The Ecological Footprint of Housing – age group 2 – B. Additional content

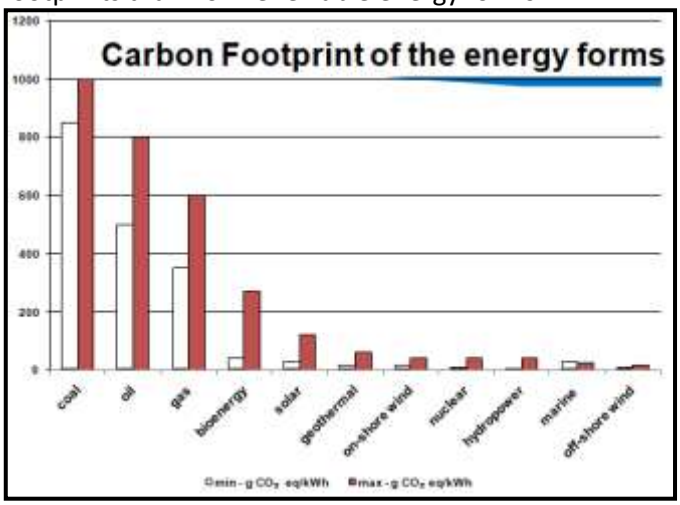
THE TYPE OF ENERGY WE CONSUME

Renewable energy sources will help us to provide a good life for all people on Earth. While the potential on planet Earth to produce biomass is very limited and we are already in overshoot, the energy of the sun we should/could use much more. AND THE SUN SENDS NO BILL!

Renewable energy sources are the only alternative for the world sustainable development!

Carbon Footprint of the energy use is, in general, variable, because of the multiple issues that occur during its generation. Maximal and minimal values are considered.

Renewable energies have, in general, lower Carbon Footprints than non-renewable energy forms.



THE WAY WE CONSUME ENERGY

Main intervention areas in order to reduce the Housing Footprint by lowering the energy consumption:

- **walls, floor and attic** (lower heat transfer – by INSULATION!);
- **windows** (EFFICIENT window frames, AT LEAST TRIPLE glazing system and UV PROTECTION FOILS, to reduce heat transfer in both senses);
- **heating** (MODERN heating/water heating systems, THERMOSTATS to control temperature, INSULATED boilers and pipes);
- **own energy production** (SOLAR photovoltaic systems/water heating panels, BIOMASS use or HEAT PUMPS to heat the rooms or the water);
- **other measures** (efficient LIGHTING system, new HOME APPLIANCES, saving water, including the ENERGY to bring it to the final consumers…)

THE TYPE OF INSULATION

The Ecological Footprint caused by heating can be decreased by **thermal insulation** and modern technologies to almost **zero**. Without any loss of comfort insulation decreases the need for heating energy **substantially**: good **insulation** can save around **35%** of the average residential Footprint.

There is a variety of insulation materials, from the **natural fibres** (wool, cotton, hemp), to the **wastes from the textile industry** or **paper chips** and a lot of **artificial materials**.

For:
- 1. Pipe insulation, curved segments (pre-formed shapes)
- 2. Irregular areas&voids, flat surfaces (foams)
- 3. Wall insulation (rigid panels)
- 4. Wall, roof&attic insulation (flexible blankets)

THE ENERGY INDEX

Standard houses must be improved by adding insulation, replacing the appliances, more wise use of energy.

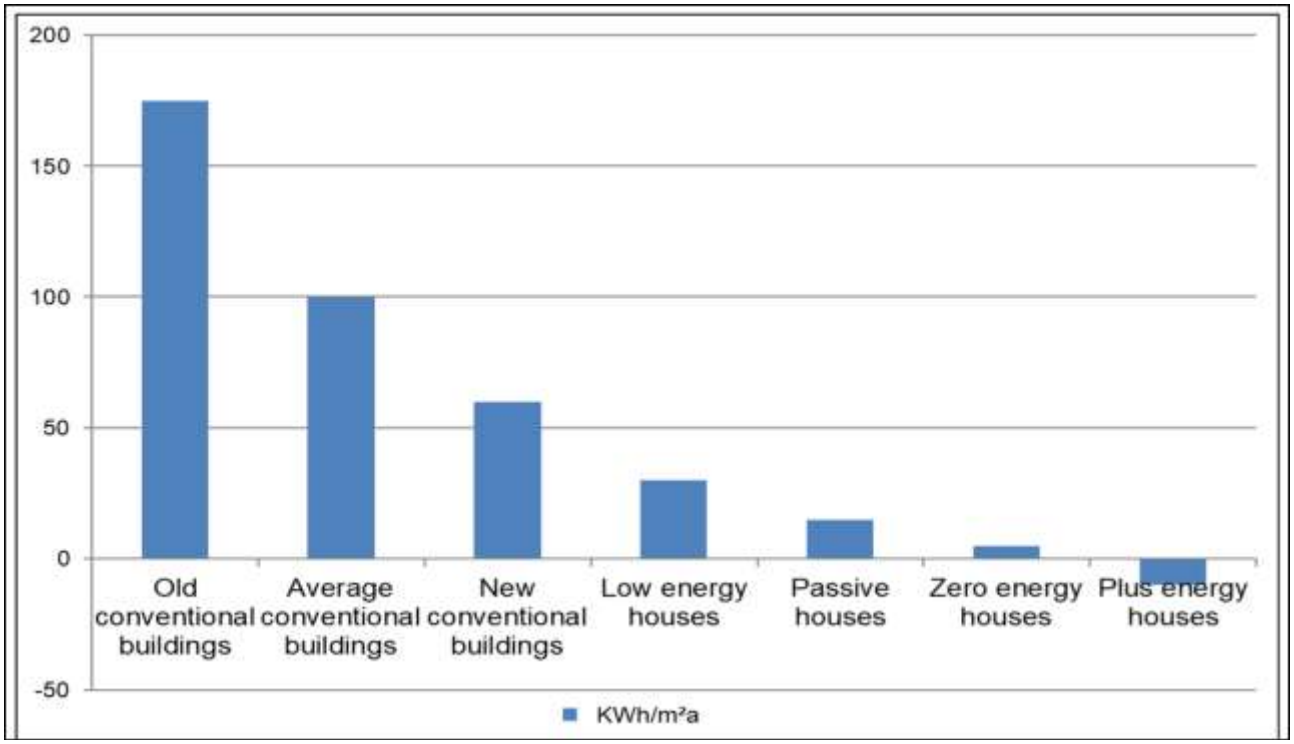
Low energy houses have a very good insulation (roof, walls and windows).

Passive houses have complete, thick and efficient **insulation**, **triple pane glazing** system for the windows and a system of **heat pumps** for the air ventilation, to avoid heat losses.

Also, they use sunlight orientation (to collect maximum energy through the windows).

Zero energy houses consume sometimes extra energy and produce greenhouse gases, but most of the time they reduce the energy consumption and greenhouse gas production with the same effect elsewhere, by the same amount.

Plus energy houses produce more energy than consumed. They combine insulation and smart energy consumption with other low-energy building methods, also obtaining a significant amount of electricity and heat by themselves.



THE LIVING SPACE

There are some governmental measures that help citizens improve their living conditions, but many of them are inconsistent, because the financing is not consistent and with interruptions.

Size and location of the living space

- Do not live in oversized living space, but **compact**!
- Choose a location for your house that has a good access to **public transport** and not too remote.

WHAT CAN WE DO?

A) SUFFICIENCY - AVOID ENERGY USE, ESPECIALLY WHEN IT IS NOT REALLY NEEDED!
B) SUBSTITUTION - REPLACE FOSSIL ENERGY SOURCES WITH REGENERATIVE ONES!
C) INCREASE EFFICIENCY - SAVE ENERGY AND USE IT INTELLIGENTLY!
D) GET ACTIVE FOR AN ENERGY TRANSITION!

THE FIVE FOOTPRINT RULES

1. **Enjoy a sustainable lifestyle!** Enjoy the good feeling of not living at the expense of others! Enjoy more time, more friends, more joy, more knowledge, more wisdom…
2. **Act together!** to create a sustainable world!
3. **Reduce meat and animal products!** A significant reduction in the amount consumed, prefer as much as possible products from organic farming, prefer seasonal products!
4. **Travel by train, bike and bus.** Flying - better never!
5. **Home green home!** Clever housing: smaller, well isolated, using renewable energy for heating and electricity, access to public transport!

* Footprint data calculated by Global Footprint Network. Footprint data refer to the year 2016 in the calendar year 2019 and therefore the world's population for the year 2016 (7.5 billion people) is needed for the correct calculation of the fair share.

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