

KEEPING YOUR HOME COOL

Practical, low-energy ways to beat the heat this summer - without reaching for the air conditioning

UK summers are getting hotter. Research led by Oxford University's Future of Cooling programme found that as global warming rises from 1.5°C to 2°C, the **UK is among the countries facing the greatest relative increase in uncomfortably hot days** - alongside Norway, Finland and Switzerland. Air conditioning feels like the obvious fix, but it uses a lot of electricity and often relies on refrigerant gases that are powerful contributors to global warming if they leak. The good news: **three simple, low-cost strategies can keep a home comfortable in most UK summers without an air conditioning unit (click for author video).**

“Our buildings act like greenhouses.”

Dr Jesus Lizana, University of Oxford, on why typical UK homes overheat: no external shading, windows kept shut, little natural ventilation and few ceiling fans - UK buildings are designed almost entirely for winter, not summer.

1 BLOCK THE SUN BEFORE IT GETS IN

Heat that never enters the house is the cheapest heat to deal with. Shading the outside of a building - rather than trying to cool it back down afterwards - is consistently the most effective single step.

- **Shade inside:** Close curtains, blinds or shutters on sun-facing windows in the daytime.
- **Shade outside:** Awnings, louvres, or even a well-placed pergola with climbing plants reduce direct solar gain through glass, which is normally where most heat gets in - external shutters alone can cut a home's cooling need by up to 14%.
- **Pale roofs & walls:** A light-coloured or reflective roof reflects the sun's energy rather than absorbing it - shown to cut cooling needs by more than 7% in very hot climates, and it helps in the UK too.
- **Plant for shade:** Trees positioned to shade walls and windows can lower a wall's surface temperature by up to 9°C - and they cool the whole street, not just one house.

2 LET COOL AIR MOVE THROUGH, NATURALLY

Once the sun is blocked, moving air does most of the remaining work. The trick is timing: let warm air out and cool air in when it's actually cooler outside than in.

- **Open windows when it's cooler out:** Early morning and evening are usually the coolest points of a UK summer's day - open windows then, and close them again once it warms up outside.
- **Cross-ventilate:** Opening windows on opposite sides of a room or building lets a breeze flow straight through, clearing heat far faster than a single open window.
- **Cool the house overnight:** Leaving windows open overnight (safely and securely) flushes the day's stored heat out of walls and furniture, giving the house a cooler starting point the next day.

3 COOL THE PERSON, NOT JUST THE ROOM

Feeling cool isn't only about air temperature - humidity and moving air matter just as much. This means a small amount of well-placed airflow can let a room feel comfortable at a higher, more energy-efficient temperature.

- **Fan + a higher thermostat setting:** Pairing a fan with air conditioning lets you move the thermostat from around 24°C to 27°C and still feel just as cool, cutting cooling energy use by more than 20%.
- **Cool yourself, not the whole house:** A desk fan, cooling cushion or damp cloth on the neck cools you directly, so you're not paying to cool an entire room - or house - that's mostly empty.
- **Still need air conditioning?** If you do need a unit, look for a high Energy Efficiency Ratio (EER - aim for 4 or above) and a low global-warming-potential refrigerant. To keep electricity use down, use it in combination with these strategies.

Why this matters for the UK - Cooling demand could quadruple by 2100

The same Oxford research team estimates UK cooling energy demand currently stands at about 15.5 TWh a year, and that under a high-warming scenario it could quadruple by 2100 - with up to 75–85% of UK households expected to install air conditioning unless homes are adapted first.

Source: Khosla & Lizana, "UK net zero strategies are overlooking something vital," *The Conversation*, 2021.

Quick checklist for a hot day

Morning

- ☐ Close curtains/blinds on sun-facing windows
- ☐ Close windows when it's warmer outside than in
- ☐ Switch off unused appliances (they add heat)

Evening

- ☐ Open windows on opposite sides once it cools down
- ☐ Cool people directly, with fans or damp cloths
- ☐ Leave a window securely open overnight if safe to do so

Remember to stay hydrated - have plenty of cool drinks over the day.

[WATCH A VIDEO SHORT](#)



About this handout & further reading

This handout summarises peer-reviewed and public-engagement work by researchers in the Future of Cooling Programme (Oxford Martin School) and ResCool project at the University of Oxford, Jesus Lizana, Nicole Miranda & Radhika Khosla. Diagrams are reproduced from the authors' own published material, with credit. For full detail, references and figures at original resolution, see:

- Original article: "How to make homes cooler without cranking up the air conditioning", *The Conversation* (2023) - <https://theconversation.com/how-to-make-homes-cooler-without-cranking-up-the-air-conditioning-207243>

This handout was compiled by Welly2Wivey, using original articles by the authors and LLM Claude