

From the [United States Environmental Protection Agency...](#)

Heat Island Effect

Heat islands are urbanized areas that experience higher temperatures than outlying areas. Structures such as buildings, roads, and other infrastructure absorb and re-emit the sun's heat more than natural landscapes such as forests and water bodies. Urban areas, where these structures are highly concentrated and greenery is limited, become "islands" of higher temperatures relative to outlying areas. Daytime temperatures in urban areas are about 1–7°F higher than temperatures in outlying areas and nighttime temperatures are about 2–5°F higher. Find more information on the [Learn About Heat Islands](#) page.

Heat Island Cooling Strategies



Many communities are taking action to reduce urban heat islands using **five main strategies**:

- 1) increasing tree and vegetative cover,
- 2) installing green roofs,
- 3) installing cool—mainly reflective—roofs,
- 4) using cool pavements (either reflective or permeable), and
- 5) utilizing smart growth practices.

The links below lead to detailed information on each of these strategies and examples of the activities that governments and communities are implementing.

Strategies and Technologies

- [Trees and Vegetation](#) - Increasing tree and vegetation cover lowers surface and air temperatures by providing shade and cooling through evapotranspiration. Trees and vegetation can also reduce stormwater runoff and protect against erosion.
- [Green Roofs](#) - Growing a vegetative layer (plants, shrubs, grasses, and/or trees) on a rooftop reduces temperatures of the roof surface and the surrounding air and improves stormwater management. Also called “rooftop gardens” or “eco-roofs,” green roofs achieve these benefits by providing shade and removing heat from the air through evapotranspiration.
- [Cool Roofs](#) - Installing a cool roof – one made of materials or coatings that significantly reflect sunlight and heat away from a building – reduces roof temperatures, increases the comfort of occupants, and lowers energy demand.
- [Cool Pavements](#) - Using paving materials on sidewalks, parking lots, and streets that remain cooler than conventional pavements (by reflecting more solar energy and enhancing water evaporation) not only cools the pavement surface and surrounding air, but can also reduce stormwater runoff and improve nighttime visibility.
- [Smart Growth](#) - These practices cover a range of development and conservation strategies that help protect the natural environment and at the same time make our communities more attractive, economically stronger, and more livable.

[Contact Us](#) to ask a question, provide feedback, or report a problem.

What Communities are Doing to Reduce Heat Islands

Many communities have taken steps to reduce urban heat islands. Voluntary initiatives include demonstration projects, incentive programs, urban forestry efforts, weatherization programs, outreach and education, and awards to recognize and encourage heat island reduction activities. Policy initiatives include procurement, resolutions, tree and landscape ordinances, comprehensive plans and design guidelines, zoning codes, green building standards, building codes, and air quality standards.

EPA maintains a [Community Actions Database](#) for heat island activities, searchable by state, initiative, or strategy.

Many communities are working to address [Heat Islands and Equity](#). Explore three [Local Heat Equity Examples](#).



The Portland Bureau of Environmental Services (BES) has a green roof on its headquarters. The city allows denser development for projects that use green roofs, or eco-roofs as the city calls them. (Photo courtesy of Portland BES)

[Chapter Five](#) of EPA's *Reducing Urban Heat Islands: Compendium of Strategies* provides additional information, including the following topics:

- Voluntary efforts, including demonstration projects, incentives, urban forestry programs, weatherization, outreach and education programs, and awards.
- Policy efforts, including procurement, resolutions, tree and landscape ordinances, comprehensive plans and design guidelines, zoning codes, green building programs and standards, building codes, and air quality requirements.

LINK:

<https://www.epa.gov/heatislands#:~:text=Heat%20islands%20are%20urbanized%20areas,as%20forests%20and%20water%20bodies.>