

## Heat Islands: Understanding and Mitigating Heat in Urban Areas

By Lisa Gartland



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Heat islands are urban and suburban areas that are significantly warmer than their surroundings. Traditional, highly absorptive construction materials and a lack of effective landscaping are their main causes. Heat island problems, in terms of increased energy consumption, reduced air quality and effects on human health and mortality, are becoming more pressing as cities continue to grow and sprawl. This comprehensive book brings together the latest information about heat islands and their mitigation. The book describes how heat islands are formed, what problems they cause, which technologies mitigate heat island effects and what policies and actions can be taken to cool communities. Internationally renowned expert Lisa Gartland offers a comprehensive source of information for turning heat islands into cool communities. The author includes sections on cool roofing and cool paving, explains their benefits in detail and provides practical guidelines for their selection and installation. The book also reviews how and why to incorporate trees and vegetation around buildings, in parking lots and on green roofs.



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#### **Editorial Review**

Review

'I have been an advocate for heat island mitigation technologies for many years because they make sense - practical sense and economic sense. Heat Islands neatly explains the problem of heat islands in cities, and presents the remarkable benefits that may be obtained from cooler roofs and pavements and additional vegetation.' Arthur Rosenfeld, Commissioner, California Energy Commission

'Gartland, a specialist in heat island mitigation, presents the results of numerous quantitative studies that document and model the problem. The emphasis is on mitigation efforts, tried and true as well as experimental. Recommended.' *Choice Magazine* 

'An excellent scientific book and a very useful source of knowledge. The author has succeeded in describing in a very comprehensive way all the recent scientific developments in this very important subject. The reader will be fully informed on the causes of heat islands, the scientific ways to document them and also on all major mitigation techniques. This is a valuable reference not only for climatologists and climate experts, but also for building engineers, architects, building physicists, researchers and university students.' Mat Santamouris, Associate Professor at the University of Athens, Greece

'Lisa Gartland has produced an important, well structured, clear and comprehensive publication that is easy to read and to implement. It is essential reading and an indispensable reference tool for all building designers, urban planners and community groups interested in their urban wellbeing, whether they are designing for urban areas or rural areas. For, as the book states, heat island mitigation makes communities more habitable, healthier and less costly to operate and maintain.'

Architectural Science Review

'A comprehensive book which will be useful to urban planners, building professionals and researches in helping them understand this phenomenon' Northeast Sun, 2009. 'Well worth the read by urban foresters involved in planning and urban design, and by those who want to promote the benefits of urban trees.' *Jon Heuch, Chartered Forester*, 2009.

'All in all, the book has a clear and comprehensible structure.' A. Goldbach, W. Kuttler, Essen

About the Author

Dr Lisa Gartland is the sole proprietor of PositivEnergy, a consulting firm specializing in heat island mitigation, and former director of the Sacramento Cool Community Program, whose aim was to reduce Sacramento's heat island.

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