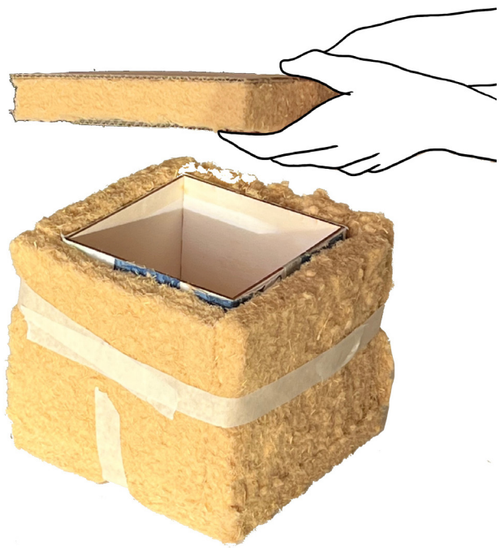
Step 1 | Build your Structure

This will be used as home for your potato.

Step 2 | Add your insulation layer

Insulate your box/structure to keep your potato warm for longer.

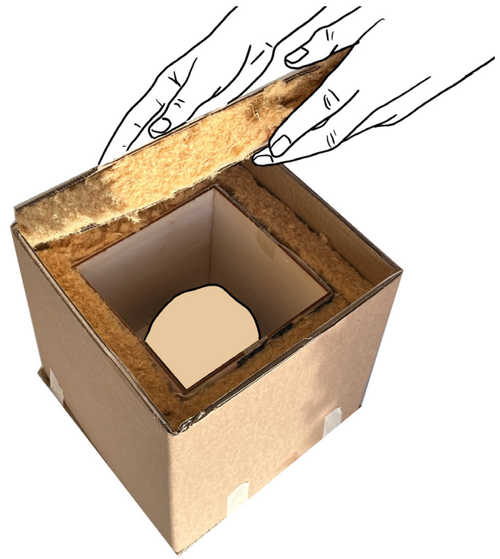


Step 3 | Add your potato/user

Place the potato inside the insulated box and measure the temperature of the potato.

Step 4 | Measure the potato's temperature

Wait 2 hours and measure the potato temperature again.



Plan your design...

Your notes...

Your notes...

Your notes...

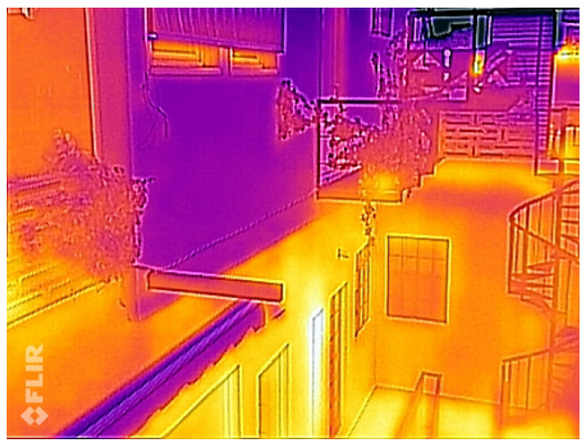
Existing Housing

Accordingly to the English Housing Survey, England has one of the oldest dwelling stocks in Europe with 21% of dwellings built before 1919 and 16% built between 1919 and 1945. About one in five (19%) dwellings were flats with the rest being houses and bungalows.

The construction methods and materials used in building flats and houses have changed significantly over time but they have always been dominated by masonry (brick, block, stone and flint). Cavity masonry has replaced solid masonry as the main construction type and accounts for 88% for all dwellings built after 1990. Some 9% of dwellings dating from before 1850 were built with a traditional timber frame. The vast majority of dwellings has pitched roofs and high rise flats are more likely to have flat roofs.

The most common type of windows were PVC-U double glazed units with 69% of dwellings having these as the main or only type of window. Only 8% of dwellings had single glazed wood casement windows as the main type.

Thermal Image of a home



Thermal image of a home. Above a well insulated flat, below a not well insulated home.

Can you see how much energy (heat) the house is lossing thorugh the walls?

Passivhaus principles

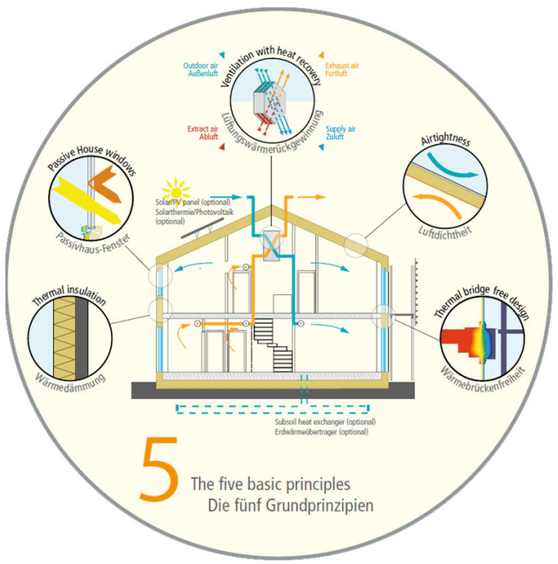
Passivhaus or Passive House buildings are low-energy buildings in which the design is driven by quality and comfort, hence achieving acceptable levels of comfort through post-heating or post-cooling of fresh air. Additionally, Passivhaus building design follows the Passivhaus design criteria, as described in the Passive House Planning Package (PHPP).

The Passivhaus construction design method is founded on five essential principles: (i) super-insulation, (ii) thermal bridge-free construction, (iii) airtight building envelopes, (iv) mechanical ventilation systems with heat recovery (MVHR), and (v) high-performance doors and windows.

The correct application of these principles should guarantee high levels of indoor environment comfort, especially indoor air quality. Finally, to reduce further the energy consumption, the use of energy-efficient electric appliances and lighting is critical to achieving the low-primary energy demand required.

Passivhaus

The 5 basic principles



Source: Passive House Institute (https://passivehouse.com/

Ecological Building Systems

Our ethos at Ecological Building Systems is to achieve 'Better Building' by adopting a 'Fabric First' approach to design, with the use of more natural materials to optimise building performance and durability. We deliver quality products with full technical support.

Our Mission Statement - To Support the construction sector in the creation of a better built environment through the supply of innovative, sustainable, ecological building materials and solutions and Deliver quality, affordable products and training.

To know more, please visit our website:
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Potato Baked Challenge

Towards a Net Zero Future

Carbon Emissions

Home – it's somewhere we want to feel safe and warm. That involves using energy to heat or cool your property, generate hot water and power all your appliances and devices.

Around 22% of the UK's carbon emissions come from our homes. This figure accounts for the carbon emissions during the construction, use and disposal of the homes. While we cannot do much about the construction and disposal, we can do much to reduce our home emissions. The most important is to understand the impact that the building and our behaviour have on energy consumption. We can:

- Improve home energy, heating and water usage and efficiency.
- Use and maintain our heating system correctly.
- Reduce the overheating in our home.
- Do a housing retrofit.

Energy Use

Homes are responsible for 30-40% of primary energy consumption in England. Gas and electricity are the most common type of fuels, although some homes run oil or other heating sources. Almost 8 in 10 homes in England use gas as the main fuel type (and method of heating) used in central heating.

Electricity in the home tends to be used for lighting, cooling systems (AC unit) and electrical appliances, while gas is generally used for heating and hot water generation. The external weather and the building envelope impact the amount of energy we use for heating. Although other factors, such as the window : wall ratio, also have an impact.

The energy efficiency of the appliances and lighting directly impact electricity consumption, but our electricity use habits are more important.

The best way to save energy is not using it!