Improving home efficiency: Lofts, attics, roofs

Go Green Widcombe, Widcombe Social Club
Wed 25th June

RETROFIT RO

Bath & West Community Energy
Generating local energy

Rowena Bashforth

Sustainable builder
Thermal imaging
Home Energy Assessor
Lime plasterer

Bath & West Community Energy

Bath & West Community Energy

To tackle the climate crisis fairly, by…

Putting local people in control of their energy…

Member led
Ethical investment

…and maximising community benefit

£430,000 donated to
111 local projects

Making a home more energy efficient includes thinking about:

- Draughtproofing and ventilation
- Insulation and building fabric
- Windows and doors
- Heating & hot water
- Overheating
- Solar photovoltaics (PV), batteries, EVs
- Consumer appliances and behaviour

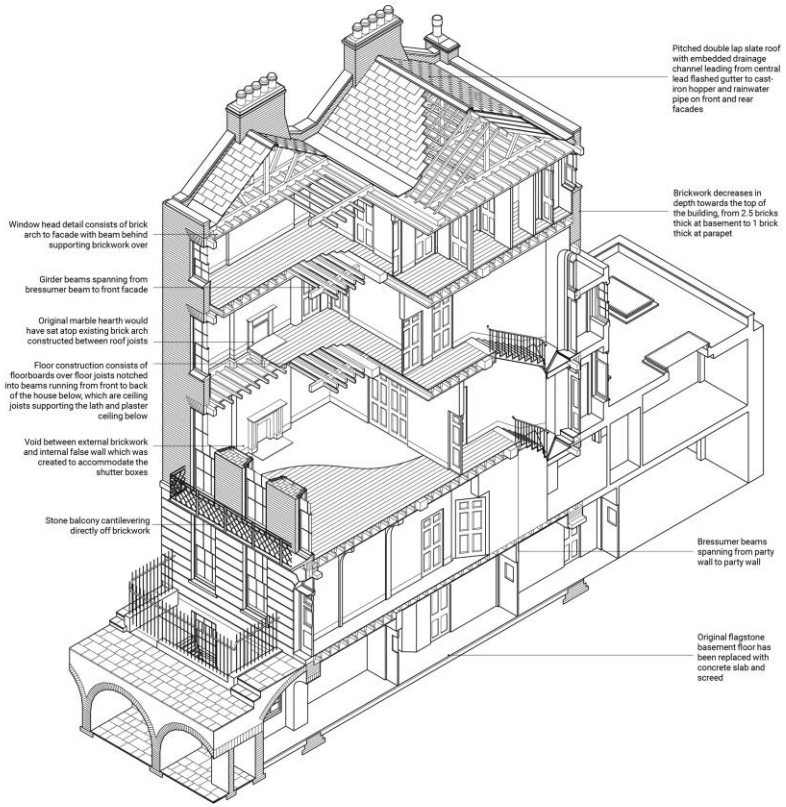
Mantra:

Increase in insulation = Increase in ventilation

Appreciate historical significance

1840s Tithe Map

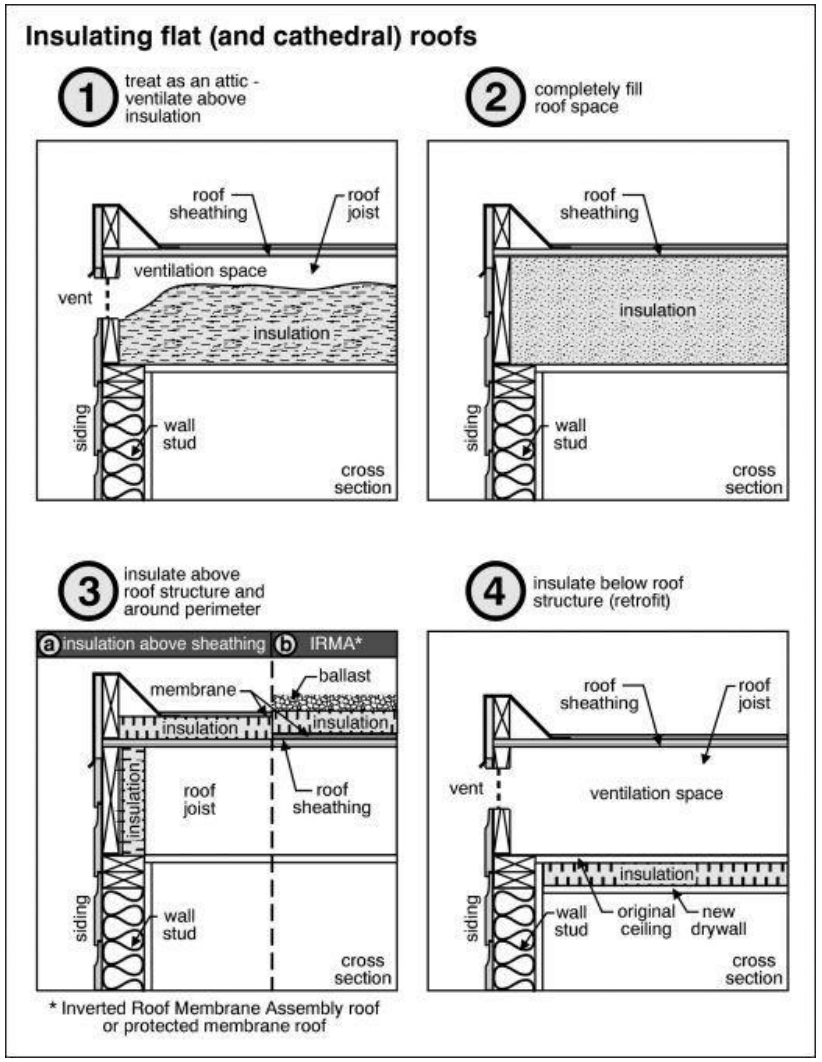
1894-1903 OS Map 25" 2nd Ed

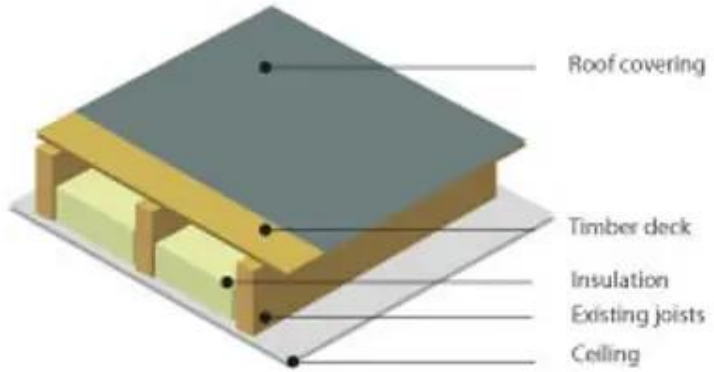


Bloomsbury House Retrofit by Prewett Bizley

- No blanket product solutions - context is key
- In all settings we advocate assessing significance as per BS7913: 2013
- This is the standard of good practice for works to older and traditional buildings

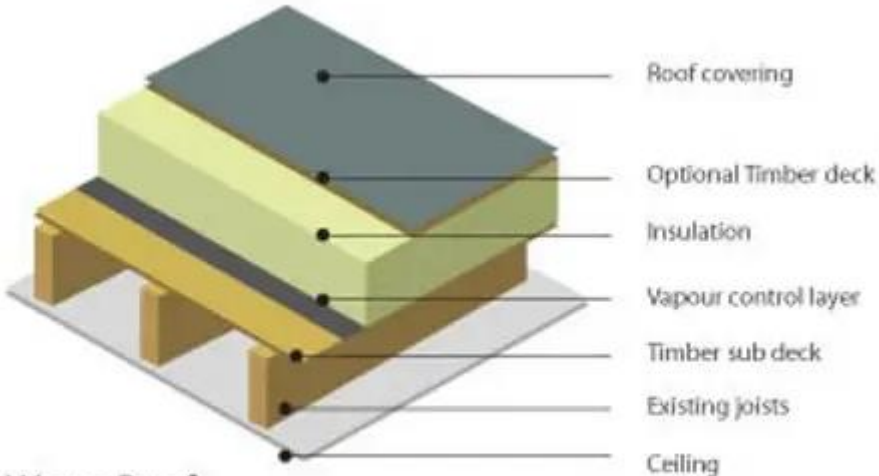
Flat roofs: warm deck/cold deck





Conventional Cold Roof

The flat roof insulation is located between the joists



Warm Roof

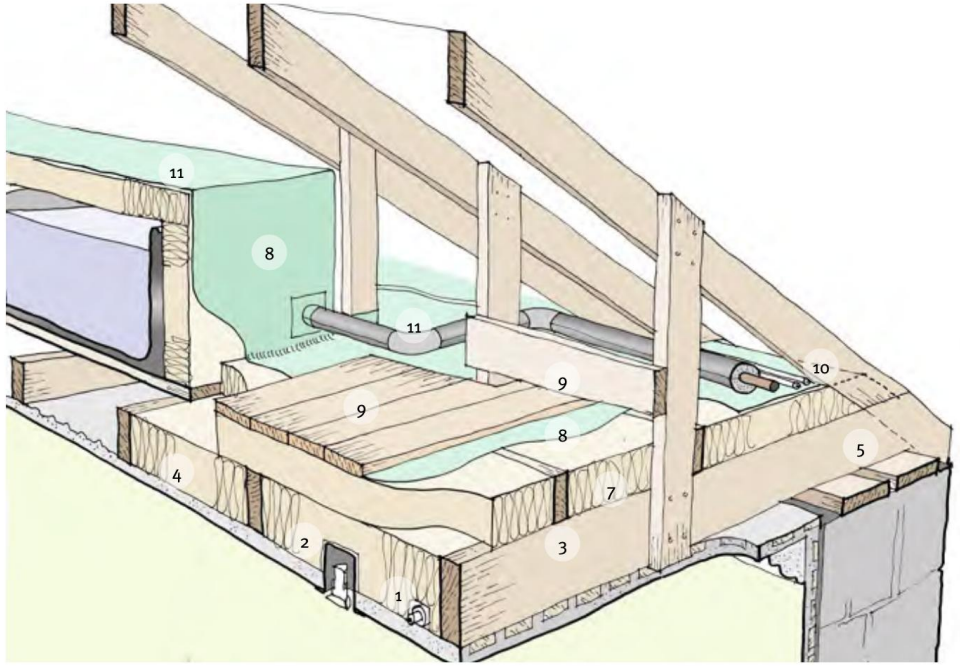
The flat roof insulation is located above the joists

Pitched roofs: warm roof/cold roof

- The roof takes the brunt of the weather and problems here can work their way down into the building, so the roof represents the number one priority for maintenance.
- Heat in the air rises and so the roof and ceiling also represent the number one priority for insulation and draughtproofing.
- Even if the loft has already been insulated, but not well, then it is still the most cost-effective place to focus.
- It is important that there is a free flow of air above the insulation to keep the roof timbers dry and avoid moisture build-up and decay.

Figures taken from from '1st Associated' report titled 'Thermal Characteristics of a Victorian Property'

Pitched roofs: warm roof/cold roof



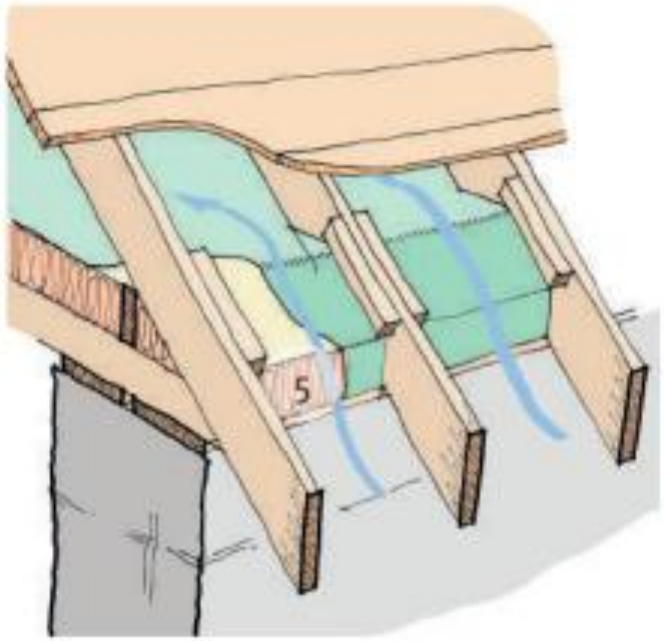
Remove old or compressed insulation (or treat as null)

Images: Sustainable Renovation, A SEDA Guide to Best Practice

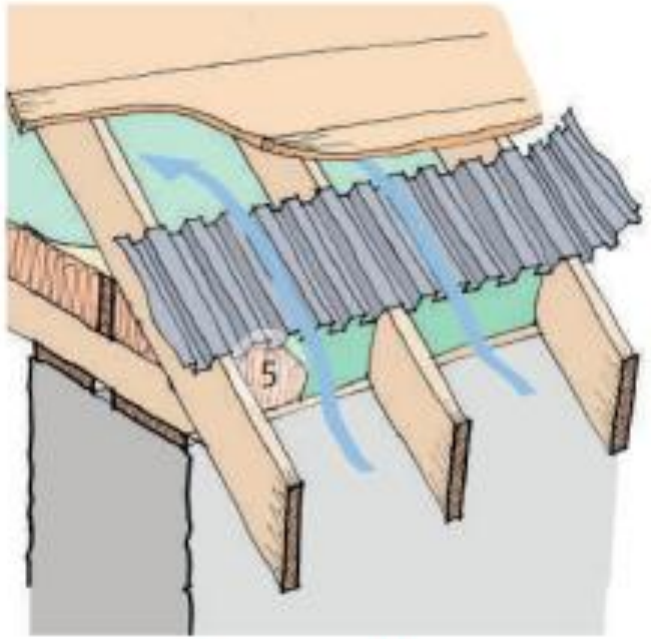
- **Insulate and draughtproof the loft hatch**
- **400mm recommended**
- **Don’t block the roof ventilation path at eaves**
- **Insulate pipework and put wires above insulation or in conduit**
- **Use floorboards or leave a 50mm gap between insulation and boarding to avoid condensation.**

Cold Roof : Ventilation is important

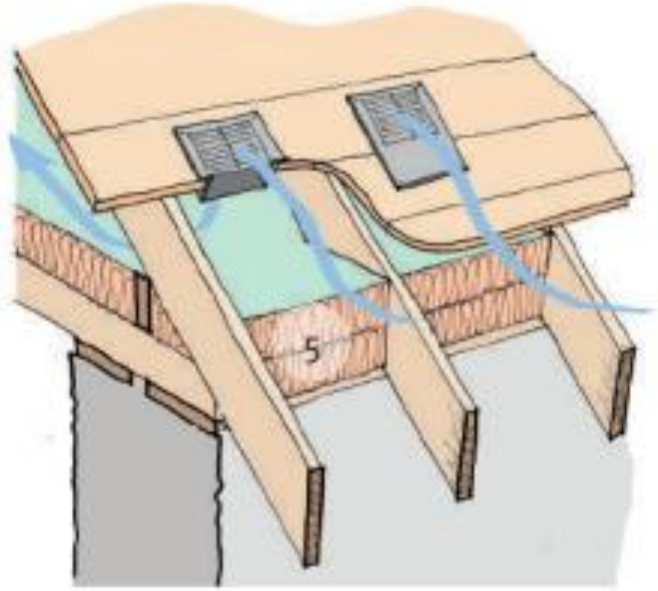
- **Eaves vents**



Eaves ventilation space maintained using battens to restrain insulation



Sarking lifted and ventilation path formed using 'rafter roll' over rafters

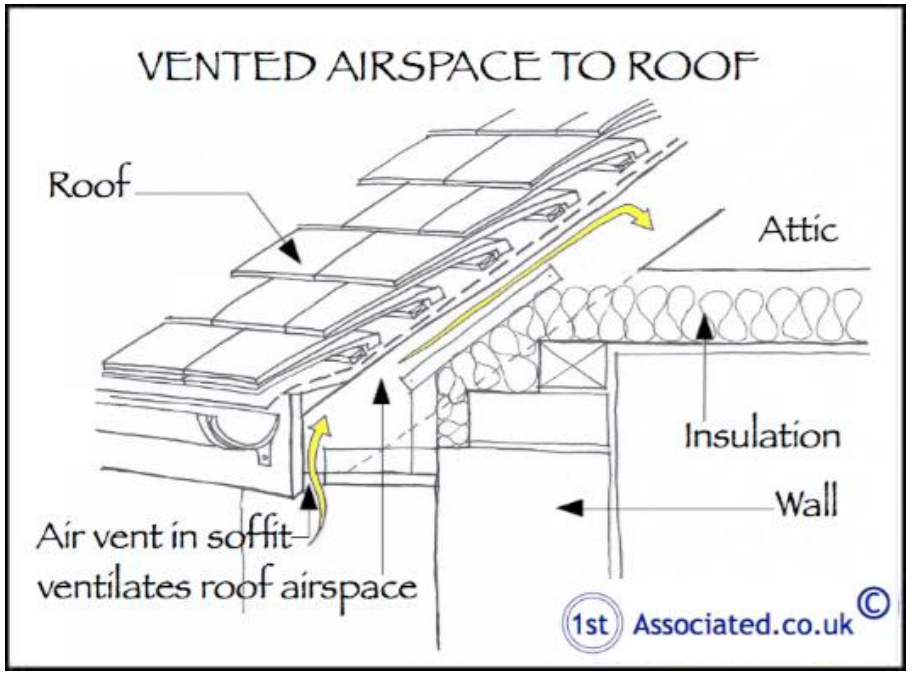


Eaves filled with insulation, roof space ventilated by fitting 'slate vents' through sarking

Images: Sustainable Renovation,
A SEDA Guide to Best Practice

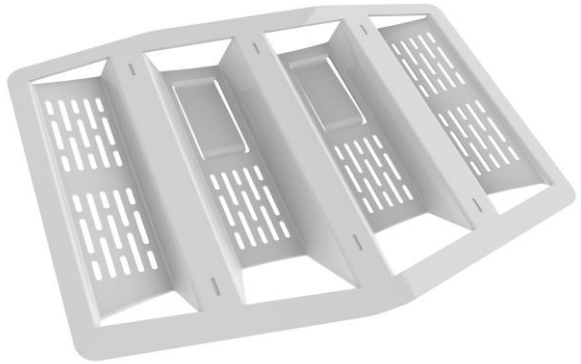
Cold Roof : Ventilation options

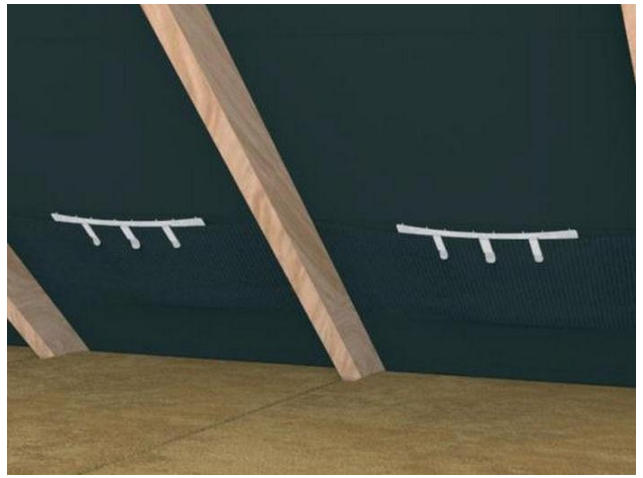
- **Soffit vents**



Available at B&Q, Toolstation, Screwfix

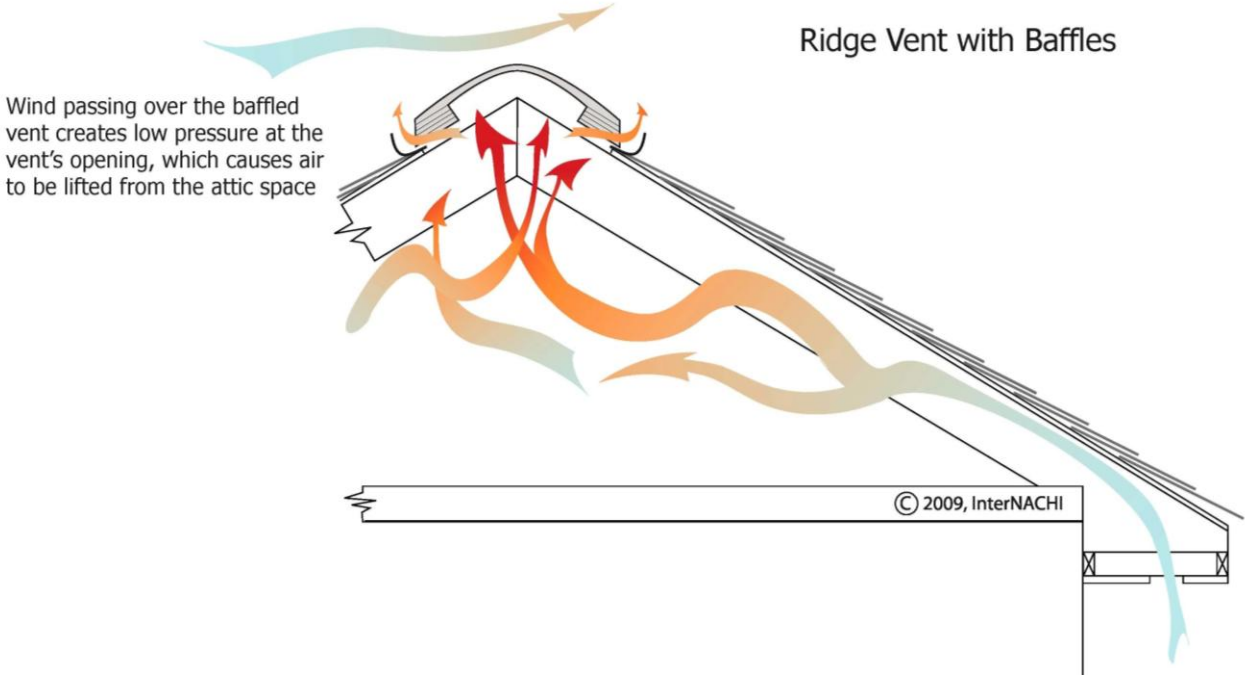
- **Lap vents**

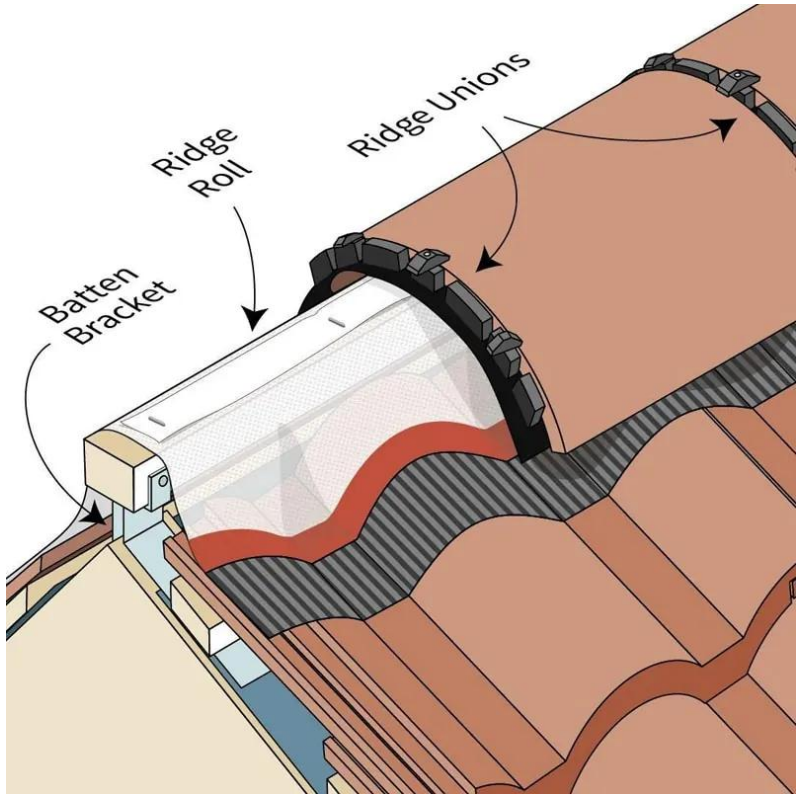




Cold Roof : Ventilation options

- **Ridge vents – discuss with a roofer**





Insulation top trumps

Cellulose

Type:	Blown
U Value (W/m^{2}K) at 400mm	0.098
Cost per m2 @ 100mm	£8.82
Superpower	Awkward spaces

Mineral wool

Type:	Roll
U Value (W/m^{2}K) at 400mm	0.075-0.1
Cost per m2 @ 100mm	£3.56
Superpower	Easily sourced

Sheep's wool

Type:	Roll
U Value (W/m^{2}K) at 400mm	0.098
Cost per m2 @ 100mm	£15.35
Superpower	Natural Hygroscopic

Insulation top trumps

Recycled jeans

Type:	Batts
U Value (W/m^{2}K) at 400mm	0.0975
Cost per m2 @ 100mm	£15.84
Superpower	Acoustic Hygroscopic

Hemp

Type:	Batts
U Value (W/m^{2}K) at 400mm	0.0975-0.1
Cost per m2 @ 100mm	£14.73
Superpower	Carbon negative

Woodfibre

Type:	Batts
U Value (W/m^{2}K) at 400mm	0.09
Cost per m2 @ 100mm	£20.02
Superpower	Stores carbon

Insulation top trumps

Grass insulation

Type:	Batts
U Value (W/m^{2}K) at 400mm	0.10
Cost per m2 @ 100mm	£18.97
Superpower	Acoustic 99% Hygroscopic

Loose Vermiculite

Type:	Loose fill
U Value (W/m^{2}K) at 400mm	0.7
Cost per m2 @ 100mm	£25.85
Superpower	Fire resistant

Pipes, Water tank & Loft hatch

- Insulating between the joists of your loft will keep your house warmer, but make the roof space above colder.

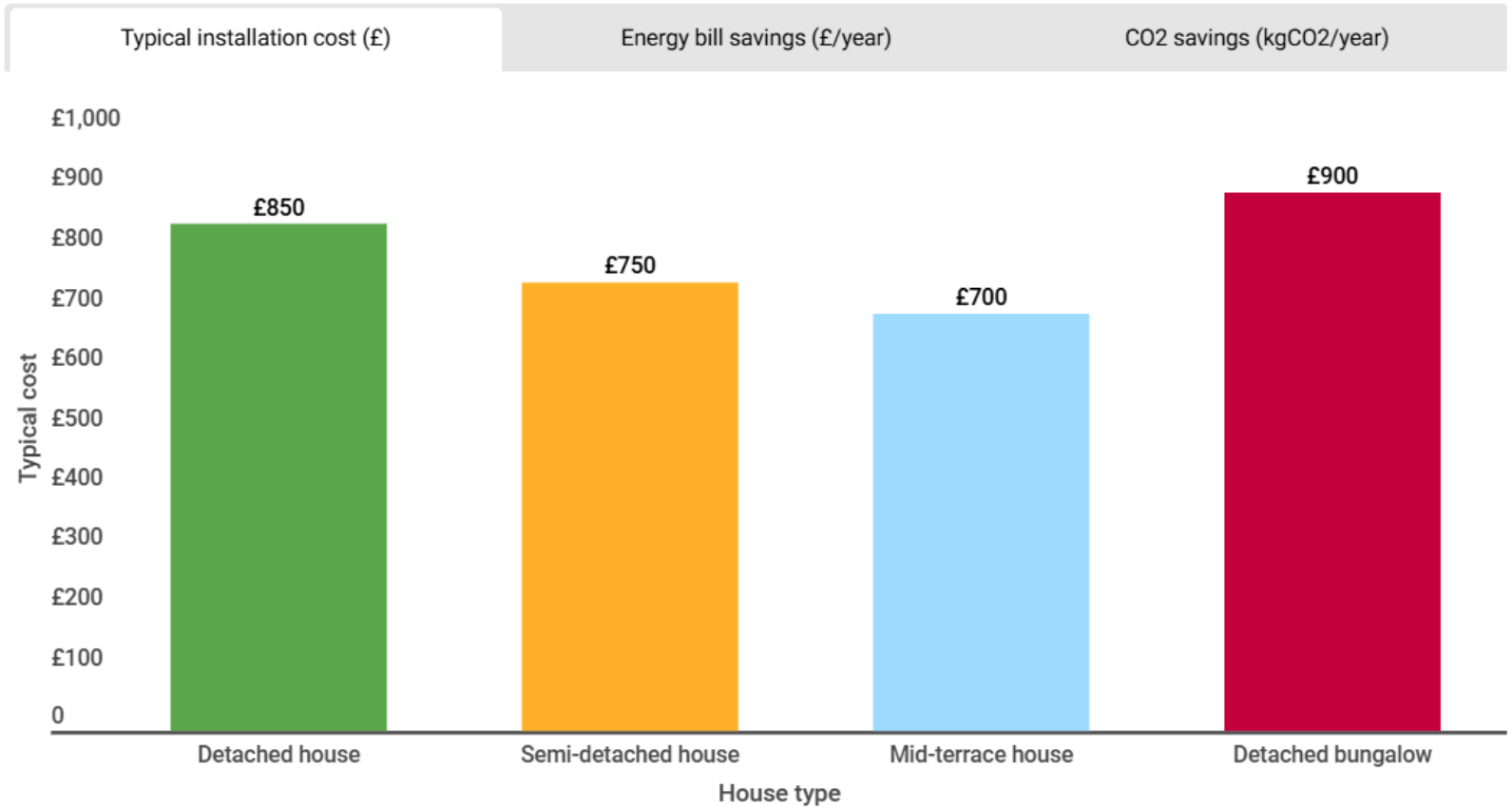
- This means pipes and water tanks in the loft space could be more likely to freeze, so you will need to insulate them. If your water tank is some distance from the loft hatch, you will also need something to walk on for safe access.

- The damp air in your loft could mean that warm, moist draughts come through the loft hatch. To prevent this, fit an insulated loft hatch and put strips of draught-excluding material around the hatch edges.

Pitched roofs: warm roof/attic space

- Insulating between and above rafters (or between and below).
- Needs consideration of ventilation, thermal bridging and vapour membranes.
- Warm loft space but more air to heat.
- Consult a professional if increasing insulation in an attic or loft space.
- Consult a professional before converting a loft space.

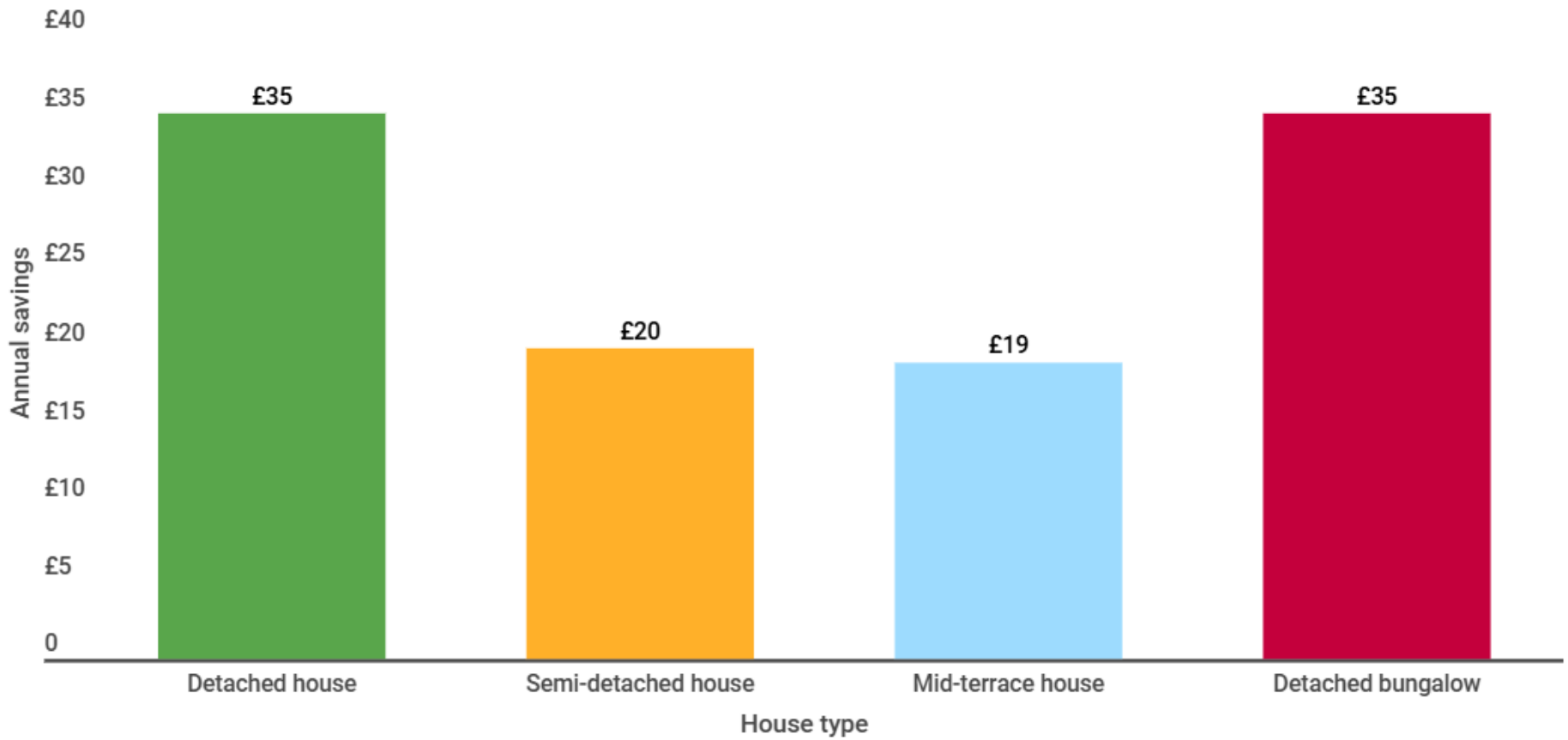
Here's how much a typical installation could cost you, how much you could save on your energy bill as well as how many kilograms of CO_2 emissions you could save each year by topping up your loft insulation from 120mm to 270mm.



Savings are based on an electricity price of 24.5 p/kWh and a gas price of 6.29 p/kWh, calculated from a weighted average of projected, current and recent energy price caps. Find out more about how we made these calculations.

energy saving trust

Typical installation cost (£) | Energy bill savings (£/year) | CO2 savings (kgCO2/year)



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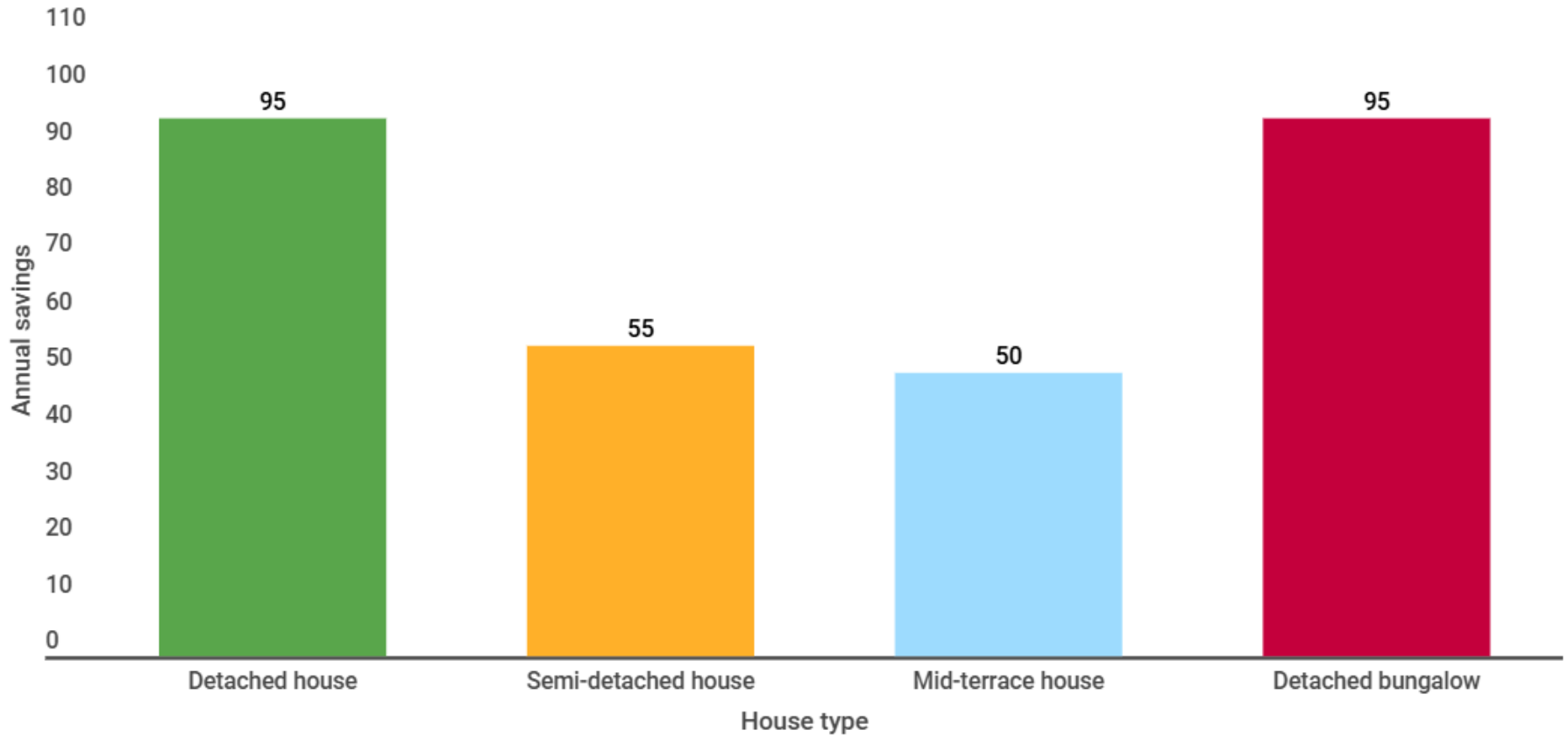

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Come chat to me later!

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RETROFIT RO

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