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Nota di contenuto	Cover -- Title Page -- Copyright -- Contents -- Foreword to the Fourth Edition -- Foreword to the First Edition -- Preface -- Acknowledgments -- Chapter 1: Heating, Cooling, and Lighting as Form-Givers in Architecture -- 1.1 Introduction -- 1.2 Indigenous and Vernacular Architecture -- 1.3 Formal Architecture -- 1.4 The Architectural Approach to Sustainable Design -- 1.5 Dynamic versus Static Buildings -- 1.6 Resilient Design -- 1.7 Biophilic Design -- 1.8 Color and Ornamentation -- 1.9 Energy and Architecture -- 1.10 Climate and Architecture -- 1.11 Sustainability Codes and Voluntary Programs -- 1.12 Integrated Design -- 1.13 Decision Making -- 1.14 Conclusion -- Key Ideas of Chapter 1 -- Resources -- Chapter 2: Sustainable Design and Energy Sources -- 2.1 Easter Island: Learning from the Past -- 2.2 Sustainable Design -- 2.3 Reuse, Recycle, and Regenerate by Design -- 2.4 The Sustainability Movement -- 2.5 Population and Affluence -- 2.6 Growth -- 2.7 Exponential Growth -- 2.8 The Amoeba Analogy -- 2.9 Supply versus Efficiency -- 2.10 Sustainable-Design Issues -- 2.11 Climate Change -- 2.12 The Global Greenhouse -- 2.13 The Ozone Hole -- 2.14 Efficiency versus

Renewable Energy -- 2.15 Energy Sources -- 2.16 Energy Use in Ancient Greece -- 2.17 Nonrenewable Energy Sources -- Fossil Fuels -- Natural Gas -- Oil -- Coal -- Nuclear Fission -- Nuclear Fusion -- 2.18 Renewable Energy Sources -- Solar Energy -- Photovoltaic Energy -- Wind Energy -- Biomass Energy -- Hydroelectric Energy -- Marine Energy -- Geothermal Energy -- Geo-Exchange -- 2.19 Hydrogen -- 2.20 Conclusion -- Key Ideas of Chapter 2 -- References -- Resources -- Chapter 3: Basic Principles -- 3.1 Introduction -- 3.2 Heat -- 3.3 Sensible Heat -- 3.4 Latent Heat -- 3.5 Evaporative Cooling -- 3.6 Convection -- 3.7 Transport -- 3.8 Energy-Transfer Mediums -- 3.9 Radiation. 3.10 Greenhouse Effect -- 3.11 Equilibrium Temperature of a Surface -- 3.12 Mean Radiant Temperature -- 3.13 Heat Flow -- 3.14 Heat Sink -- 3.15 Heat Capacity -- 3.16 Thermal Resistance -- 3.17 Heat-Flow Coefficient -- 3.18 Time Lag -- 3.19 Insulating Effect of Mass -- 3.20 Energy Conversion -- 3.21 Combined Heat and Power -- 3.22 Fuel Cells -- 3.23 Embodied Energy -- 3.24 Conclusion -- Key Ideas of Chapter 3 -- Chapter 4: Thermal Comfort -- 4.1 Biological Machine -- 4.2 Thermal Barriers -- 4.3 Metabolic Rate -- 4.4 Thermal Conditions of the Environment -- 4.5 The Psychrometric Chart -- 4.6 Dew Point and Wet-Bulb Temperatures -- 4.7 Heat Content of Air -- 4.8 Thermal Comfort -- 4.9 Shifting of the Comfort Zone -- 4.10 Adaptive Comfort -- 4.11 Clothing and Comfort -- 4.12 Strategies -- 4.13 Conclusion -- Key Ideas of Chapter 4 -- Resources -- Chapter 5: Climate -- 5.1 Introduction -- 5.2 Climate -- 5.3 Microclimate -- 5.4 Climatic Anomalies -- 5.5 Climate Regions of the United States and Canada -- 5.6 Explanations of the Climatic Data Tables -- Degree-Day Rules of Thumb -- 5.7 Relative Heating and Cooling Loads -- 5.8 Additional Climate Information -- 5.9 Climate Information for Other Countries -- 5.10 Design Strategies -- Winter -- Summer -- Key Ideas of Chapter 5 -- Acknowledgment -- Resources -- Chapter 6: Solar Geometry -- 6.1 Introduction -- 6.2 The Sun -- 6.3 Elliptical Orbit -- 6.4 Tilt of the Earth's Axis -- 6.5 Consequences of the Altitude Angle -- 6.6 Winter -- 6.7 The Sun Revolves Around the Earth! -- 6.8 The Sky Dome -- 6.9 Determining Altitude and Azimuth Angles -- 6.10 Solar Time -- 6.11 Horizontal Sun-Path Diagrams -- 6.12 Vertical Sun-Path Diagrams -- 6.13 Drawing Sunbeams -- 6.14 Sun-Path Models -- 6.15 Solar Heat Gain -- 6.16 Solar Site-Evaluation Tools -- 6.17 Heliodons -- 6.18 Sundials for Model Testing. 6.19 Conceptually Clear Heliodons -- 6.20 Conclusion -- Key Ideas of Chapter 6 -- Resources -- Chapter 7: Passive Solar -- 7.1 History -- 7.2 Solar in America -- 7.3 Solar Hemicycle -- 7.4 Latest Rediscovery of Passive Solar -- 7.5 Passive Solar -- 7.6 Direct-Gain Systems -- 7.7 Design Guidelines for Direct-Gain Systems -- Area of South Glazing -- Thermal-Mass Sizing -- 7.8 Example -- 7.9 Trombe Wall Systems -- 7.10 Design Guidelines for Trombe Wall Systems -- Area of South Glazing -- Thermal-Mass Sizing -- 7.11 Example -- 7.12 Sunspaces -- 7.13 Balcomb House -- 7.14 Sunspace Design Guidelines -- Glazing -- Vent Sizing -- Thermal-Mass Sizing -- 7.15 Comparison of the Three Main Passive Heating Systems -- 7.16 General Considerations for Passive Solar Systems -- Orientation -- Plan -- Slope of Glazing -- Shading -- Reflectors -- Conservation -- Fans -- Auxiliary Heating -- 7.17 Heat-Storage Materials -- 7.18 Other Passive Heating Systems -- Convective-Loop System (Thermosiphon) -- Roof Ponds -- Roof Radiation Trap -- Lightweight Collecting Walls -- 7.19 Maximizing Passive Solar -- Rules of Thumb for Maximizing Passive Solar -- 7.20 Conclusion -- Key Ideas of Chapter 7 -- Resources -- Chapter 8: Photovoltaics and Active Solar -- 8.1 Introduction -- 8.2 The Almost

Ideal Energy Source -- 8.3 History of PV -- 8.4 The PV Cell -- 8.5 Types of PV Systems -- 8.6 Balance of System Equipment -- 8.7 Building-Integrated Photovoltaics -- 8.8 Orientation and Tilt -- 8.9 Roofs Clad with PV -- 8.10 Facades Clad with PV -- 8.11 Glazing and PV -- 8.12 PV Shading Devices -- 8.13 PV: Part of the Second Tier -- 8.14 Sizing a PV System -- Sizing of a Stand-Alone System -- Sizing a Grid-Connected PV System -- 8.15 Finding the PV Array Size for a Stand-Alone Building by the Short Calculation Method -- 8.16 Design Guidelines -- 8.17 The Promise of PV.

8.18 The Cost-Effectiveness of PV and Active Solar Applications -- 8.19 Active Solar Swimming-Pool Heating -- Rules of Thumb for Sizing Swimming-Pool Collectors -- 8.20 Solar Hot-Water Systems -- 8.21 Solar Hot-Air Collectors -- 8.22 Designing an Active Solar System -- Collector Orientation -- Collector Tilt -- Quality Control -- Collector Size -- 8.23 Active/Passive Solar Systems -- 8.24 Preheating of Ventilation Air -- 8.25 The Future of Active Solar -- 8.26 Conclusion -- Key Ideas of Chapter 8 -- References -- Resources -- Chapter 9: Shading and Light Colors -- 9.1 History of Shading -- 9.2 Shading -- 9.3 Fixed Exterior Shading Devices -- 9.4 Movable Shading Devices -- 9.5 Shading Periods of the Year -- 9.6 Overhangs -- 9.7 Design of Horizontal Overhangs-Basic Method -- 9.8 Shading Design for South Windows -- 9.9 Design Guidelines for Fixed South Overhangs -- 9.10 Design Guidelines for Movable South Overhangs -- 9.11 Shading for East and West Windows -- 9.12 Design of East and West Horizontal Overhangs -- 9.13 Design of Fins on North Windows -- 9.14 Design Guidelines for Eggcrate Shading Devices -- 9.15 Special Shading Strategies -- 9.16 Shading Outdoor Spaces -- 9.17 Using Physical Models for Shading Design -- Illustrative Example -- 9.18 Glazing as the Shading Element -- 9.19 Interior Shading Devices -- 9.20 Solar Heat Gain Coefficient -- 9.21 Roof and Wall Reflectivity -- Walls -- Roofs -- Cool Roofs -- 9.22 Conclusion -- Key Ideas of Chapter 9 -- References -- Resources -- Sources of Shading Devices -- Chapter 10: Passive Cooling -- 10.1 Introduction to Cooling -- 10.2 Historical and Indigenous Use of Passive Cooling -- 10.3 Passive Cooling Systems -- 10.4 Comfort Ventilation versus Night-Flush Cooling -- 10.5 Basic Principles of Airflow -- 10.6 Airflow through Buildings -- Site Conditions -- Window Orientation and Wind Direction. Window Locations -- Fin Walls -- Horizontal Overhangs and Airflow -- Window Types -- Vertical Placement of Windows -- Inlet and Outlet Sizes and Locations -- Insect Screens -- Roof Vents -- Fans -- Partitions and Interior Planning -- 10.7 Example of Ventilation Design -- 10.8 Comfort Ventilation -- 10.9 Night-Flush Cooling -- 10.10 Double-Skin Facades and Operable Roofs -- 10.11 Radiant Cooling -- Direct Radiant Cooling -- Indirect Radiant Cooling -- 10.12 Evaporative Cooling -- Direct Evaporative Cooling -- Indirect Evaporative Cooling -- 10.13 Cool Towers -- 10.14 Earth Cooling -- Direct Earth Coupling -- Indirect Earth Coupling -- 10.15 Dehumidification with a Desiccant -- 10.16 Solar Chimney -- 10.17 Conclusion -- Key Ideas of Chapter 10 -- Reference -- Resources -- Chapter 11: Site Design, Community Planning, and Landscaping -- 11.1 Introduction -- 11.2 Site Selection -- 11.3 Solar Access -- 11.4 Shadow Patterns -- 11.5 Site Planning -- 11.6 Solar Zoning -- 11.7 Physical Models -- 11.8 Wind and Site Design -- 11.9 Plants and Vegetation -- 11.10 Vegetated Roofs -- 11.11 Lawns -- 11.12 Landscaping -- 11.13 Community Design -- 11.14 Cooling Our Communities -- 11.15 Conclusion -- Key Ideas of Chapter 11 -- References -- Resources -- Chapter 12: Lighting -- 12.1 Introduction -- 12.2 Light -- Lumen -- Efficacy -- Candlepower -- Illuminance -- Brightness/Luminance -- 12.3

Reflectance/Transmittance -- 12.4 Color -- Color Temperature -- 12.5
Vision -- 12.6 Perception -- Relativity of Brightness -- Brightness
Constancy -- Color Constancy -- Other Color Perception Phenomena
-- Figure/Background Effect -- Gestalt Theory -- Other Perception
Phenomena -- 12.7 Performance of a Visual Task -- 12.8
Characteristics of the Visual Task -- Size/Proximity -- Exposure Time
-- Brightness -- Contrast -- 12.9 Illumination Level -- 12.10
Brightness Ratios -- 12.11 Glare.
Direct Glare.

Sommario/riassunto

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.
