

wooden

*Feelings*

**KLH**<sup>®</sup>





EUROPEAN TECHNICAL  
APPROVAL  
ETA - 06/0138



GENERAL BUILDING  
APPROVAL FOR GERMANY  
Z-9.1-482



TECHNICAL APPROVAL  
FOR FRANCE  
AT-3/12-731



TECHNICAL APPROVAL  
FOR SPAIN  
AITIM 31-01



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EN ISO 9001  
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www.tuv.at

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IN ACCORDANCE WITH  
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EN ISO 14001  
Zertifikat Nr. 20 104 102005188  
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ENVIRONMENTAL MANAGEMENT  
IN ACCORDANCE WITH  
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Institut Bauen  
und Umwelt e.V.

ENVIRONMENTAL PRODUCT  
DECLARATION (EPD)  
IN ACCORDANCE WITH  
ISO 14025

# editorial

## Our Company

KLH Massivholz GmbH based in Katsch an der Mur in the district of Murau in the Austrian state of Styria was founded in 1997. After the first initial attempts, which were literally in a garage, the product "Kreuzlagenholz" (cross-layer wood) was developed from an idea in cooperation with the Graz University of Technology, and has now been industrially manufactured since the opening of our site in 1999.



Mag. Bernd Oswald,  
Managing Director of KLH Massivholz GmbH

"Keeping our environment liveable for the generations to come is important to us. Being able to produce a construction product like our KLH solid wood boards, which is not only fashionable but above all makes a contribution to active climate protection, fills us with joy and pride."

In order to be a valuable on-site partner for our customers, we have spread our distribution network for full coverage and are represented in the different states by local technical organisations who know not only the product but also and especially the regional legal regulations and construction guidelines.

As a pioneer and market leader, we now supply the whole European market, and a few international markets have emerged during the past few years. With around 135 employees, we now produce around 700,000 m<sup>2</sup> a year – roughly enough for 2,000 single family homes.

## Our Philosophy

We want to be partners for architects and planners, executing companies and building contractors and to contribute our many years of transnational experience to a variety of projects, whether simple or complex.

It is important to keep the quality of all our services at the highest level, to live the brand "KLH" and to act responsibly. We think in a future-oriented way, are open to new ideas and are constantly developing.



Mag. Johann Offner,  
Managing Director of the Johann Offner Group

"Quality is sacred to me" – the motto, coined 125 years ago, to which the present generation of this traditional family company also feels duty-bound.

# feel freedom in architecture



## Unlimited Freedom in Construction

We now have at our disposal a large number of different materials with different characteristics and possible applications, not least of all because of the technological developments in the past few years. The possibility of combining KLH solid wood boards with all other construction materials to make a useful material mix offers almost unlimited freedom in construction.

## Freedom of Form in Architecture

The static characteristics of KLH solid wood boards, and the fact that they can be used as wall, ceiling and roof elements, now allow any architectural shape even in wood construction.

## Free Facade Design

The attitude, still widespread years ago, that a wooden house also has to have a wooden facade – following the principle that if you use wood inside you also have to show it outside – is gradually giving way to the demand for completely free facade design, not least of all to also enter into a dialogue with the surrounding architecture. Plastered facades, board facades, textile facades and the fashionable green facades are excellent alternatives to greying wood facades that blend in with nature.

## A Roof Over Your Head

Whether it be a gabled roof, hipped roof, monopitch roof, flat roof or walkable roof gardens – the selected shape of roof is a major factor in the overall architectural impression made by a building. Although the different roof shapes have developed over centuries depending on the available materials, climatic conditions and the state of construction technology, the purpose remains the same, which is to say sealing the top of the building and protecting against weather and other outside influences.

*feel freedom*  
in architecture





# Feel the individualism



## Maximum Flexibility in Every Life Situation

Architects and planners are not only drafters and designers: they are at the same time also good listeners, coaches and mentors for filling the shell of the building with life – a life that corresponds to the life of the building owner and their needs.

Lives and needs are subject to constant change and there is a trend towards being able to adapt one's own home to every life situation. Whether it be the possibility of mobile non-bearing inside walls, conversions or extensions, or an additional living area in the attic – solid wood construction gives completely free rein to your ideas.

## Every House Unique

KLH solid wood boards are produced exclusively to order. The structure and thickness of the multilayer boards, surface finish and packing of the construction elements are always oriented toward the requirements of the respective project. Each building is thus unique.

## More Living Area with the Same Plot Area

It tends to be possible for solid wood walls to be more thinly constructed than comparable walls made of brick or concrete. This is thanks to the effectiveness of wood and to modern technology.



## The Charm of the Simple

KLH elements in non-visible quality are construction and carcassing elements. It is only the interplay of details, different materials, shapes and colours that ultimately lets aesthetic qualities emerge.

Non-visible elements have to be clad indoors; whether you decide here to have planking with drywall or a suitable plaster system is up to you. If it is important for you to have a thoroughly environmentally friendly approach, use a clay plaster system tested by us, with a free choice of colours.

## Pure Wood

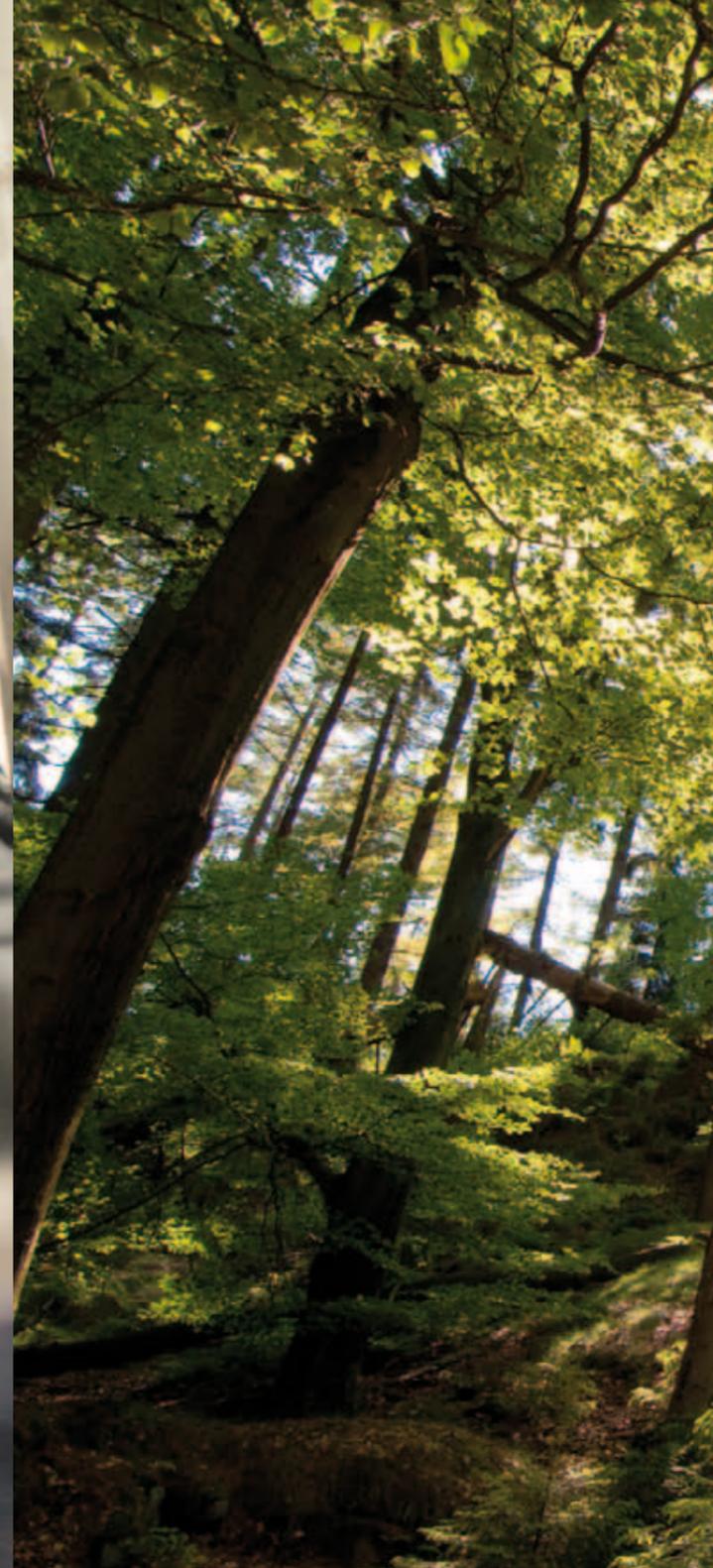
For all of those who want to experience pure nature, we offer a wide spectrum of visible surfaces in different types of wood. Add design touches with brushed surfaces, which can be varied in degree depending on the grade of the brush.



*Feel*  
the individualism



# Feel your own safety



## European Technical Approval

Safety for you and safety for us – the usefulness and necessity of European Technical Approval can be explained as simply as that. The European Technical Approval determines the overall process - from the quality of the raw material and the manufacturing to the product characteristics and the resulting options for appropriate use of the elements. Adherence to the strict product criteria specified in the European Technical Approval is monitored by independent and authorised testing authorities.

## CE Certification

With the CE symbol marking we communicate to the responsible authorities that our product meets the relevant European legal regulations and the technical specifications.

## Raw Materials from Sustainably Managed Forests

We buy the spruce slats used for the manufacturing from sustainably managed forests and mostly from Austria. We and our suppliers are also PEFC-certified, which we can prove with the corresponding certificate. In order to rule out damage from pests, fungi or insects, we only use technically dried wood with a wood moisture of 10 – 14%. Every single panel is tested before further processing.



### Formaldehyde-Free Gluing

For the gluing of the individual board layers we use a formaldehyde-free PUR adhesive.

The adhesive that we use is tested in accordance with the strict criteria of Material Testing Institute Stuttgart and DIN 68141 and approved in accordance with DIN 1052 and EN 15425 for the production of bearing and non-bearing wooden construction elements.

### The Latest CNC Technology

We use the latest CNC technology in the prefabrication of construction elements.

We make cut-outs for the insertion of windows and doors, openings and also recesses for later cabling, plug-socket holes and other such features as specified in the production plans approved by the building company. Cutting-to-size in our factory is carried out using highly modern CNC machinery with the greatest precision.

fulfill  
your own safety



### Industrial Production Meets Craftsmanship

After prefabrication we load the parts of your home and deliver them directly to the building site. The individual elements are transferred by means of a construction crane and properly installed by a building company you have assigned, usually a carpentry and wood construction company.

### Short Construction Time Saves Money

If you decide to build with KLH solid wood boards, you are choosing to have drywall construction within 1 - 2 days and, in an ideal case, to move into your new home within 4 - 5 weeks. Additional months of rent and usually expensive temporary financing are a thing of the past.

### Durable and Stable in Value

The durability and stability of value of a home becomes apparent over the years of use. This does not, as is often wrongly assumed, only include the resale value, which is substantially higher with solid wood houses than with other wooden constructions. In fact, it is about a long life, the rational use of materials, less need for maintenance and simple handling, the lowest possible consumption of energy during use, the possibility of change and above all appropriate performance in the construction.

### Comfort Has a Name

Comfort, a cosy atmosphere and a healthy living climate are essential requirements for modern solid wood construction. Whether we feel good or not is largely determined by the room temperature, the air moisture and the noise level in the house. KLH solid wood boards possess the best physical characteristics for construction.

In the past, wood construction had something of a "barracks" image, but now it is the state of the art for it to also fulfil high noise insulation requirements.

### Wood Burns – But Calculably

The necessary fire resistance duration for buildings is specified in the respective building regulations. It is essentially determined by the number of layers and is the subject of every static calculation.

KLH solid wood boards are manufactured with a structure of 3, 5, 7 or more layers – depending on the number of layers, the fire resistance duration is 30, 60 or 90 minutes. The calculation for the event of fire is based upon countless fire tests with test reports from authorised testing authorities.



*Feel*  
your own safety

#### Brand Creates Trust

Behind the brand "KLH" there are years of experience, a great wealth of know-how not only in the production of KLH solid wood boards but above all in the support and implementation of an extremely wide variety of projects. More than 15,000 reference projects around the world bear witness to the confidence in us and our highly qualified employees.

#### Certificate of Authenticity Leaves No Questions Open

Not every solid wood board is automatically a KLH solid wood board. The different products from different manufacturers are only partly similar and never identical. It is important to us to keep to our promises to our partners and builders. Ask us for a certificate of authenticity for the boards delivered to you – it will allow you to be certain that you have built with KLH.



Architect: Josep Camps / Olga Felip Arquitecturia  
Pedro Pegaute

feel  
your own responsibility



Architect: Meck Architekten GmbH  
Michael Heinrich Fotografie für Architekten

### Wood Possesses Emotionality

Even as children, we dreamt of having a wooden tree house so that we could be as close as possible to nature. Wood conveys warmth and security and evokes childhood memories in us – memories of the first wooden toy, the good old wooden pencil that accompanied us for a few years, of being in love and walks in the woods and the first furniture that we bought for our first flat. Hardly any other raw material can be used in such a multi-faceted way as wood.

### Every Second a Wooden House Grows

The European forest stand increases every year by around 510,000 hectares. Only 64% of the annual growth is felled and taken to further processing. If one converts only this growth into the average amount used for a solid wood house, then a wooden single-family house grows every second.



## We Are Committed to Active Protection of the Environment

KLH solid wood boards are produced in a way that saves energy and resources. We use exclusively green electricity and the by-products from production for our own energy generation.

We have subjected both our product and our production process to an ecological audit and published our ecological assessment in the Environmental Product Declaration tested by the Institut für Bauen und Umwelt e.V. (IBU, Institute for Construction and Environment) in accordance with ISO 14025.

# Feel your own responsibility

## Responsibility for Subsequent Generations

If one considers that around 30% of global CO<sub>2</sub> emissions and around 40% of the global consumption of resources are due to construction, it is of significant importance that every cubic metre of wood is replacing another construction material, which on average reduces the CO<sub>2</sub> emissions by 1.1 tonnes.

## Wood Saves Energy

The use of the environmentally friendly construction material wood, energy-conscious planning and use of your home have a direct effect on the extent of your operating costs. Studies have shown that the room temperature in wooden buildings is subjectively perceived as being up to 2°C higher than with conventional solid constructions of brick or cement.

A low-energy house constructed from KLH elements stores around 79 tonnes of CO<sub>2</sub>. This quantity is equivalent to the CO<sub>2</sub> emissions of a car driving 360,000 kilometres. Put another way, every solid wood house compensates for a car.

## From Low Energy to the Passive House

The building insulation is taking on an important status in energy-saving construction. The insulation values achieved largely depend on the insulation material and the thickness of insulation. KLH elements are always insulated on the outside; the choice of insulation material is left up to you.

According to Österreichisches Institut für Bautechnik (OIB, Austrian Institute of Construction Engineering) the annual heating requirement for a low-energy house is between 40 – 50 kWh/m<sup>2</sup> whereas for a passive house it is between 10 – 15 kWh/m<sup>2</sup>.



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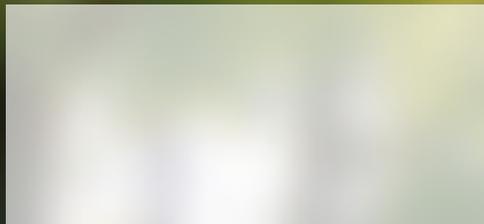
*Life*



For love of nature



Printed on ecologically friendly paper



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