

- Section 1 Introduction to Radiant Systems
- Chapter 1 Examples of Radiant Systems
 - The Natural Thermal Environment
 - Application of Natural Principles
- Chapter 2 Advantages of Using Radiant Systems
 - Occupant Thermal Comfort
 - Radiant Characteristics and Applications
 - Radiant Energy and Operating Cost
- Chapter 3 How to Use this Book
 - Section and Chapter Overview
- section 2 Fundamentals of Heat Transfer and Thermodynamics
- Chapter 1 The Energy Balance
 - The Control Volume and Associated Thermodynamic Processes
 - Putting It All Together-The Conservation Equations
- Chapter 2 Conduction and Convection Heat Transfer
 - Fourier's Law of Heat Conduction
 - Newton's Law of Cooling
- Chapter 3 Radiation Heat Transfer
 - Wavelengths, Microns, and the Electromagnetic Spectrum
 - Emission and Radiation Laws
 - Radiation Properties
 - Calculation Techniques
 - The Radiative Transfer Equation
 - Solution Techniques for the RTE
 - References
- Chapter 4 Multimodal Heat Transfer
 - Solution Techniques
- Chapter 5 Psychrometrics and Mixtures
 - Gas Mixtures
 - Psychrometrics and Humid Air
- Chapter 6 Fluid Mechanics
 - Bernoulli's Equation
 - Pipe Flow Calculations
- Section 3 Thermal Comfort
- Chapter 1 What is Thermal Comfort?
 - Occupant Perception
 - Effects of Thermal Distribution Systems
- Chapter 2 Thermal Comfort Model
 - Rohles-Nevin Studies
 - The Fanger Model
 - Gagge Model
 - Improvements to the Gagge and Fanger Models
 - Recent Thermal Comfort Tools
- Chapter 3 The Mean Radiant Temperature
 - Definition
 - Relationship to Thermal Comfort

- Measurement Techniques
- Calculation
- Chapter 4 The Operative Temperature
 - Definition
 - Relationship to Thermal Comfort
 - Measurement Techniques
 - Calculation
 - References
 - Nomenclature
- Section 4 Sizing and Load Estimation
- Chapter 1 Ashrae Standard Methods
 - Design Point Methods
 - Multiple-Measure Sizing Methods
 - Detailed Simulations
- Chapter 2 The Building Comfort Analysis Program Methodology
 - Mathematical Models of Rectangular Enclosures Heated by Radiant Panels
 - The BCAP Methodolgy
 - Using the BCAP Methodology
 - BCAP Methodology Example Calculation
 - Conclusions
- Chapter 3 Weather Data
- Section 5 Radiant Heating Systems
- Chapter 1 Introduction to Radiant Panels
 - Radiant Panel Basics
 - Radiant Applications
 - Basics of Radiant Design
 - Radiant Design Programs Include Thermal Comfort
- Chapter 2 Electric Radiant Heating Panels
 - Electric Radiant Panel Basics
 - Electromagnetic Fields
 - Radiant Panel Features and Applications
 - Pre-insulated Radiant Heat Modules
 - Framed Fase-Acting Radiant Panels
 - Metal Encased Radiant Heat Panels
 - Walk Flat Panel Cove, Recessed, Surface, and Baseboard Heaters
 - Concealed Ceiling Cables, Wire, and Flexible Radiant Heat Panels
 - Cable, Mat, and Insulated Wire Buried, Slab, or Floor Panels
- Chapter 3 High Temperature Heaters
 - Types of High Temperature Radiant Heaters: Direct and Indirect
 - Heat Transfer from Indirect Electric and Gas Radiant Heaters
 - Heat Transfer from Direct Radiant Heaters
 - Applications
 - Ventilation Considerations
 - Relative Humidity and the Absorption Coefficient
- Chapter 4 Hydronic Radiant Heating Systems
 - Introduction to Radiant Hydronic Systems

- Component Features
- Installation Documentation
- Panel Characteristics
- Thermal Comfort
- Hydronic Energy Sources
- Hydronic Applications
- Overhead Hydronic Panels
- Hydronic Radiant Floor Panels
- Radiant Hydronic Wall Panels
- Alternate Energy Radiant Hydronic Heating Systems
- Chapter 5 Case Studies
- Introduction
- Research
- Section 6 Control of Radiant Heating Systems
- Chapter 1 Role of the Heat Output
- Interface with the Space Being Conditioned
- Interface with