



ECOLOGICAL AND INDIVIDUAL

BUILDING WITH MASSIV-HOLZ-MAUER®
AND PROFILED TIMBER ELEMENTS



"No glue, no chemicals"





* Building with timber –
good for people and
the environment



CONTENTS

Ecological, warm and individual	Page 5
Our construction system	Page 7
• Massiv-Holz-Mauer® for warm and solid houses	Page 9
• Profiled Timber Elements for solid ceilings and roofs	Page 11
• Your advantages	Page 13
What would you like to build?	Page 29
Our projects	Page 31
Your contacts.	Page 35

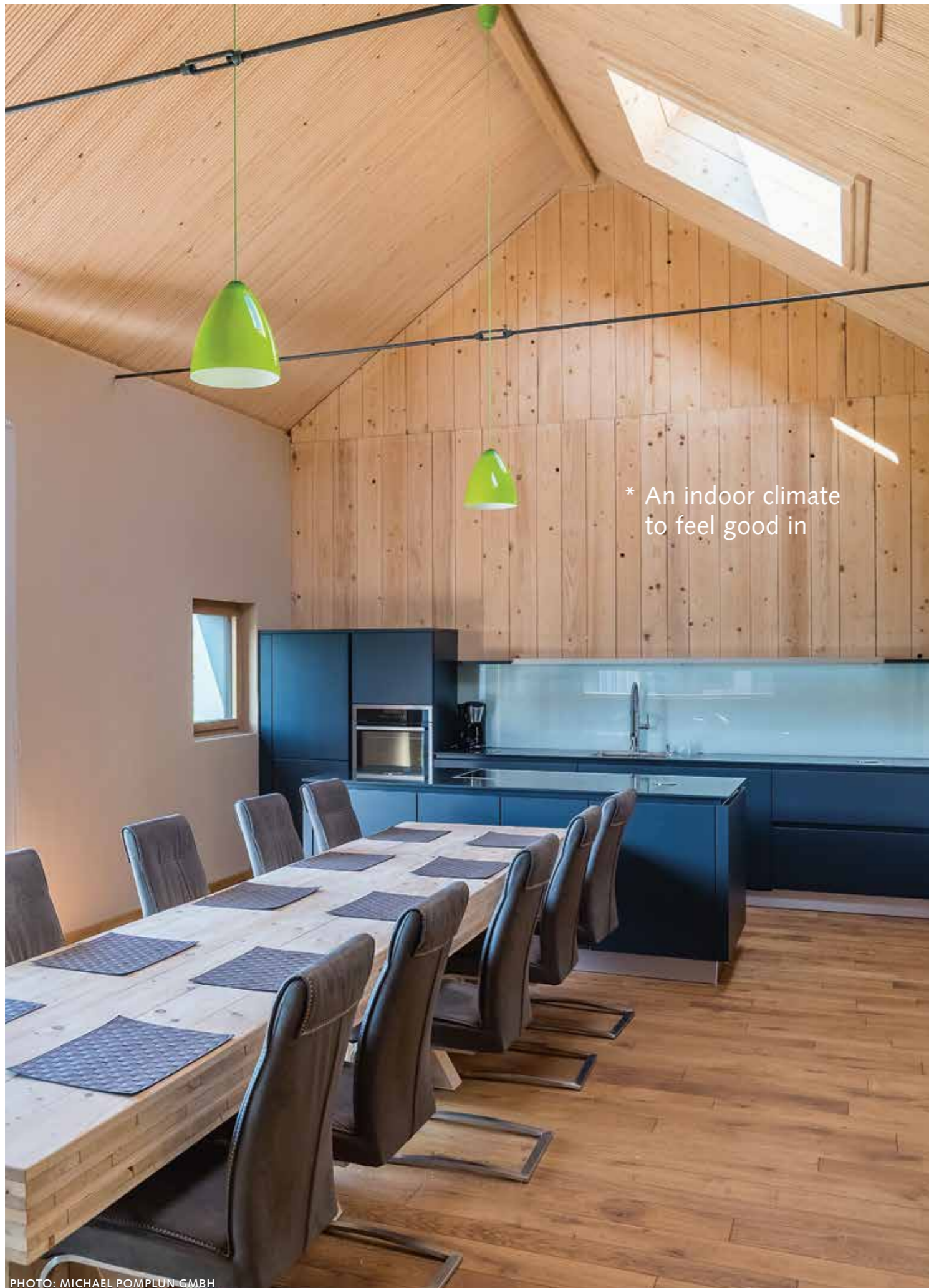


PHOTO: MICHAEL POMPLUN GMBH



ECOLOGICAL, WARM AND INDIVIDUAL

What is the idea behind the Massiv-Holz-Mauer®?

Many builders have a basically positive attitude towards wood as a building material. But they don't want a house with hollow walls, dense foils and adhesions. With this challenge in mind, we developed the concept of the Massiv-Holz-Mauer® at the end of the 1990s: A solid wall made from natural wood. No glue, no chemicals. Ecological, solid, stable, warm, safe, quick to manufacture and with assembly and fitting in no time at all. It was also our aspiration to ensure that the MHM should not cost any more than similar high-quality construction systems.

Even the first hand-made version of the Massiv-Holz-Mauer® (hereafter also shortened to MHM) revealed its enormous potential. The first MHM house was built in September 2002 – today, there are already over 7,000 MHM houses across Europe. In Germany alone, several hundred buildings are produced and erected using our innovative construction system each year.

Build what you want!

With MHM, there are virtually no limits to the imagination of clients, architects and planners: impressive details, large glass facades and smart layouts can be easily achieved with the ultra-strong and glue-free MHM concept.

Inventor of the Massiv-Holz-Mauer® – entrepreneur Hans Hundegger

The Massiv-Holz-Mauer® was developed by the mechanical engineering entrepreneur Hans Hundegger. The company he founded – Hans Hundegger AG – has been manufacturing machines for the timber-processing industry and carpentry firms since 1978.

MHM partner network

The Massiv-Holz-Mauer® is produced regionally on a production line specially engineered by Hundegger at a range of locations in Germany, France, Austria, Belgium and Switzerland. → Page 35

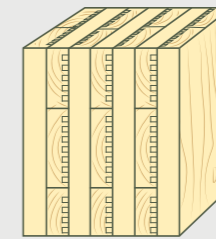
The MHM partner network and its organisation is controlled by MHM Entwicklungs GmbH.

*"Use the gift of nature that the Massiv-Holz-Mauer® gives you!"
Your MHM manufacturers*

* Symbiosis: Massiv-Holz-Mauer®
and Profiled Timber Elements

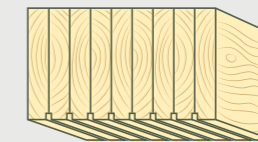


OUR CONSTRUCTION SYSTEM



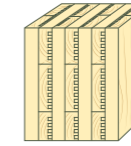
Massiv-Holz-Mauer®
for warm and solid houses

Page 9



Profiled Timber Elements
for solid ceilings and roofs

Page 11



MASSIV-HOLZ-MAUER®

for warm and solid houses

The Massiv-Holz-Mauer® for walls made entirely from wood is a high-quality and simple alternative to the conventional wet-build method using brick and concrete and the timber construction method using glue and chemicals.

In principle, the Massiv-Holz-Mauer® outer wall consists of three zones:

- 1 Massiv-Holz-Mauer®
- 2 Inside lining (exposed wood, drywall materials or clay linings)
- 3 Facade (plaster or wood façade with corresponding insulation layer)

Manufacture and production

High-quality softwood boards are used to manufacture the Massiv-Holz-Mauer®. Thanks to optimal, technical drying to approx. 15 % residual moisture, the untreated boards have extremely good dimensional stability and are resistant to pests. Shaping the surface of the untreated boards with small grooves / profiles creates an air cushion in the finished wall which improves the insulation value over normal solid timber by approx. 20 %. This lets building owners like yourself save 20 % on wood as well as insulation materials – a real economic benefit. The profiled

boards are pressed cross-wise and connected layer by layer into semi-finished wall elements using recycled aluminium groove pins. → Fig. "MHM wall"

Each semi-finished wall element is given the necessary door and window openings in a CNC machining centre. All holes, grooves and cut-outs for heating, sanitary fittings, power sockets and other installation preparations are worked into the MHM wall with maximum precision controlled by computer. Naturally, further installation milling can still be made very easily at a later date.

→ Fig. "Installation milling work"

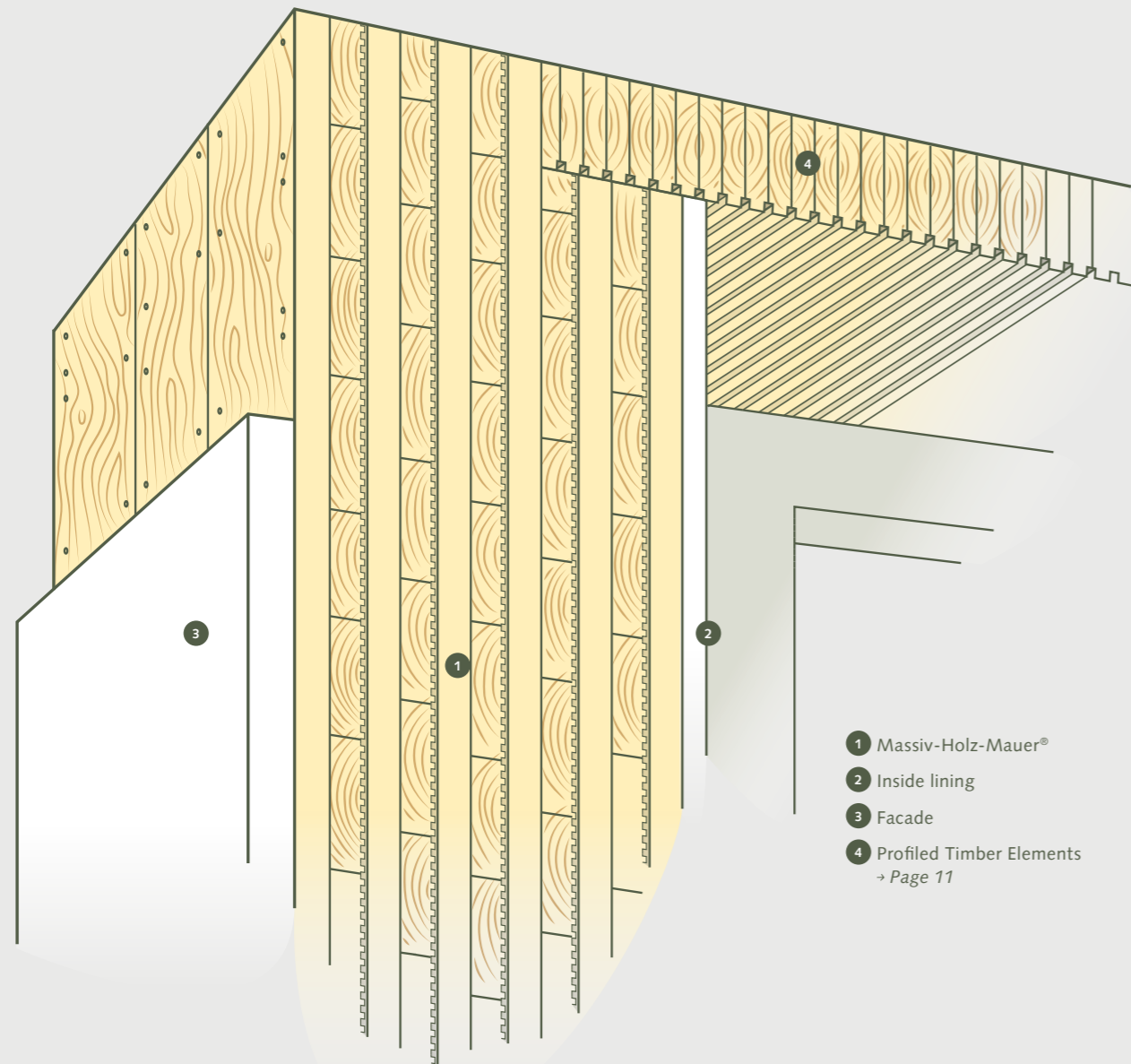
Big advantage of the MHM concept

The inside lining (e.g. exposed wood, drywall materials or clay linings) is applied directly to the Massiv-Holz-Mauer®. In this way, the installed wood can optimally influence the indoor climate with its natural heat storage capacity and moisture buffer.

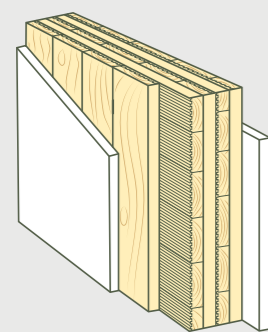
This advantage is lost in other timber wall constructions with an additional layer of installation between the timber wall and inside lining – you can therefore look forward to a pleasant indoor climate with the Massiv-Holz-Mauer®. → Page 19

Our secret for solid and stable walls

We arrange the profiled and dried MHM timber cross-wise and in layers. The result: a highly stable, safe and almost settling-free wall that minimises swelling and shrinkage and reduces tension in the wall.

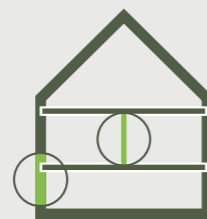


- 1 Massiv-Holz-Mauer®
- 2 Inside lining
- 3 Facade
- 4 Profiled Timber Elements
→ Page 11



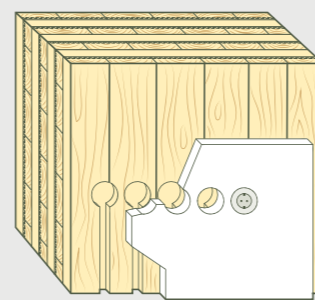
MHM wall

Cross-wise and layered arrangement of dried and grooved softwood boards. Connected with aluminium groove pins



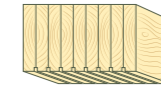
Inner and outer walls

The thickness and lining or insulation of the walls varies according to use. → Page 21



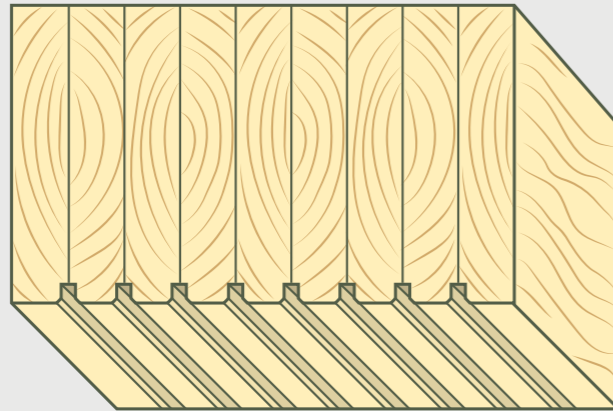
Installation milling work

Installation milling work for applications such as heating, sanitary fittings, telephone/internet and smart home control elements is performed in the basic wall during the manufacturing process. If further milling is required, this can easily be done at a later date.



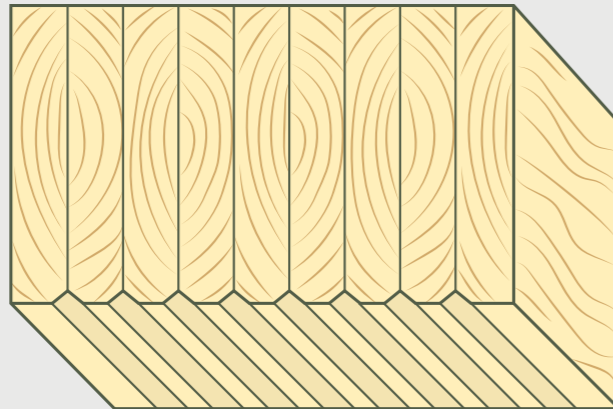
PROFILED TIMBER ELEMENTS

for solid ceilings and roofs



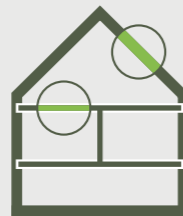
Profile with acoustic surface

The patented acoustic surface absorbs sound to produce pleasant room acoustics.



Profile with V-chamfer

The almost smooth surface with V-chamfer creates a discreet ceiling profile.



Ceilings and roofs

The Profiled Timber Element enables versatile use in ceilings and roofs. Even vaulted ceilings are possible. → Page 38

Like the Massiv-Holz-Mauer®, the Profiled Timber Elements (abbreviated to PHE below) consist of dried softwood boards. These are stacked on edge and connected in layers with aluminium groove pins. The PHE supplements the Massiv-Holz-Mauer® with matching ceiling and/or roof elements in single-family homes, multi-storey buildings or industrial structures.

High strength and low warping

The Profiled Timber Elements impress with their excellent strength and low warping, thanks to the thin, twisting-resistant laminations. The high strength enables a low component thickness, which reduces the building volume - allowing you to save on construction costs. The solid, flat elements offer similarly safe properties as the MHM wall and support this positively, e.g. with the regulation of the indoor climate.

Stylish, with a flexible choice of shape

The ceiling soffit can either be left as a visible wood look with patented acoustic surface or clad with drywall materials. The PHE elements are very flexible when it comes to choosing the shape. Round shapes - e.g. vaulted roofs or a complicated roof cut-out - can be realised with the Profiled Timber Elements. → Page 38

Improvement in room acoustics

Like for the MHM walls, there are specially developed and tested ceiling constructions that dramatically reduce noise emissions for the Profiled Timber Elements.






Our secret for a warm and safe home

We use thin Profiled Timber Elements. They keep the building volume small, avoid any warping of the timber and ensure a pleasant indoor climate and good acoustic properties.



* Make your own design dream come true!

YOUR ADVANTAGES

- 
Solid and safe Page 15
- 
Healthy indoor climate Page 19
- 
Flexible construction Page 21
- 
Short production and construction time Page 23
- 
Natural building Page 25
- 
Positive energy balance Page 27



* Protective properties of the Massiv-Holz-Mauer®



SOLID AND SAFE



Longevity & value preservation

Wood is one of the oldest building materials there is. Historic farmhouses, half-timbered houses and temples bear witness to the fact that this building material can last for centuries and generations. This longevity is also possible with the MHM system. Amongst other things, that has a positive effect on the value of your property. Banks and insurers also share this view.

Since 2003, a large number of buildings have been constructed with the Massiv-Holz-Mauer® in all sorts of regions and climatic zones. So far always to the total satisfaction of the owners, occupiers and users.



Fire protection

Did you know that MHM walls provide a very high degree of fire protection? And for little extra expense. The number of house fires has fortunately fallen in recent years. However, should there be a fire, the unique construction of the Massiv-Holz-Mauer® offers you significant advantages:

- The MHM wall has a low thermal conductivity and warms up only very slowly. This limits the risk of a fire spreading due to hot surfaces or the transmission of smoke through cracks in the wall.
- The aluminium groove pins in the MHM wall lend additional strength and prevent the board layers from coming apart.
- In the event of a fire, the topmost layer of board exposed to the fire carbonises. This acts like a protective shield and sharply reduces further combustion.

The specially developed and tested MHM constructions additionally improve the fire protection properties of the MHM wall many times over.



Sound insulation

The MHM construction system impresses with very good sound values – whether internal or external noise. The good sound values are achieved through the high basic mass of the Massiv-Holz-Mauer® and through the layered structure – which acts like little damping springs. Occupants appreciate the excellent noise protection properties of the MHM wall. For many designs, we offer specially developed and tested wall constructions which allow a combination of noise and fire protection. Would you like, say, a noise-reducing partition wall between the master bedroom and a children's room? We have the right noise protection solution for every situation – e.g. also for the high requirements of hotels or when it comes to partition walls between apartments.



Protection against high-frequency radiation

With its solid timber construction and the aluminium groove pins, the Massiv-Holz-Mauer® significantly “dampens” high-frequency radiation from outdoors (e.g. caused by surrounding wireless transmitting facilities). The screening effect can also have a positive impact on your health. For all “non-wall elements” such as roof structures and windows, we recommend additional measures to achieve a similar protective effect as for the MHM wall.





PHOTO: HERRMANN MASSIVHOLZHAUS GMBH

* No worries
about moisture



The Earth's natural magnetic field

The Earth has a natural constant magnetic field. This is an important order and orientation factor for all living things. It is known from the research done into ecological aspects of construction that our organism can react negatively to technical or artificially generated constant magnetic fields. In buildings, this is usually triggered by magnetised steel elements, which act as permanent magnets. The use of non-magnetic aluminium groove pins in the MHM wall causes less disruption to the natural magnetic field of the Earth. This can have a positive effect on you and your health.



Protection against wood pests

To come straight to the point: not a single case of pest infestation has occurred to date in over 5,000 completed MHM buildings. The technical drying that takes place immediately after the cutting of the softwood boards and before further processing renders wood pests (such as the tick), larvae and their eggs harmless. The manufacturing plants are regularly monitored and controlled. In order to produce the MHM walls, only uninfested, technically dried timber that is free from pests is used. Amongst other things, the technical drying reduces the nutrient and attractant levels in the timber so that pests are not attracted.



Advantages of the MHM wall in the event of water damage

As the water-bearing supply lines in buildings are now very safe, water damage is an increasingly rare occurrence nowadays. Nevertheless, should an MHM element suffer water damage – e.g. through flooding or an overflowing washbasin – the MHM wall clearly gives you an edge:

because most of an MHM wall consists of solid timber (not of insulation or building materials that bind water). Soaked MHM walls would therefore dry out completely back to their original condition again following a flood disaster. Unlike with other building materials, the ingress of water into the non-glued Massiv-Holz-Mauer® is promptly noticed because the water trickles quickly out of the affected wall section, rapidly revealing the location of the leak. Should a section of MHM wall actually become permanently damaged, the affected area of wall is simply generously cut away and replaced with a new element manufactured down to the millimetre.

*"It's a good feeling living in a solid, strong timber house.
We've been living in our MHM house for 15 years!"*

* Comfortable
and warm



PHOTO: FOTOLIA



HEALTHY INDOOR CLIMATE

The vapour-permeable, glue and chemical-free Massiv-Holz-Mauer® ensures a natural regulation of the climate: With the MHM system, you won't need any materials such as foils ("vapour control layers"), which obstruct the effect of diffusion from inside to outside. And you won't even have to ask whether glue is harmful to health or not with the MHM wall.

Natural indoor air humidity – critical for the climate we live in

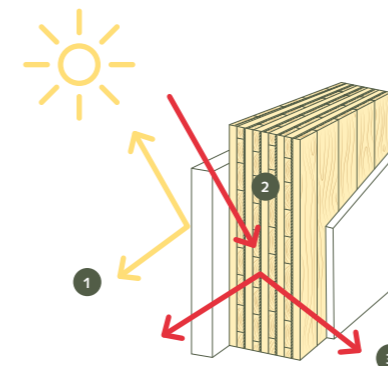
The Massiv-Holz-Mauer® is a natural building material and behaves ideally by nature – for a lifetime. An important point to consider is the hygroscopic property of the MHM wall, which ensures that moisture from the living space is absorbed and given off again until a moisture balance is achieved. The breathable, glue and chemical-free construction comprising many individual layers of board without a vapour control layer allows the Massiv-Holz-Mauer® to improve the indoor air humidity in all seasons – all without complicated technology inside the wall.

The secret of comfort in our timber buildings:

With a combination of mass and insulation, the MHM system helps to maintain the indoor temperature. We achieve this through the special wall structure with the large mass of grooved softwood boards. The resulting low thermal conductivity allows heat to pass to only a limited extent. That takes time. Whether from outside to inside in summer, or from inside to outside in winter. This phenomenon also has a positive effect on your indoor temperature and also keeps it constant for a very long time, even with large temperature fluctuations outside the building – the MHM occupant perceives this as a pleasant indoor environment. For the optimal wall construction, only a small amount of additional insulation – which is matched to the energy efficiency class – is needed because the Massiv-Holz-Mauer® already provides most of the insulating effect.

Another positive effect of the MHM wall appears during the process of heating up your living space. As the MHM wall absorbs very little heat, the surface of the wall heats up quickly again following a drop in indoor temperature (e.g. at night).

In MHM constructions, the wall surfaces are ideally planned to minimise not only heat losses but also so-called thermal bridges. Thermal bridges refer to areas of an element, e.g. window or foundation connections, corners and edges, that transport heat more quickly than plane elements. With our thermal bridge details developed specifically for MHM, every corner in your building can be optimally adapted.



The MHM as a heat store

- 1 Reflection of sunlight
- 2 Absorption – storage of the solar energy or heat
- 3 Emission – release of the stored heat

*"We have a very pleasant indoor climate – cool in summer and warm in winter.
And all without additional cooling and with low heating costs."*



FLEXIBLE CONSTRUCTION

The Massiv-Holz-Mauer® elements are manufactured in individual sizes according to the planning specification. Outer wall thicknesses can be selected from 20 to 25 centimetres (9 to 11 layers*), the additional insulation is chosen according to your required energy standard – whether GEG (German Building Energy Act) or PlusEnergy. There are absolutely no restrictions during the planning and no one size fits all. The wall elements are adapted to your planning requirements – not the other way round.

* Thicker walls with up to 15 layers are possible.

The insulation thickness depends on the desired construction standard

A solar house, an energy self-sufficient building with its own power supply? No matter which energy standard should be used for your building's design – the Massiv-Holz-Mauer® concept is the ideal basis for your building project. Only the wall and insulation thicknesses change. You decide whether your house should only fulfil the statutory minimum requirements (EnEV) or be an efficient, passive or PlusEnergy house.

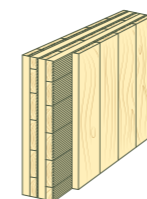
Design freedom for layout, facade and wall geometry

Whether a rectangular layout, a polygonal or trapezoidal building. Whether you, as the client, want a wooden facade or prefer a plastered house. Whether your plans are more rural, conservative or architecturally modern. All this and much more besides can be achieved without great expense. "Bauhaus style meets timber house" is also possible with the MHM system. We make your building dream come true. With computerised processing and the use of state-of-the-art production tools.

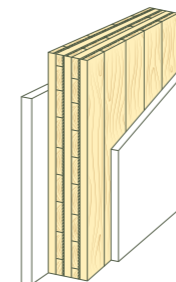
Extension, dismantling, conversion and interior finishing are possible without problem

If the living conditions of the occupants change, you can continue to adapt to them flexibly even years later with Massiv-Holz-Mauer® elements. For example, a new door can be added with little effort. That isn't quite so simple with construction methods that mostly consist of insulation. With the MHM concept, buildings can also have an extension added to them at a later date that can be adapted perfectly to the existing building. This enormous flexibility guarantees you a high degree of intrinsic value.

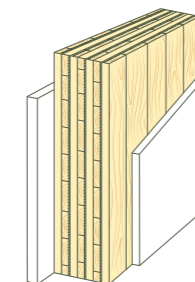
* Freedom to plan,
design and live



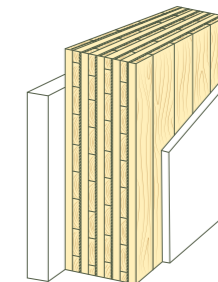
MHM basic wall
boards arranged cross-
wise and in layers



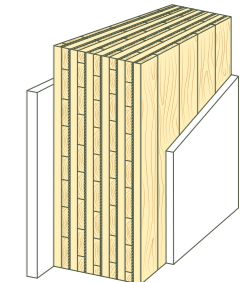
Inner wall – 5 layers
with inside lining on
both sides



Inner wall – 7 layers
with inside lining on
both sides



Outer wall – 9 layers
with inside lining and nor-
mal external insulation



Outer wall – 11 layers
with inside lining and thin
external insulation

*"Our new office looks like a pulpit protruding over the stream.
Such special wishes can be easily and affordably realised with the MHM system."*



SHORT PRODUCTION AND CONSTRUCTION TIME

The Massiv-Holz-Mauer® elements are manufactured with millimetre precision according to the planning specification. Slopes, door and window cut-outs, wiring/plumbing chases, etc. are appropriately cut or manufactured to measure. In particular, increasingly complicated building systems (smart homes, intelligent control and heating systems) require detailed planning and can be easily implemented with the MHM system. Production planning and element management take place centrally in the MHM manufacturing plant. This massively reduces the risk of errors during construction.

Short construction phase thanks to the short assembly time

Thanks to computer-controlled, precise prefabrication and easy assembly, a house made from Massiv-Holz-Mauer® elements can be erected in no time at all. The wall elements only have to be connected and bolted together according to their numbering. Complex measurements and the errors these can lead to

are reduced to a minimum. For a normal single-family home, the assembly time is just a few days. The shell is quickly protected by a roof and all other works can be carried out in parallel. This creates additional planning and cost certainty for you.

Inhabitable immediately after completion

And best of all: with the Massiv-Holz-Mauer®, you can build dry.

Because all elements used (from the wall lining to the roof construction) are dry. There is no need for adhesive or cement mortar. So you can enjoy a dry and pleasant indoor atmosphere immediately after assembly and finishing.

* Elements prefabricated with millimetre precision

"Short installation/construction phase – we were able to proceed to completing the interior immediately after the shell was erected because there is no construction moisture involved with the MHM system."

* Environmentally friendly and climate-neutral



NATURAL BUILDING

Buildings made from timber are part of the history of human civilisation and culture.

While mostly simple houses used to be built from timber, the innovative Massiv-Holz-Mauer® system allows the construction of single-family homes, villas, restaurants, hotels, workshops, industrial buildings and multi-storey houses.

Ecological like nature

The Massiv-Holz-Mauer® is considered a trendsetter in ecological and CO₂-neutral house building. Our ideas and in-house developments have been setting standards for decades. The building materials we develop are manufactured in environmentally friendly conditions and are climate-neutral. We collaborate with big-name institutions and are constantly enhancing the Massiv-Holz-Mauer® concept.

Our mission: Consistent saving of energy and resources, active environmental protection and active sustainability.

Timber construction as a contribution to climate protection

Wood stores harmful carbon dioxide gas (= CO₂) as it grows. If wood is burned or allowed to rot, the CO₂ stored in the wood is released.

However, if wood is used as a construction material instead, e.g. for wooden furniture or MHM houses, it becomes a long-term store of CO₂, thereby supporting climate protection. That improves the energy balance.

→ Page 27

"One of the most persuasive arguments for me is that the MHM system does not use any glue (= barrier layer). In this way, the wood (house) can breathe and the moisture levels regulate themselves."



POSITIVE ENERGY BALANCE

The Massiv-Holz-Mauer® system lets you plan and build with an awareness of energy consumption and costs. Saving energy to reduce CO₂ emissions is a good thing. Storing CO₂ is even better. Because calculating the overall energy balance of a building doesn't come down to just the energy consumed during its use. Factors such as the energy requirement involved in manufacturing the construction materials and their subsequent disposal are also taken into account. This is where the Massiv-Holz-Mauer® scores in several ways, with short transport distances, fast installation and – if necessary – simple dismantling.

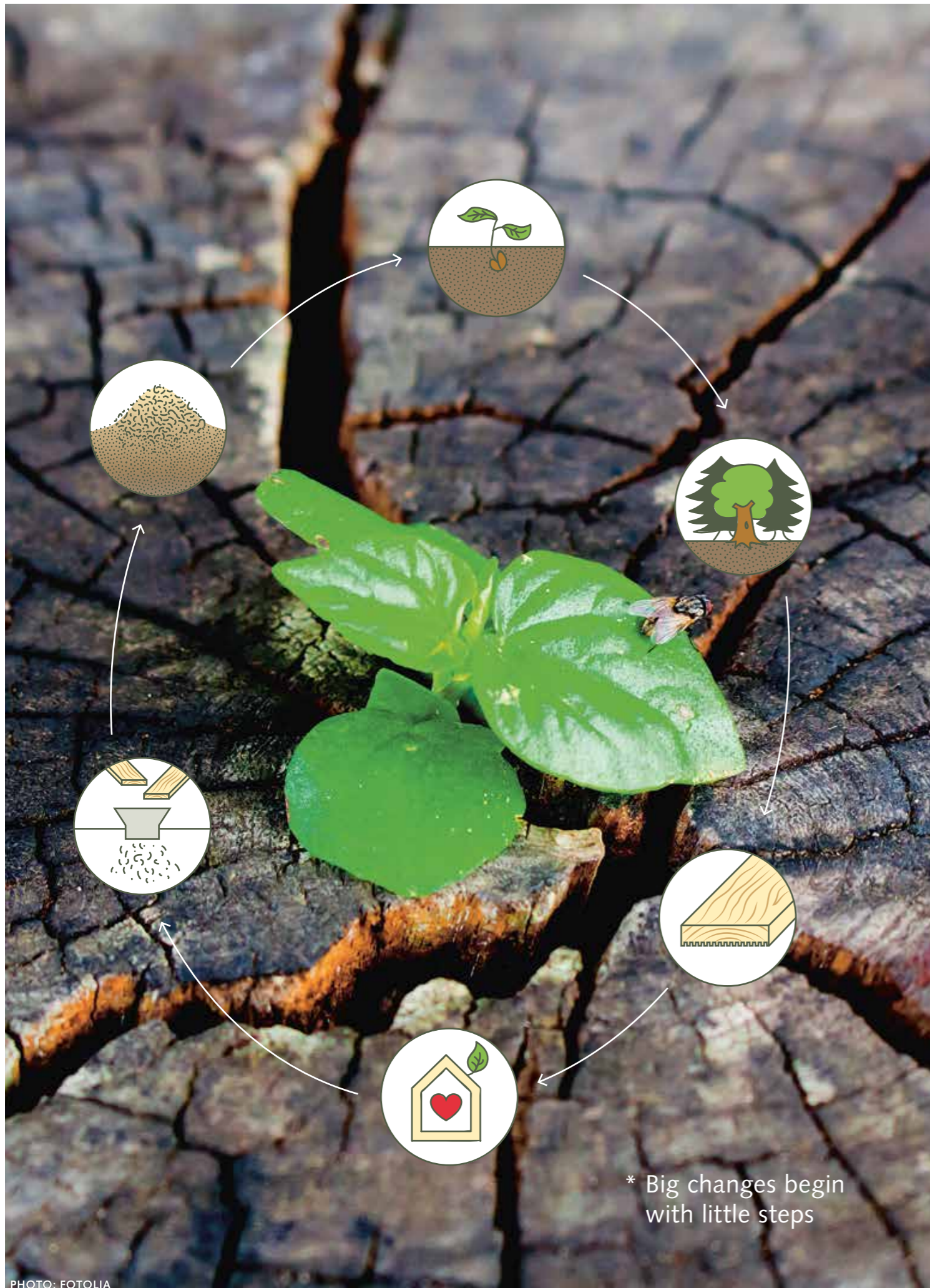
Glue-free solid timber gets by with a fraction of the production energy needed for fired brick, cement and reinforced concrete. The Massiv-Holz-Mauer® is produced in Germany, France, Austria, Belgium and Switzerland – assuring you of short transport distances.

Long-lasting properties & value retention: timber remains a valuable raw material

Just like conventional construction, the period in which a building is economically useful with normal maintenance is about 80 to 100 years. However, the overall period of use – the time between construction and demolition of a building – can easily extend to several hundred years with appropriate care. Old temple structures – even in areas of Japan prone to earthquakes –, half-timbered houses in our mediaeval city centres or the pile work buildings on Lake Constance provide impressive evidence of this. Turn your building project into a cult location and an investment for generations to come.

Dismantling & recycling

Thanks to their design, buildings constructed with Massiv-Holz-Mauer® are just as easy to dismantle as they originally were to assemble. And the wood used remains a valuable material – for our descendants as well. You can even earn money by recycling an MHM building that is no longer needed and its clean wood (e.g. into woodchips)!





* A single wall construction for all building types

WHAT WOULD YOU LIKE TO BUILD?



Private housing construction

Single and multi-family homes, terrace houses, multi-storey residential buildings ...



Municipal construction projects

Nurseries, schools, administration buildings, refugee accommodation, recycling centres ...



Commercial construction projects

Hotel and guest establishments, company premises, factory halls, office buildings, warehouses ...

As you can see: the Massiv-Holz-Mauer® lets you build houses that are big or small, functional or homely, classical or modern. You have complete planning freedom with total cost certainty!

(Almost) any building is possible – put our expertise to the test!

Stop compromising and plan to your wishes!

RESIDENTIAL BUILDINGS



MULTI-FAMILY HOUSES



... AND WHAT DOES YOUR DREAM HOUSE LOOK LIKE?



11

OFFICE BUILDINGS



15

EDUCATIONAL INSTITUTIONS



12



16



13



17

HOSPITALITY INDUSTRY



14



18

... BUILDING TO YOUR WISHES!

* Build your
dream house!

YOUR CONTACTS

The first question: Where would you like to build?

Ecological construction begins with the shortest possible transport distances: The Massiv-Holz-Mauer® construction system is produced regionally in a number of countries.

MHM production locations

You can find an overview of the MHM production locations on our website www.massivholzmauer.de/en/ in the section: *MHM near you*. We would be pleased to help you find the nearest point of contact for your MHM house.

Whether you're looking to build a fully turnkey project or want to organise or carry out services such as interior finishing or the installation of sanitary fittings yourself, our manufacturers will be there to advise and support you all the way: our network of timber construction experts and our network of production locations will help to precisely address your needs, wishes and ideas.

Attractive financing and funding options!

Benefit from the attractive financing and funding options. For further information, please contact your MHM partner.

Your contacts

Do you have any questions about Massiv-Holz-Mauer® or would you like to know where you can find an MHM point of contact near you? Here at Massiv-Holz-Mauer, we'd be pleased to help you further.

How to reach us:

Telephone: +49 (0) 8332 - 9233 2090

E-mail: info@massivholzmauer.de

MHM near you

Want to find an MHM partner near you? You can find an overview here:

www.massivholzmauer.de/en/contact/find-a-manufacturer/partner



* Stop compromising and
plan to your wishes!





* Clever room ideas?
Challenge us!

PHOTO: PETZENHAMMER



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