

The background of the top half of the cover is a dense, orange-tinted collage of architectural drawings. These include various elevations and sections of interior spaces, with labels such as 'ELEV. AT FAMILY RM.', 'ELEV. AT B. PANTRY', 'ELEV. AT COUNTER', 'ELEV. AT KITCHEN', and 'ELEV. AT KITCHEN'. The drawings are detailed, showing structural elements, furniture, and human figures in scale.

ROSEMARY KILMER · W. OTIE KILMER

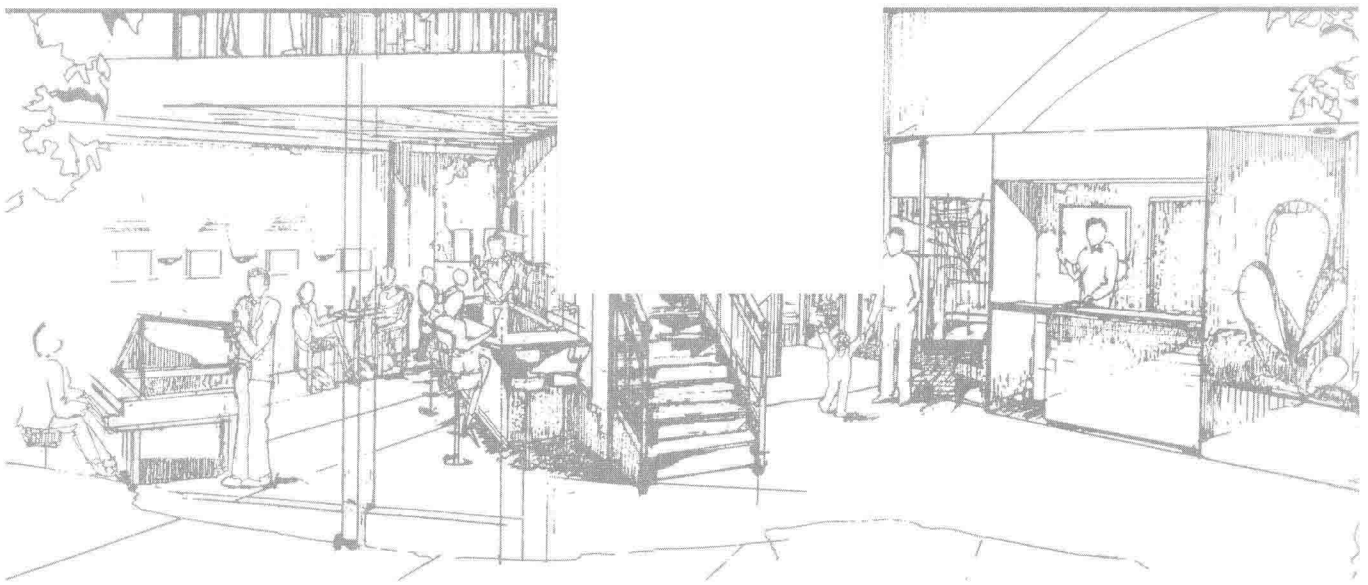
# CONSTRUCTION DRAWINGS AND DETAILS *for Interiors*

The bottom half of the cover features a green-tinted 3D architectural rendering of an interior space. It shows a modern, minimalist environment with geometric forms, including a large, angular structure and a series of steps or platforms. Three human figures are depicted in silhouette, walking through the space, providing a sense of scale. The lighting is dramatic, with strong shadows and highlights.

THIRD EDITION

3

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# Construction Drawings and Details

THIRD EDITION

W. Otie Kilmer and Rosemary Kilmer

WILEY

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Published by John Wiley & Sons, Inc., Hoboken, New Jersey.  
Published simultaneously in Canada

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Cover images: Top: Courtesy of authors Bottom: Courtesy of Perkins + Will  
Cover design: Wiley

***Library of Congress Cataloging-in-Publication Data:***

Kilmer, W. Otie, author.

Construction drawings and details : basic skills / W. Otie Kilmer and Rosemary Kilmer.—  
Third Edition.

1 online resource.

Includes index.

Description based on print version record and CIP data provided by publisher; resource not viewed.

ISBN 978-1-118-94436-3 (ePub)— ISBN 978-1-118-94437-0 (Adobe PDF)— ISBN 978-1-118-94435-6 (pbk.) 1. Building—  
Details— Drawings. 2. Interior architecture. 3. Structural drawing. I. Kilmer, Rosemary, author. II. Title.

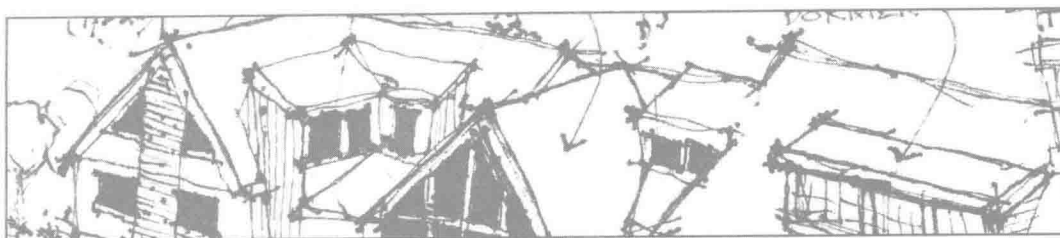
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729.022— dc23

2015026301

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1



## Preface

The third edition of this book expands upon the second edition and includes new topics and examples. The authors again wish to thank the many students, teachers, and professionals who used the first and second editions, giving us valuable input as to what needed to be revised, expanded, or added.

When *Construction Drawings and Details for Interiors: Basic Skills* was first published twelve years ago, the intent was to provide a guide (handbook) for preparing construction drawings for the field of interior design. The book was designed for students in interior design programs as well as interns in offices that design interiors and are expected to produce construction drawings. At the time of the first edition, there were no books on the market that dealt with the process of preparing construction drawings specifically for interiors and all the information that needed to be conveyed, or that go in depth to explain how to organize this vast amount of information into a quality set of construction documents.

In this third edition of *Construction Drawings and Details for Interiors*, the subtitle *Basic Skills* has been dropped, as both basic and advanced skills are now covered. The entire process—from beginning drawing/drafting skills through design development, and finally construction documents—is now presented. There are also several substantial changes and additions in this third edition. The most important addition is a new Part 2, “The Design Process: Transition from Concepts to Construction Drawings.” This part includes a new chapter (Chapter 5), “Concept Development and the Design Process.” We felt the process of learning basic skills of drawing/drafting and the subsequent steps to preparing construction documents needed to be further expanded. This area is the sequence interior designers go through when designing a new or remodeled building project. The process includes researching and analyzing the client’s (user) needs, formulating concepts through schematic design, preliminary sketches/drawings, refining them in the design development stage, and finally completing final design presentations to the client for approval. Then interior designers are ready to prepare the construction documents and drawings.

Another addition is a new Part 4 on “Structural, Mechanical, and Plumbing Systems.” This part includes a new chapter (Chapter 18) on “Structural Systems for Buildings.” As interior designers today are required to understand a vast amount of knowledge about construction assemblies, materials, finishes, lighting, mechanical and electrical systems, building codes, and structural systems, we felt we should make this book more comprehensive by adding this chapter. Interior designers must be able to communicate with other professionals in the building industry and must understand how a building is constructed from the ground up. This chapter includes information on structural walls and columns, specifically load-bearing and nonload-bearing ones. This chapter also explains what building foundations and footings are and why they are important for interior designers to understand as well as how foundation plans are drawn. Structural floor and roof systems are included with examples of both roof and floor framing plans and drafting standards for each. Roof plans are also discussed and illustrated.

Other significant changes include a discussion in Chapter 1 under “Issues Affecting How Interior Designers Communicate” on user participation, globalization and expanded information on universal design, sustainability, and building information modeling (BIM).

Also, the original chapter “Reflected Ceiling, Lighting, and Electrical Plans” has been renamed “Lighting: Reflected Ceiling and Electrical Plans” to better reflect the contents of the chapter. This chapter has also been expanded to discuss the basics of lighting design and some general guidelines for determining the quality and quantity of light needed for specific spaces as well as the layout of the lighting system(s), and how to produce the reflected ceiling plan. It further expands on ceiling systems, sustainability, daylighting, and energy conservation.

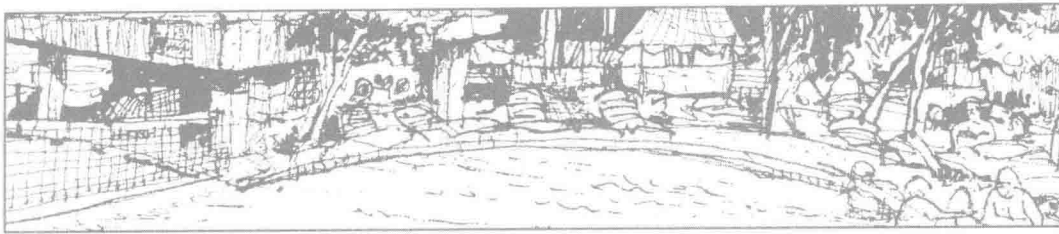
The checklists at the end of each chapter have been expanded in scope. One hundred and seventeen new illustrations have been added or updated to more clearly show the specifics discussed in the writings.

The glossary has been expanded to include more terms used in the building industry. Appendices from the second edition have been updated to match current standards related to the preparation of construction drawings for interiors, plus a new appendix, “Trigonometric Functions: Sines and Cosines of Angles,” has been included to assist with some lighting calculations as is explained in Chapter 17.

Another area that has been expanded and should provide good resources for instructors is the *Instructor's Guide*, which will be available through a dedicated Wiley website. It includes a summary of each chapter with *Learning Outcomes* and *Key Terms* to help in the organization and teaching a course. Sample exam questions and answers for each chapter are provided to encourage critical thinking and discussion. These sample questions along with some suggested activities can assist instructors in evaluating students' comprehension of the material presented. PowerPoint presentations are included for each chapter to help instructors' present visual information for teaching and engaging students for better understanding.

A new feature added to the third edition of *Construction Drawings and Details for Interiors* is a dedicated website for students. It includes flashcards and interactive self-test questions, as well as photographs and case study construction drawings for both residential and commercial interior projects. This student website will provide students with additional resources for understanding the design and construction industries.

In conclusion, we are passionate about the interior design profession and continue to be involved in the future of designing interiors and look forward to any comments or input for future editions of this book.



# Acknowledgments

Writing the third edition of this book is similar to writing the former editions; however, the process is a little easier since we've been through it a few times. It has taken the knowledge and skills of several people to bring this third edition to print. The authors wish to express their sincere thanks to the following people who helped in the development of new material, revision of existing information, and preparation of this third edition.

First, we would like to thank our former students, who showed their enthusiasm to learn more and more each year, which challenged us to keep abreast of the issues and best practice standards facing the interior design profession.

Special appreciation is expressed to the professionals and organizations that provided us with illustrations and permissions to use their materials to make this edition a strong visual experience. We are especially thankful to KJG Architecture, Inc.; Maregatti Interiors; HKS, Inc.; Perkins+Will; and Chapman Sisson Architects. In particular, we want to thank Kevin Mereness of Perkins+Will; Jason Holt of HKS, Inc.; and Kimi Fisher of Chapman Sisson Architects for taking time to assist us in acquiring and supplying professional examples for this book. Every effort has been made to correctly supply the proper credit information.

We are grateful to a number of interior design educators throughout the country for their helpful suggestions as to what needed to be revised or included in this edition to keep this book as a strong companion for the teaching of Construction Drawings and Details for Interiors.

We are very grateful to the dedicated staff at John Wiley & Sons for their guidance, assistance, and dedication to this edition. We are particularly indebted to Paul Drougas for his initial involvement in this edition. We are also indebted to our editor Seth Schwartz for his support to complete this project. To Amy Odum, Senior Production Editor, for guiding us through the editing and production phase of this project. We are grateful to Barbara Long, copyeditor, who was exceptional in editing the

manuscript; to Melinda Noack, Senior Editorial Assistant, for her help and participation in developing the websites for the instructors and students; and to the rest of the editorial, production, and design staff at John Wiley & Sons, who helped turn the manuscript into a finished publication.

A special thanks to Lisa VanZee, our daughter, whose expertise enriched this edition as she did in our second edition. We would also again like to thank Jeff and Courtney Johnston, our daughter and son-in-law, for their professional experience as to contemporary standards and best practices in the architecture and interior design professions.

Most of all, we would like to acknowledge each other's support (Otie and Rosemary) as we continue to have the desire and drive to prepare these textbooks for the students, teachers, and professionals involved in interior design.





# Contents

<b>Preface</b>	<b>vii</b>
<b>Acknowledgments</b>	<b>xi</b>
<b>PART 1</b>	
<b>Drawing Communication, Equipment, Fundamentals, and Classification Systems</b> .....	<b>1</b>
<b>CHAPTER 1. Design as Communication</b> .....	<b>3</b>
Drawing for Idea Generation	3
Drawing as Design and Presentation Media	4
Drawing as a Guide for Construction	6
Issues Affecting How Interior Designers Communicate	6
<b>CHAPTER 2. Drafting Equipment and Its Care</b> .....	<b>16</b>
Drawing Tables and Surfaces	17
Drawing Papers and Plastic Film	18
Pencils, Leads, and Pens	19
Parallel Bar, T-square, and Drafting Machines	22
Triangles, Templates, and Compasses	23
Scales	27
Erasers, Erasing Shields, and Brushes	29
Additional Equipment	32
<b>CHAPTER 3. Drawing and Drafting Fundamentals</b> .....	<b>33</b>
Drawing	33
Drafting	34

Starting the Drawing	35
Drafting Standards, Abbreviations, and Symbols	42
Lettering	44

## **CHAPTER 4. Drawing Classification Systems ..... 48**

Multiview Drawings	48
Single-view Drawings	52
Axonometric Projections	54
Oblique Projections	56
Perspective Drawings	57

## **PART 2**

### **The Design Process: Transition from Concepts to Construction Drawings ..... 67**

## **CHAPTER 5. Concept Development and the Design Process ..... 69**

The Design Process: The Analysis Phase	70
The Synthesis Phase	72

## **PART 3**

### **Contract Documents ..... 87**

## **CHAPTER 6. Construction Drawings, Specifications, and Contracts ..... 89**

Specifications	89
Construction Drawings	95
Guidelines for Preparing Construction Drawings	102
Drawing Conventions and Representations	109
Modular Units	121

## **CHAPTER 7. As-Built Drawings and Demolition Plans ..... 123**

As-Built Drawings	123
Demolition Plans	131

## **CHAPTER 8. Floor Plans ..... 137**

Floor Plans in Modular Units	138
Wall and Partition Types and Construction	146
Scale of Floor Plans	149
Drafting Standards	151
Walls in Plan View	152
Doors and Windows in Plan View	152
Graphic and Text Notation on Floor Plans	157
Architectural Symbols	160
Dimensioning Floor Plans	162
Designation of Materials	166

<b>CHAPTER 9. Fire and Life Safety Plans</b> .....	<b>177</b>
Building Code Compliance Analysis	177
Fire and Life Safety Plans	180
<b>CHAPTER 10. Elevations</b> .....	<b>184</b>
Exterior Elevations	184
Interior Elevations	186
Scale of Interior Elevations	187
Drafting Standards for Interior Elevations	189
Designation of Materials	194
Dimensioning Elevations	196
<b>CHAPTER 11. Sections</b> .....	<b>203</b>
Types of Section Drawings	203
Scale of Section Drawings	206
Drafting Standards	209
Building Sections	210
Sections of Interior Spaces	212
Wall Sections	213
Detail and Object Sections	216
<b>CHAPTER 12. Specialty Drawings</b> .....	<b>219</b>
Purpose of Specialty Drawings	219
Stairs and Ramps	219
Millwork	228
Cabinetry	235
Fireplaces	241
<b>CHAPTER 13. Door and Window Schedules</b> .....	<b>247</b>
Doors	247
Door Classifications: Operation, Types, and Materials	247
Door Hardware	250
Door and Hardware Schedules	254
Windows	260
Window Schedules	263
<b>CHAPTER 14. Finish Schedules and Finish Plans</b> .....	<b>266</b>
Room Finish Schedules	267
Finish Plans	270
Drafting Standards for Finish Plans	275
<b>CHAPTER 15. Furniture Installation Plans</b> .....	<b>281</b>
Scale of Furniture Installation Plans	289
Drafting Standards for Furniture Installation Plans	290
Dimensioning Furniture Installation Plans	293
Designation of Materials	293

<b>CHAPTER 16. Furnishings and Equipment Plans .....</b>	<b>295</b>
Scale of Drawings .....	299
Drafting Standards .....	299
Dimensioning Furnishings and Equipment Plans .....	302
<b>CHAPTER 17. Lighting: Reflected Ceiling and Electrical Plans .....</b>	<b>306</b>
Lighting Design Process .....	308
The Reflected Ceiling Plan .....	324
Types of Ceiling Systems .....	327
Code Issues Affecting Lighting .....	332
Electrical or Power Plans .....	343
 <b>PART 4</b>	
<b>Structural, Mechanical and Plumbing Systems .....</b>	<b>353</b>
<b>CHAPTER 18. Structural Systems for Buildings .....</b>	<b>355</b>
Building Foundations and Footings .....	356
Foundation Plans .....	357
Structural Walls and Columns .....	363
Floor and Roof Systems .....	363
Framing Plans .....	365
Floor Framing Plans .....	366
Roof Framing Plans .....	369
Roof Plans .....	371
<b>CHAPTER 19. Mechanical and Plumbing Plans .....</b>	<b>375</b>
Mechanical (HVAC) Plans .....	376
Scale of HVAC Plans .....	380
Drafting Standards for HVAC Plans .....	381
Designation of HVAC Materials .....	382
Plumbing Systems and Plans .....	383
Scale of Plumbing Drawings .....	389
Drafting Standards for Plumbing Drawings .....	390
Designation of Materials for Plumbing Plans .....	390
Dimensioning Plumbing Plans .....	391
 <b>Appendix A. Abbreviations for Construction Drawings .....</b>	<b>395</b>
<b>Appendix B. Selected 2010 ADA Design Standards .....</b>	<b>398</b>
<b>Appendix C. Trigonometric Functions: Sines and Cosines of Angles .....</b>	<b>403</b>
<b>Glossary .....</b>	<b>405</b>
<b>Index .....</b>	<b>415</b>



# **Drawing Communication, Equipment, Fundamentals, and Classification Systems**

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# Design as Communication

Ideas and plans are formed in the interior designer's mind, but to be transformed into reality, they have to be communicated to others. Although a designer may have a great idea, it must be effectively communicated or it will remain just an idea and never move beyond conception. Interior designers and other professionals in the building industry use drawings as the primary means of developing and sharing their ideas. Interior designers and architects do a lot of sketching and drawing. They develop their skills in freehand drawing by sketching existing objects and spaces in the environment (Figure 1.1).

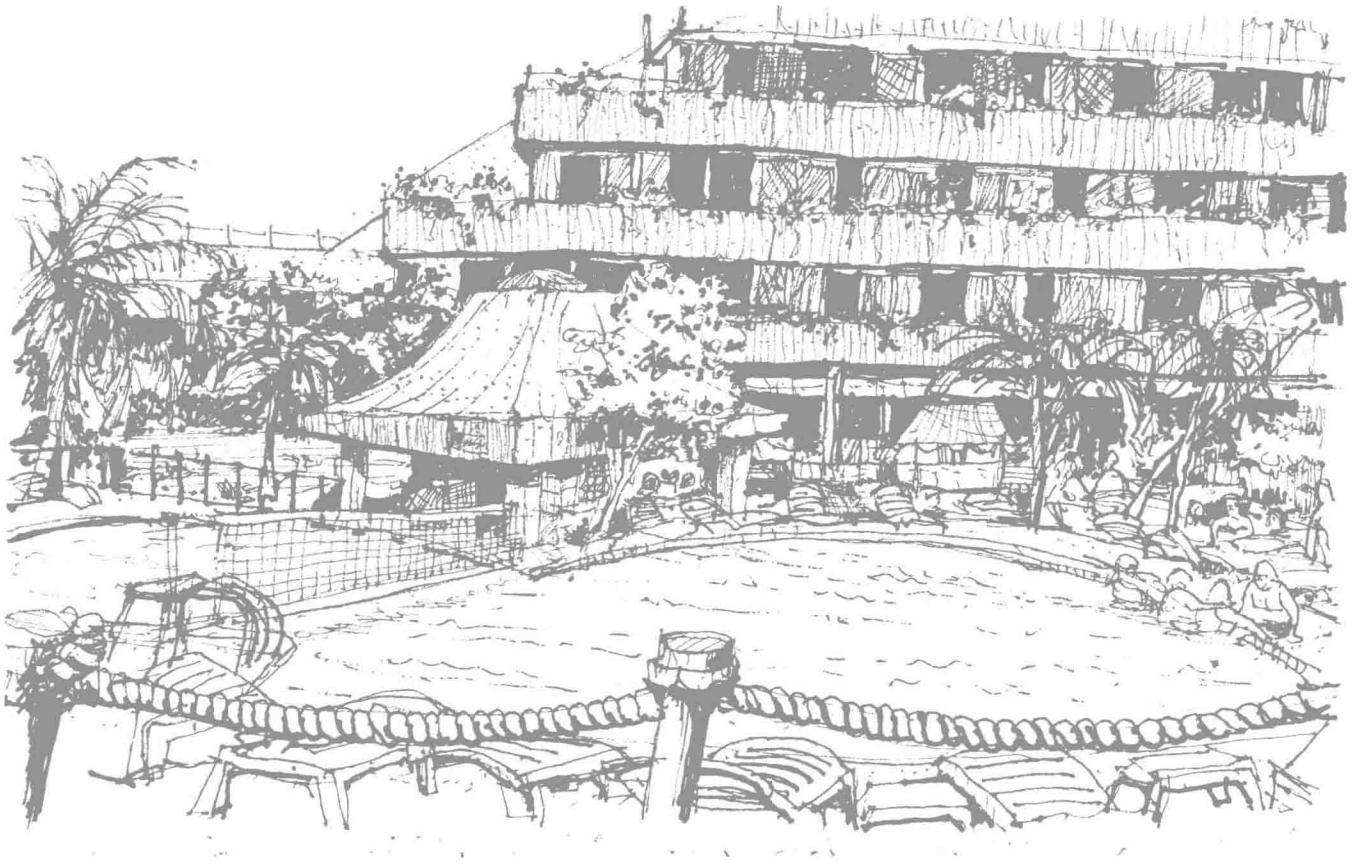
These same skills of observation and sketching are then used in visualizing designs for new spaces and objects (Figures 1.2 and 1.3).

This process of brain, eye, and hand coordination is an intrinsic part of design. Architectural drawings can be grouped into three basic types: drawing as idea generation, drawing as a design and presentation medium, and drawing as a guide for the construction process. There are distinct differences between each of these types, yet they all contain some common drawing tools, techniques, standards, and graphic language.

Design communication is also influenced by issues that regulate the building industry, such as building codes that protect the health, safety, and welfare of the public. Currently, other issues, such as universal design, user participation, sustainability, globalization, LEED (Leadership in Energy and Environmental Design), and Building Information Modeling (BIM), affect the way designers communicate their ideas.

## DRAWING FOR IDEA GENERATION

Idea generation assists the designer in working through and visualizing the solution to a problem. Designers use many different types of drawings to generate and bring to reality their creative ideas.



**FIGURE 1.1.** Sketching existing objects and spaces help designers develop their freehand drawing skills.

These drawings can be in the form of quick freehand sketches illustrating different kinds of views (Figure 1.4).

Many times these types of drawings are not shown to clients, but are used solely to help designers shape their ideas into a visual form. The drawings are not intended to be the final solution to an idea, but rather to allow the designer to explore alternatives or refine an idea. They also help to record designers' two- and three-dimensional thinking. These concept sketches and drawings are part of a sequence of design steps referred to as the "design process" (Figure 1.5). See Chapter 5 for more detailed information on "Concept Development and the Design Process."

## **DRAWING AS DESIGN AND PRESENTATION MEDIA**

Once a designer has developed an idea to a point that visual communication is needed to show it to the client or others, new drawings must be created for use as presentation media. These drawings depict the parameters of an idea in more detail, yet are not totally worked out to a point that they can serve as an accurate construction guide. Design drawings can range from pictorial renderings of an idea (Figure 1.6) to more detailed plan views of a building's interiors (Figure 1.7). In the first example, a rendering is often done as a perspective view (Chapter 4), which resembles a photograph.



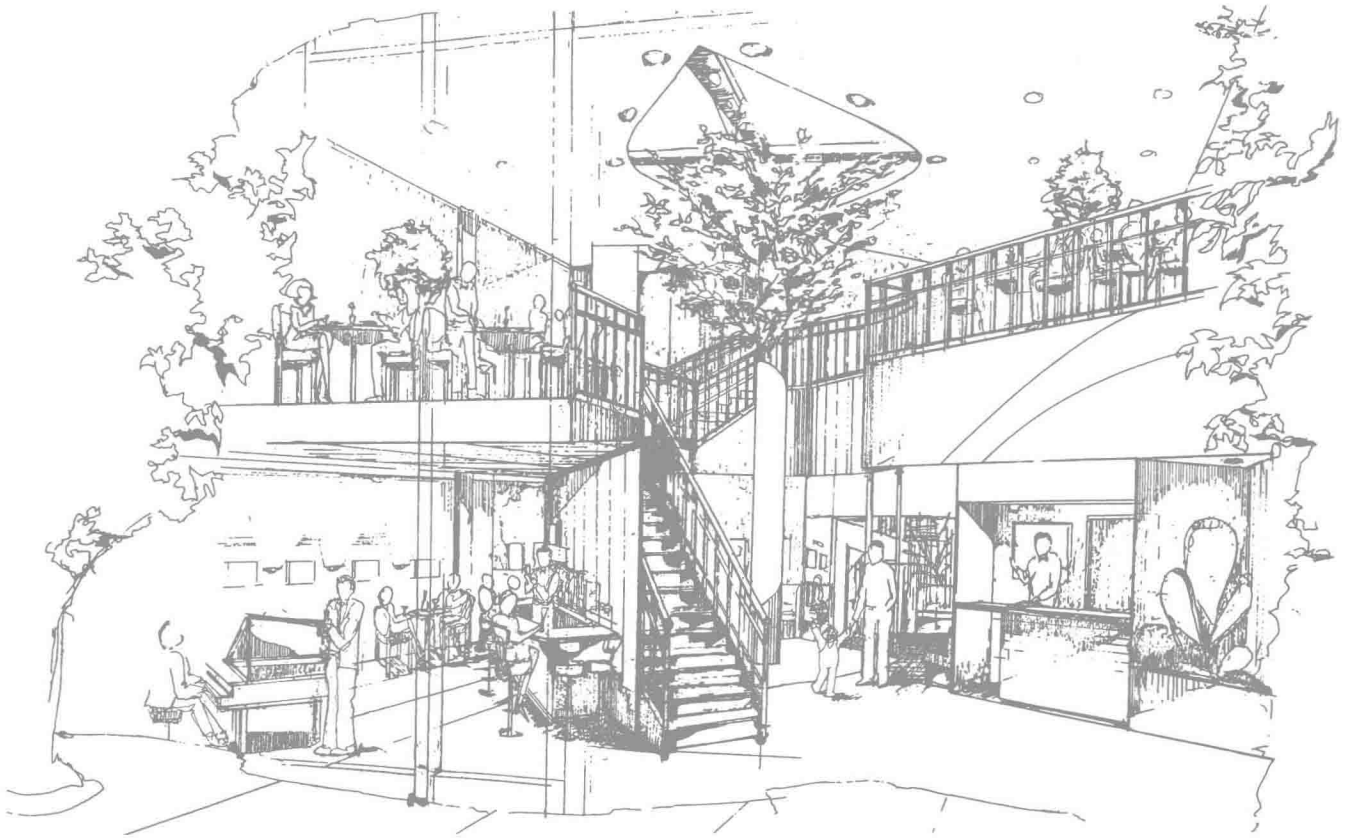


FIGURE 1.2. Designers can use their freehand drawing skills to visualize and sketch new spaces and objects.



FIGURE 1.3. An example of a sketch for an addition to a residence that was drawn on a napkin in front of the client.

The receding lines of an object are purposely drawn to a distant vanishing point—similar to the effect of railroad tracks that appear to touch at the horizon. Design drawings are also done using techniques other than perspectives, such as the isometric shown in Figure 1.8. Different types of drawings are discussed further in Chapter 4.