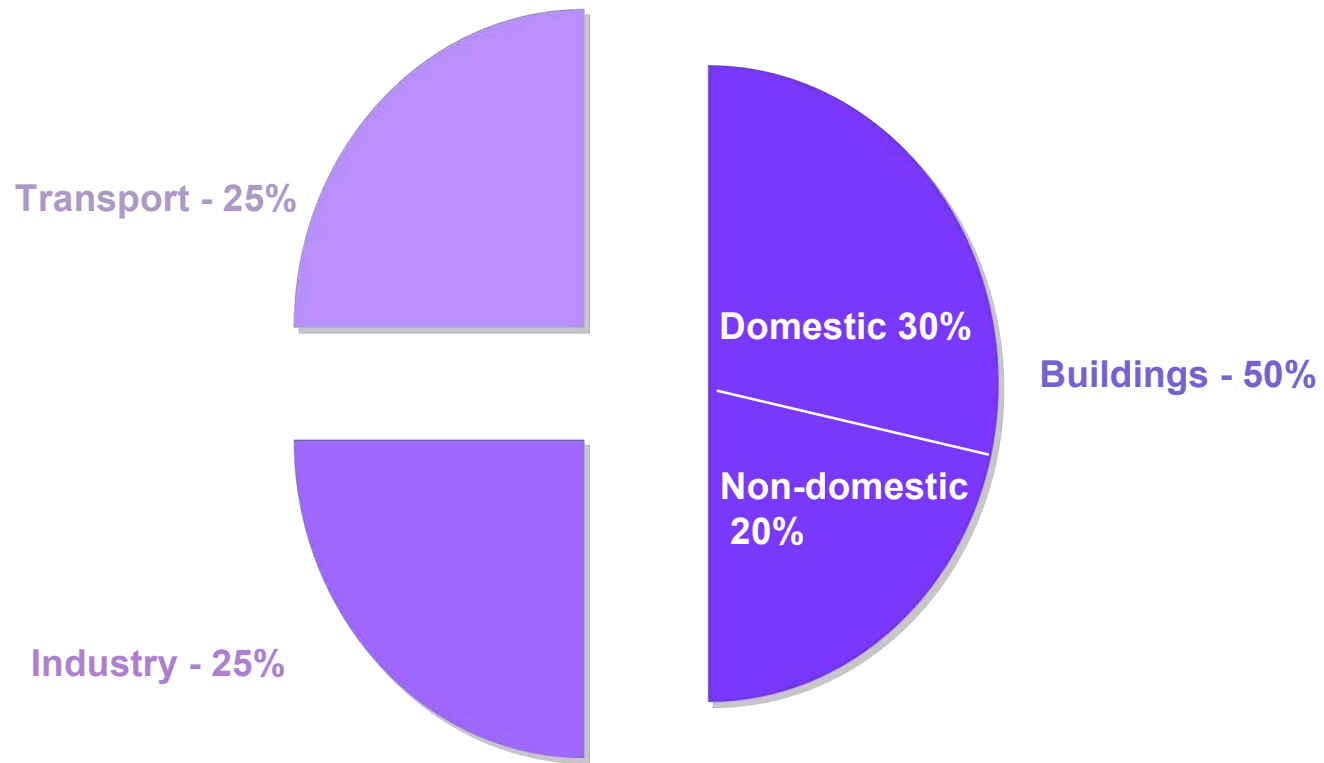


True or false - the answers

Leaky Buildings

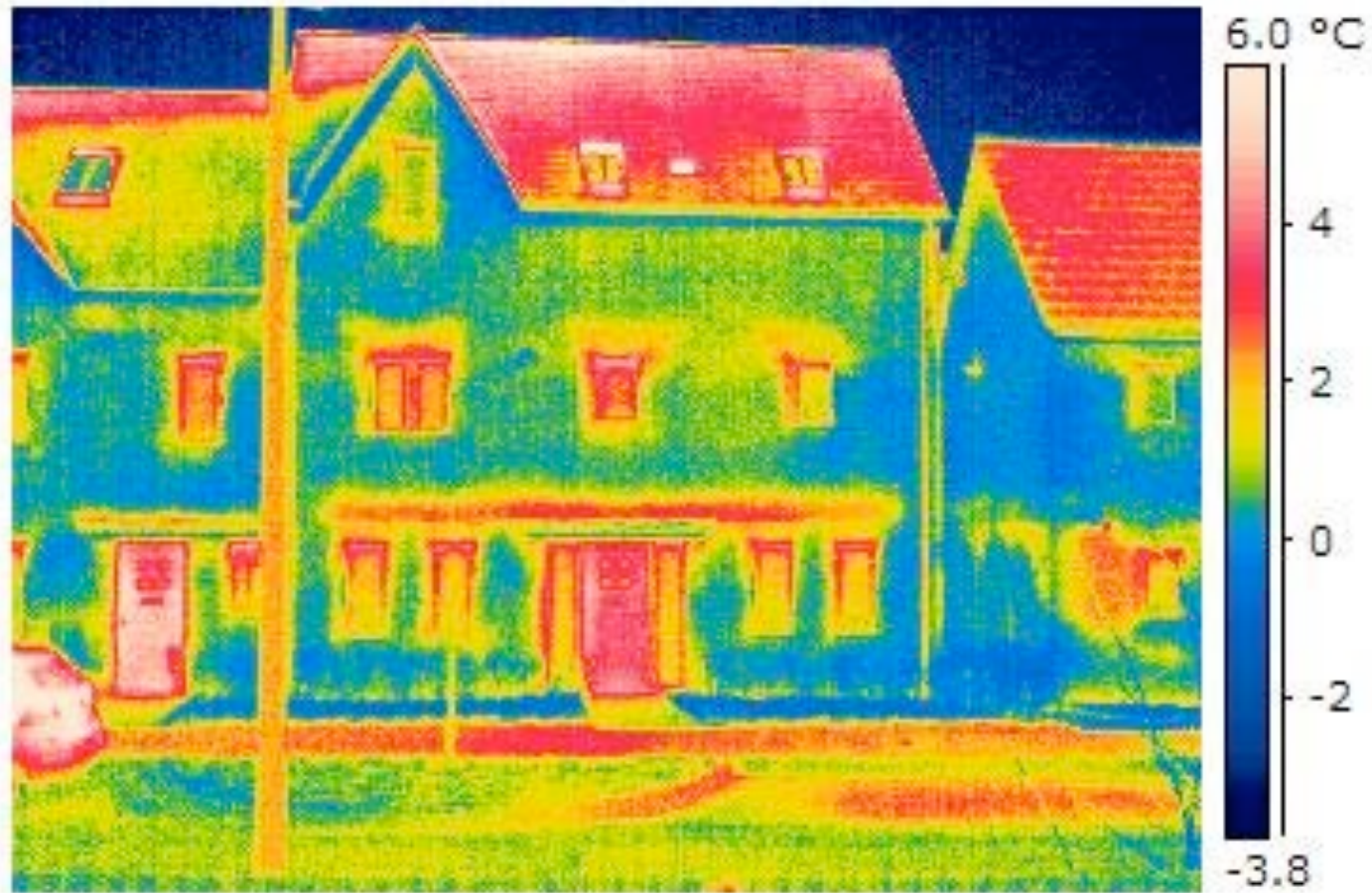
Energy used in buildings creates half of the UK's CO2 emissions

TRUE



Houses built to current Building Regulations are very energy-efficient

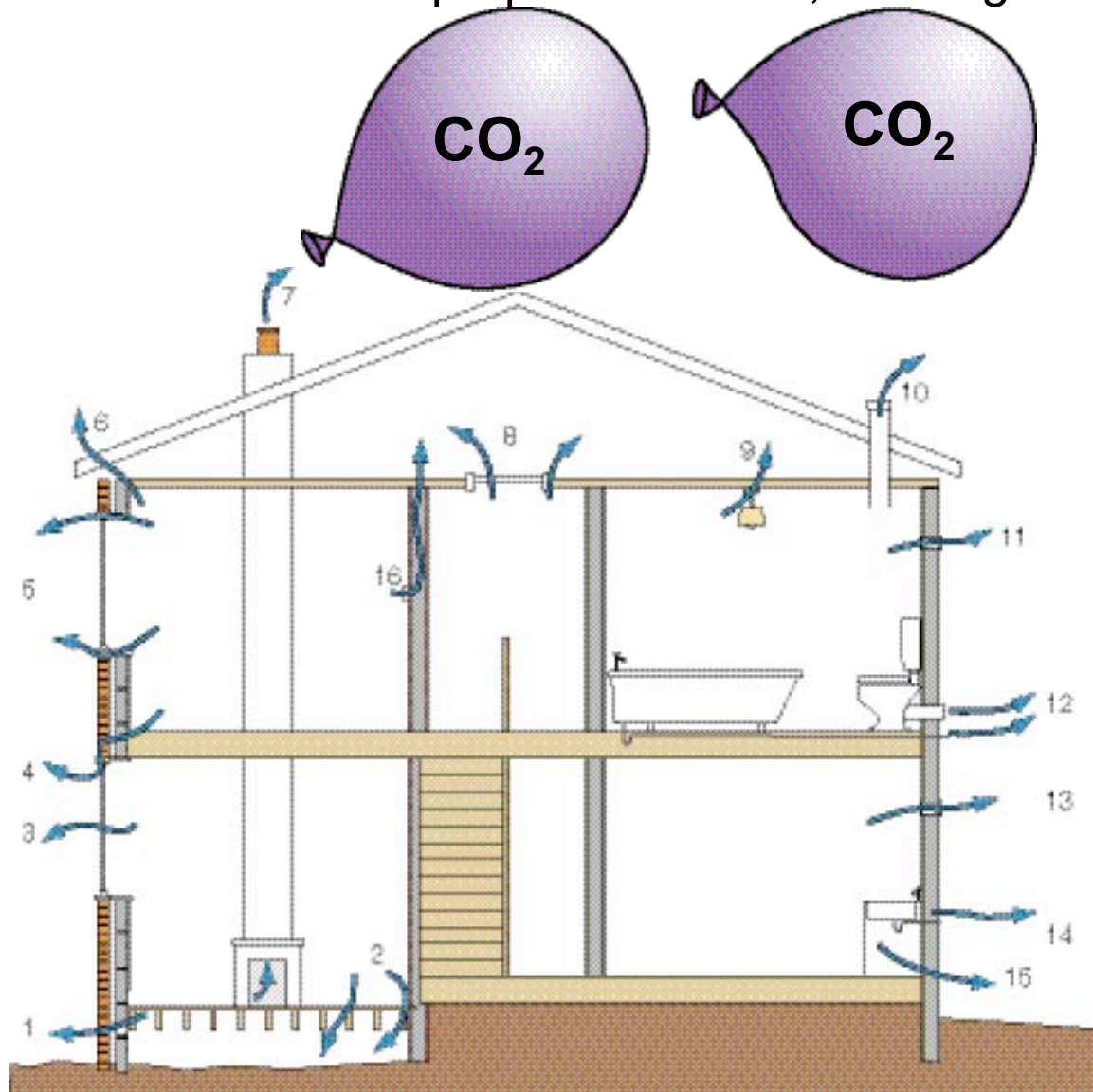
FALSE: Houses built to current Building Regulations often leak heat badly



Picture: Jez Wingfield 2007

Air leakage = heat loss and higher energy bills

TRUE: Without a proper air barrier, buildings leak from many different places



1. Underfloor ventilators
2. Suspended floors
3. Leaky windows/doors
4. Floor/ceiling voids into cavity walls
5. Around windows
6. Ceiling-to-wall joints at eaves
7. Open chimneys
8. Loft hatches
9. Service penetrations
10. Vents penetrating ceiling/roof
11. Bathroom extract
12. Around bathroom waste pipes
13. Kitchen extract
14. Around kitchen waste pipes
15. Floor-to-wall joints
16. Around electrical outlets

Picture courtesy BRE

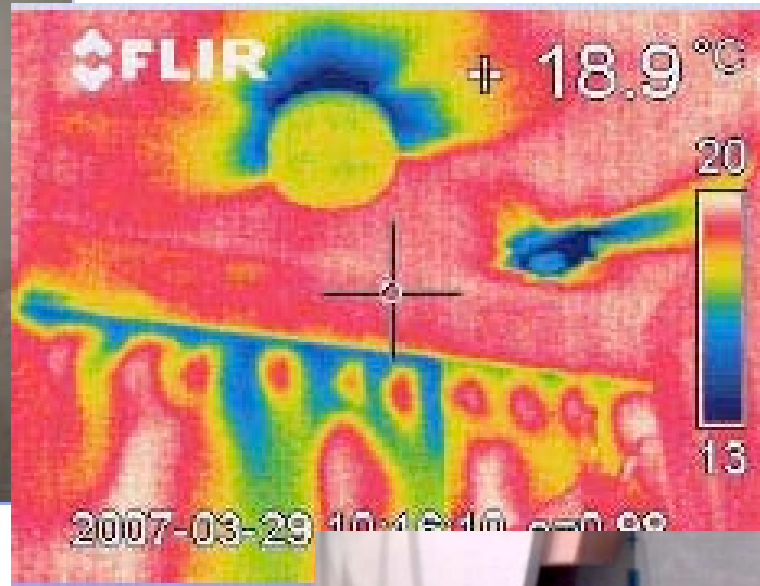
A good airtightness barrier



Holes made for plumbing and electrics can cause serious air leakage



Pictures courtesy Jez Wingfield, 2007

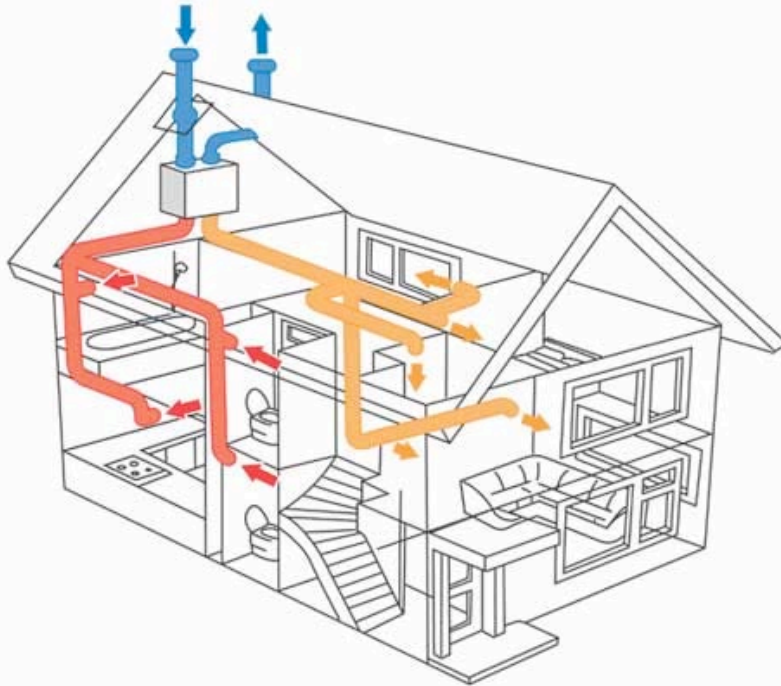


All cabling should be fitted with an airtight seal



An airtight house can reduce heating costs by 50%

FALSE: a very airtight house with heat recovery ventilation can reduce heating costs by 85%

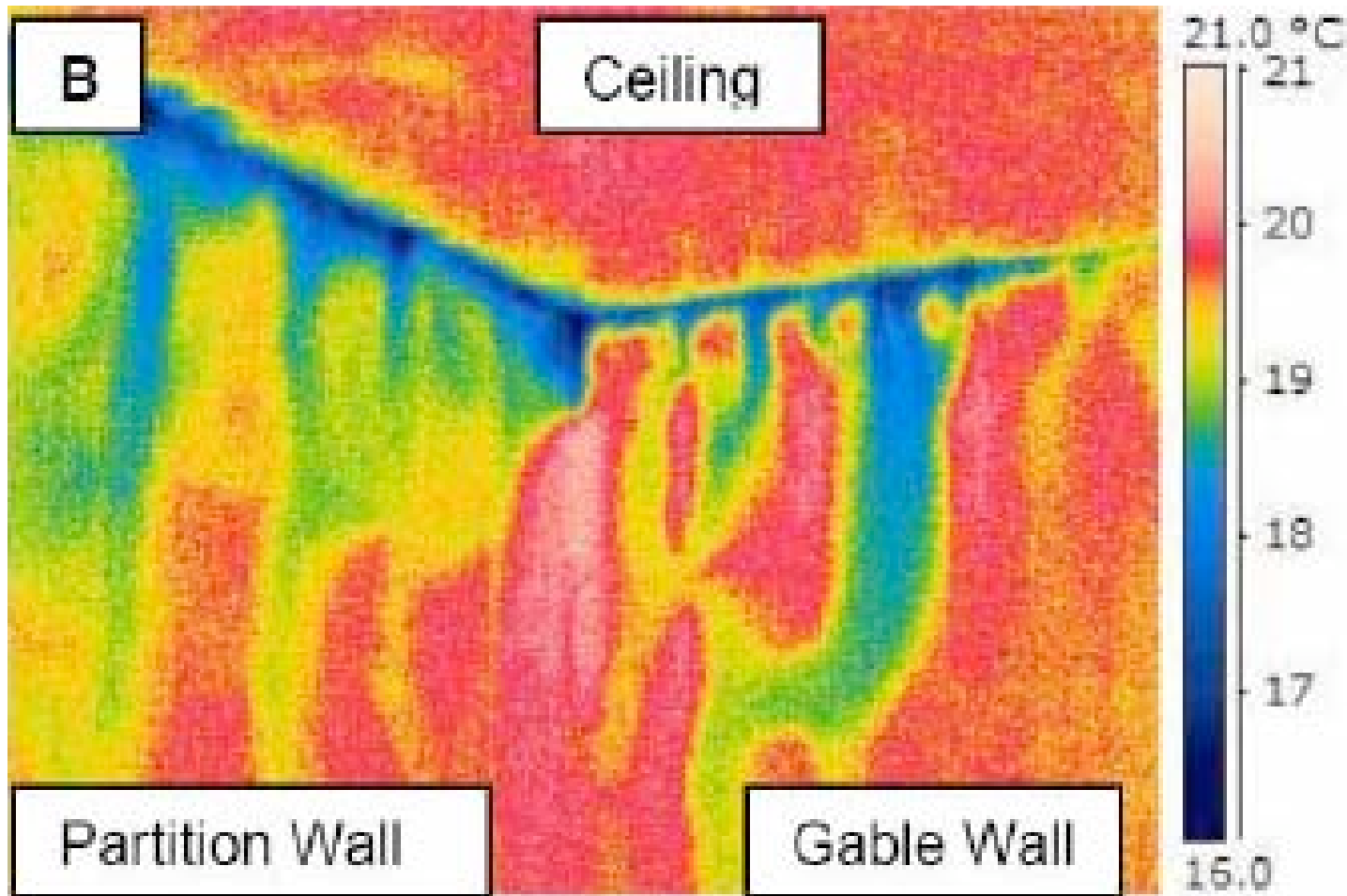


How heat recovery ventilation works

- moisture-laden air is extracted from the wet rooms and passes through a heat exchanger
- fresh air passes through heat exchanger and onto dry rooms
- must be fitted into an air-tight dwelling to maximise efficiency

Plaster board on dabs makes a good airtight seal

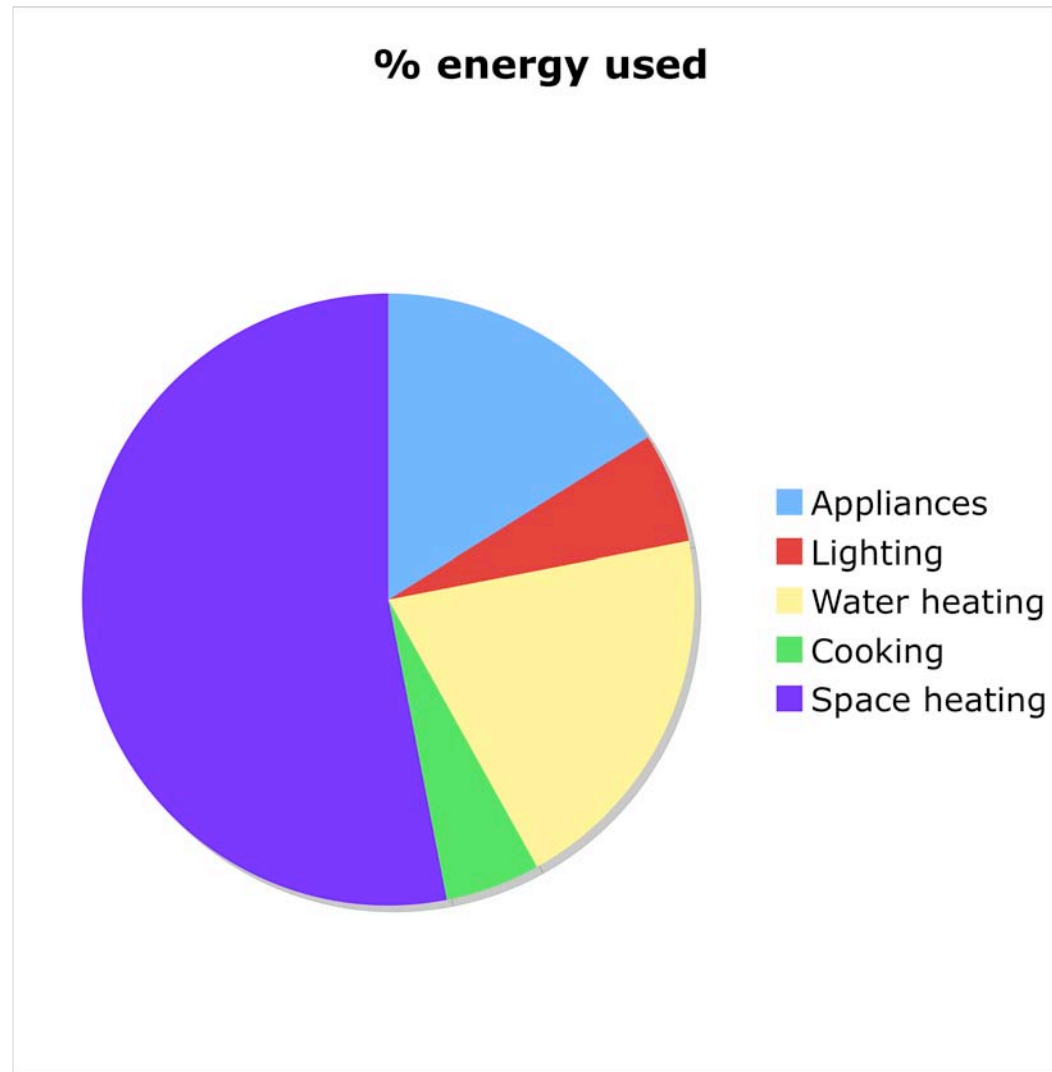
FALSE: Plasterboard on dabs does not prevent air leakage



Picture courtesy Jez Wingfield, 2007

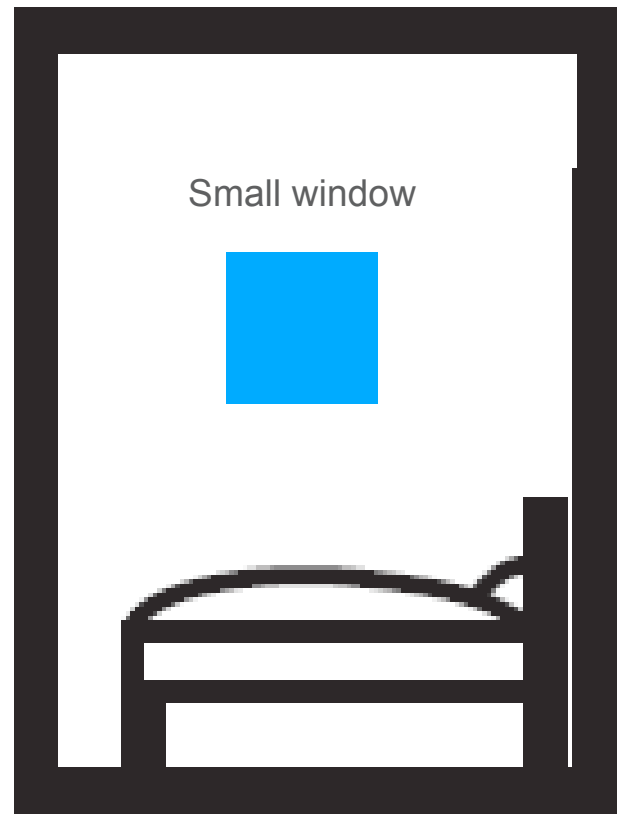
More than half the energy used in buildings is for space heating

TRUE



An average house in the UK is reasonably airtight

FALSE An average house in the UK has **a hole in the wall** equivalent to a small window



Picture courtesy: Ian Mawditt

Based upon a typical medium size house (envelope = 250m²):

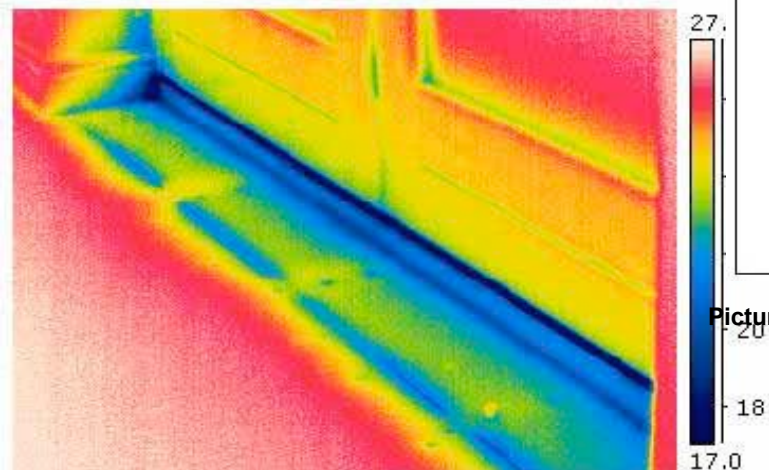
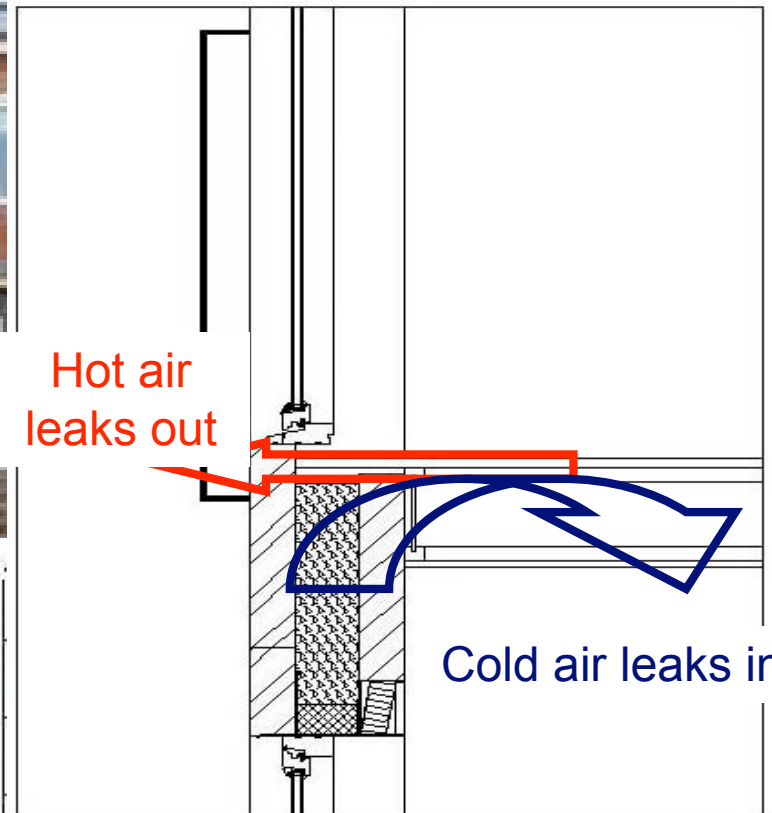
Air leakage rate **17 (typical UK)**

Hole **470** mm x **470** mm)

The maximum allowable air leakage rate under Building Regulations is 10m³/h.m⁻²
A very energy-efficient house has an air leakage rate of less than 1

Small breaks in the insulation barrier aren't very important

FALSE: breaks in the insulation barrier create thermal bridges for the heat to escape



Pictures courtesy Jez Wingfield, 2007

Energy use in our homes is rising

TRUE: We are using larger and more electrical equipment



It is wise to call the fire brigade before doing an air leakage test

TRUE: Only if your building is really bad!

This is air leakage from buildings undergoing a smoke test

