

Chapter 1 INTRODUCTION

How to Use This Book

This book is an instructional tool designed to develop the necessary knowledge and skills for solving lighting design problems for typical rooms and spaces. Of equal importance is the development of the necessary knowledge and skills for collaborating with lighting design professionals in solving problems for complex rooms and spaces. The book is directed to both students and professionals in architecture and interior design as well as those in related fields such as facilities management, construction management, store planning, and electrical engineering.

The primary focus is on design, not on technology or terminology. *Design* is here defined as the development of a lighting design concept and the selection and placement of luminaires to achieve the desired result. Lighting technology (and related terminology) will be covered in enough depth to serve the design orientation of the book's methodologies. For more information related to these technical factors, the Bibliography identifies the best sources.

This is a how-to instructional textbook, the goal of which is to provide its users with the tools of lighting design required to function effectively in the many design and construction fields of which lighting is an essential part.

ORGANIZATION

Beyond this introductory chapter, *Lighting Design Basics* is organized in four parts, plus Appendixes and a Bibliography. Here is a description of these parts.

Part I: *Basics About Lighting*. Chapters 2 through 6 provide background for the technical (and related terminology) aspects of lighting design—enough to serve this book's purpose but without unnecessary emphasis on technical issues. More specifically, the technical factors addressed are light sources (and their color implications), luminaires, switching and controls, daylighting, and calculations (including rule-of-thumb techniques).

Part II: *Design Process*. Chapters 7 through 9 provide a basic approach or methodology for developing successful lighting design concepts and solutions, including the graphic representation tools and techniques used to convey the solutions. In this context, success is defined as meeting functional visual requirements, achieving satisfying aesthetic results, and using lighting design technology (including code compliance) intelligently.

Part III: *Applications and Case Studies*. Chapters 10 through 15 focus on the typical lighting design problems encountered in the five major building use

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types: (1) residential, (2) office/corporate, (3) hospitality/foodservice, (4) institutional/health care, and (5) retail store. Case studies are provided for many of the typical rooms and spaces found in these building use types. This is the heart of the book, where design problems, their solutions, and the rationales for the solutions are presented in detail.

Part IV: Professional Skills. Chapters 16 through 18 provide additional and necessary information about functioning as a designer or design-related professional in matters concerning lighting design. They are intended to serve as a transition from learning to professional practice.

Appendixes

Appendix A is a brief overview of lighting design for the exterior of buildings and exterior spaces. This specialized aspect of lighting design is complex and requires an extensive study of its own. This Appendix provides a starting point and direction for those interested in pursuing the subject more fully.

Appendix B is a summary of energy codes and how they affect design. Included are Internet references for obtaining the most recent energy code information within the United States.

GETTING THE MOST OUT OF THIS BOOK

This book is meant to be worked with, not just read. Doing the exercises after reading and understanding the related case studies is the heart of the learning process presented here.

The case study examples and the exercises represent typical lighting design applications. Beyond these examples, lighting design becomes increasingly complex and challenging, even for the most knowledgeable and experienced professionals. The purpose here is not to prepare the reader for those complex problems but rather to provide understanding of lighting design concepts, techniques, and realistic goals so collaboration with a lighting design professional can achieve the best possible results. One must learn to commu-

nicate design intentions in a way that a lighting designer can use. Those communication skills require a conceptual understanding of lighting design, the acquisition of which should be one of the major learning goals in working with this book.

Many technical aspects of lighting design go considerably beyond the scope of this book. Issues such as the fine points of color rendition, code compliance, project budget, and lighting live performance spaces can be extremely complex. Working knowledge of these factors is not expected of broad-based design and built environment professionals. However, general familiarity is required to collaborate productively with lighting designers. To acquire deeper knowledge in these technical matters, consult the Bibliography.

In a classroom setting, the value of this book is enhanced by an exchange of ideas among students working on the same exercises as well as the instructor's critiques and open classroom critiques and discussion. Beyond the classroom, one should take advantage of every opportunity to discuss exercise solutions with design professionals, particularly those with extensive practical experience. Such discussion can be invaluable.

Two readily available learning tools should be used concurrently with this book. First is the deliberate observation and critique of existing lighting design applications. Be aware of the lighting in public and semipublic spaces, making note of lamp and luminaire types—and, more important, what works well and what doesn't. A great deal can be learned from the successes and failures of others. Second, many architecture and interior design professional publications present enough programmatic, plan, and spatial information about interesting spaces that one can use them as additional exercises for enhancing one's skills.

It all begins with working on paper or the computer and trying a variety of lighting design solutions to typical design problems.

While this book prescribes a particular approach to solving lighting design problems, it should be understood that several potentially successful methodologies exist. In the professional community of lighting designers and the other design professionals who work with them, the problem-solving process enjoys many workable variations. It is expected that individual professionals, after repeated experience with actual problems, will gradually develop a personalized methodology.