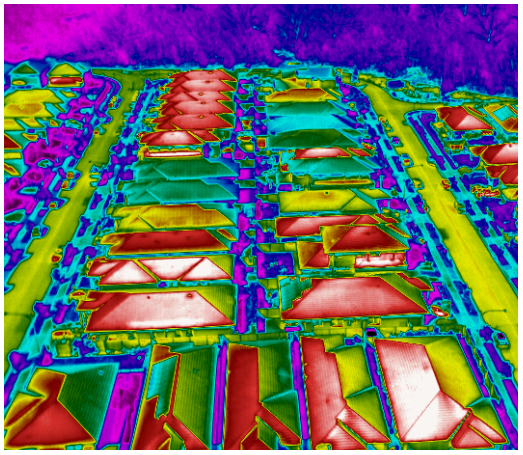
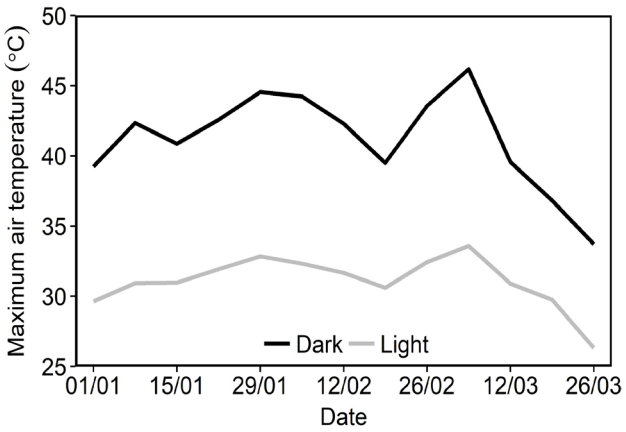
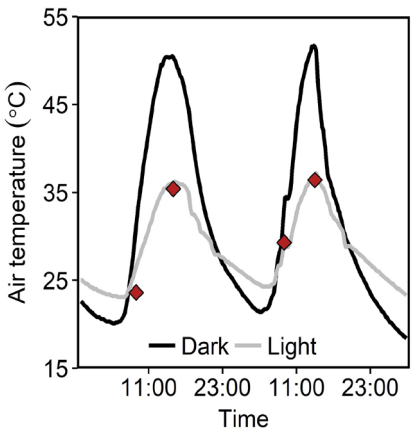
DARK ROOFS

AMPLIFY URBAN HEAT AND ELECTRICITY COST



Surface temperatures of unshaded dark roofs are hotter than roads in summer. The absorbed solar energy is emitted as sensible heat, warming the air around the house and inside the roof, leading to higher cooling penalties. Collectively, dark roofs make neighbourhoods more than 3 °C warmer, forcing everyone to pay more for keeping cool in summer.





The data stacks up. Here are air temperature measurements from inside a light-coloured metal roof and a dark concrete tile roof. From January to March 2023, maximum air temperature was always at least 10°C (up to 18°C) warmer inside the dark roof (left: weekly maximum air temperature).

During warm days (right: 6 and 7 March 2023), air inside the dark roof is even hotter (>50°C!), while the air inside the light-coloured roof tracks ambient temperature (morning and afternoon data from the BoM as red diamonds). Both roofs had some insulation and tree shade. Nevertheless, keeping summer indoor temperature pleasant in the house with the dark roof will require much more electricity for cooling.

IF YOU LIVE IN SE AUSTRALIA, YOU DON'T WANT A DARK ROOF.

IT WILL INCREASE YOUR POWER BILL AND AMPLIFY LOCAL AND GLOBAL WARMING.

TURN IT LIGHT!!!

URBAN TRANSFORMATIONS RESEARCH CENTRE
WESTERN SYDNEY UNIVERSITY I AUSTRALIA