501 (normal flammability according to German federal state building regulations)	
Bending strength/modulus of elasticity based on DIN EN 310: Board thickness N/mm ² *	10 mm	1.39
	22 mm	1.17
	30 mm	0.95
	40 mm	0.69
	50 mm	0.42
Transverse tensile strength based on DIN EN 319: Board thickness N/mm ² *	10 mm	0.0072
	22 mm	0.0062
	30 mm	0.0052
	40 mm	0.0040
	50 mm	0.0029
Thickness swelling based on DIN EN 317: Board thickness %*	10 mm	57.8
	22 mm	52.8
	30 mm	47.8
	40 mm	41.5
	50 mm	35.2
Moisture content	max. 13 M %	

*interpolated values



Kalk-Stroh-Putzträgerplatte – one building material, a host of advantages



Raw material

- + Annually renewable
- + Resource-saving
- + Agricultural by-product
- + No additional arable areas
- + Available in large quantities

Properties

- + Easy installation
- + Low weight
- + Stability
- + Industrially compostable

CO₂ reduction

- + Local raw materials
- + Straw stores carbon and removes CO₂ from the atmosphere

Fire safety

- + Natural fire protection due to silica layer
- + Oxygen is squeezed out during manufacture
- + No smouldering behaviour
- + Self-extinguishing
- + Classified according to German federal state building regulations as normally flammable (B2 according to DIN 4102-4 or E according to DIN EN 13501)

Sustainable manufacture

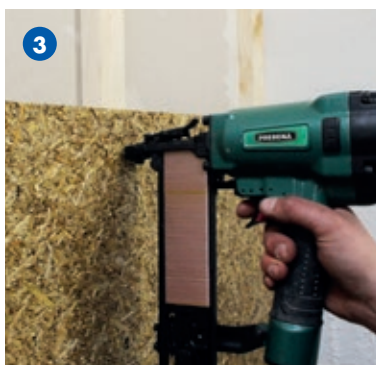
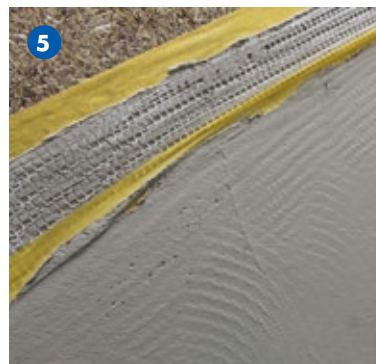
- + Short transport distances
- + No chemicals or plastics used
- + Uncomplicated quality assurance and control

Healthy living

- + Optimal humidity regulation
- + Protects against overheating
- + Suitable for allergy sufferers
- + Ensures a healthy indoor climate
- + Free from solvents and formaldehydes
- + Emission tested according to the AgBB evaluation scheme (test report number L 4284 FM) by Bremer Umweltinstitut (Bremen Environmental Institute)



New building material, familiar installation process



Order as usual

You can get our innovative Kalk-Stroh-Putzträgerplatten (straw carrier boards for lime plaster) together with all system components from your local specialist building materials supplier.

Grown first, then mounted

- 1 Drywall constructions made of wood or metal must always be dry as well as plumb and flush.
- 2 Simply cut the plaster carrier board to the desired size using standard cutting equipment (jigsaws, band and circular saws; straight and angled cuts are possible).
- 3 Then fasten the plaster carrier board to the stud frame or sub-structure using wide crown staples or flat head phosphate coated screws.
- 4 Cut out openings for possible installation parts such as flush-mounted sockets using a suitable tool.
- 5 Both lime- and clay-based plasters can be used for plastering.
- 6 After the waiting time specified for the clay or lime plaster has been observed, the plaster carrier board can be coated (optional) with a permeable limewash (for example **maxit** kreasil 5020 and **maxit** kreacal 5030).

maxit strohpanel – for interior and exterior insulation

Stroh-Dämmplatte



Die Stroh-Dämmplatte – Straw insulating panels

Completely toxin free and needing little primary energy but providing an excellent level of insulation – all this hardly seemed possible until now. Insulating panels based on **maxit strohpanels** are 100 per cent renewable, ideal for interior and exterior use and offer a particularly ecological option.

For a direct comparison with traditional insulation methods based on polystyrene, the straw insulation was subjected to practical tests in cooperation with Hof University of Applied Sciences. Two test houses with extensive measuring technology ultimately delivered convincing results.



Insulate and protect the environment



Sustainable

- + Resource-saving
- + Excellent LCA
- + Carbon neutral and industrially compostable

Fire safety

- + Classified as normally flammable
- + No smouldering behaviour
- + Self-extinguishing
- + Silica layer protects against combustion
- + Use in closed render/plaster systems
- + Classified according to German federal state building regulations as normally flammable (B2 according to DIN 4102-4 or E according to DIN EN 13501)

Raw material

- + Binds carbon while growing
- + Not needed agricultural by-product
- + Available in large quantities
- + Annually renewable
- + No additional cultivation areas

Sustainable manufacturing process

- + No chemicals or plastics used
- + Low energy requirement
- + Local raw materials
- + Straightforward quality assurance and control

Indoor climate

- + Improved drying behaviour
- + Prevents growth of mould and algae
- + Healthy indoor environment
- + Suitable for allergy sufferers
- + Free from solvents and formaldehydes

Insulation

- + No overheating in summer
- + Stores heat during winter
- + Noise and sound protection
- + Very good thermal insulation value

Use as interior insulation in timber stud construction

Interior insulation in timber stud construction

Interior insulation with **maxit strohpanel** on a timber stud construction provides an outstanding combination of efficiency and sustainability. **maxit strohpanels** can be easily integrated into timber stud frames and ensure an excellent level of insulation. These purely ecological insulating panels are made from renewable raw materials. They are formaldehyde-free and 100% recyclable. They retain CO₂ permanently, contribute actively to CO₂ reduction, and improve the indoor climate thanks to their heat-storing properties. Installing the panels is quick and easy, which makes them ideal for new builds and renovation projects, and they offer a sustainable alternative to conventional insulating materials.

Advantages

- + Normally flammable
- + Resistant to age and dimensionally stable
- + Maximises healthy living
- + Significantly lighter than comparable interior insulating panels
- + High CO₂ binding capacity, low primary energy content
- + Ecologically sound
- + Industrially compostable

Details

maxit strohpanel insulating panels provide a customised solution for interior insulation in timber construction. These panels are available in a 62.5 x 125 cm format. Large formats are also available on request. The panel thicknesses vary between 22, 30, 40 and 50 mm. This ensures flexibility for different construction requirements. With a bulk density of around 130 kg/m³ and a thermal conductivity group of 044, they offer an optimal level of insulation. **maxit strohpanel** insulating panels are supplied only in full pallet loads to ensure efficient logistics. In addition, an Environmental Product Declaration (EPD) is already available for these panels, confirming their sustainable properties and environmental friendliness.

Installation

maxit strohpanel interior insulating panels can be used as insulating panels on the inside of exterior walls in dry areas. These interior insulating panels are suitable for thermal insulation applications in accordance with DIN 4108-10. The panels can be used to supplement the thermal insulation of the existing outer wall. The internal insulating panel is connected to the timber stud construction by clamping or mechanically using staples and screws. Suitable finishing plasters include **maxit ip 315 purcalc** and **maxit multi 300**. When using interior insulating panels, hygrothermal simulation should always be used to assess the structural properties of the construction. **maxit strohpanel** interior insulating panels are not suitable for use in rooms with high humidity, wet rooms, or on damp substrates.



Use as interior insulation in solid construction

Interior insulation in solid construction

Interior insulation with **maxit strohpanel** in solid house construction combines traditional construction methods with modern, sustainable materials. The ecological insulating panels are made from renewable raw materials. They are formaldehyde-free as well as being completely recyclable. Thanks to their excellent heat-retaining and heat-insulating properties, **maxit strohpanel** make a significant contribution to energy efficiency and improve the indoor climate. They are quick and easy to install on solid walls and offer an emission-free, environmentally friendly solution for interior insulation. The panels also actively store CO₂, which means they support sustainable construction methods that reduce both the ecological footprint and save costs in the long term.

Vorteile

- + Normally flammable
- + Resistant to age and dimensionally stable
- + Maximises healthy living
- + Can be installed like a standard interior insulating panel
- + High CO₂ binding capacity, low primary energy content
- + Ecologically sound
- + Industrially compostable

Installation & details

maxit strohpanel interior insulating panels can be used as insulating panels on the inside of exterior walls in dry areas. They are available in a 60 x 80 cm format and with a bulk density of around 130 kg/m³ and a thermal conductivity group of 044, they offer an optimal level of insulation. The interior insulating panels are suitable for thermal insulation applications in accordance with DIN 4108-10. The panels can be used to supplement the thermal insulation of the existing outer wall. Apply **maxit multi 300** to the entire surface to bond the interior insulating panel with the substrate. Suitable finishing plasters include **maxit ip 315 purcalc** and **maxit multi 300**. When using interior insulating panels, hygrothermal simulation should always be used to assess the structural properties of the construction. **maxit strohpanel** interior insulating panels must not be used in rooms with high humidity, wet rooms, visible half-timbering, or on damp substrates.

Anwendung

maxit strohpanels are ideal for insulating interior stone surfaces when combined with special adhesive and reinforcing mortar. This mortar creates a firm bond between the wall and **maxit strohpanel** interior insulating panels for a long-lasting, stable installation. Jute fabric is also often used, as it provides additional stability in combination with clay adhesive and reinforcing mortar. Once installation is complete, the surface can be finished with limewash or clay paint. This doesn't just look good, it also helps to regulate the indoor climate.



Use as exterior insulation in timber and skeleton construction

Exterior insulation in timber stud construction

Both timber construction and skeleton construction are methods which boast outstanding energy efficiency, flexible design, and a positive environmental balance. **maxit strohpanels** are an excellent complement to these construction methods: **maxit strohpanel** facade insulating panels are the perfect solution for the exterior insulation of timber houses and skeleton structures. The ecological material is not only efficient when it comes to its insulating properties, but is also easy to work with and extremely robust. It supports energy-efficient construction and is a sustainable solution for improving the indoor climate. **maxit strohpanels** are available in various thicknesses and sizes, allowing flexible customisation to the individual requirements of construction projects. The insulating panels made from straw offer an environmentally friendly alternative for a sustainable building envelope.

Timber construction

The use of **maxit strohpanel** insulating panels in timber construction is an excellent choice to create an ecological and climate-friendly wall structure. A CLT (cross-laminated timber) construction is the best way to create a wall structure that consists entirely of renewable raw materials, has a positive carbon footprint, and is compostable when dismantled. Installation begins with screwing a first layer of horizontal framework onto the walls, into which **maxit strohpanel** insulating panels are inserted loosely,

without any dowelling or gluing. A second layer of vertical framework follows, into which the second layer of insulating panels can be inserted vertically. The result: using **maxit strohpanel** insulating panels achieves the desired thermal insulation value and contributes to reducing CO₂.

Skeleton construction

The use of **maxit strohpanel** insulating panels in skeleton construction sets new standards in terms of sustainability and energy efficiency. In skeleton construction, a concrete or timber frame provides structural stability, while the spaces in between are filled with materials such as unfired clay bricks. **maxit strohpanel** thermal insulating panels are the ideal complement for this method of construction, as they offer an excellent level of insulation and are made from renewable raw materials. A timber construction is placed in front of the infill, which is then fitted with **maxit strohpanel** insulating panels in various thicknesses. These panels are fitted in several layers, one on top of the other, with the outermost layer being fixed to the wooden substructure using wide-back staples. This construction serves as a substrate for a purely mineral render system.



Use as exterior insulation in solid construction

Exterior insulation in solid construction

Exterior insulation in solid construction with **maxit strohpanel** is an environmentally friendly and effective solution for energy-efficient construction. The ecological insulating panels are made from renewable raw materials. They are formaldehyde-free as well as being completely recyclable. They are easy to attach to solid walls and ensure an excellent level of insulation. **maxit strohpanel** make an active contribution to CO₂ reduction and improve the indoor climate thanks to their natural and breathable properties. Because they are available in various thicknesses and sizes, this allows flexible customisation to the specific requirements of construction projects. **maxit strohpanel** optimise energy efficiency and sustainability in solid construction.

Panel size: 600 x 800 mm

Panel thickness: 30, 40, 50, 60 mm

Safe to use

The use of **maxit strohpanel** in solid construction is an effective way of realising sustainable construction projects with a high level of energy efficiency. **maxit strohpanel** facade insulating panels are cut to size using standard cutting equipment, such as circular saws or hand saws. This allows them to be flexibly adapted to different building components. Special attention is paid to safety: window joints are sealed solely with pressure exerting sealant; joints and end seals with other building components are realised with special ETICS profiles. The window sills are designed with a second water-draining level and an inclination of 5 degrees to ensure optimal protection against driving rain.

Application and structure

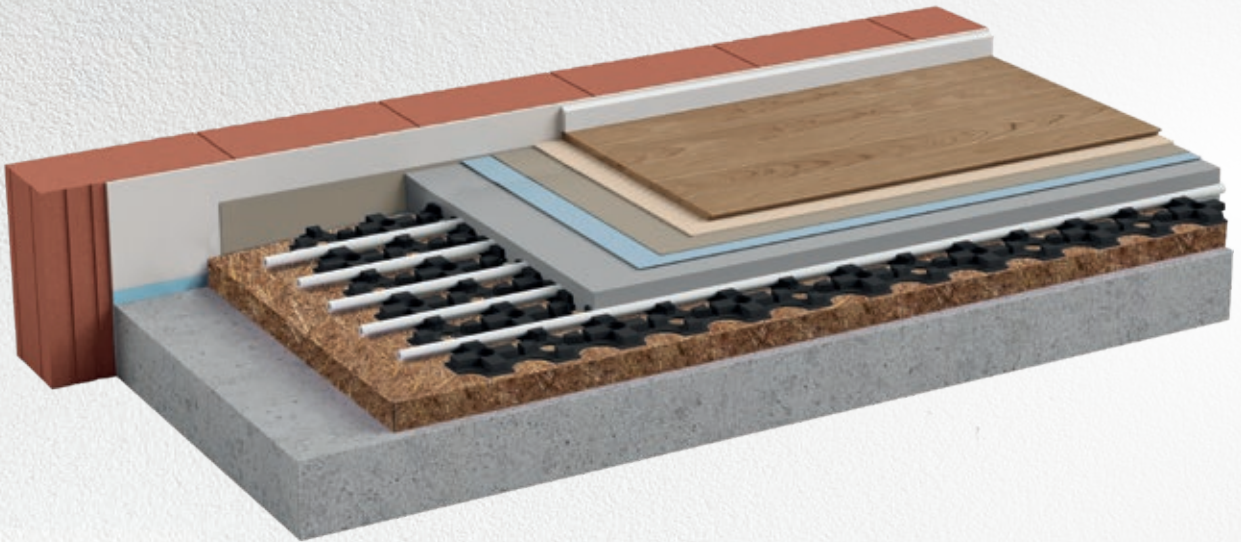
In addition to the **maxit strohpanel** facade insulating panels, the intermediate layer system includes a scratch coat to bind loose straws and achieve the required layer thickness. A reinforcing layer of 8 x 8 mm mesh and a mineral finishing render provide stability and an attractive surface. After the work is completed, a double coat of paint is applied to ensure that the surface is weather-resistant in the long term.

Installation and use in solid construction of **maxit strohpanel** not only ensures effective thermal insulation, but also affords effective protection against damp. This makes them an ideal choice for building owners and planners who want to combine ecological building standards with a high level of comfort and safety.



maxit strohpanels – application in floors

Screed with underfloor heating



Flooring solutions with maxit strohpanels

maxit strohpanel floor panels offer a sustainable solution for efficient floor insulation in building projects. Measuring 62.5 x 125 cm in thicknesses of 22 to 30 mm, the panels can be used flexibly and achieve a bulk density of approx. 220 kg/m³. They are assigned to thermal conductivity group 060. This product carries a class E (B2) fire rating, comparable to softwood fibre.

The floor panels are particularly robust and at a compressibility of 2 kPa they show minimal deformation (1 mm at 22 mm thickness, 1.3 mm at 30 mm thickness).

When 30 mm thick **maxit strohpanels** are used in conjunction with a 40 mm layer of **maxit plan 490** flowing screed, it is possible to achieve an effective impact sound reduction of $\Delta L_w = 18$ dB.

Its environmental compatibility is documented by an existing Environmental Product Declaration (EPD), which makes **maxit strohpanel** floor panels an environmentally friendly choice for building owners and planners who place equal emphasis on sustainability and performance.



Technical data

Bulk density	approx. 220 kg/m ³
Thermal conductivity	Group 060
Reaction to fire	Class E, B2
Impact sound reduction	Delta Lw = 18 dB
Compressibility	10 mm: 2 kPa – 0,4 mm 22 mm: 2 kPa – 1,0 mm 30 mm: 2 kPa – 1,0 mm
VOC	VOC-free
Thickness	10 mm 22 mm 30 mm
Environmental Product Declaration (EPD)	Available BAU-EPD-MAXHUPP-2023-1-GaBi-Strohplatten (in German)
Panel size	1.000 x 500 mm



Vorteile

- + High bulk density for good insulating effect (approx. 220 kg/m³)
- + Thermal conductivity group 060
- + Good reaction to fire (Class E, B2)
- + Low compressibility under load
- + Effective impact sound reduction (delta Lw = 18 dB)
- + Environmental Product Declaration (EPD) available
- + Sustainable material made from renewable raw materials

UMWELT-PRODUKTDEKLARATION nach ISO 14025 und EN 15804+A2

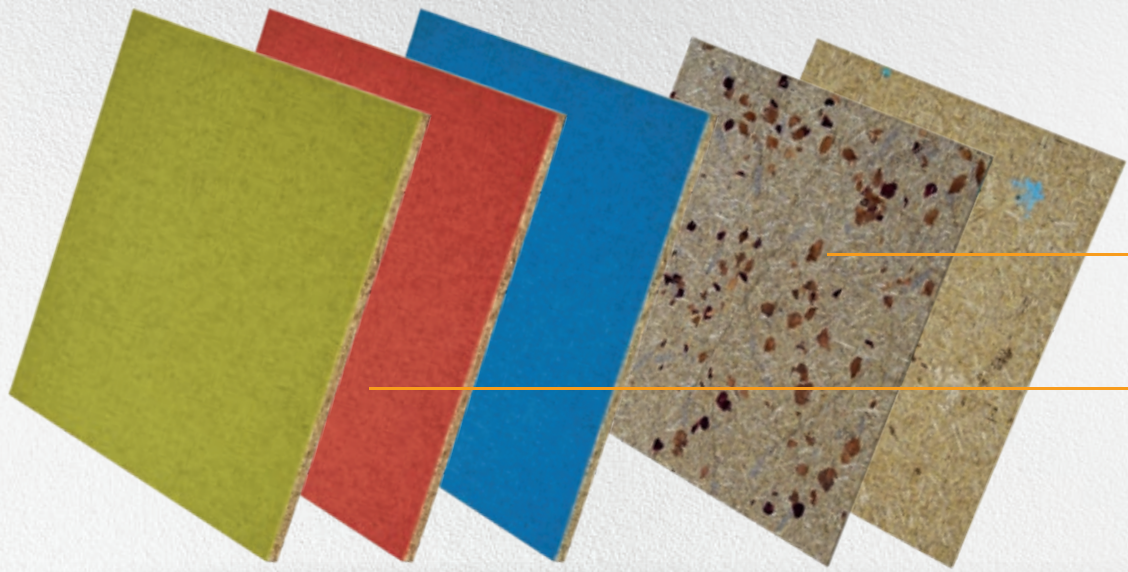


EIGENTÜMER UND HERAUSGEBER
PROGRAMMBETREIBER
DEKLARATIONSINHABER
DEKLARATIONSNUMMER
AUSSTELLUNGSDATUM
GÜLTIG BIS
ANZAHL DATENSÄTZE
ENERGIE MIX ANSATZ

Bau EPD GmbH, A-1070 Wien, Seidengasse 13/3, www.bau-epd.at
Bau EPD GmbH, A-1070 Wien, Seidengasse 13/3, www.bau-epd.at
ARGE Maxit/Huppenberger
BAU-EPD-MAXHUPP-2023-1-GaBi-Strohplatten
16.06.2023
16.06.2028
1
MARKTORIENTIERTER ANSATZ (MARKED BASED APPROACH)

maxit strohpanels – freedom of design and flexible application options

e.g. for ceilings



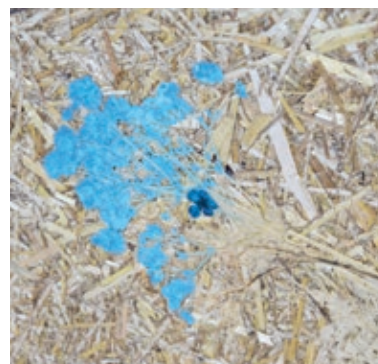
Ceiling design with strohpanels

When creating an attractive ceiling, the choice does not have to fall on cladding. **maxit strohpanels** are an excellent option for designing ceilings. The panels provide a sustainable and modern solution that is both stylish and functional. These natural building materials combine centuries-old construction methods with modern requirements for environmental compatibility and living comfort.

They allow the flexible and creative design of interiors and their ecological properties contribute to improving the indoor climate. **maxit strohpanels** are therefore not only an alternative for ecologically conscious building projects, but also an inspiration for architects and designers looking for sustainable solutions.



- + Design panels embedded with herbs and wildflowers
- + Sound-absorbing acoustic panels in various colours



Vorteile

- + Pleasant indoor climate
- + Regulation of humidity
- + Individual and creative design options
- + Ecologically sound
- + Sustainable and cutting edge



For more information visit www.maxit-strohpanel.de

More innovative insulating solutions



 **ecosphere**
technology by **maxit**
www.maxit-ecosphere.de

maxit nord

maxit Baustoffwerke GmbH
Brandensteiner Weg 1
07387 Krölpa, GERMANY
Phone: +49 3647/433-0
Fax: +49 3647/433-380
E-Mail: info@maxit-kroelpa.de

maxit süd

Franken Maxit
Mauermörtel GmbH & Co.
Azendorf 63
95359 Kasendorf, GERMANY
Phone: +49 9220/18-0
E-Mail: info@maxit.de

BAYERN'S
BEST 50
PREISTRÄGER 2014



Please note:

The information provided in this brochure is based on our technical knowledge and experience at the present time. It must be regarded as a general guideline only. Owing to the large number of potential influences, it does not relieve anyone using or installing our maxit products from the responsibility of carrying out their own tests and experiments. Nor does it imply any legally binding assurance of certain properties or that our products are fit for a specific purpose. Responsibility for complying with any property rights, applicable laws or other requirements lies solely with the user. With the publication of this brochure (7th Edition), all previous versions lose their validity.

S/7th Edition/6710863