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# Heating, Cooling, Lighting: Sustainable Design Methods For Architects





## Synopsis

Sustainable environmental control through building design Heating, Cooling, and Lighting is the industry standard text on environmental control systems with the emphasis on sustainable design. By detailing the many factors that contribute to the comfort in a building, this book helps architects minimize mechanical systems and energy usage over the life of the building by siting, building design, and landscaping to maximize natural heating, cooling, and lighting. This new fourth edition includes new information on integrated design strategies and designing for the Tropics. Resources include helpful case studies, checklists, diagrams, and a companion website featuring additional cases, an image bank, and instructor materials. Designing buildings that require less energy to heat, cool, and light means allowing the natural energy of the sun and wind to reduce the burden on the mechanical and electrical systems. Basic design decisions regarding size, orientation, and form have a great impact on the sustainability, cost, and comfort of a building. Heating, Cooling, and Lighting provides detailed guidance for each phase of a design project. Readers will: Understand the concept of sustainability as applied to energy sources Review the basic principles of thermal comfort, and the critical role of climate Learn the fundamentals of solar responsive design, including active and passive solar systems as well as photovoltaics Discover how siting, architectural design, and landscaping can reduce the requirements for mechanical and electrical systems. In sustainable design, mechanical, and electrical systems should be used to only accomplish what the architect could not by the design of the building itself. With this in mind, designers require a comprehensive understanding of both the properties of energy and the human factors involved in thermal comfort. Heating, Cooling, and Lighting is the complete, industry-leading resource for designers interested in sustainable environmental control.

### **Book Information**

Hardcover: 912 pages Publisher: Wiley; 4 edition (October 13, 2014) Language: English ISBN-10: 111858242X ISBN-13: 978-1118582428 Product Dimensions: 9 x 1.6 x 11.2 inches Shipping Weight: 4.2 pounds (View shipping rates and policies) Average Customer Review: 4.4 out of 5 stars Â See all reviews (7 customer reviews) Best Sellers Rank: #19,736 in Books (See Top 100 in Books) #2 in Books > Crafts, Hobbies & Home > Home Improvement & Design > How-to & Home Improvements > Heating, Ventilation & Air Conditioning #13 in Books > Arts & Photography > Architecture > Drafting & Presentation #23 in Books > Textbooks > Humanities > Architecture

## **Customer Reviews**

Probably the best energy efficiency book I've ever bought. Liked the third edition so much last spring and bought it then, even though I knew the 4th edition was coming out in the fall (and I bought it too). Clear, beautifully illustrated with great explanations of sometimes more complex topics. A great reference for not only architects, but engineers also (like me). A must have for anyone interested in sustainable design.

This is a decent undergraduate level resource. It is a functional primer on many of the basics of sustainability including shading principles and heat transfer. The author encourages an improved understanding of many natural principles which were neglected in twentieth century building design. Interestingly, I have no desire to live in an elevated Japanese paper house in the hot humid climate of Chicago, and see a great deal of merit in mechanical cooling in hot humid climates. Never the less I think its a laudable goal for many of us to come to terms with these "natural" ways of dealing with climate.

This book came quickly enough for class. It is also very well written and interesting!

thank you for always getting me my materials to me before my homework is due!!

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