

City Climate

PREMIER ISSUE

• OCTOBER 2026 •

THE HEAT ISLAND EDITION

INSIDE

How heat gets trapped.

Roads and roofs absorb and re-emit the sun's heat more than forests and water.

Section I

What it costs. More air conditioning, more smog, more heat illness, warmer streams. Section II

Sources and terms. A short glossary and the two sources this brief is built on. Back page

URBAN CLIMATE AND PUBLIC HEALTH

Why Cities Run Hotter Than the Countryside

Urban areas cover about 0.5% of Earth's land but hold more than half its people, and they trap heat.



FIG. Dense pavement and roofs store heat through the day.

According to the US EPA, US urban areas run about 1 to 7°F warmer than outlying areas during the day and about 2 to 5°F warmer at night. The gap is largest in humid regions and in bigger, denser cities.

This brief covers why the effect happens, what it does to energy use, air, health and water, and the cooling options the sources describe.

Continued inside.

CONTENTS

In This Issue

SECTION I: CAUSES

Built surfaces · Less greenery · Waste heat ·
City geometry

SECTION II: TWO KINDS OF HEAT ISLAND

Surface heat islands · Atmospheric heat
islands · Day vs night

SECTION III: IMPACTS

Energy demand · Air pollution · Health ·
Water quality

SECTION IV: COOLING OPTIONS

Trees and green space · Green roofs · Lighter
surfaces · Ventilation corridors



PLATE I. *Parks and ponds read cooler than downtown.*

THE BACK PAGE LISTS KEY
TERMS AND BOTH SOURCES
WITH LINKS.



City Climate

I

THE SECTION

Trapped Heat

Concrete can hold roughly 2,000 times as much heat as the same volume of air, and conventional roofs can reach 66°F above air temperature.



City Climate

II

THE SECTION

Real Costs

Each 2°F rise lifts air-conditioning demand by 1 to 9%,
and the CDC recorded an average of 702 US heat deaths
a year from 2004 to 2018.

City Climate

GLOSSARY

Surface heat island — Roads and roofs hotter than natural ground; strongest on sunny days.

Atmospheric heat island — Warmer city air compared with outlying areas; varies less in intensity.

Intra-urban heat island — Temperature gaps inside one city, such as downtown versus a park.

Evaporative cooling — Cooling from trees and green space releasing water vapour.

SOURCES

US EPA, *What Are Heat Islands?*
epa.gov/heatislands/learn-about-heat-islands

Wikipedia, *Urban heat island*
en.wikipedia.org/wiki/Urban_heat_island

EPA cites Santamouris (2020), *Energy and Buildings* 207, for the 1 to 9% demand figure

EPA cites CDC data (2004 to 2018) for the 702 deaths a year figure



COLOPHON. *Tree cover is the most cited cooling option.*

FIGURES ARE QUOTED FROM THE TWO SOURCES ABOVE, ACCESSED 22 OCTOBER 2026.

END OF BRIEF. THANK YOU FOR READING.

Made with MagicSlides