

HOMEBUILDING & RENOVATING

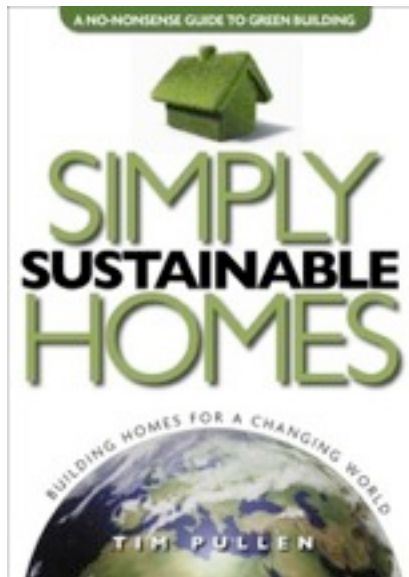
The UK's no 1 Selling Self-Build & Renovation Magazine



Top 10 Tips for Energy Efficient Home

Tim Pullen

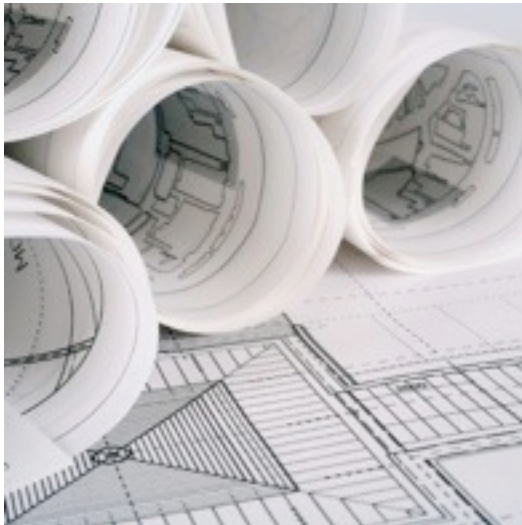
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Top Tip 1

Design & Calculate

The key to energy efficiency is to know the outcome before work commences



Allow design to be a circular process

Air Tightness & Draught Proofing

In a well insulated house uncontrolled ventilation = biggest single heat loss

A single unused chimney can account for 30% of total heat loss.

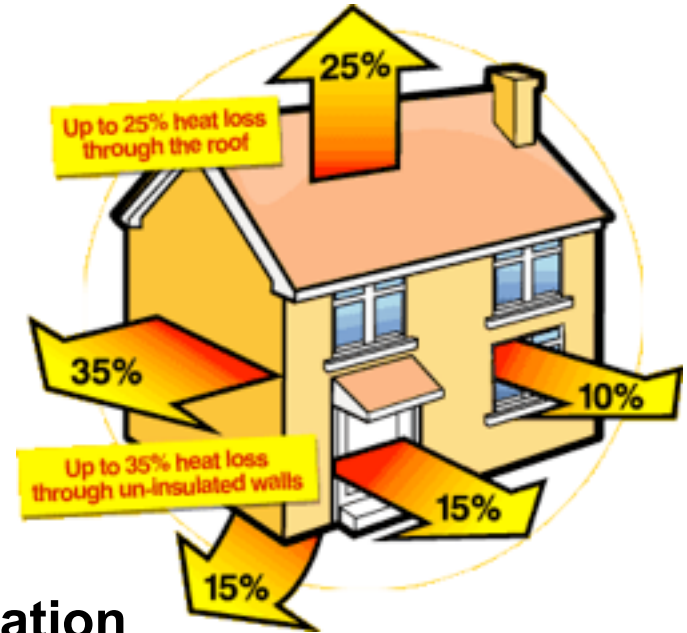


Top Tip 3

Insulation is King

A 5% gap in the insulation will account for 50% of the heat lost (NASA 2004)

**Good insulation =
Quantity of Insulation + Quality of Installation**



Top Tip 4

Glaze to meet the need

Glazed roof

U-Value 1.8 to 1.2

Main roof U-value 0.16



Double-glazed

U-Value 1.8 to 1.2



Triple-Glazed

U-value 1.2 to 0.6



Top Tip 5

Store Free Thermal Energy

A thermal store replaces the boiler as the heart of the system

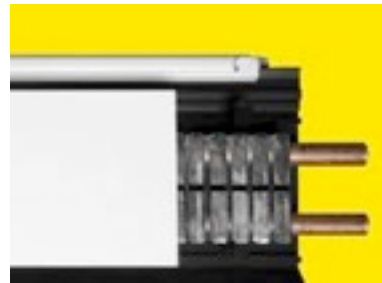
A thermal store maximises the potential of solar energy collection



Take Control of Heat Distribution



Zone controls eliminate the need to heat empty rooms



Match the heating distribution to the heat source

Heat Recovery Ventilation

A highly insulated and air-tight house will need ventilation.

Air tightness needs to be C.5m³/hr to make heat recovery effective



Can recover 90% of the heat lost with purge ventilation

Can be Active or Passive

Top Tip 8

Match the heating system to the design

1. SOLAR - PVT

High capital cost

Low running cost

Zero CO₂ emissions



2. BIOMASS

Low to medium capital cost

Medium running costs

CO₂ neutral



3. HEAT PUMPS

Medium capital cost

High running cost

High CO₂ emissions



Top Tip 9

Control Electricity Consumption

Voltage optimisation can reduce consumption by 10%



Top Tip 10

Generate your own electricity

A 4kWp PV system is worth:

£200 p.a. to home owner

£1,200 p.a. to system owner



6kW wind turbine

Cost = twice 4kWp PV

Return = three times 4kWp PV



DESIGN & CALCULATION

Knowing the outcome at the outset

INSULATION & AIR TIGHTNESS

Minimise energy consumption & minimise costs

FOCUS ON THE MUNDANE

The sexy things not necessarily the important things

More Information

The Association of Environment Conscious Building –
www.aecb.net

The Energy Saving Trust –
www.energysavingtrust.org.uk



**Simply Sustainable
Homes** - Tim Pullen, Ovolo Books,

