

Presentation of prema®

prema® - which is a family owned enterprise have the goal to bring the modern wood construction to Asia. In the following slides - we want to give you a impression about the **prema®** system and his advantages.

The **prema®** system consists of mechanical connections that are easy to assemble, hold very strong and are way ahead of common wood connections.

This **patented** system is inserted into the natural wood with millimeter precision and is ideally suited for long-term and flexible use.

The topic of green building is one of the most discussed topics in the construction industry. Do our modern construction methods makes us sick? There is a clear answer with our **prema®** system: No! The healthy construction, the materials used are not only sustainable - they are also "naturally" healthy.

The different geometries, such as walls, ceilings, recesses, for doors and windows can thus be prefabricated precisely and assembled at the destination or during pre-assembly in a clean and time-saving manner.

What is prema[®] ?

prema[®] Solutions-modular adhesive-free technology in natural wood



„row“ wood material
from Germany



making elements
without glue



transport elements
around the world



onsite partner creates
room modules near
end customer



assemble room
modules to whole
building



create every kind of
building

Advantages of prema®

- ✓ used for commercial, public and private buildings
- ✓ quick to manufacture
- ✓ easy to build
- ✓ highly flexible
- ✓ standardized components
- ✓ from grown natural woods
- ✓ glue-free, pollution-free wood construction system
- ✓ all elements with purely mechanical connections
- ✓ can be dismantled and reused
- ✓ integrative / synergetic function
- ✓ applicable in conjunction with many products
- ✓ extremely short production and assembly times
- ✓ easy transport due to ideal dimensions (truck / sea container ..)
- ✓ long-term storage of CO₂



prema[®] - Impairment - "Cradle to Cradle"

Buildings made of **prema**[®] modules can simply be dismantled at the end of their useful life. Due to the unique design of the **prema**[®] modules with their interchangeable system elements, the individual system components can generally be used for up to four use cycles of different building designs or can be recycled at the end of their useful life. The capital tied up in the natural wood of the **prema**[®] system components is therefore not lost, but is released again for other use. This ensures complete recycling.

The innovation **prema**[®] - "Cradle to Cradle" is a circular economy in its purest form - the **prema**[®] timber construction system consists of mechanical connections that are easy to assemble, hold very well and are a lot ahead of conventional wood connections. As a result, the system can always be used for new building structures, such as in the cycle of nature.



Where prema® can be used?

It can be used for commercial, public and private buildings, temporary as well as permanent buildings

Commercial Sector

- Portable Office / Shops / etc.
- Factory buildings
- Motels
- Hotels / Resorts
- Accommodations for seasonal harvesters



Public Sector

- Office modules / buildings
- School modules / buildings
- Kindergarten modules / buildings
- Senior citizen residences
- Museums
- Emergency shelters
- Etc.



Private Sector

- Private homes / Apartments
- prema® modular home-lifestyle concept



prema® healthy living

With its large number of air-filled cells, wood ensures optimal heat and moisture balance. Every person loses at least 1 liter of water per day through their breathing air and skin. In every apartment, additional moisture is generated when cooking, washing, showering and through houseplants. Wood, absorbs the water vapor in the room air particularly well and thus prevents excessive humidity, which u. a. can also lead to mold formation. If, on the other hand, the room air is too dry, for example during the heating season in winter, wood releases the stored water vapor into the dry room air and thus intervenes regulatively in the room climate. This relieves our respiratory tract, which has a beneficial effect especially for small children or people with asthmatic complaints.

The conscious use of wood can also minimize the pollution of indoor air. Wood does not release air pollutants.

Last but not least, wood's special feel creates an atmosphere for relaxation and wellbeing. Scientists from different countries such as Norway, Japan and Canada have shown that wood also has a positive impact on people's moods.

prema[®] termite protection

Termites only infest wood with a certain moisture!

- **prema**[®] only uses "technically dried" wood
- Specification of **prema**[®] constructive wood protection
 - The foundation must be made according to specifications (e.g. do not place directly on the ground / coarse gravel, recycled glass / glass gravel as a capillary-breaking layer, etc.)
 - In addition, a barrier made of stainless steel mesh can be attached if necessary.

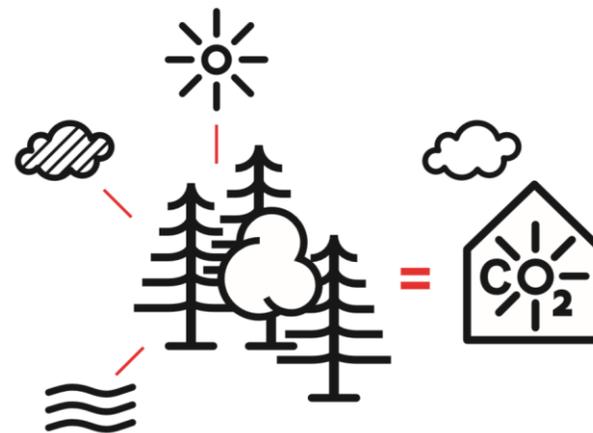


prema® environmental awareness

prema® system components consist of mass-produced elements from natural woods. These are linked together without glue or pollutants. We attach great importance to sustainability and create large, statically demanding system components from naturally renewable, small wooden cross-sections.

Due to the reusable use of natural building materials, the use of prema® makes several ecological sense. The prema® modules can be dismantled, otherwise reassembled or just dismantled and disassembled into the original individual parts. Because only the building material wood has an outstanding energy and carbon efficiency. It accumulates diverse and positive effects across the value chain and over the entire life cycle.

As a result, prema® leaves a **positive CO₂** footprint.



prema® environmental awareness - calculation example



www.prema-system.com

04-2020_02_14_prema® Modul-AW unbekl. KFW55 m Aussteif, U=0,20 W/(m²K)

LCA

Heat loss: 16 kWh/m² per heating season



Amount of heat that escapes through one square meter of this component during the heating period. Please note: Due to internal and solar gains, the heating demand is lower than the heat loss.

Primary energy (non renewable): 81 kWh/m²



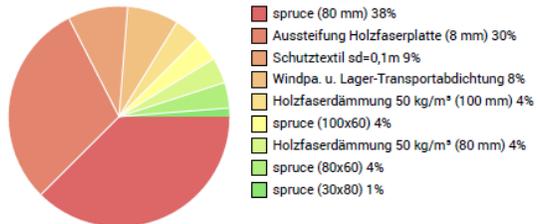
Non-renewable primary energy (= energy from fossil fuels and nuclear energy) that was used to produce the new building materials ("cradle to gate").

Green house gas potential: -80 kg CO2 Äqv./m²

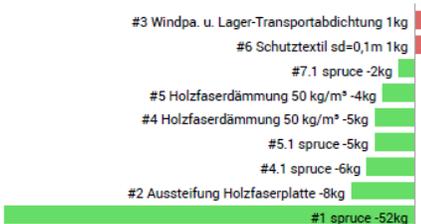


For the production of the building materials used, more greenhouse gases were withdrawn from the atmosphere than emitted.

Composition of non-renewable primary energy of production:



Composition of the greenhouse potential of production:



Example calculation damage prevention climate

According the beside shown project



For the project 572,67m³ wood is planned, which means:

787,09

\$150

\$118.064,23

Tons of Co2 equivalent emissions are avoided

Damage per ton of Co2

Damage which is avoided per year from the above shown construction

50Years HIP

\$5.903.211,56

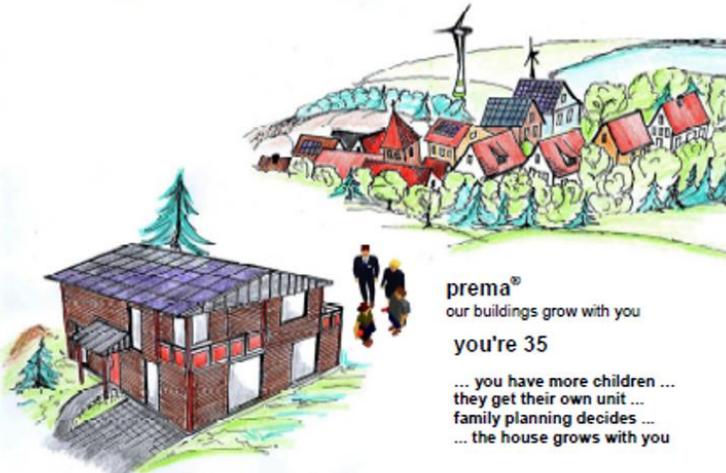
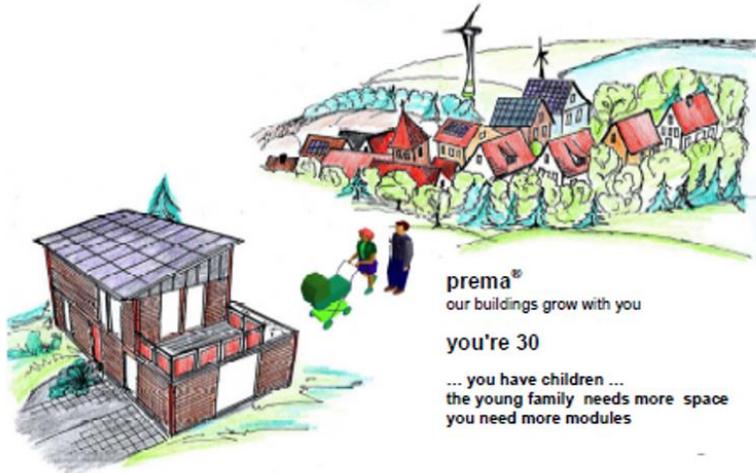
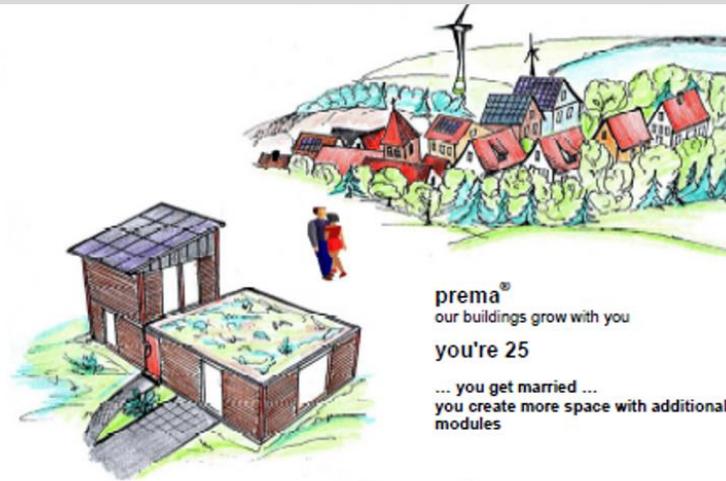
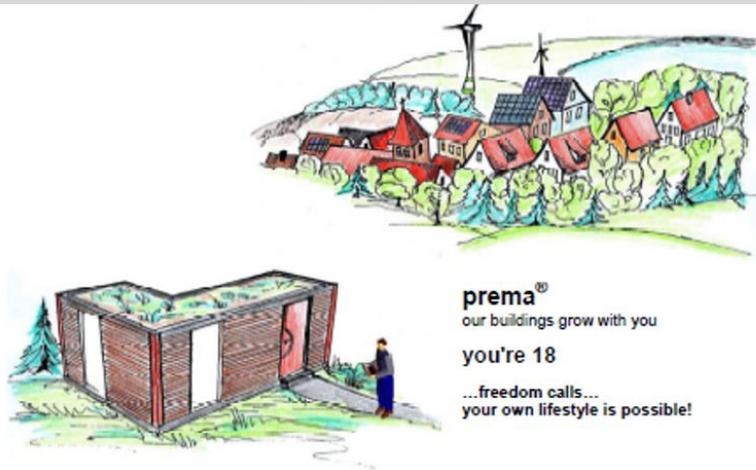
Damage avoid for 50 years

200Years according prema (reusable system)

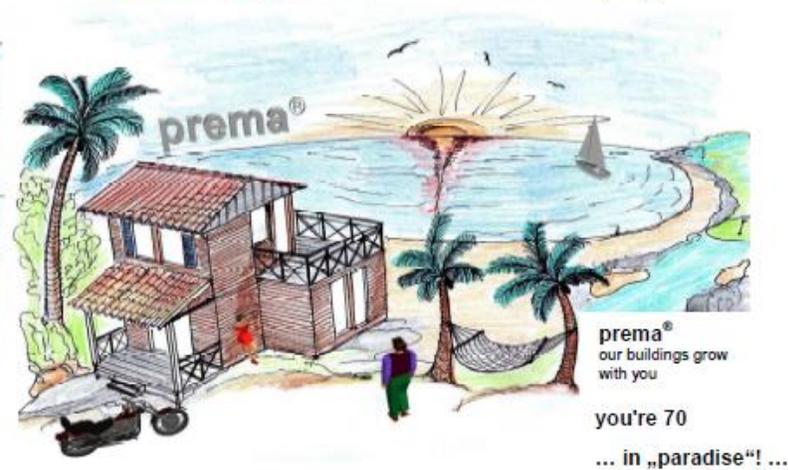
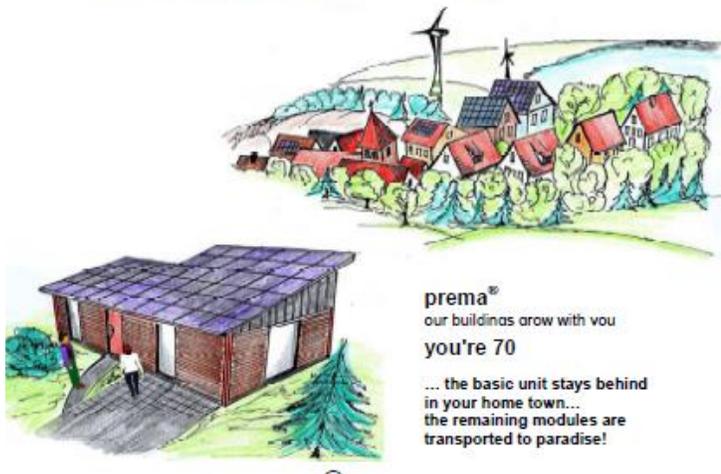
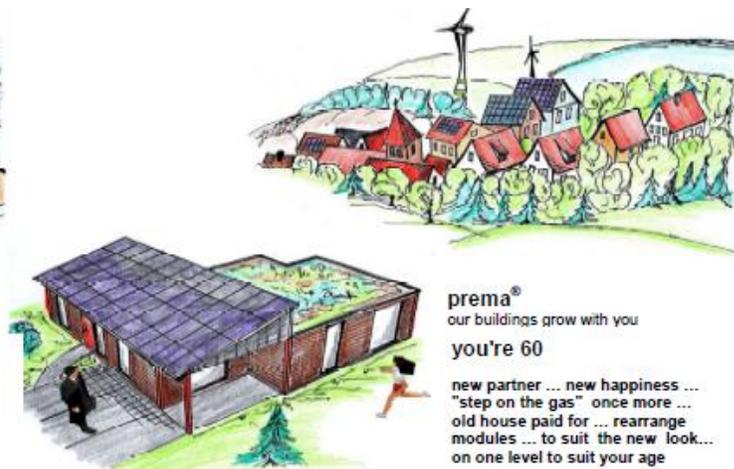
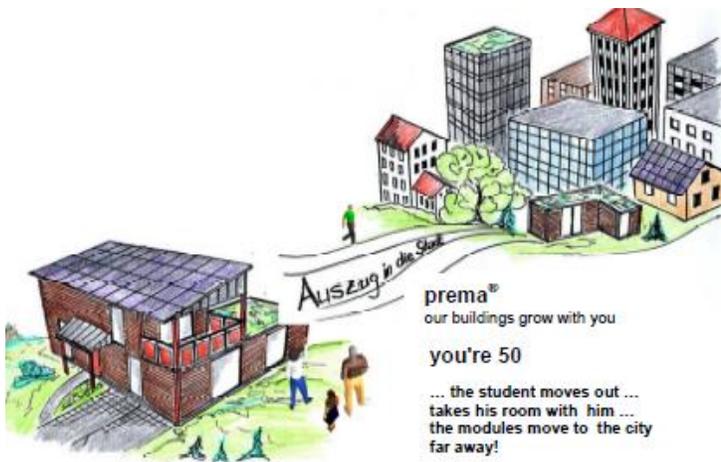
\$23.612.846,23

Damage avoid for 200 years

prema[®] reusable system



prema[®] reusable system



prema[®] earthquake safety

prema[®] is assembled with flexible connecting elements. These deform under mechanical stress (e.g. vibrations due to earthquakes) and absorb the energy involved. The mainly pin-shaped connections make **prema**[®] building constructions not only very resistant to earthquakes due to their ductility, they also retain their load-bearing capacity. prema[®] is based on the earthquake standard DIN4149 in accordance with DIN EN 1998 (in accordance with European regulations Eurocode 8).

See also the general information:

<https://www.youtube.com/watch?v=z6SAQVSorFA>



prema[®] fire protection

Today's modern timber construction meets all fire protection requirements

Is wood a flammable building material and therefore less safe than steel, glass or concrete? This question is actually wrong, because the cause of almost all fire cases is not the building material, but human error. As far as fire resistance and fire behavior are concerned, wood is a construction and construction material that can be used without any problems with good planning. High-rise buildings made of wood are now being built in Germany and Austria in compliance with all fire protection requirements



prema[®] impression by pictures / office for local newspaper



prema[®] impression by pictures / modules on the way



prema[®] impression by pictures / easy installation



prema[®] impression by pictures / easy installation



prema[®] impression by pictures / temporary buildings

