

SITE

CREATE COOL GROUND SURFACES

Urban neighborhood patterns have a distinct effect on the thermal comfort of the local inhabitants during high heat events. Research on the [Urban Heat Island] effect shows that higher density development exacerbates extreme heat events, resulting in additional stressors in urban areas. The design of urban neighborhoods, including large areas of impervious surfaces, lack of shade-producing vegetations, lower albedo materials, and higher concentrations of waste heat sources all magnify the impact of heat events.

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One concern is that a lot of attention is paid to catastrophic events, but slow creeping impacts, such as longer heat waves or altered precipitation patterns, are just as important from a public health standpoint.

Paul Shoemaker, Boston Public Health Commission

Schematic diagram of urban heat island mitigation strategies involving buildings. Source: Institut national de sante' publique du Quebec



STRATEGIES

- **Use light color (high albedo) paving, or paving that has the ability to reflect solar wavelengths.** High albedo paving includes light color materials and surface treatments on existing asphalt and pavement.
 - Conventional asphalt pavements can be modified with high albedo materials or treated after installation to raise reflectance
 - Several examples of high albedo paving include:
 - Conventional concrete pavements
 - Resin based pavements which use clear tree resin in place of petroleum based elements to bind an aggregate
 - Colored asphalt and colored concrete which added pigments or seals to increase reflectance
- **Use nonvegetated permeable pavements**
 - Permeable pavements allow water to drain through the surface into sublayers and the ground below. These include porous asphalt, rubberized asphalt, pervious concrete, and brick or block pavers. Typically used in lower traffic areas, with some experimental highway use.

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Cool Pavements Compendium. P 12'