Presentation
Team Austria

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OVERVIEW

- Passive house (Valentin)

- Heat pump (Bernhart)

- Solar Energy
  - photovoltaic (Azra)
  - solar thermal (Lisa)

- Wood heating (Stefan)

Passive House

Overview

- What is a passive house?
- Advantages
- Functionality
- Architecture

What Is a Passive House?

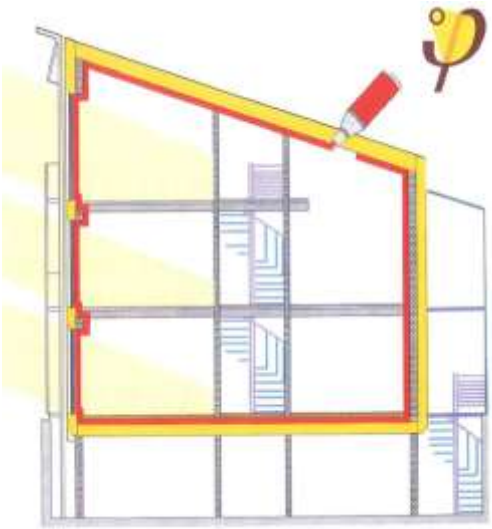
- Very well insulated

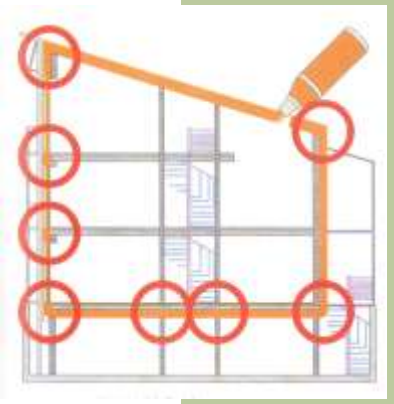
- No heating necessary
- All you need to heat are 5 or 6 candles
- Modern ventilation system for fresh air

Sorce: Google

Functionality

- Insulation
- Air-tight case
- Modern ventilation system





Source: das Passivhaus (Günther u. Mathias Lang)

Advantages

- High degree of cosiness and level of comfort
- Comfortable and healthy interior climate
- Lowest possible heating or cooling demand
- Positive environmental effects and low carbon footprint
- Highest cost efficiency

Architecture

Single Family House

Office Building

Villa

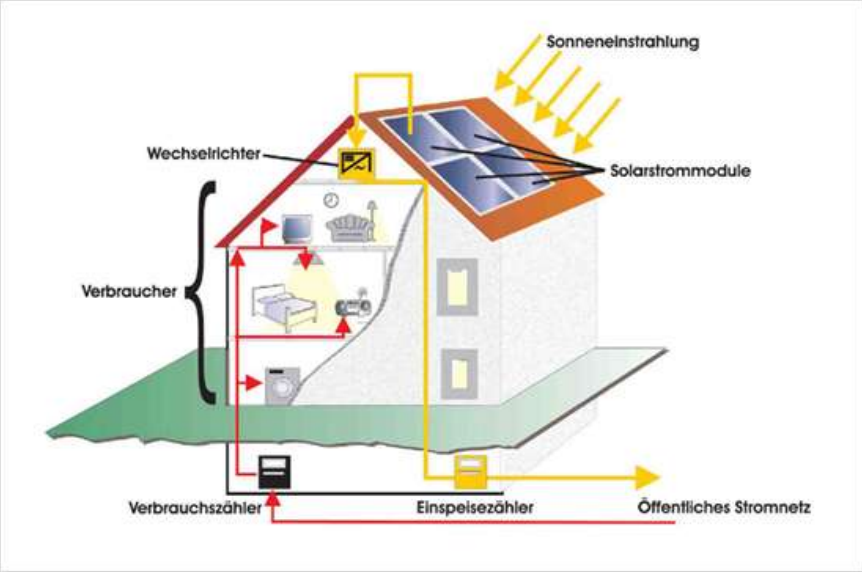
Solar Energy

General Information

- Most popular way of „green“ electricity
- The costs will depend on the desired performance (usually between 4500-9500€ per kWh)
- Usually pays off within 10 years

Technical Data

- Solar energy is converted into electricity
- It can be fed into its own network or the public network
- Remaining energy is fed into the public network



FUNCTIONAL SKETCH

Example

House (4 persons)

needs 4500-5500 kWh/year

40m² photovoltaic produce 4000 kWh/year

Sustainability

- Running out of resources
- New solutions
- Regain of energy (->when is the energy restored which was used to produce the panel?)

SOLAR BOAT

OFFICE BUILDING

SUN PROTECTION

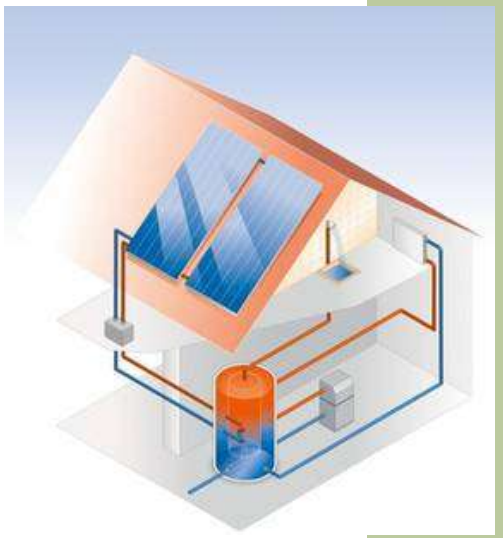
MUSEUM

Sorce: Google

Solar Thermal

Operation

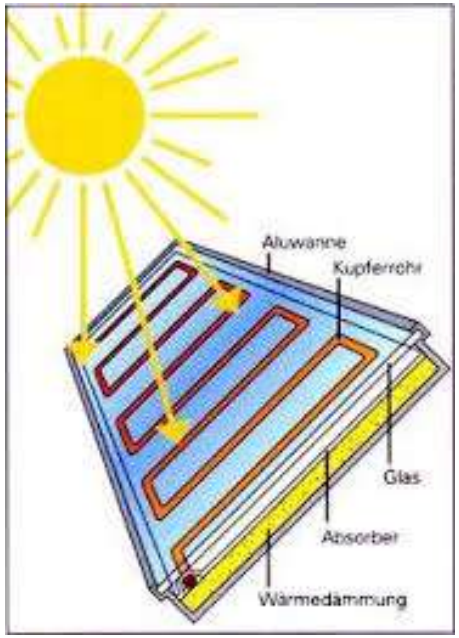
- Solar collectors absorb sun heat
- Special liquid mixture flows to a solar storage
- Cold mixture is pumped
  back to the collector



Types of Solar Collectors

- Flat-plate collector:

  is most freqently used



Types of Solar Collectors

- *Tube collector:*

  similar like the flat plate collector

  but it is more expensive and complex

Types of Solar Collectors

- *Air collector:*

  use the sun radiation to heat the air.

  Does not freeze in the winter

Practical Examples

- *First example (sun – roof without bricks)*:

  now: 20m² of solar collectors

  heat costs before: 3000 €/year after: 100 €/year

Practical Examples

- *Second example (tap sun / the rotate point):*

  25m² solar collectors

  the collectors rotate with the sun

  heat costs before: 3600 €/year; Now: 300 €/year

Wood Heating

Wood Heating

- First fuel of human being
- CO^2 neutral
- Today different types of wood fuel

Pellet Fuel

- Made from pressed biomass
- Low moisture content
- Automatic feeding

Sorce: Google

Wood Chips

- Made from cut wood
- Automatic feeding

Sorce: Google

THANK YOU FOR YOUR ATTENTION