CAS Rebuild Ukraine

History and background information from Thailand

Activities for Rebuild Ukraine

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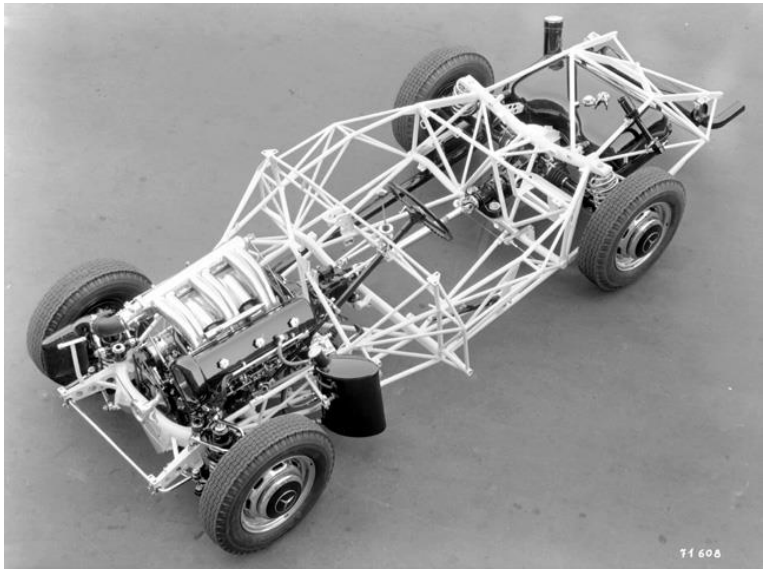
Background and Principles

As a Process Engineer and with the experience of 27 years as a supplier to the automotive industry, I have learned; one can contribute to society only with innovations and localized raw materials.

The main principles for success are:

- Cost savings in material, manufacturing process and assembly time.
- In racing, cars have always been built with tubular frames. This is why they are light and fast but still safe.



History and Future Activities

My experiences have inspired me in designing and further developing the «Happy Home». We want to implement the lessons learnt for the benefit of the buyer.

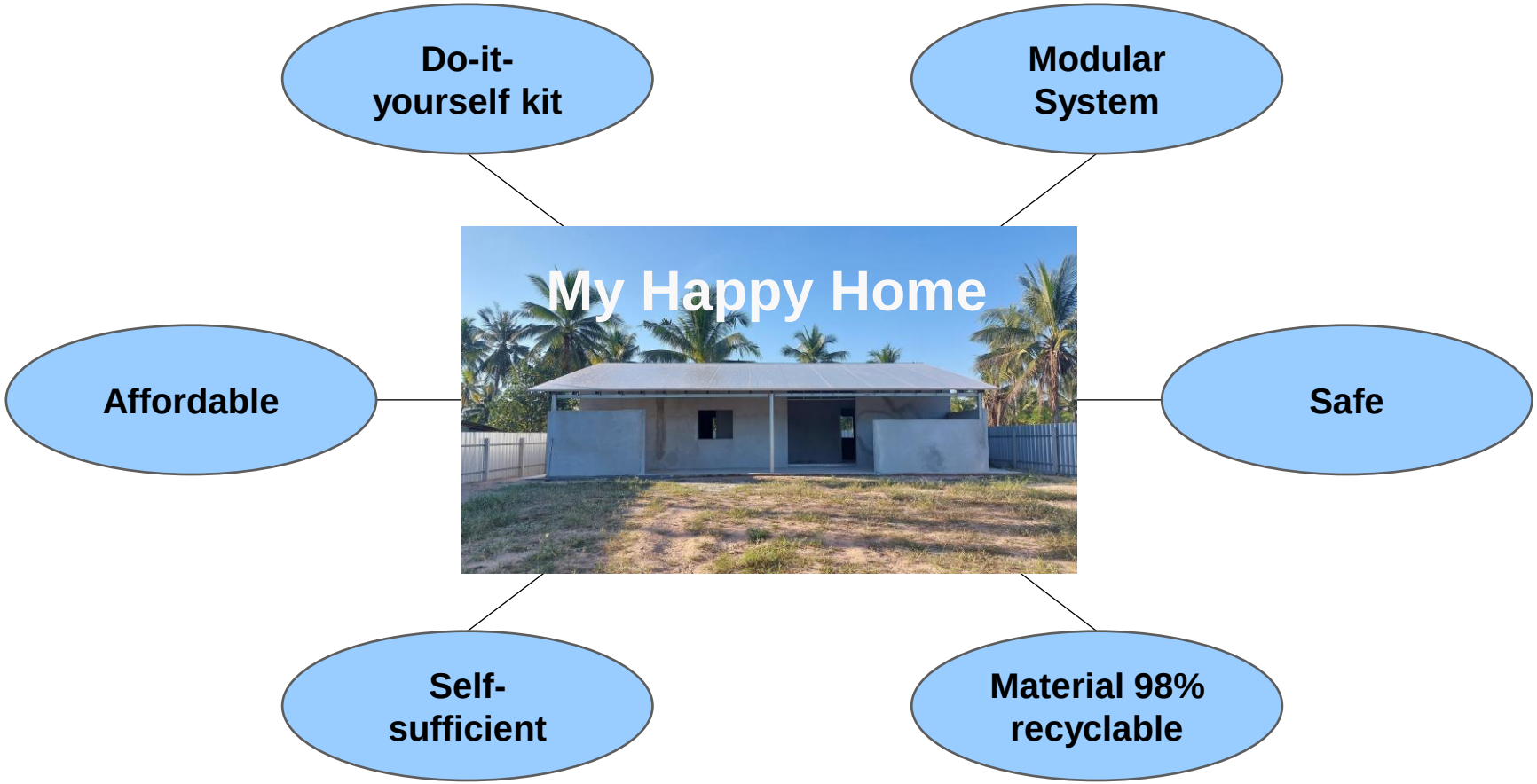
Today we can build in Thailand safe and simple houses for families.

Thanks to the modular skeleton construction, we can manufacture small houses up to villas, from the simple standard to the luxury version.

https://youtu.be/d6_KE4S_lcM

As is normal in the automotive industry, I am always looking for new technologies and materials for construction, so that we can build safe and stable houses that are cheaper and more ecological at the same time.

Main Advantages of the Happy Home

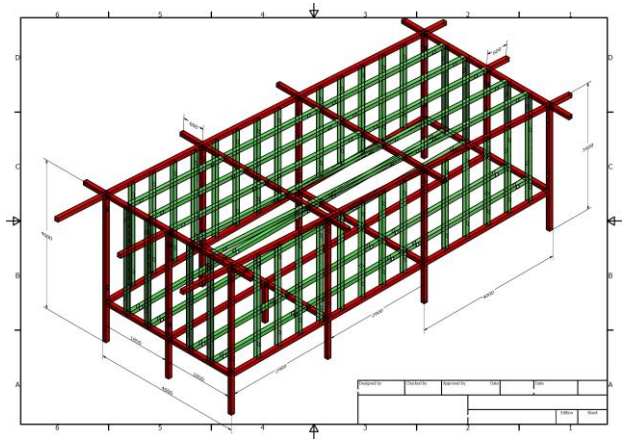


Additional Advantages of the Happy Home

- With the pipe skeleton profile, all local construction materials can be used to build the house
- The CO2 food print for the first serially produced “Happy Home” is 4.8 years
- Short assembly time – shell construction can be completed within 4 weeks
- Self-sufficient thanks to
  - 8 panels with 400 watts
  - drinking water membrane filter over gravity
  - wastewater cleaning tank
- Expandable

Construction of the Happy Home

- The hybrid construction can be 98% recycled.
- All posts and beams can be assembled by hand. Therefore, no construction machinery is required.
- 3 days assembly time for the basic framework with 3 – 4 women and men.
- Flexible positioning of openings for doors and windows.



This basic framework meets all Ukrainian static requirements for wind load, snow load and earthquake resistance

Construction of the Happy Home

A wide variety of local materials can be used to complete the house:

- Insulation:
  Sheep's wool, straw, clay, wood chips, fibers.
  If none of these insulation materials are available locally, PUR or rock wool can also be used.
- Facade:
  Wooden panels, sheet metal panels, cement fiber panels, sealing films.
- Interior:
  wooden panels, mixed wood or cement fiber panels
- Electrical cable routing, heating cables

Additional Features for the Happy Home

- Groundwater / wastewater treatment
- PV panels

What is “My Happy Home”

- History and background information
- 2016, Prototype “Happy Home” built with 50 x 50 x 3 mm steel pipes
- Floor area inside and outside kitchen, 100 m2

- How is the “Happy Home” structured?
- 2020, first serially produced house

- “Happy Home” to support and benefit families in need

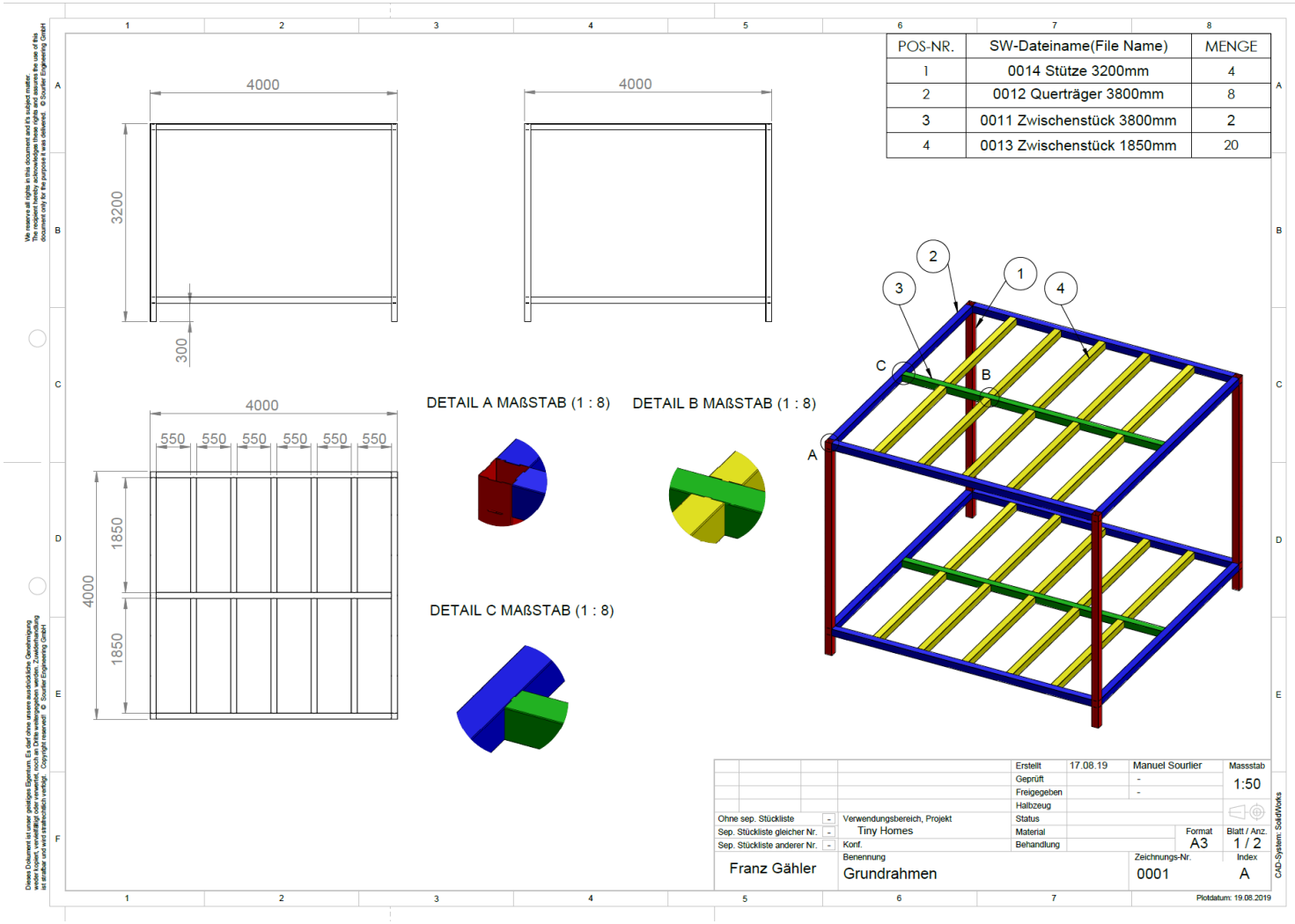
- Activities for the Ukraine
- The shell with the static requirements of Ukraine was built in December 2023
- Inexpensive houses that can be relocated

“My Happy Home”

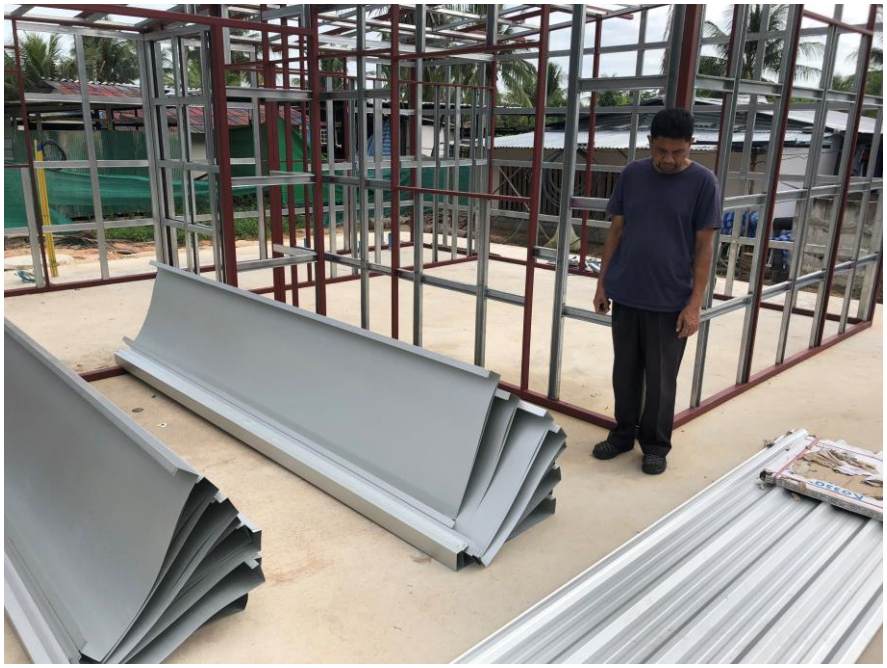
First Prototype built in 2016

2023
First serially produced Happy Home

Modular Basic Pipe and U Profile Construction

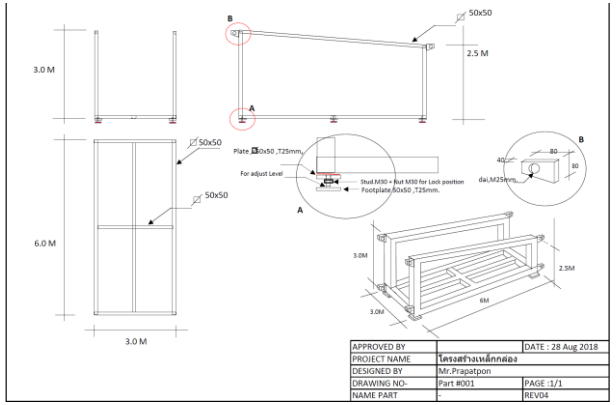


Steel Profile Construction with Local Resources

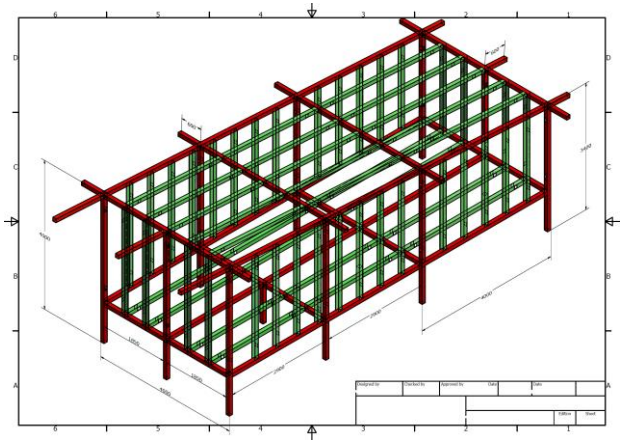


2016 Prototype Happy Home

First CAD Study



Frame Construction



Build-up Prototype

Insulation with Rock Wool

Sheet Metal Cascade with Facade

2016 Prototype Happy Home

Summary:
Basic concept, stable and isolated basic construction is feasible. Mass production is not possible; too many different steel parts. In addition, expensive production machines were required on the construction site. Very long building time, material was cut on site.

Target:
Solid and simple, modular basic construction. Easily expandable. Happy Home grows with the family. No special equipment required for the assembly. Parts assembled by a lock system developed by us.

First Serially Produced “Happy Home”

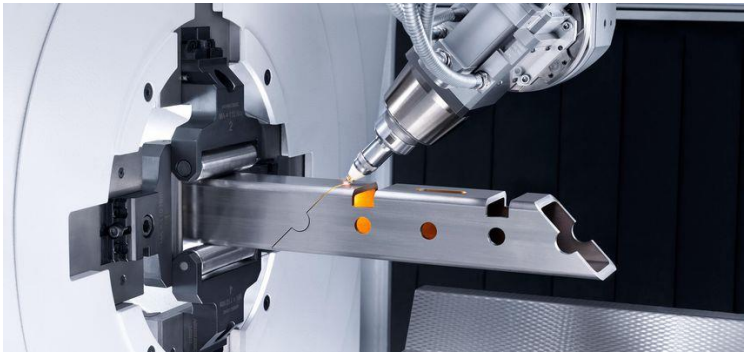
On the following slides you will find detailed information and pictures about the first serially produced "Happy Home"

Technology used for the Production for the Steel Pipe Construction

Result thanks to the practicality with a pipe laser cutting machine.

All specialists have confirmed that a high-strength pipe connection can be produced with the pipe laser cutting technology.

This technology is already successfully used in the Automotive Industry as well as for furniture and space engineering.



We already have a first quotation in hand. This confirms our assumption that we can offer a highly stable basic construction for a Happy Home.

It is secured that a buyer can build his home on his own and save huge costs.

Steel Profile Construction with Local Resources

The frame work for the first serially produced “Happy Home” was lasered with a pipe laser machine.

Production time for the steel frame work : 112 minutes

Floor Frame Construction

Floor Frame Construction

Construction in Progress

Construction in Progress

Construction in Progress

Construction in Progress

Construction Progress

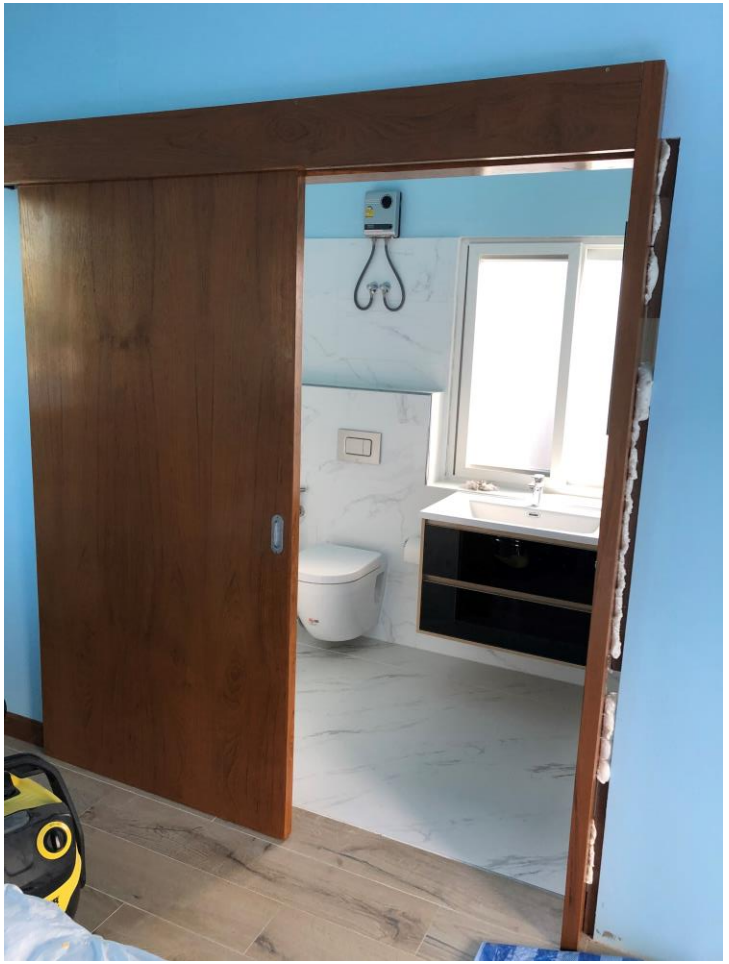
Facade

Assembly Wall with Rock Wool Insulation

Sanitary Installation

Sanitary Installation

Inside View



Finished House

Finished House

Groundwater Filter

Supplier Openversum

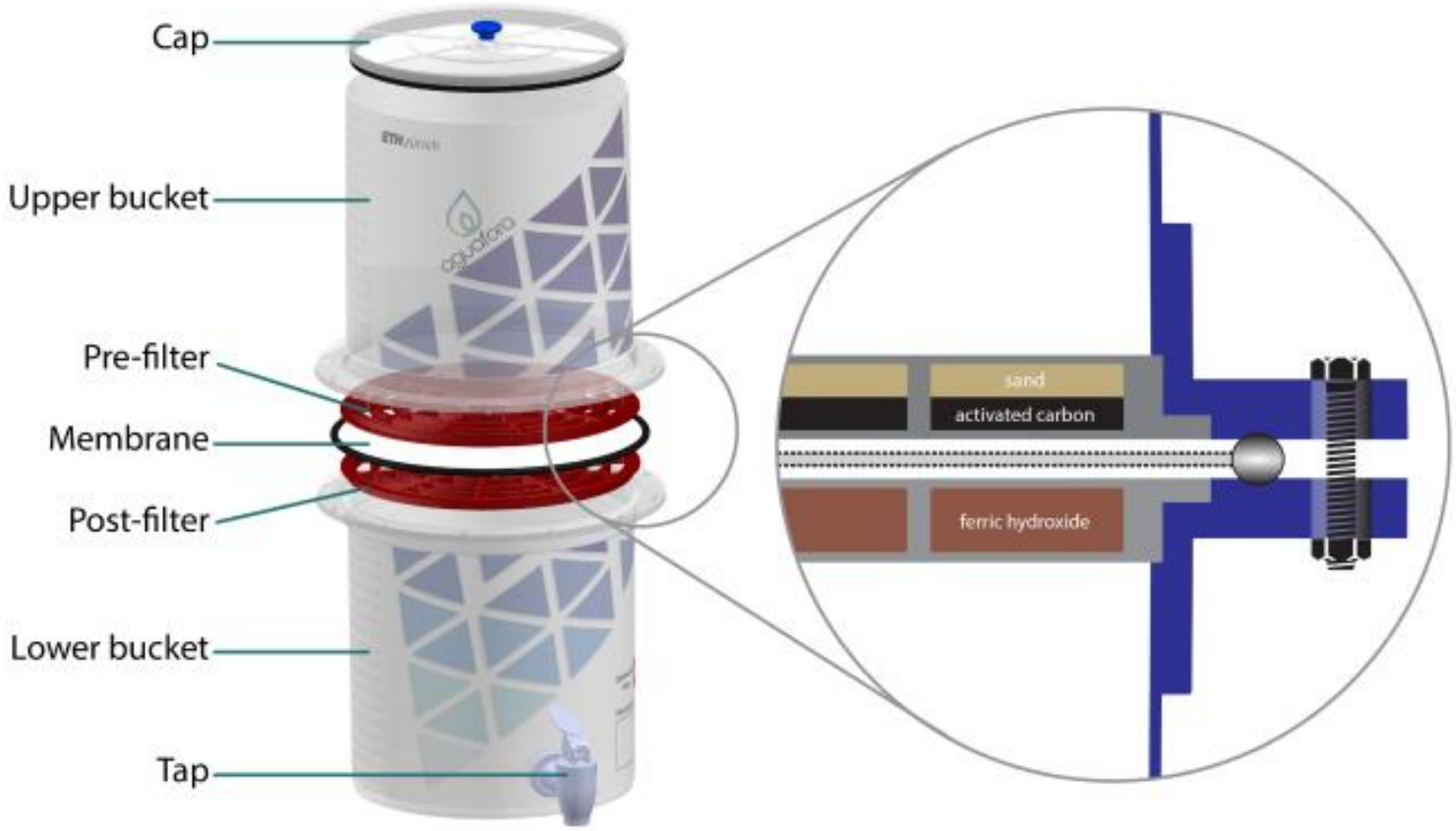
All-in-one drinking water filter

- High removal rates of pathogens (>99.999%), pesticides, heavy metals and micropollutant
- Lowers the risks of recontamination
- Stable long-term performances

Novel manufacturing process

- Low production costs
- Biodegradable cartridge
- Solvent-free

Groundwater Filter

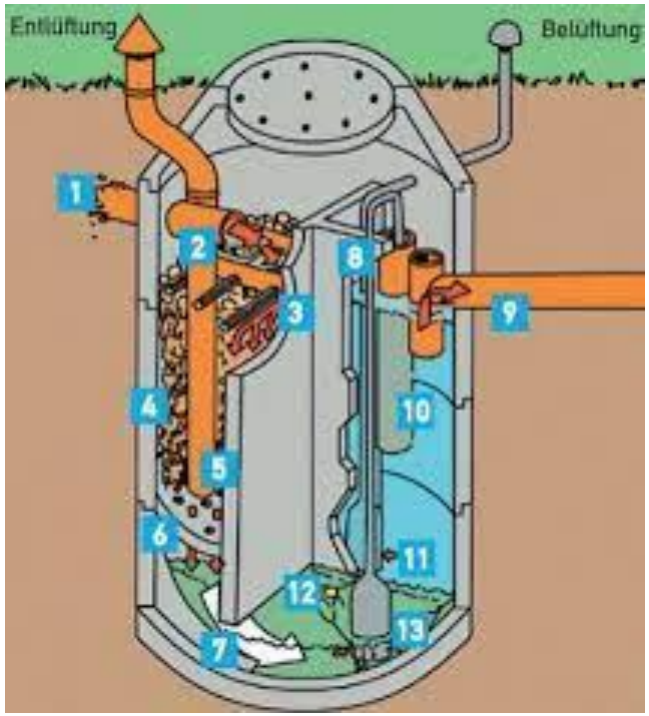


Wastewater Treatment

Wastewater Treatment - Functional Description

Biological wastewater treatment tank with three chambers

- Wastewater from the toilet (1)
- Wastewater from the shower and the washbasin flows directly into the seepage tank (3)



Photovoltaic Installation

Photovoltaic Power

The Happy Home is self-sufficient with a small Forklift battery

- Sunpower, with 400 watts / panel
- Installed capacity 3,2 WK / Hour
- Overproduction is given to the neighbor
- Converter, Huawei

The “Ukraine Happy Home”

On the following slides you will find detailed information on the project and the construction of the “Ukraine Happy Home”

Project Organization

- **Project Owner and Owner of Intellectual Property:**
  Franz Gaehler (Swiss based)
- **Core Technical team:**
  Prof. Martin Beth (Swiss based),
  Prof. Peter Petschek (Swiss based),
  Prof. Felix Wenk (Swiss based),
- Maksym Slobodianyk (Ukraine based),
- **Core Go-to-market team:**
  Kevin Smith (Swiss based),
  Andrii Zablovskii (Ukraine based)
- **Technical Team in Thailand**
  Khun Boonchuay and Khun Lek

Rebuild Ukraine, Local Partners

We, the entire Happy Home team, would like to support the Ukrainian in rebuilding their country.

For this we need reliable local partners who are willing to provide staff as well as the required production facilities.

We will provide our know-how, make our technology available and are happy to train the staff for building the houses.

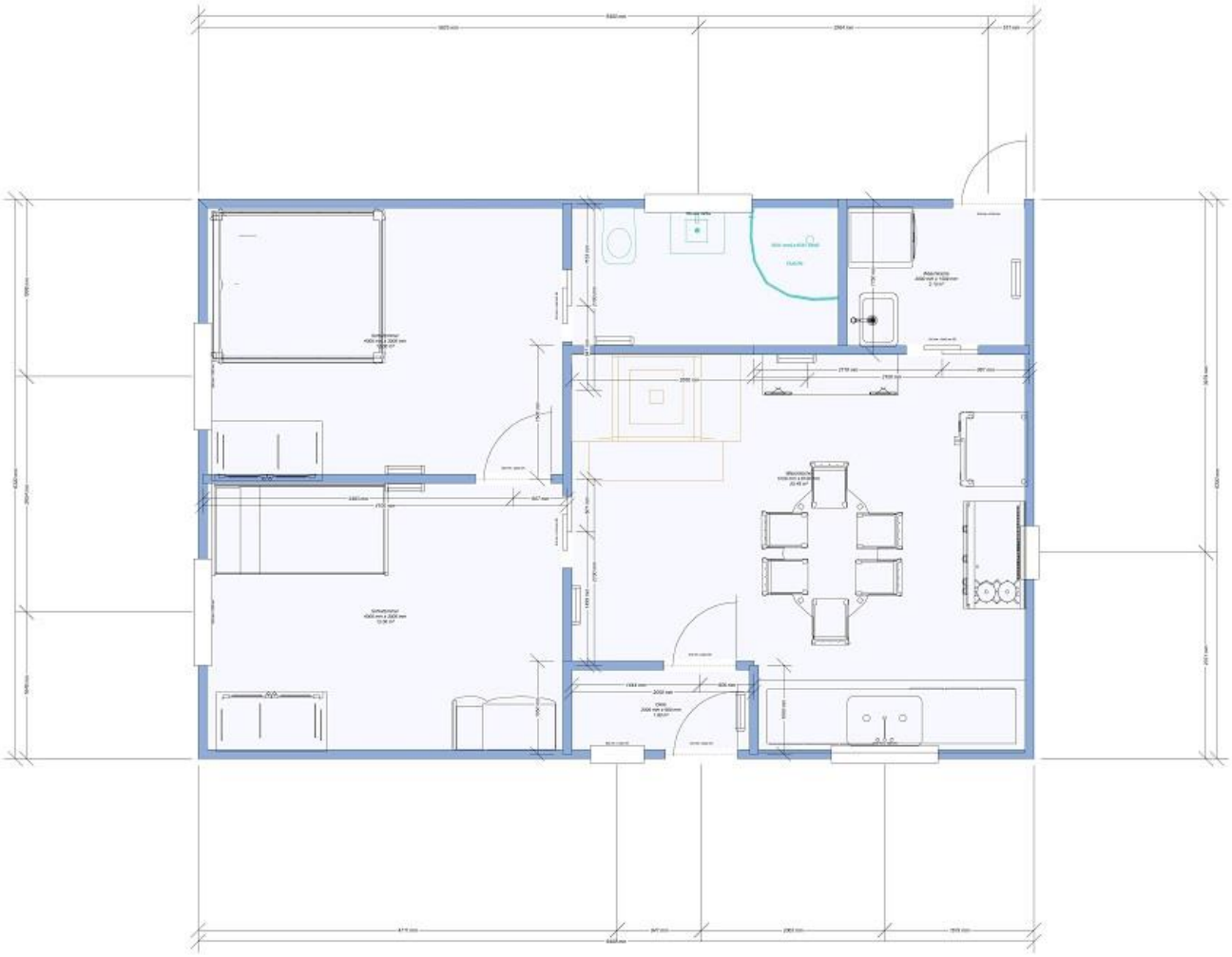
Information on the Construction of the «Ukraine House»

The core of the house wall consists of a steel framework with 100 mm rock wool insulation.

In addition, 100 mm foam concrete panels are installed inside and outside.

The floor area of a standard house is 72 m2, it includes 2 bedrooms, shower / toilet, kitchen and laundry facility, see also the suggested layout on the next slide

Basic Layout for an «Ukraine House»



Additional Information

With these installations, the «Happy Home» will be completely self-sufficient and can be erected as a permanent building anywhere in the Ukraine, regardless of the infrastructure, and will certainly have a useful life of at least two generations.

Thanks to the modularity of our structure, the «Happy Home» can be adapted to the needs of individual families.

When it comes to production, emphasis is placed on simplicity, so that the house can be produced on site and assembled without specialist training. The shell construction can be built in about four weeks with 3 – 4 women / men power.

The system and the construction will be freely accessible and made available for re-building the Ukraine.

We want to use local resources as much as possible and check with Ukrainian partners which technologies are available locally. Wherever possible, the recipient families should help with the assembly and thus establish a deep connection to their «Happy Home».

Additional Information

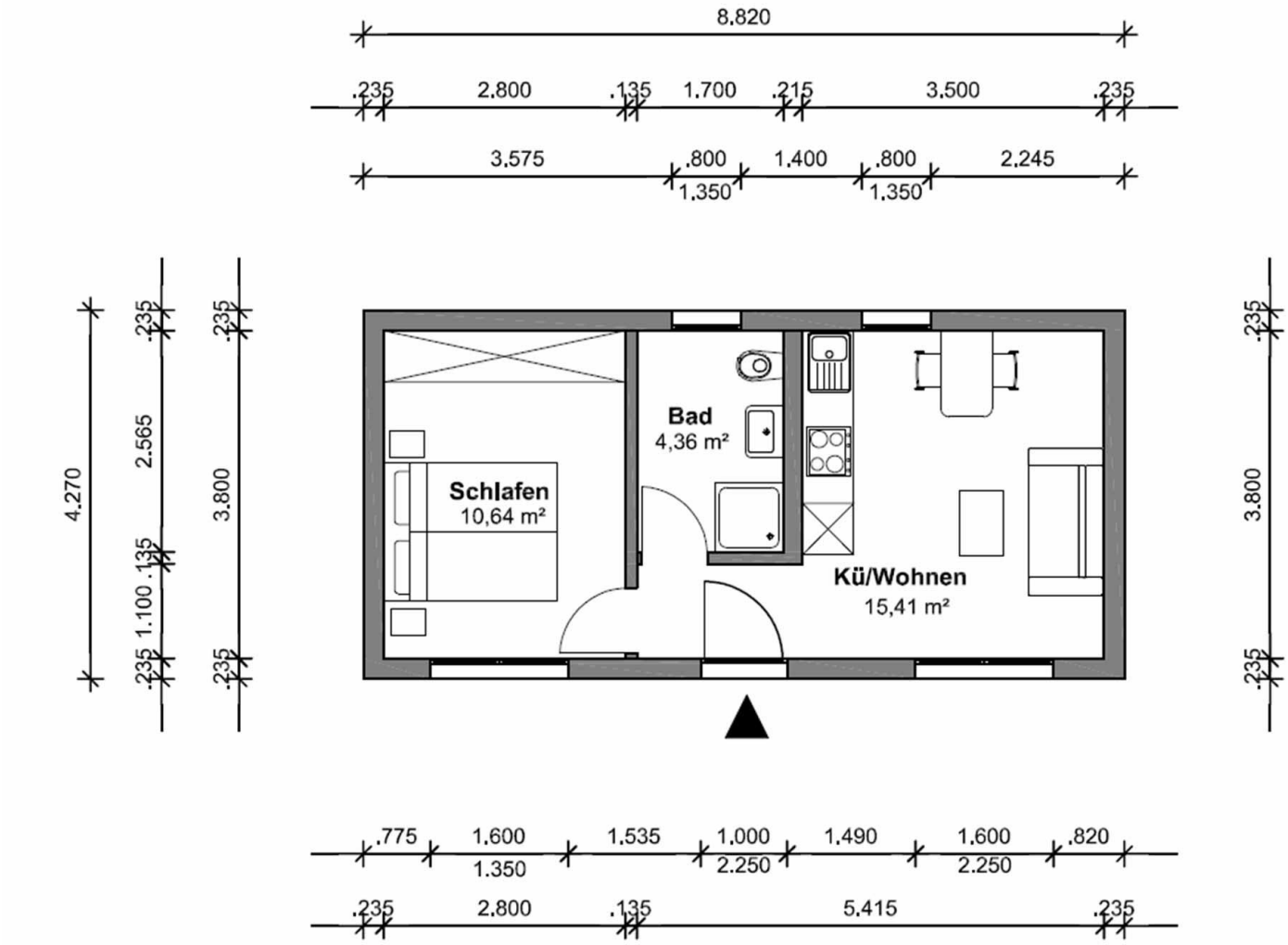
The «Happy Home» corresponds ecologically and economically to the current standard. The CO2 footprint is kept small and should be compensated for over a maximum of 7 years, depending on the material used.

As far as possible, the required materials are procured locally.

I am convinced that with our concept we could be of help for the reconstruction and the necessary shelter for the families in Ukraine.

For this I put available my know-how and the construction plans for the houses and would also be willing to support installing of a local production.

Additional Layout Sample



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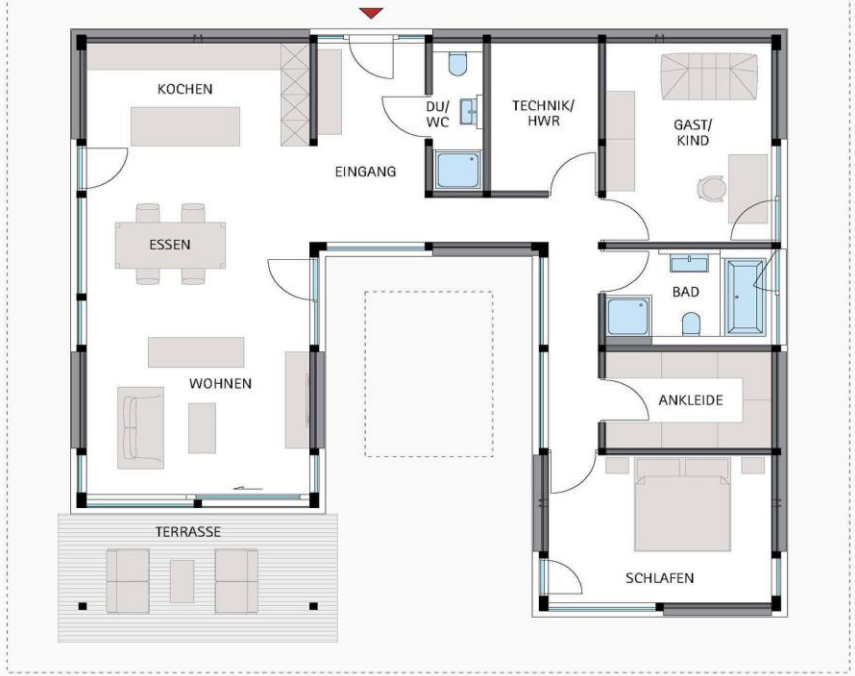

Shell construction of the “Ukraine Happy Home”

The actual status of the “Ukraine Happy Home”

https://youtu.be/jAiLKF-80n0

Thank you

I am happy to answer any further questions